



ACCOUNTING, FINANCIAL, AND ECONOMIC SUPPORT FOR SUSTAINABLE DEVELOPMENT OF THE AGRICULTURAL SECTOR: THEORETICAL FOUNDATIONS AND PRACTICAL RECOMMENDATIONS

COLLECTIVE MONOGRAPH

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The monograph is focused on scientific, methodical and practical aspects of accounting, financial, and economic support for the sustainable development of the agricultural sector in Ukraine. The collective monograph was published within the framework of the state budget research topics “Innovative development of accounting, taxation and control in the system of ensuring the economic stability of enterprises” (state registration number 0121U109731), “Financial support for structural modernization and innovative development of agroindustrial production in Ukraine” (state registration number 0124U000027), “Information technologies and mathematical methods for the development of the agricultural sector of the economy” (state registration number 0120U105338).

The monograph is intended for policymakers and stakeholders in agriculture, accountants, banking and finance specialists, agricultural managers, farmers, researchers and postgraduate students in agricultural economics.

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PREFACE

The sustainable development of the agricultural sector is a critical global challenge, demanding innovative approaches in accounting, finance, and economics. This monograph aims to provide both a robust theoretical framework and actionable recommendations to support this vital transformation.

Chapter 1 “Accounting and analytical support and financial and economic security in the agricultural sector” addresses the following issues.

The nomenclature of production costs has been improved in accordance with the specifics of dairy production, which will ensure a functional approach to cost management in the farm. The efficiency of dairy production from own raw materials is investigated. The role of accounting information and calculation in the pricing process is clarified. Proposals for the formation of management reporting in the field of dairy production are developed.

In the context of European integration processes and globalization, the impact of non-financial reporting on the investment attractiveness of enterprises in the agricultural sector is considered. The importance of these documents in the formation of modern management tools and control over the achievements of companies is analyzed. Special attention is paid to the synergistic effect that contributes to attracting additional investment capital.

The essence of the concepts of the solvency of the enterprise is studied. The mechanism of solvency management in the system of ensuring the financial and economic security of the enterprise has been studied. Perspective directions of improvement of solvency management in the system of ensuring financial and economic security of the enterprise. The use of the system of systematic analysis of insolvency to ensure financial and economic security of the enterprise is in.

The study examines the main changes in Ukrainian legislation on accounting at enterprises during martial law and determines the procedure for doing business in Ukraine. In addition, the peculiarities of accounting and analysis of economic activity of enterprises under martial law are studied. The process of analyzing and auditing the financial and economic activities of an enterprise, taking into account force majeure circumstances (including military operations and martial law), is systematized and modified.

Chapter 2 “Accounting and economic aspect of enterprise development strategy” covers the following topics.

The research investigates the role of IFRS and ISA in ensuring the accuracy of the accounting information of agricultural enterprises. The peculiarities of applying standards in the agricultural sector and the problems of estimation of biological assets and seasonality of production are analyzed. A conceptual model of increasing confidence in accounting information has been developed. Particular attention is paid to the role of audit, digital technologies and corporate management. The scientific novelty is to integrate international standards, taking into account the specifics of the agricultural sector. The directions of further research are proposed.

During the study the concepts of housing and communal enterprises, the essence of payments with customers and control of their condition were revealed; The regulatory framework for ensuring accounting and control of calculations has been investigated. It is determined that the key element of subscriber accounting is a personal account. The main directions of improvement of accounting and control of payments with customers of services in the utility are offered.

The study substantiates the importance of a single information space to ensure efficient management of environmental, social and economic aspects. A methodological approach to collecting, processing and analyzing data in the context of sustainable development goals is proposed. The role of accounting and analytical support in the formation of sound management decisions is revealed. Particular attention is paid to digital tools and monitoring indicators.

The monograph chapter analyzes the existing points of view of scientists regarding the definition of the term "debtor," "receivables" and the principles of its systematization, defines the legal basis for accounting. The process of emergence and documentation of business transactions on accounting of receivables is disclosed. Recommendations for optimizing the system of accounting and analytical support and control of receivables of the enterprise are provided

The research findings characterize the legal regulation of the structure of sales costs in accounting. The expediency of applying marketing strategies by stages of the business life cycle and their impact on the financial condition is analyzed. The priority directions of contractual and accounting policies in terms of sales costs are determined. The optimal ratio of financial result and taxation, net income, balance sheet currency and sales costs to assess the effectiveness of marketing activities of an enterprise are proposed.

Chapter 3 "Financial and economic security management" is devoted to such problems.

The stages of creation and implementation of the system of accounting and analytical support of financial and economic security of enterprise are defined. It forms methodical approaches to creation of an analytical basis for management of financial and economic security of agrarian enterprises. The stages of development and implementation of the strategy of financial and economic security of the agrarian enterprise are substantiated.

The monograph chapter investigates the process of formation of financial results and profit of the enterprise in the context of the influence of economic security components. The author deeply substantiates the importance of each component-financial, production, investment, innovative, personnel, legal, information and technical and technological-in ensuring the stability and sustainable development of the enterprise. It is emphasized that a high level of economic security allows the enterprise to effectively minimize risks, respond in a timely manner to external challenges and internal threats, maintain competitiveness and ensure an increase in profitability.

The importance of the information support system as an important element of financial and economic security of the enterprise is considered. In today's context, increasing competition and increasing information risks is increasing the need to improve

the mechanisms of collecting, processing and protecting data. Optimization of the information support system improves the quality of management decisions, continuity of activity and stability of the enterprise. The emphasis is on the implementation of modern IT, reducing the risk of data loss and increasing adaptability to external challenges.

Modern technologies for the selection of personnel increase the financial and economic safety of the enterprise. Artificial intelligence and data analytics reduce personnel risks. Algorithms take into account both professional and personal qualities of candidates. This helps to create a reliable, stable team. Process automation provides transparency and reduces corruption risks. Technological recruiting becomes a strategic business safety tool.

Existing approaches to defining the essence of the concept of “economic security of an enterprise” are grouped and a generalized definition of the essence of the specified concept is given. Key principles and elements of the organization of the economic security system of enterprises are determined and means of ensuring its functioning are highlighted. An algorithm of actions is proposed for the formation of an optimal economic security system of a commercial enterprise.

Chapter 4 “Financial and credit support for innovative development of agro-industrial enterprises: modern challenges” is focused on the following issues.

FinTech is fundamentally changing the traditional banking system, contributing to its digital transformation, increasing efficiency, reducing costs and improving customer experience. FinTech is contributing to a profound transformation of the banking system, making it more technologically advanced, customer-centric and competitive. However, along with the advantages, there are also challenges related to regulation, cybersecurity and the need for traditional banks to adapt to new conditions.

The mechanisms of financial support for Ukraine’s agrarian sector are studied with emphasis on the interaction between state budget funding and commercial bank lending. In the post-war recovery context, sustainable financing is essential for ensuring food security, restoring production, and stabilizing the national economy. Recommendations are proposed to enhance the coordination between budgetary and market-based financial instruments for the agrarian sector.

This study examines modern financial risks associated with innovative activities in the agro-industrial complex (AIC). It explores the nature of these risks, their classification, and their primary mechanisms of impact on innovation projects. Particular attention is given to risk assessment through qualitative and quantitative methods. Modern risk mitigation tools such as insurance, financing diversification, and digital technologies are outlined. The role of financial innovations in strengthening agribusiness resilience is emphasized. Directions for improving risk management under conditions of instability are proposed.

The explored models of agricultural economics considered the key areas of farming in Ukraine that need urgent systematic simulating, including financial and marketing sides of agricultural operations. Systematic studies of benefits and challenges allowed to reveal the intricate intersection of globalization and digitalization that boost and promote innovative sustainable agriculture. Agricultural economics modeling, applicable to the

member states and countries beyond the EU, provides unique experience of effective farming that can support the development of contemporary models of competitive agricultural economics in Ukraine.

Chapter 5 “Realities and prospects for the development of insurance and the stock market of Ukraine” deals with the following challenges.

Ukraine's insurance sector is adapting to financial and war-related risks to ensure stability for businesses and investors. Efforts include war risk insurance, EU regulatory alignment, and support from the Export Credit Agency. International partners like MIGA and NEXI provide political risk insurance, while diplomatic initiatives seek a global coalition to attract capital. Strengthening investment protection measures is vital for Ukraine's recovery and long-term economic stability.

The modern stock market is constantly changing under the influence of economic, political and technological factors, which requires effective mechanisms for reducing risks. Improvement of exchange regulation, protection of investors' rights and innovation will increase stability and trust in the market. The proposed solutions will allow the market to adapt to challenges and ensure sustainable economic development.

The task of the study was to formalize current trends and problems of the development of the stock market of Ukraine. The study presents the significance of the stock market of Ukraine for the development of the national economy. A mathematical approximation of the trends in the dynamics of the main parameters of the stock market is presented. A list of internal and external factors influencing the development of the stock market and the mechanism of their implementation are characterized.

Systemic risks pose a significant threat to the stability of the Ukrainian stock market, especially in the context of multidimensional uncertainty. This research analyzes the main types of systemic risks affecting the market, including political, economic, technological, social, and environmental factors. The study also examines the impact of these risks on market development and proposes measures to mitigate their negative effects.

We express our deep gratitude to the reviewers of the collective monograph:

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CHAPTER 1. ACCOUNTING AND ANALYTICAL SUPPORT AND FINANCIAL AND ECONOMIC SECURITY IN THE AGRICULTURAL SECTOR

1.1. ACCOUNTING OF MILK PROCESSING PROCESSES

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For agricultural producers who have organized the processing of agricultural products within their farms, the issues of complete, timely, and reliable determination of the amount of actual costs associated with the work are particularly relevant. At the same time, there are urgent problems related to the calculation of the actual cost of both agricultural products as raw materials and processed products. Within the scope of the study, the calculation of the cost of dairy products affects the process of pricing, profit generation and determining the efficiency of operating activities. For farms, a properly established system of accounting for the processing of agricultural products is a guarantee of control over the use of material and monetary resources, a guarantee of making informed and effective management decisions.

Skrypnyk (2019) once studied the economic nature of production costs. The scientist understood costs as the cost of all the resources used to produce a predetermined volume of products. This view of costs is fundamental. This fundamental interpretation reflects the actual state of affairs at any enterprise. Therefore, it is appropriate to use this judgment as a starting point in accounting theory and practice. This is quite justified, since the key task of the accounting system is to reflect the actual movement of goods and material assets in the enterprise. Thus, the accounting understanding of costs is reduced to the vision in terms of resource consumption in terms of their purchase prices.

We also distinguish between the economic view of costs in the sense of the costs of an enterprise for the acquisition of resources necessary for the production process. It also includes the lost income of the enterprise if the best alternative way of using such resources was neglected.

Dilemmas in the interpretation of concepts were a prerequisite for the development of the concept of opportunity costs, which was proposed by Austrian economist F. Wieser in the 80s of the XIX century. He was a follower and student of K. Menger. This theory was further developed by US economists D. Green and G. Davenport in 2019. Therefore, based on aspects of classical theories, we believe that the key goal of production accounting is timely, reliable and comprehensive reflection of the actual amount and content of costs, as well as control over the use of all types of resources used in production. At the same time, an equally important point is the adequate accounting reflection of the volume of manufactured products or services rendered in kind and in monetary terms.

Thus, costs are the various substances and forces of nature used to make the production process possible. The result of the production process is the manufacture and sale of a new labor product. In the context of commodity production, the monetary value of the costs of creating a specific product is called the cost price. Therefore, the concept of “production costs” combines the terms ‘costs’ and “cost price” (Telegina, 2019).

From an accounting standpoint, it is important to keep in mind the frequency of expenses. In the context of periodicity, costs are identified in monetary terms as tangible and intangible goods consumed by an enterprise to manufacture specific types of products (goods, services, works) over a certain period of time. The optimal value of production costs is an indicator of the efficiency of the company's management activities in general, as it shows the total costs of living and embodied labor. Reflecting in the accounting accounting adequate to the needs of production, the cost comprehensively characterizes the level of use of all enterprise resources, including equipment, technologies, innovations, labor and production organization.

The methodological basis for the formation of information in the accounting system on the amount of expenses of the enterprise and the disclosure of this information in the financial statements is National Accounting Regulation (Standard) 16 “Expenses”, according to which:

1. Expenses are recognized in the accounting system simultaneously with the decrease in assets or increase in liabilities.
2. Decrease in assets or increase in liabilities is recognized as expenses of the reporting period. These processes lead to a decrease in the amount of equity capital of the enterprise (unless it is a decrease in capital due to its withdrawal or distribution by the owners), but subject to a reliable assessment of such expenses.
3. Periodization is traced in the simultaneous recognition of expenses and income in the same period. In other words, according to the accrual method, the income for which the expenses were incurred should be recognized along with the expenses.
4. If the amount of expenses cannot be directly related to the amount of income of a particular period, such expenses are recognized as expenses of the reporting period in which they were incurred.
5. If an asset is capable of generating economic benefits over a number of reporting periods, the expense is recognized by systematically allocating the cost of the asset to depreciation and amortization over the specific reporting periods in which the asset is used.

The regulatory framework provides for a number of concepts and processes that are not considered to be expenses of the company and, as a result, are not included in the statement of financial performance:

- advances made or full prepayments to suppliers for the future purchase of inventories, works, services; repayment of short- and long-term borrowings;
- other decreases in assets or increases in liabilities, the signs of which contradict the provisions of the NSAU;
- expenses that are identified as a decrease in equity in accordance with the provisions of the NAS.

According to the national accounting standards (namely, clause 5 of NUAS 16 “Expenses”), expenses should be recognized in accounting in parallel with an increase in liabilities or a decrease in assets. Based on the prescribed rule, the Methodological Recommendations on Planning, Accounting and Calculation of the Cost of Production (Works, Services) of Agricultural Enterprises, approved by the Order of the Ministry of Agrarian Policy of Ukraine No. 132 of 18.05.2001 (as amended and supplemented by October 31, 2005, No. 589) and NSAU 16 “Expenses”, expenses are classified according to clear criteria outlined in Table 1.1.1.

Table 1.1.1

Classification of expenses according to the regulatory framework

| Signs | Expenses | | |
|---|---|---|---|
| | Methodological recommendations, clause 2.6. | Model Regulation, clause 2.6 | NP(S)BU16 “Expenses” |
| By centers of responsibility (place of cost incurrence) | Costs of production, shop, department, process, service | Costs of production, shop, department, service | |
| By type of product (work, services) | Costs of products, typical representatives of products, groups of homogeneous products, one-time orders, semi-finished products, gross, marketable, sold products | Costs of products, typical representatives products, groups of homogeneous products, one-time orders, semi-finished, gross, marketable, sold products | |
| By the unity of composition (homogeneity) of losses | Single element, complex | | |
| By typ of cost | Costs by economic elements, costs by costing items | Costs by economic elements, costs by cost center | Costs by economic elements |
| By method of cost transfer to products | Direct, indirect costs | Direct, indirect costs | Direct, indirect costs |
| By the degree of influence of production volume on the level of costs | Variable costs, fixed costs | Costs are conditionally variable, conditionally fixed | Variable costs, fixed costs |
| By calendar periods | Current, non-current, one-time expenses | Current, non-current expenses | |
| By expediency of spending | Productive, unproductive | | |
| By definition, the attribution to cost of production | Product costs, expenses of the period | | |
| By type of activity | | | Expenses of ordinary and extraordinary activities |

The classification of production costs helps to better understand the purpose of costs and their economic role in the production of goods (Telegina, 2019). The classification of production costs is understood as their distribution. Cost decomposition forms the cost of finished products from economically homogeneous cost groups for the purposes of planning, accounting and cost diagnostics. Cost classification is the decomposition of costs by clear features. Classification implies a deeper understanding of the essence of costs, studying the procedure of their formation and directions of their implementation.

Researchers identify several approaches to cost classification. They are grouped in Fig. 1.1.1.

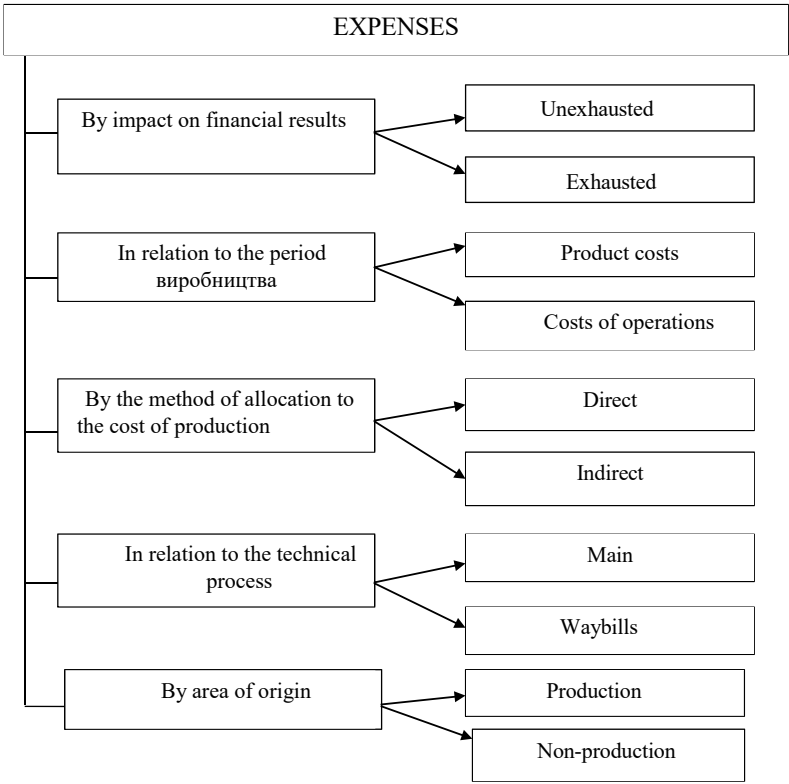


Fig. 1.1.1. Classification of enterprise expenses

Here is a brief description of a number of classification groups of expenses.

Exhausted (consumed) expenses are expenses of the reporting period. The occurrence of such expenses traditionally leads to a decrease in assets or an increase in

liabilities in the course of the company's operating activities. The purpose of an enterprise in incurring such expenses is to generate income based on the results of its operations in the reporting period. Such expenses include the consumption of raw materials and supplies, accrued wages and salaries, etc. A prerequisite for recognizing such expenses in a particular reporting period is that the products for which the expenses were incurred were sold in the same reporting period. Exhausted costs as cost of goods sold have their place in the Statement of Financial Performance.

Unexhausted (unused) expenses are identified with an increase in liabilities or a decrease in assets in the course of operating activities in order to generate income in the future. Non-exhaustible expenses include the costs of purchasing: materials that have not yet been used for production or other needs; goods that are shown as inventory in the company's assets because they have not yet been sold. The cost of such expenses at the end of the reporting period is reflected in section II of the Balance Sheet assets (production stocks, work in progress, current biological assets, receivables for advances made, etc.)

It should be noted that not all exhausted expenses, i.e. expenses incurred within a particular accounting period, are directly related to the production of goods. Therefore, the calculation should differentiate between costs and expenses that form the cost of finished goods and expenses of the period.

Product costs are always related to the process of producing goods or purchasing goods for further sale. In other words, they are called production costs. In the course of production, the costs of producing a particular type of product and the production cost of that product are generated. The costs of processing agricultural products include the following types of expenses provided for by NUAS 16 "Expenses" and relate to the function of producing a specific type of product. We also have the right to stipulate that such expenses form the historical cost of production.

Period expenses differ significantly from production costs in their economic content. Thus, period expenses are not directly related to production processes. Period expenses include expenses for management, marketing, and research functions. Such expenses are not included in the cost of finished goods or inventories. They are identified as expenses of the period in which they were incurred.

A specific feature of expenses in the production or processing sector of agricultural producers is the nature of the connection of such expenses with a specific object: a type of product, a division, a project, etc. The nature of this connection allows us to divide costs into direct and indirect costs. Direct costs are directly related to a specific cost accounting object, i.e., they are incurred for the production of a specific type of product. Therefore, the estimated costs are included in the cost of specific products (works, services).

Direct labor costs consist of wages and other payments to personnel involved in the production of specific products and services. A prerequisite is that these costs are directly attributable to a specific cost object. Other direct costs include other types of production costs that are directly related to a specific cost object. These include accrued unified social security taxes, certain rent for land shares and non-current assets, depreciation, etc.

Indirect (indirect) expenses are not directly attributed to a specific cost accounting object. That is, the direct method is not used to account for indirect costs. Such costs for agricultural producers relate to the cultivation of many types of crops or several groups of animals, and the performance of various works. Therefore, in order to include such costs in the cost of production, they need to be distributed among the accounting objects beforehand. Therefore, practicing accountants often call them as allocable expenses. NAS 16 “Expenses” identifies indirect costs as general production costs. Further decomposition of expenses in accounting is carried out in the context of costing items.

The main cost items in milk processing are: raw materials and supplies; purchased components, semi-finished products, work and services of third-party organizations; waste products; fuel and energy for technological purposes; basic and additional wages of production workers; contributions to social funds; contributions for preparation and development of production; maintenance and operation of equipment; shop expenses; reimbursement of depreciation of special tools and devices for the intended purpose and other special expenses.

Direct costs are charged directly to the cost of a particular type of product in accordance with reasonable standards and norms set forth in the production flow charts for a particular type of product. The amounts of such expenses are easy to control and compare with actual and planned expenses.

Each company independently establishes the basis for allocating indirect costs in its accounting policy. The benchmark is generally accepted practice, the specifics of the production process and the requirements of methodological recommendations.

Thus, production cost consists of direct and indirect costs (general production expenses), excluding administrative expenses and sales expenses. Direct production costs are recorded in the designated accounting account 23 “Production”. Indirect expenses are recorded in the account 91 “General production expenses”. The methodology provides for the closure of account 91 at the end of the reporting period by writing off the amounts of general production expenses distributed among different types of finished products to the debit of account 23 “Production”. The described methodology provides for an enterprise to account for manufactured products at reduced (partial) cost.

In some cases, it is necessary to determine the cost of a particular product by taking into account a portion of sales expenses and a portion of general business expenses. In this case, the methodology declared in the Order on Accounting Policy is followed, taking into account the established rates of distribution of such types of expenses. In this way, the full actual cost of manufactured products is determined. Expenses related to the management and maintenance of the enterprise as a whole are accounted for in the accounting account 92 “Administrative expenses”. Expenses for the functioning of departments that coordinate product sales, promote advertising, ensure delivery of products to consumers and other selling expenses of the enterprise are accounted for in the accounting account 93 “Selling expenses”.

Direct costs of production are called basic costs. Without such costs, production is impossible. The main costs include direct expenses for labor, material costs, depreciation,

and other direct expenses. The division of costs into direct, indirect, overhead, and direct costs is driven by the need for more accurate calculation, i.e., obtaining more objective information on the level of costs. The relationship between certain types of expenses is shown in Fig. 1.1.2.

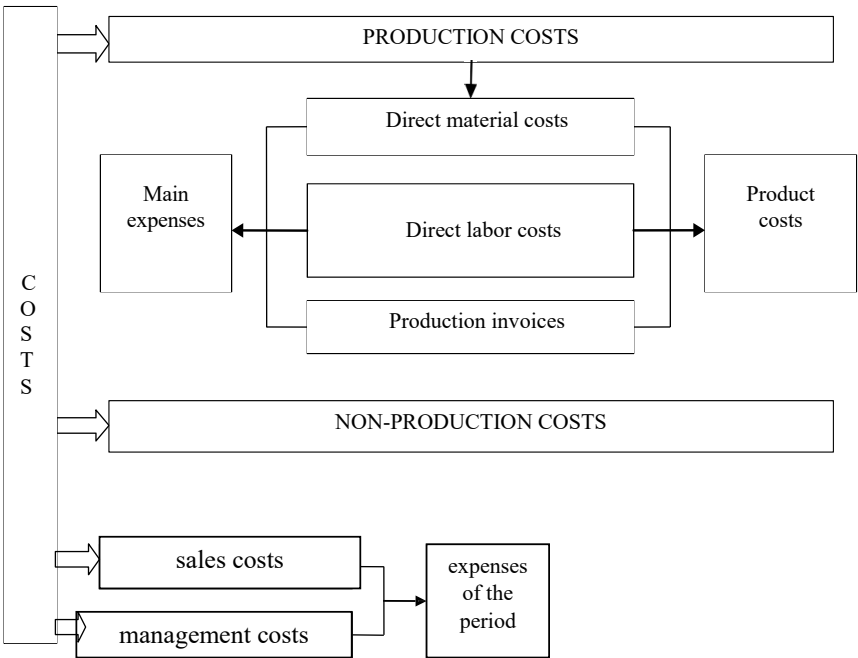


Fig. 1.1.2. Relationship between different types of costs

The cost accounting object or costing object is a specific individual production order. After the order is completed or the production cycle is completed, the actual cost can be determined. Until the cost is determined, i.e., until the costing is performed, all costs related to this process are considered work in progress.

Therefore, after the production cycle is completed, you can start determining the actual cost of certain types of products (orders). If there is a need to determine the cost of a part of the manufactured products, the so-called conditional cost estimation can be applied. Thus, partial production and output can be estimated at the actual cost of similar products that were sold earlier or at the planned cost of these products.

The main tasks of accounting for dairy production costs are:

- differentiation of production costs and identification of their list by

economic content, centers of responsibility, accounting items, elements and other identification features provided for by the company's accounting policy, financial and management accounting standards;

- full and timely reflection of the volume of manufactured products, works or services rendered by individual accounting objects, responsibility centers, and periods;

- determination of the actual cost of a unit of products (works, services) in accordance with the approved regulations; comparison of the determined level with regulatory, forecast or market parameters;

generating an appropriate information array on the amount of costs and volume of manufactured products (works, services) in the system of primary documents, accounting registers and reporting forms.

The efficient organization of the technological process at dairy processing plants largely depends on a properly established accounting and analytical system for the company's overall operations. At the same time, it is important to comply with standards and sanitary conditions during milk processing. Let's look at some of the regulatory and legal provisions related to milk processing.

According to the Law of Ukraine No. 1870-IV "On Milk and Dairy Products" dated 24.06.04 (as amended by Laws No. 402-V dated 30.11.2006, Journal of Laws of Ukraine, 2007, No. 4, Article 37 - effective from the date of Ukraine's accession to the World Trade Organization No. 2132-VI of 15.04.2010, the Journal of Laws of Ukraine, 2010, No. 21, p. 221 No. 5462-VI dated 16.10.2012, Journal of Laws of Ukraine, 2014, No. 6-7, Article 80 No. 442-VII of 05.09.2013, Jubilee of Ukraine, 2014, No. 20-21, p. 727 No. 1193-VII dated 09.04.2014, JD, 2014, No. 23, p. 873 No. 124-IX of September 20, 2019, Journal of Laws of Ukraine, 2019, No. 46, p. 295 No. 191-VIII dated 12.02.2015, Journal of Laws of Ukraine, 2015, No. 21, p. 133 No. 2573-IX of 06.09.2022 No. 2849-IX of 13.12.2022), raw milk means milk that has been previously subjected to physical processing (cooling, heating, filtration). Dairy raw materials also include dairy products that contain only milk components (skim milk, cream, etc.) and will be used for the production of other products.

The formation of cow's milk as a raw material at dairy processing enterprises is now carried out in accordance with the requirements of the standard from January 1, 2019 - DSTU 3662:2018 "Cow's milk as a raw material. This national standard contains the characteristics and technical conditions for the purchase and acceptance of cow's milk for the purpose of its further introduction into circulation. This national standard can be used by all market operators engaged in the production, purchase and processing of milk to regulate the relationship between the seller and the receiver to assess the quality of purchased milk, to implement systems for analyzing hazards and controlling critical points, as well as by authorities to assess the ability of business entities to comply with established procedures and rules.

This national standard in no way establishes mandatory compliance with its provisions, which are regulated by the norms of the current legislation in the field of food safety and quality. The application of DSTU 3662:2018 Raw cow's milk. Technical

specifications is interrelated with the requirements of the current regulatory documents for dairy products.

In addition to qualitative parameters, milk accounting also uses natural units, such as physical weight and kilograms, centners, and tons. In some cases, milk meters are used to measure milk in liters, i.e. in volumetric units, and a formula can be used to convert milk into mass units.

Thus, milk as a raw material is obtained as a result of biological transformation in livestock farming at agricultural enterprises. To ensure compliance with the requirements of the standards, the agricultural producer is obliged to meet the requirements of primary milk processing, including its cleaning from mechanical impurities, cooling and storage at low temperature, and transportation. It is important that the agricultural producer has a specially equipped room for primary milk processing: a milk drainage room for receiving, examining and cleaning milk; a washing room for washing, drying, disinfecting and storing milk utensils and milking equipment.

If the agricultural producer is also engaged in milk processing, then separate special premises are required for this purpose - dairy production facilities and a special room for milk analysis. The main purpose of dairy production facilities set up by agricultural producers is to ensure high quality of milk and generally improve the dairy farming industry; to produce high-quality dairy products (organization of craft dairy production) to provide consumers with quality food and to increase the competitiveness of small agricultural producers.

Dairy production technology is a complex set of diverse and specific technological processes. To produce drinking milk and fermented milk products, the technology includes all milk components. Cream, sour cream, cottage cheese, butter, and hard cheeses are produced using individual milk components. Production of dried dairy products, ice cream and canned milk involves the use of milk powder. Secondary dairy raw materials are used to produce edible and technical casein, milk protein, milk sugar, whole milk replacer, and condensed whey.

The concept of “valorization” is related to the organization of milk processing on a farm. This concept is interpreted as a set of production stages that artificially increase the price of food. Since today farms are particularly acutely aware of the growing competition with agroholdings, organizing on-farm processing of agricultural products is one of the ways to increase value-added dairy products. In this case, farmers should feel a clear advantage, as valorization is a prerequisite for increasing competitiveness and profitability of farms.

The value added (VA) indicator is formed in the farm accounting system and consists of the following elements: depreciation of fixed assets and other non-current assets (A), staff salaries (W), profit (P), and land rent (LR). The sum of all these components constitutes the value added of the products produced in a particular reporting period:

$$VA = A + W + P + LR \quad (1.1.1)$$

We understand that the process of creating higher added value for dairy products is only possible if economic activity expands. That is, the technological process has to go

beyond domestic milk production. Therefore, valorization includes a set of tangible and intangible costs that create basic and added value in the farming environment.

Moving further into the market, each individual type of dairy product creates its own value chain. This study allows us to identify the types of dairy products, the production of which makes it possible to control and coordinate the competitive advantage of the farm on the dairy market. The share of profits at the stage of milk processing at the farm is changing due to the constant rise in the cost of livestock services, materials and energy. Milk processing enables the farm to give its finished products unique competitive qualities, especially hard cheeses. As a result, the commercial value-added vector increases at the processing stage, as shown in the figure. Own retail trade also contributes to the growth of added value, as it forms one of its most important quality indicators - the freshness of farm products. This rational management of operations by eliminating intermediaries from the price chain changes priorities in the dairy market and allows farmers to earn higher profits. The expansion of operational activities on the farm, the emergence of new types of production determines the special information needs of farmers and requires a specific approach to the organization of accounting for milk production and processing.

The internal content of the farm accounting system is determined by a number of factors: specialization, size by various criteria, organizational structure, organizational and legal form of management, etc. At the same time, the professional level of accounting, its methodological and organizational content, and structural and functional regulation must always meet growing information needs and help protect the private property of the farmer. Using the classical financial accounting scheme and some components of management accounting, medium and large farms successfully keep records of production. The multi-level accounting system of such producers is built in accordance with the principles of national accounting standards and correlates with the requirements of the Methodological Recommendations on the use of journal-order registers for agricultural enterprises No. 390 of June 4, 2009 and the Methodological Recommendations on planning, accounting and costing of products (works, services) for agricultural enterprises No. 132 of May 18, 2001.

We observe significant differences in the structural and functional content of the above-mentioned regulatory document and the Methodological Recommendations on the use of accounting registers by small enterprises No. 720 of June 15, 2011. Most of the differences relate to the recommendations for the use of different forms of accounting registers (analytical and synthetic registers), a comparison of which is presented in Table 1.1.2.

The conducted research shows gaps in the Methodological Recommendations on the Organization and Management of Accounting in Peasant (Farm) Enterprises and other regulatory documents related to leveling the organizational, legal and sectoral specifics of farming development at the present stage. Quite often, the provisions of regulatory documents contradict the main provisions and extreme amendments to the Law of Ukraine "On Farming" No. 973-IV of June 19, 2003. Therefore, the regulatory framework for the

organization of accounting in farms in general and the process of milk production and processing in particular needs to be revised and updated.

Table 1.1.2

Comparative characteristics of accounting registers and primary documents for small enterprises and farms in a simplified form

| N | Accounting site | Small enterprise | Farming farm |
|----|---|--|---|
| 1 | Registration of all business transactions | - | Business Transaction Log |
| 2 | Accounting for non-current assets, depreciation (wear and tear) | Statement 1.1-ms of accounting for non-current assets Statement 1.2-ms of accounting for depreciation Statement 4.1-ms of accounting for expenses for repair and improvement of fixed assets | Statement of accounting for fixed assets |
| 3 | Accounting for production stocks, finished products and inventories | 1-month asset accounting journal | Warehouse accounting book (card) |
| 4 | Accounting for animals in cultivation and fattening | - | Book of accounting for the movement of animals and poultry on the farm |
| 5 | Cost accounting for production | 4-month cost accounting journal | Income and expense accounting book |
| 6 | Accounting for liabilities, profits and capital | Journal of 2-month accounting for capital and liabilities | Journal of business transactions |
| 7 | Accounting of settlements and other transactions | Statement 2.1-ms of accounting of settlements with suppliers, other creditors and budget | Statement of accounting of settlements |
| 8 | Accounting for sales | 3-month income accounting journal | Journal of business transactions and Income and expense accounting book |
| 9 | Accounting of labor and wages | Statement 2.2-ms accounting of settlements with employees | Settlement and payment statement |
| 10 | Generalization of data on synthetic accounts | Turnover statement | - |
| 11 | Financial statements | Balance sheet (form No. 1-ms) Income statement (form No. 2-ms) | Balance sheet (form No. 1-ms) Income statement (form No. 2-ms) |

The current state of affairs demonstrates the imperfection of methodological developments for the proper organization of accounting in farms. A weak point is the

accounting of costs for the production and processing of agricultural products. In addition, there is no unanimity in the choice of methods for accounting for costs and valuation of finished products - creation of biological assets or production of agricultural products; actual cost or market (fair) value. These discrepancies are the result of inconsistencies between the requirements of Accounting Regulation (Standard) 30 "Biological Assets" and the current regulations on the organization of accounting in farms.

A number of unexplained and controversial issues arose after the introduction of NP(S)BU 30 "Biological Assets" into the accounting practice of agricultural enterprises. The novelty of the problem, the lack of readiness of the accounting staff of agricultural enterprises for innovations, the instability of the economy and the impact of inflationary factors on business results have always been a barrier to the effective practical application of NUAS 30 "Biological Assets".

Discusses the expansion of the list of accounting objects in agriculture, which is due to the adoption of NP(S)BU 30 "Biological Assets". Now the objects of accounting are both biological assets and agricultural products (Gorkavyi, 2015). It is now customary to include current biological assets as work in progress. In fact, however, NP(C)BU 30 treats work in progress as a separate accounting item in order to accumulate the costs of producing agricultural products with a long production cycle. In this regard, it should be noted that to account for the production and processing of milk on a farm, accounting account 23 "Production" is used. This approach has not yet been substantiated theoretically, which complicates the already difficult accounting of production in agricultural enterprises.

Didorenko (2015) emphasizes the problematic issues that arise in connection with the regulatory and legal regulation of the valuation of agricultural products and biological assets at fair value. It is known that the basis of such valuation is the active market prices for similar products. At the same time, it is practically impossible to have operational information about the active market prices on a specific reporting date. The instability of the market situation, low effective demand of the population, the impact of inflation are the reasons for sharp price fluctuations, so it is very difficult for an accountant to track them promptly. The unreliability of the information received by the accountant about the prices of the active market can lead to errors in accounting due to incorrect valuation of finished products at fair value.

In the textbook edited by Ogiychuk (2016), the author emphasizes that the objects of cost calculation in livestock farming are the main products. The publication also provides a list of works that are planned to be performed before starting the calculation of the cost of finished livestock products and milk processing products.

The material on the procedure for primary documentation of operations related to milk production and processing is of great value. The list of items for cost accounting is outlined, and the procedure for synthetic and analytical accounting of milk production and processing is described.

The procedure for primary documentation of the entry of milk from biological transformation in livestock farming and dairy products based on the results of milk

processing is described. The calculation of the cost of livestock and industrial production products, the procedure for writing off calculation differences are described in detail.

The study of issues of industrial milk processing and accounting for the production of dairy products is based on the development of a system of economic indicators and socio-economic relations in modern condition. The basis of such research is the interdependence of processes and phenomena, as well as the dialectical relationship between these processes and phenomena, which are inherent in the agricultural sector of the economy and occur in society as a whole. The dialectical approach makes it possible to apply multivariate diagnostics of the conditions and factors of the formation of the dairy market. At the same time, trends in the development of the dairy cattle industry as a raw material base for industrial milk processing are taken into account and the possibility of organizing milk processing on one's own within the framework of a farm, where a productive herd of cows is kept and milk is produced, is considered.

The dialectical method is used in research on the development of cost accounting concepts, the evaluation of finished livestock products and industrial processing of such products, as well as on the practice of calculating the cost of production in livestock and milk processing. The dialectical method is based on clear philosophical and general scientific principles.

General scientific principles are intended for the study of structural-functional and systemic approaches in the study of social phenomena. At the same time, within the framework of these principles, methods of analysis and synthesis are used in the study of the economic features of industrial processing of livestock products and the impact of this specificity on the content of the accounting system.

Methods of deduction and induction within the scope of the research involve identifying the location of production costs in the process of managing the activities of the enterprise. In the work, a monographic method was used to characterize the essence and location of costs in the accounting system of a specific agricultural producer.

Statistical methods were of great importance for achieving the tasks set in the work: graphic, tabular, comparative, historical-systemic (when studying the classification of costs for milk processing), abstract-logical. The reliability of recommendations and proposals based on the results of the study depends on the level of complexity of their application.

Industrial milk processing consists of separate independent elements, which are interconnected and represented by a system - processing technology. Research indicates that these components constitute a kind of infrastructure that determines the integrity of the approach to solving the problem at hand. To assess the development of milk processing processes based on agricultural producers, the principle of systematicity was applied, which made it possible to investigate a number of factors, criteria, and a set of methods for assessing the development of industrial dairy production.

A systematic approach to diagnostics of industrial milk processing requires a transition from a separate study of economic situations and processes to a generalized consideration of the concept. To identify the real features of the development of industrial

milk processing within farms should be based on the real features of the development of the industrial dairy industry. Methods of economic analysis provide the search for more effective solutions for organizing industrial milk processing within farms.

Like any science, accounting also uses a number of methods that are unique to it. These include: primary documentation; general accounting in the system of accounting accounts; grouping of information in the system of analytical and synthetic accounting registers; systematization of information according to the principle of double entry; balance sheet generalization; calculation.

Documentation is intended to establish the facts of recording the costs of milk processing, as well as to provide legal force to accounting information and enable the reliability of the final result of the accounting system. Estimation is a reflection in accounting of the costs of materialized and living labor in economic assets, establishing actual costs in the process of milk processing for formation of the fair value of dairy products. The calculation is intended to calculate the cost of dairy products by type according to accounting data. Based on double entry, information related to milk processing is systematized by reflecting it on the debit and credit of economically related accounting accounts, which reduces to minimum number of errors in accounting. Balance sheet generalization is intended to reflect the assets, liabilities and obligations of the enterprise on a specific or reporting date in a single monetary value. Balance sheet generalization allows you to differentiate the assets of the enterprise by sources of formation and purpose, composition and functional role in the activities of the enterprise.

Pricing is an important operational decision to implement the strategy on the farm at the accounting level. Management accounting of milk processing processes should provide an adequate information and methodological basis for pricing. For a farm, external pricing is a particularly important area of pricing, which involves the formation of prices depending on the farm's sales channels and the level of prices on the market. A proper level of accounting support for the pricing process is a key to successful regulation of relations between market participants.

The market-based pricing method involves setting prices for products at a level at which the farmer can sell dairy products to external consumers or at a price offered by a competitor. This method has certain advantages, which include an approximate assessment of the farm's overall performance. The disadvantage of this method is the dependence of pricing on the influence of social, political, seasonal and other factors in different time intervals.

The advantages of setting the price of dairy products based on their full actual cost are the objectivity and accuracy of price calculations. When increasing the volume of dairy production, this method can be a guideline, since the amount of fixed costs, or in our case, overhead costs, remains unchanged.

The costing of milk processing products on a farm could be successfully carried out using the standard method. The advantages of this method are: the possibility of a separate assessment of the efficiency of the processing plant as a separate center of responsibility; formation of an information array for cost analysis and control; minimization of

accounting work related to cost calculation; timely provision of information to the farmer about expected costs for milk processing.

At the same time, the most popular calculation methods for pricing are the full cost method and the market method. The use of the full cost method is appropriate if the farmer's goal coincides with the mission of the farm and the farming system in general. The main problem with this costing method is that it is difficult to control the costs of the processing plant, as they are later transferred to the farm as a whole. The market method allows to create a competitive environment between the farm's divisions and assess the efficiency of each of them.

The effectiveness of the contractual method of calculation depends on the level of ethics and corporate culture of the farm's counterparties, the farmer's competence, and the level of information about the progress of milk processing on the farm.

The cost-based pricing decision-making procedure first involves determining the purpose of this process (increasing the market share of a particular type of dairy product, entering the market, maximizing profits, concluding contracts, etc.) The next step is to collect and analyze information (costing, determining demand, analyzing competitors' prices and product mix), and selecting a pricing strategy that involves setting prices for dairy products in the short term or in the long term.

To justify the external selling price of dairy products, it is appropriate to use one of two models: cost-based pricing or the economic model. The economic model is based on the comparison of the amount of costs and the projected amount of income, which implies setting a price level for dairy products that will maximize profits. In this case, additional manipulations are required, such as the analysis of price elasticity, dynamics of income and expenses, etc. It should be borne in mind that the difference between total income and total losses increases as long as the growth rate of total income exceeds the growth rate of expenses. However, scholars note that this scheme is inherent in the raw materials market.

The cost-plus pricing method is more widely used in different types of markets. It allows you to determine the price based on costs by adding a markup to them.

$$\text{Price} = \text{Costs} + \text{Markup}; \text{Markup} = \text{Markup percentage} \times \text{Costs} \quad (1.1.2)$$

The markup can be determined on the basis of variable production costs, full production costs, total costs, or total variable costs. In a farm, the norms of NP(S)BU 9 “Inventories” are used to form the selling price.

To formulate and provide recommendations on the feasibility of implementing the cost-plus method in the farm, we conducted a study of the process of pricing vitaminized yogurt “Jersey” 500 g in a bucket, which is produced in the processing shop of the farm without the addition of vegetable fats in accordance with DSTU 4753:2107. The price of such yogurt in the farm's branded stores at various city trading floors is UAH 82. The analysis of the yogurt recipe made it possible to establish direct material costs for the production of 100 kg of Jersey yogurt (Table 1.1.3).

The price of yogurt produced on the farm is determined by full costs: Markup percentage = $13,600 / 10,542.64 = 0.29$, where 13,600 is the amount of desired profit,

10,542.64 is the product of the full unit cost (500 g) of ice cream and the production volume (52.71×200). After all, 200 units of 500 g each is 100 kg of yogurt.

Table 1.1.3

The structure of direct material costs for the production of 100 kg of yogurt “Jersey” produced in a farm (conditional data)

| Type of raw materials | Quantity, kg | Price per 1 kg, UAH | Cost per 100 kg of mixture, UAH |
|---------------------------------------|--------------|---------------------|---------------------------------|
| Drinking cow's milk of the 1st class. | 42,36 | 8,46 | 358,37 |
| Skimmed milk powder 33% protein | 3 | 98,32 | 294,96 |
| Sourdough starter | 16 | 93,54 | 1496,64 |
| Butter | 3,92 | 116,2 | 455,5 |
| Sugar | 17,5 | 10,86 | 190,05 |
| Vanillin | 0,015 | 100 | 1,5 |
| Rice flour | 0,2 | 45,32 | 9,07 |
| Egg yolk powder | 0,725 | 198,25 | 143,73 |
| Water | 16,28 | 0,05 | 0,82 |
| Total | 100 | - | 2 950,64 |

The formation of the price for Jersey yogurt is presented in Table 1.1.4. Thus, the markup is equal to the product of the total unit cost (500 g) of yogurt of UAH 52.71 and a markup factor of 0.29, i.e., UAH 15.29, and the price is UAH 68 excluding VAT. The VAT charge results in a selling price of UAH 81.6 per bucket (500 g).

An alternative pricing method for a farm may be target costing, where the cost of production is defined as the difference between the price and the profit. In this case, the calculation of the cost of dairy products should be based on a pre-established selling price. This price is determined is determined through market research. Therefore, in order to determine the target cost of dairy products, the amount of profit that the farm wishes to receive should be reduced by the expected market price. Then, all participants in the milk processing process should work to ensure that the dairy products produced meet the target cost as closely as possible.

This is where an iterative and innovative approach is required, searching for non-standard solutions through step-by-step consideration of each production nuance in relation to the cost. To obtain the desired economic benefit in the future, accountants and technologists should calculate the amount of targeted cost reduction in the following steps:

- determine the possible selling price of a unit of dairy products;
- calculate the target cost of dairy products (per unit and in total);
- compare the target and estimated cost of dairy products to determine the amount of target cost reduction;
- redesign products and at the same time make adjustments to the production process to achieve the target cost reduction.

The undoubted advantage of targeted costing is the focus on external (market) factors rather than exclusively on internal factors. Targeted costing ensures a motivated

behavioral orientation of the farmer to the market, while paying attention to the level of permissible cost, which must be realized if the farm wants to be profitable in a competitive environment.

Table 1.1.4

Results of calculating the price of 100 kg of Jersey yogurt produced on the farm
(conditional data)

| Indicator | Share in total expenditures, % | Amount, UAH |
|--|--------------------------------|-------------|
| Direct material costs | 27,99 | 2 950,88 |
| General production variable costs, including | | |
| - depreciation of production lines and equipment | 17,57 | 1 852,33 |
| - fuel and electricity for production purposes | 4,62 | 487,1 |
| - salaries of production employees | 7,63 | 804,4 |
| - unified social tax on salaries | 1,7 | 179,22 |
| - fuel and lubricants | 2,23 | 235,1 |
| - other expenses | 2,62 | 276,21 |
| General production fixed allocated costs | 8,32 | 877,15 |
| Cost of sales | 72,68 | 7 662,39 |
| Administrative expenses | 13,2 | 1 391,63 |
| Selling expenses | 14,12 | 1 497,05 |
| Full cost for pricing | 100 | 10 542,64 |
| Markup | 29 | 3 057,36 |
| Price without value added tax | - | 13 600 |
| Value added tax | 20 | 2 720 |
| Price with value added tax | - | 16 320 |

Therefore, with the use of target costing, the production activities of a farm can be coordinated and controlled in accordance with a special strategic guideline of the farm - the target cost (Fig. 1.1.3). The concept of target costing of a farm should provide for close interaction between marketing and management accounting, so the level of organization of target costing significantly affects the relationship of the farm with buyers, as well as the organization of accounting in farms in general. In target costing, a team approach should be implemented in order to achieve the target cost level. Suppliers should play a crucial role in target costing, as reducing the cost of purchasing energy and raw materials according to the milk processing recipe requires revising the terms of the contract to reduce purchase prices. Targeted costing will also require the farm to timely review budgets for the milk processing plant, systematically evaluate its performance in order to promptly adjust the level of indicators for subsequent budgets.

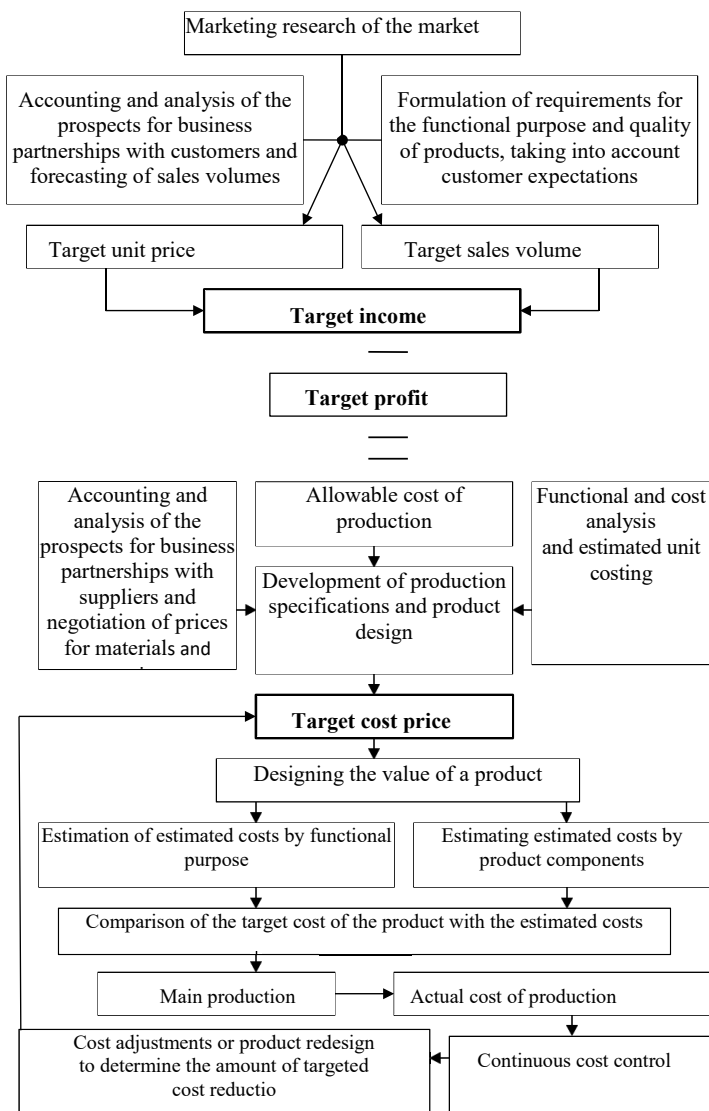


Fig. 1.1.3. Schematic representation of the target costing process for determining the price of products

Thus, the advantages of implementing the target-costing concept on a farm are the integration of marketing with management accounting of milk processing operations; improvement of costing tools for successful pricing. In today's economic environment, the management accounting system should help to improve the quality, reliability and completeness of information in the field of management accounting, in particular, accounting for milk production and processing. Management reporting should be the main information source for making effective management decisions in the field of milk processing management. The relevance of the issue of management reporting in the field of milk processing is related to the fact that internal users of accounting information, the main one being the head of the farm, use indicators of internal reporting.

Management reporting also serves as the basis for assessing the property and financial condition of a farm, justifying management decisions, planning and forecasting its activities. Quite often, the specific and analytical data on the results of economic activity required by a farmer is not available in financial, statistical or tax reporting. Therefore, management reporting should be given a special place in the system of sources of reporting information on the activities of enterprises of various organizational and legal forms and sectors of the economy. Unlike other forms of reporting, management reporting is the most informative and operational, which determines its special place in the system of management and planning of business activities. However, quite often there is a situation when there is no unified vision of the principles of developing approaches to the formation of management reporting in the field of agriculture.

Under current conditions, the successful operation of farms that have a closed production cycle, i.e. organize on-site processing of products, requires improvement of information support for the management of both raw material production and processing. The source of quality information should be a properly organized and structured reporting form, the content of which will ensure that informed management decisions are made. Internal management reporting is a form of presenting important information that serves as a basis for choosing a certain course of action from a variety of alternatives. It may include information that characterizes the actual results of the operating, investment and financial activities of the farm in general, as well as by industry - crop production, livestock and industrial milk processing, both for past periods and as of a specific point in time. Internal management reporting can also demonstrate the results of diagnosing internal and external factors that affect the achievement of the goals set, as well as the planned and strategic performance indicators of the farm in future periods.

It should be recalled that internal management reporting on milk processing and agricultural production is not regulated by regulatory and laws, so its form is not unified. Management reporting does not focus on standardized reporting forms, but rather on the real needs of management. This makes it possible to refer to various types of economic, financial, human resources, and marketing information that a farmer may need at a particular time. Therefore, the most important requirements for a management reporting system in the dairy processing industry are accuracy, comprehensiveness, ease of use in terms of information perception, regularity of its preparation and timely receipt by the

farmer or processing plant technologist.

In addition, the farm's management reporting should clearly meet the needs of the farmer, i.e., the development of such reporting forms should be a compromise between standardized forms and the requirements of the farm's management apparatus regarding its content and presentation. On a farm, management reporting on the milk processing process is usually presented in the form of tables, graphs or text.

The tabular form of presentation of management reporting on milk processing is the most acceptable for both executors and users. The lion's share of internal reporting information is represented by digital material, which is most conveniently presented in tabular form. An explanatory note disclosing the main indicators is included as an explanation to the report. The graphical form of data presentation in management reporting is a visual aid. However, it is very rarely used in the practice of a farm's dairy processing plant. The fact is that displaying a large number of economic indicators in a graphical format makes it difficult to perceive information. Therefore, it is more convenient and appropriate to present large digital arrays in tabular form.

Textual presentation of economic information is justified when digital information requires comments. Therefore, the procedure for preparing management reporting should be considered in terms of the convenience of perceiving information. At the same time, establishing the type and form of internal management reporting on the processing results of the dairy processing plant on the farm is not a significant practical problem, since the list of key reporting elements is not too long, and the farmer can clearly formulate his requirements in terms of the elements of management reporting.

The requirements for the construction and content of internal management reporting are developed by science and practice. Therefore, the formalized requirements for internal management reporting of the milk processing process on a farm should include:

- appropriateness - the information should be relevant and meet the practical needs of the farmer;
- accuracy and objectivity - the content of management reporting should not contain the subjective opinion of the executor or personal assessments of the expert, especially if they are not substantiated by relevant facts;
- promptness of reporting is manifested in the fact that it should be submitted within the timeframe that will ensure timely management decisions by the farmer;
- versatility and brevity - management reporting should not contain excessive or unnecessary information.

In order to form a system of management reporting on the activities of the dairy processing plant of a farm, the list of reporting forms should be carefully coordinated with the technological stages of dairy production. To this end, we propose the sequence of development of management reports, the task of which is to demonstrate the consumption of resources in accordance with the stages of production activities and technological processes of milk processing (Table 1.1.5).

The developed forms of management reporting should be carefully structured to ensure the highest information content and ease of use. It is worth noting that the content

of management reporting, as well as the degree of detail of information on the results of milk processing, depends on the addressees, that is, the list of persons for whom these forms are intended. A high level of detail in economic indicators is typical for the corporate level. Analytical indicators on the state of milk processing are provided to technologists. However, in the context of a farm, i.e. a private small business, the most detailed information will also be interesting and useful for the farmer. Therefore, the introduction of the proposed management reporting system into the practice of farms that process milk within their farms will make it possible to structure relevant information arrays for farmers to make informed management decisions.

Table 1.1.5

Structure of the Journal of operational management accounting and operational control over the consumption of milk and other ingredients for the production of dairy products

| Title of the section | Content | Daily production reporting, which is the basis of the report | Primary documentation (used for reporting development) |
|---|--|--|---|
| Movement of raw milk | Quantitative and physicochemical indicators are summarized and analyzed: receipt of raw milk from agricultural suppliers; actual shipment from the hardware shop for preparation for further use, losses during acceptance of raw materials, balances at the beginning and end of the reporting period | Production control log, drawn up daily at based on the results of the milk acceptance shop | Register of raw milk procurement, accounting raw milk receipts, consignment notes agricultural suppliers, laboratory measurement logs |
| Raw milk consumption for production of products | Quantitative and physical and chemical parameters are summarized and analyzed, as well as the costs of preparing normalized | Production control log, drawn up daily at based on the results of the hardware shop | Recipes by type of dairy products; approved at the enterprise norms of consumption of raw materials, material resources, losses; laboratory measurement logs |
| Volumes of finished products | Quantitative and physical and chemical indicators of costs for a specific type of dairy products are summarized and analyzed, identifying standard and actual costs during production | Production control journal, drawn up daily based on the results of the work of the workshops that produce dairy products | Recipes for types of dairy products; approved standards for raw material consumption, material resources, and losses at the enterprise; logs of laboratory measurements |

Of course, the internal reporting system must be perfectly formed. From the point of view of the systemic approach, the main stages of formation of indicators of internal management reporting are:

1. Identification of entities involved in the formation of accounting and analytical information of internal management reporting and using the information of internal management reporting.
2. Determination of objects, information about which should be provided in the internal management reporting.
3. Formation of channels of economic information in order to create on its basis the system of accounting and analytical information of internal management reporting.
4. Development of means of presenting the results of financial and economic activities of the enterprise as a system of indicators characterizing the external and internal environment of the enterprise.
5. Construction of a generalized model of financial and economic activity of the enterprise with the help of using the system of indicators of internal management reporting.
6. Investigation of the sensitivity of the model of financial and economic activity of the enterprise to changes in its components in relation to the external and internal environment.
7. Control of the main parameters at each of the previously mentioned stages, as well as control of the whole complex of indicators of internal management reporting with the identification of the most significant deviations, search for shortcomings in the functioning of the enterprise and the procedure for presenting information in the reporting, with the return to the initial stage of determining the format of internal management reporting and with the beginning of the corresponding new cycle. At this stage, compliance with the following principles of forming the system of accounting and analytical information of internal management reporting should be ensured: quantification, control, flexible but homogeneous structure, consistency and comparability, visibility and analytical quality, and efficiency.

It is important to note that the composition of management reporting, as well as the level of detail, depends on the to whom the information is provided. The most general data is intended for the corporate level, more detailed data on the state of operations goes to managers, and the most detailed information is provided to the heads of functional units. For the rational construction of production and management reports, in order to prevent duplication, it is advisable to distinguish between their types. Currently, the following types of reports are distinguished. It should be noted that management reports usually include the Cash Flow Statement, the Statement of Profit and Loss, and the Management Balance Sheet. Analysis of financial and economic activities on the basis of management reports allows to identify problems of the company, trends in its financial condition for the future. There are also a operational cost, which is a set of data developed at a certain point in time for the needs of management of the dairy processing enterprise, which aggregates indicators (actual value of indicators), comparative (comparison of indicators – actual and planned, actual and base, actual and similar in industry). The introduction of the above system of internal economic reporting into the practice of management accounting of milk processing enterprises will make it possible to structure relevant information arrays for making management decisions at milk processing enterprises in Ukraine.

1.2. IMPACT OF NON-FINANCIAL REPORTING ON INVESTMENT ATTRACTIVENESS OF ENTERPRISES IN THE AGRICULTURAL SECTOR

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In the context of European integration processes, globalization shifts, and potential transformations of economic systems, the primary task is to analyze the impact of non-financial reporting on the investment attractiveness of enterprises. This aims to form priority directions for modern management tools and performance control in companies within the agricultural sector, through the prism of synergistic effects in attracting additional investment capital.

Non-financial reporting (sustainability reporting) is a documented set of data of a commercial organization that reflects the company's environment, principles, and methods of cooperation with stakeholder groups, as well as the results of the company's activities in the economic, social, and environmental spheres of societal life (Baskov, 2021). One of the most widespread approaches is ensuring a comprehensive assessment of the impact of non-financial reporting on the investment attractiveness of enterprises, as a flagship of economic transformations in today's conditions. The increase in innovations, economic shifts, and changes in the international market necessitated the adaptation and active use of non-financial reporting tools to ensure high competitiveness of enterprises in the agricultural sector.

Comprehensive modernization and innovative development of the economy of the future create urgent needs for the actualization of issues related to globalization shifts and transformations of economic processes, ensuring synergistic effects from the impact of non-financial reporting on the investment attractiveness of enterprises. Thus, these issues are undoubtedly relevant.

Comprehensive modernization and innovative development of the economy are necessary for companies to quickly respond to external and internal environmental factors, changes in phenomena, and the formation of complexity in business interactions to monitor the economic state and enhance competitiveness. Therefore, the impact of non-financial reporting on the investment attractiveness of enterprises in the agricultural sector becomes highly relevant and requires innovative management decisions. Achieving such an effect is possible through long-term financial planning, forecasting technological developments in the agricultural sector, and ensuring comprehensive interaction mechanisms of strategic management. Strategic management must be compatible with current business management practices. According to the definition, strategy constitutes “the art of economic, political, and social leadership of the masses, which should determine the main direction of their actions and deeds”.

Theoretical and methodological basis for researching the specifics of formation and progressive development of SMART economy, digitization, digital transformation have created prerequisites for potential development of modern innovative competencies, which can be implemented in the long term, including within enterprises of the national agricultural sector. General scientific research methods such as synthesis, deduction, and induction, system analysis were used during the research. The field of strategic decisions in the context of the impact of non-financial reporting on the investment attractiveness of enterprises is quite diverse: choosing directions of activity, priorities in resource formation, ensuring effective long-term partnerships, developing potential capabilities, conducting continuous analysis of strengths and weaknesses of companies in the agricultural sector, conducting comprehensive economic environment modernization of the company, etc. Thus, two levels of decisions are distinguished: individual and organizational. If in the first case the manager is more interested in the process itself and its internal logic, then in the second case, the interest shifts towards creating an appropriate environment around this process (Fig. 1.2.1)

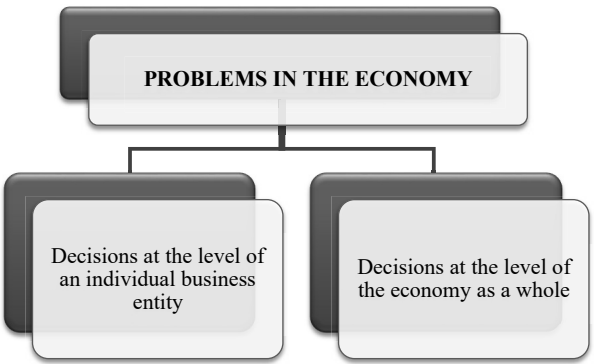


Fig. 1.2.1. Levels of managerial decision-making in the economy when assessing the impact of non-financial reporting on the investment attractiveness of enterprises

The following are the distinctive features of decision-making (Fig. 1.2.2). In the process of analyzing possible approaches to decision-making in the formation of the SMART economy of the future, it is necessary to distinguish the following stages: setting the task; formulating alternative decisions; choosing (making) a decision; implementing the decision.

Most differences in the identification of these stages arise from the question of whether to include the implementation stage as part of the decision-making process. According to many scholars, the implementation of the decision is indeed part of the overall decision-making process. Most of them consider the entire decision-making process within an organization as a function of the problem, alternatives, and the execution of the decision.

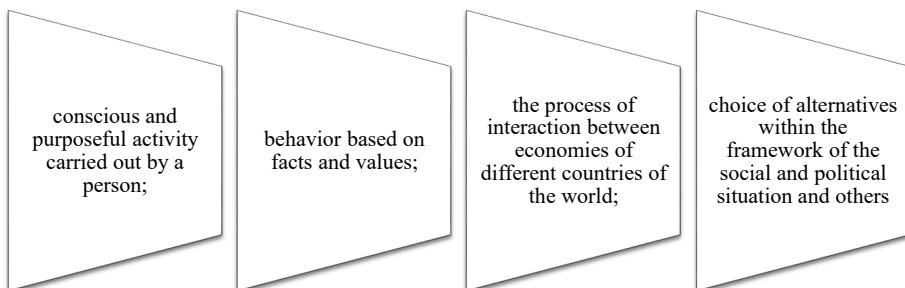


Fig. 1.2.2. Distinctive features of managerial decision-making at different levels in a company when assessing the spectrum of influence of non-financial reporting on the investment attractiveness of enterprises

Let us analyze in more detail the levels of managerial decision-making when evaluating the spectrum of the impact of non-financial reporting on the investment attractiveness of agricultural enterprises in the modern SMART economy (Fig. 1.2.3, 1.2.4).

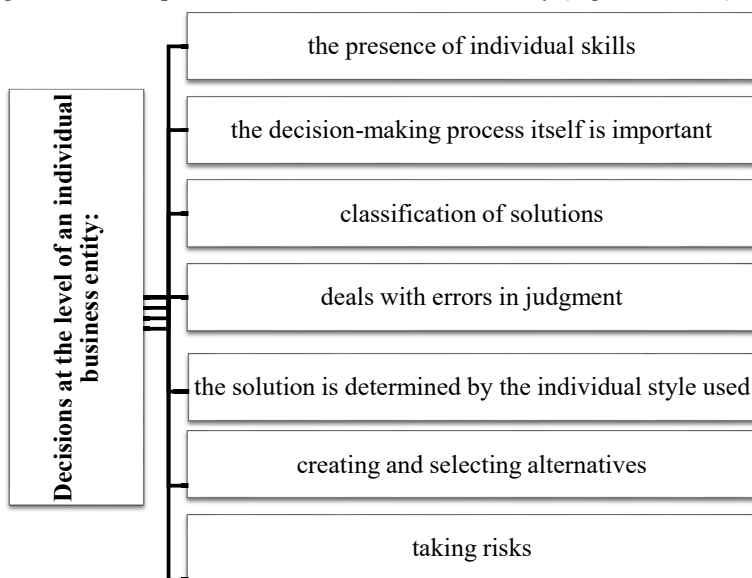


Fig. 1.2.3. Decisions at the level of an individual business entity in the agricultural sector when assessing the impact of non-financial reporting on its investment attractiveness

So, the process is different for structured and unstructured problems. In the first case, the recognition of the problem will be quite straightforward. If the production task is completed by 70%, then it is obvious to its manager that the problem exists and the problem must be solved.

Otherwise, the recognition of the existence of the problem itself becomes the problem. This happens when there is unclear and inadequate information about the development and trends in the organization and in its external environment. An example of such a decision would be the introduction of a new product to the market based on information received from the marketing department.

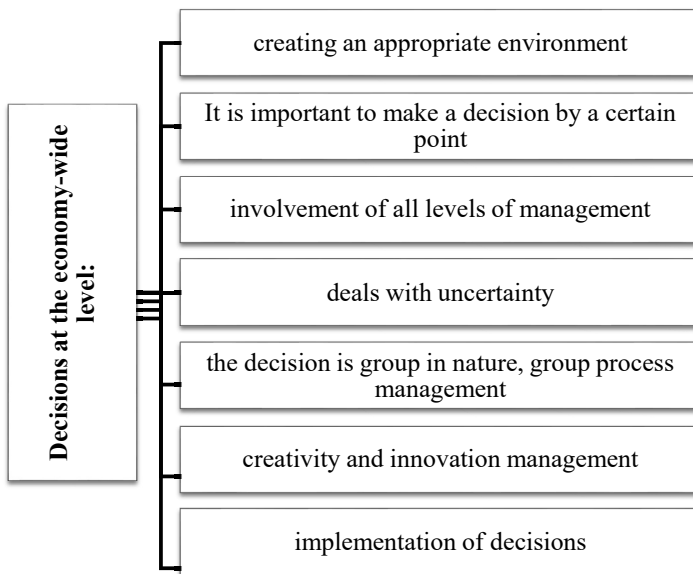


Fig. 1.2.4. Decisions at the level of the economy as a whole

Recognition or non-recognition of a problem largely depends on the level of its perception. In this case, errors are possible, associated with a number of relevant circumstances (Fig. 1.2.5). Defining and formulating a problem allows the manager to rank it among other problems. The following factors can be used as a basis for prioritizing a problem:

- the consequences of the problem (capital intensity, efficiency);
- the impact on the organization (what will happen as a result of solving the problem);
- the urgency of the problem and time constraints;
- the best use of the manager's abilities and time;
- the life cycle of the problem (can the problem be solved by itself or in the course of other problems).

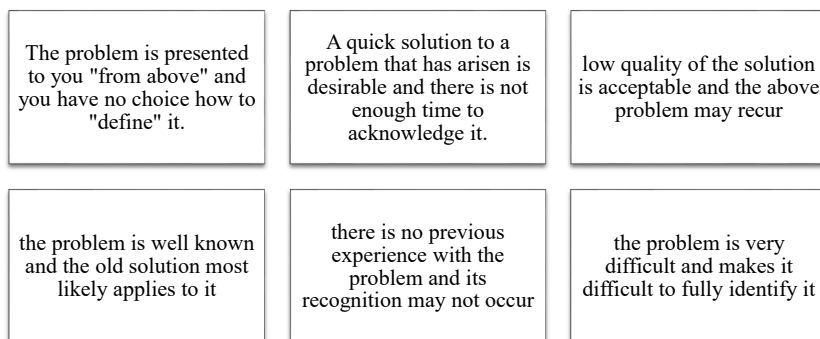


Fig. 1.2.5. Circumstances that may lead to recognition or non-recognition of the problem at different levels of its perception through the prism of management decisions

The most important problems are usually those with the following characteristics:

- the problem receives strong support and pressure from outside in favor of its solution (for example, management insists on completing work on the project within two weeks);
- the problem is supported by the resources necessary for its solution (for example, additional budgetary resources have been allocated);
- solving the problem opens up an opportunity that cannot be refused (for example, entering the market with a new product will allow the company to improve its competitive position).

For example, the search for ways to improve the efficiency of managing the formation of the assortment of goods should be carried out as follows:

- monitoring the market, trade conditions, forecasting demand for goods;
- constant study of the market of used materials and search for all potential new suppliers;
- trying to establish all possible directions for the sale of materials, replenish the stock of resources;
- conducting various exchange transactions with goods;
- purchasing promotional materials;
- cooperating with similar, but not the same enterprises;
- implementing a policy of tactical pricing, which depends on the demand and supply of goods;
- updating product advertising;
- applying progressive forms of selling goods;
- improving customer service;
- using credit resources to expand commercial activities, etc.

With the transition to a free market, human interests, consumer orientation, various forms of production of goods and trade will become more complicated, supplemented with new content, and this is a natural dialectic of the development of assortment management in the conditions of market relations.

To improve the distribution system, it is necessary to:

- update the assortment and remove some outdated sales positions, the company will become more competitive in this market, and will avoid significant financial, entrepreneurial and organizational and commercial risks. To do this, the company's management needs to draw up an assortment policy so that each type of manufactured product can get the maximum effect both in terms of profit and customer satisfaction.

- constantly be in touch with customers, maintain and update data on potential consumers. This may be a goal for management personnel to be able to monitor the market.

- have alternative sources of product suppliers, replenish goods in the warehouse. Expand warehouse areas and rent them out, provide consulting services to other law firms;

- conduct mass advertising activities of the company, provide information to potential buyers about the assortment, quality and availability of goods in stock, location of the store. It would be advisable to hire a marketer for this work, to support all advertising areas. Provide useful and interesting information on television, radio or newspaper;

- update forms and methods of studying demand. Participate in various exhibitions, targeting consumers of the manufactured product at the publishing house, hold presentations of the new product release, this will allow the buyer to learn more about the new product and the opportunity to purchase at the presentation;

- expand the company's areas of activity within the limits provided for by the charter;

- organize wholesale trade, using the company's unoccupied areas.

In the context of the development of an innovative economy, it is possible to formulate the following recommendations:

- always analyze the assortment at enterprises, according to all criteria and wishes of buyers.

- pay attention to service.

- constantly advertise the enterprise.

- check personnel according to all criteria when hiring, periodically provide them with opportunities to improve their qualifications, undergo various seminars and trainings.

- conduct customer surveys using questionnaires (what they are satisfied with or not, etc.), what services they want to receive.

The above recommendations will be useful for companies and will allow them to increase sales of goods.

Taking into account modern business transformations in the economies of countries around the world, the paradigm of doing business in the agricultural sector of the economy has conceptually changed the vectors of strategic development, taking into account modern conditions for the functioning of companies. The transformation of the company's activities had an impact on the change of all, without exception, components of the management system and created the prerequisites for the qualitatively new

implementation of innovations in the field of making balanced and fast management decisions, which allow the company to effectively adapt to changing factors of the external and internal environments.

Enterprise management is an economic category that represents a special form of economic relations that affect processes, an object or a system in order to maintain its stability, or to transfer it to another state in accordance with the set goals. Management occurs when the manager makes a decision, when a new order of relations between the elements of the system is developed to overcome a problem situation, when new connections are established between structural units associated with the modification of the organizational structure (Baskov, 2021).

At the same time, the main goal of the company's activities is to meet the needs of consumers with the rational use of available resources in order to make a profit. However, most business owners from different sectors of the economy claim that the process of a company's functioning is more related to the urgent need for its survival in the market, emphasizing that «economic difficulties and uncertainty of the future do not allow for a long-term forecast of the development of the enterprise and the formation of a model of its functioning» (Mazur, 2020).

The main feature of company management under modern conditions is that an effective management system is, first of all, a system that is able to ensure the rapid adaptation of the company to changes in its business environment while taking into account the requests and meeting the needs of potential consumers as much as possible. Profit should be considered exclusively as a result of the effective functioning of such a management system.

The activities of each business entity are carried out in conditions of uncertainty and risk and depend on the influence of both the internal and external environment. Changes in the external environment are unpredictable or insufficiently predicted. This situation forces companies to make decisions that could reduce the negative impact of external factors on the results of the enterprise's activities (Danylyshyn, Maslyukivska, 2008). Today, the state of economic development is characterized by the need to study the management system of business entities.

An important condition for the effective functioning of any company and the basis for its stable development in a competitive environment is to ensure a high level of its efficiency. Stable functioning, growth of the company's economic potential in an unstable economy depends on the presence of a reliable management system. At the same time, an important stage in the formation of promising development paths and effective management, which allows to reduce the negative impact of an unstable macroenvironment, is a comprehensive assessment of the level of development and determination of the level of reliability and effectiveness of the management system (Nekrasova, Diskina, 2018). This is due to the fact that in market conditions the company must independently develop a strategy for its activities and development, find the resources necessary for its implementation, which requires a significant expansion of the scope of management, increased responsibility of managers for the results of the

company's activities, for the quality and timeliness of making the necessary decisions. Thus, the organization's strategy is an indication of how to transfer the company from the state in which it is now to the desired state; it is a means of achieving the desired results.

The strategy is necessary for both the entire company as a whole and its individual connecting links – scientific research, sales, marketing, finance, labor resources, etc. The company's common strategy is originally based on the company's behavior model and new ideas proposed by managers. When forming a strategy from many feasible options, the manager, acting as an indicator, in a certain way reacting to changes in the market, seeks out new opportunities and is a kind of synthesizer of different trends and approaches taken at different times and in different divisions of the company. However, highlighting the process of developing a strategy, it is necessary to identify the facets of the enterprise's management plan for growth, that is, to determine those actions that determine the company's position in the market and create the basis for success in the future. The organization's strategy should be dynamic and develop in accordance with changes in the external environment. The process of developing a strategy has a sensitive and often unpredictable nature of competition, promising price rises and falls, rearrangements among major industrial competitors, new regulation, reduction or expansion of trade barriers and an infinite number of other events that can contribute to the ineffectiveness of the management strategy.

Features of the company's strategy in modern conditions of globalization transformations are presented in Fig. 1.2.6.

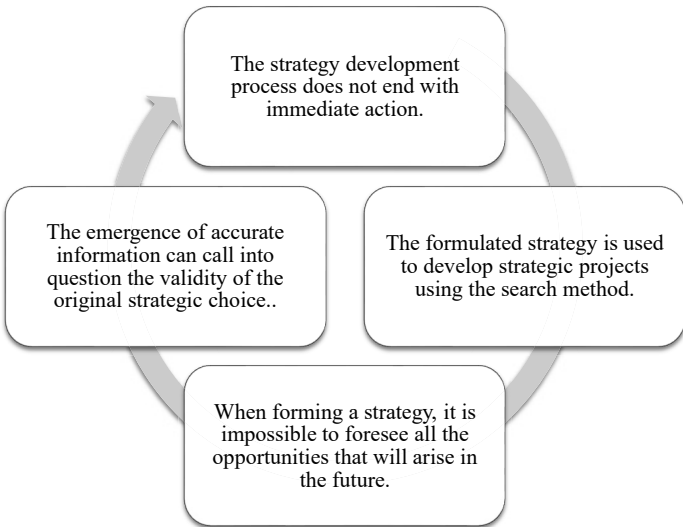


Fig. 1.2.6. Features of the formation of the strategy of enterprises of the agricultural sector of the economy in modern conditions of globalization transformations when analyzing non-financial reporting

The process of strategic planning encounters a number of difficulties in its development. The main difficulty is related to the fact that the process of making preliminary decisions is dependent on the structure of authority in the organization. A new strategy, as a rule, destroys the type of relationships formed in the organization and may conflict with the management policy. The natural reaction to this is the fight against any innovations that violate traditional relationships and the structure of authority. Another significant problem is that the implementation of strategic planning leads to a conflict between the previous types of activities that ensure profit and new ones. In organizations at the first stages of implementing strategic planning, there is neither the appropriate motivation nor the inclination to think strategically.

This problem is due to the fact that organizations usually do not have the information necessary for effective strategic planning about themselves and the external environment. In addition, as a rule, there are no competent managers who are able to develop and implement the strategy.

When forming a strategy for the development of the investment attractiveness of the state's economic system, various approaches are used (Fig. 1.2.7 based on (Poplavska, 2020)).

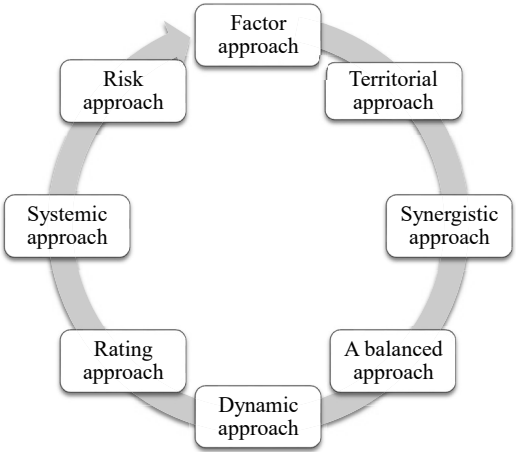


Fig. 1.2.7. List of modern approaches to forming a strategy for developing the investment attractiveness of the state's economic system

Detailing and a thorough in-depth analysis of the spectrum of formation of modern approaches to reproducing the strategy for the development of the investment attractiveness of the state's economic system will allow an objective assessment of the strategic priorities of the national economic system in the conceptual foundations of transformational economic transformations. For example, the factor approach is based on the identification of a spectrum of positive and negative, direct and indirect factors of

influence on determining the level of investment attractiveness of the state's economic system. Conceptually, scientists identify a whole spectrum of various factors of influence on the level of investment attractiveness of the state's economy. However, the economic literature does not identify a generalized single approach to determining the spectrum of influence and existing characteristics of factors forming the level of investment attractiveness of the state's economic system.

The specified spheres of influence of factors determining the level of investment attractiveness of the national economic system determine the need for an in-depth analysis of the indicators of its formation in order to reveal their essential characteristics and significance at the macroeconomic level (Fig. 1.2.8).

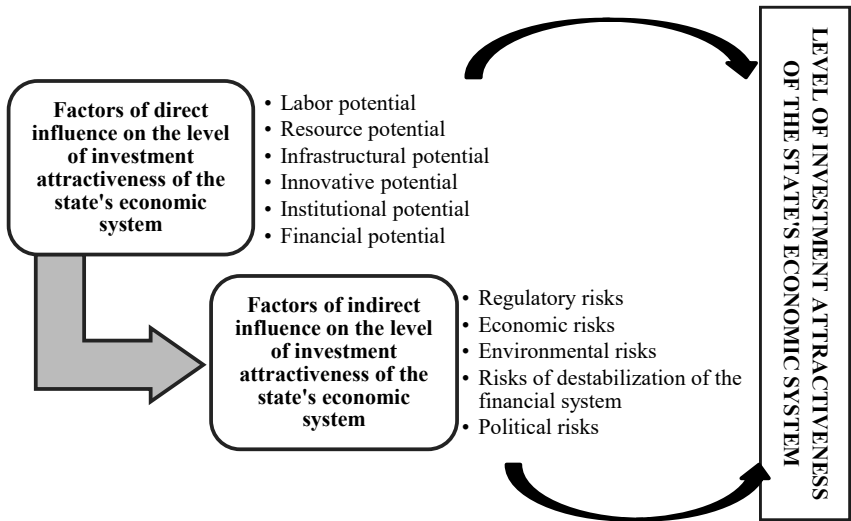


Fig. 1.2.8. List of main factors influencing the formation of the level of investment attractiveness of the national economic system

Each of the specified factors of both direct and indirect influence on the formation of the level of investment attractiveness of the national economic system has a set of both positive and negative aspects, the impact of which determines the issue of ensuring high rating positions of Ukraine on the world stage.

In general, the systematization of factors influencing the formation of the level of investment attractiveness of the economy creates conditions for the adoption of rapid and balanced management decisions by management of the macroeconomic level. The next in the context of conducting the relevant analysis is the risk approach to the formation of a strategy for the development of the investment attractiveness of the economic system of

the state. This approach determines the paradigm of the formation of two main directions, namely: 1) investment attractiveness; 2) investment risk. The main stages of formal strategic planning can be presented in the form of a diagram (Fig. 1.2.9).

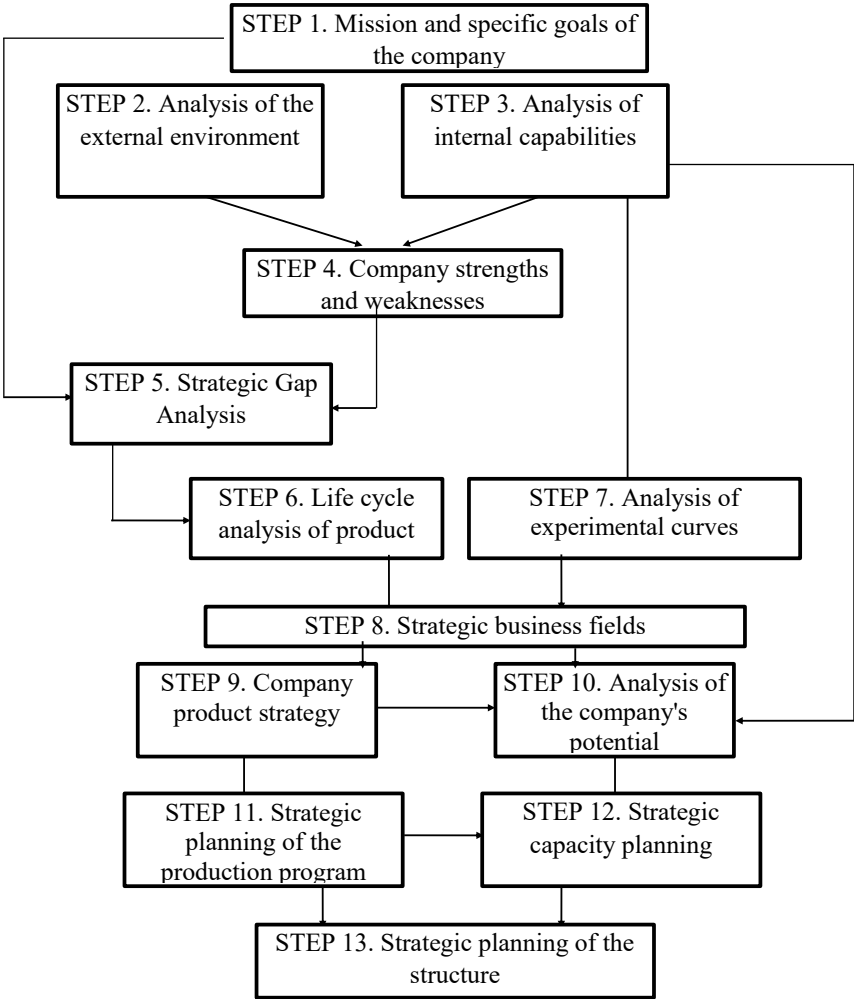


Fig. 1.2.9. The main stages of formal strategic planning of an enterprise in the agricultural sector of the economy through the prism of analysis of modern non-financial reporting tools

One of the conditions for the company to formulate its strategy is the occurrence of sudden changes in the environment. Their cause may be market saturation, technological changes, unforeseen success of a new product, the emergence of numerous new competitors, etc.

Having certain difficulties, the company must solve two extremely critical problems:

- choose a new direction of growth from many alternatives that are difficult to assess;
- direct the efforts of a large team to achieve strategic goals.

The answer to these questions reveals the essence of the development and implementation of the strategy. At such moments, strategy becomes a vital management tool with which the company can withstand changing environmental conditions.

Today, the economy of Ukraine is in a state of development of market relations, its enterprises are given the opportunity to independently manage in market conditions. Of particular importance is the ability of enterprises to plan their activities in such a way as not to go bankrupt, and even better - to make a profit, thereby increasing the welfare of the population. Based on the diversity of characteristics of enterprises, different approaches to the organization of the strategic management system in general and strategic planning in particular are possible.

World experience shows that, based on general principles, each enterprise chooses one or another system, emphasizes individual aspects of its activities, introducing this guideline as the basis for planning. Approaches to the organization of the strategic planning process can be diverse. Most foreign companies use strategic planning as a tool for achieving high economic indicators in their activities: income, profit, profitability, etc. Economic analysis of the possibilities of evolutionary development of the enterprise allows you to calculate the so-called lower limit of the «strategic gap», that is, performance indicators that can be achieved based on trends that have developed in previous periods. However, as a rule, passive registration and imitation of trends do not suit enterprises that are trying to ensure their profitable existence in the long term.

Thus, the strategic planning process is a tool that helps in making management decisions. Its task is to ensure innovations and changes in sufficient volume to adequately respond to changes in the external environment. Strategic planning does not end with any immediate action. Usually it ends with the establishment of general directions, the passage of which ensures the growth and strengthening of the organization's positions.

Non-financial reporting brings significant benefits to enterprises in the agricultural sector of the national economy:

- helps to build a socially responsible business management process;
- builds trust in the enterprise from various groups of influence (stakeholders);
- increases the transparency of the enterprise, as it contains information on the social and environmental aspects of its activities with information on economic results;
- increases the readiness of the enterprise to work in other markets, as it is, in a way, a signal of its maturity, which is useful when the company enters international markets, where the issue of social responsibility of business is of great importance;

– strengthens business relations, as effective communication with business partners allows the enterprise to obtain reputational benefits as open to cooperation by establishing clear requirements for counterparties and transparency regarding the principles of its work.

In general, “the introduction of non-financial reporting of enterprises into Ukrainian practice is a significant step towards European standards of conducting business transparently and responsibly, as well as a «signal» to a foreign investor that the company has a long-term development strategy, cares about its corporate reputation and, accordingly, is worthy of establishing partnerships with it” (Poplavska, 2020).

Non-financial reporting strengthens business relationships and contributes to the expansion of markets, creating opportunities for the company to demonstrate its transparency and openness to cooperation. Effective communication with business partners allows you to set clear requirements for counterparties, which increases the reputational benefits of enterprises in the agricultural sector of the national economy.

The presence of non-financial reporting allows Ukrainian enterprises to maintain and expand business with transnational companies, as well as enter markets where social responsibility of business is an important factor in the competitive struggle. Demanding consumers and compliance with all standards determine a high level of profitability in these markets.

Ukrainian business is only beginning to actively integrate into the global practice of non-financial reporting. Most reports of Ukrainian agrarian companies are available only in Ukrainian, which limits their audience and influence at the international level (Strapchuk, 2022). The small experience of non-financial reporting in Ukraine means that enterprises are quite cautious in disclosing information about their non-financial indicators. This is manifested in significant differences between reports both in terms of volume and detail of information disclosure.

The introduction of non-financial reporting increases the level of trust between the company and its stakeholders, creating the basis for long-term partnerships. This is especially important for attracting investors and partners, because transparency in reporting indicates the reliability and maturity of the company. In addition, conducting socially responsible business helps to attract young professionals who are interested in ethical principles and employer responsibility. Despite the significant role of non-financial reporting, many Ukrainian enterprises in the agricultural sector still do not have sufficient experience in this matter. The lack of a single concept and standardization of non-financial reporting in Ukraine complicates its practical application and increases the level of uncertainty in information disclosure.

Therefore, the introduction of non-financial reporting is an important step in the process of business management in the context of sustainable development and social responsibility. Enterprises of the agricultural sector of the economy that effectively integrate these principles into their activities have much greater chances of success, both in the national and international contexts. However, to ensure efficiency, it is necessary to develop standards and methodologies for compiling such reports, which will ensure unity and transparency in the business environment.

The paradigm of determining priority aspects of sustainable progressive development of the economy of Ukraine determines the potential need to level environmental risks in order to ensure their comprehensive diversification and analytical review of key concepts. The context of the above characteristics determines the urgent need to form generalized complementary mechanisms to ensure a high level of investment attractiveness of enterprises of the agricultural sector of the economy of Ukraine in the context of globalization transformations and potential transformational shifts.

The set of the above characteristics necessitates an in-depth analysis of the essence and main characteristics of the category of "non-financial reporting of enterprises of the agricultural sector of the economy of Ukraine" in order to form a comprehensive mechanism for determining progressive long-term vectors of strategic development at the macroeconomic level.

Theoretical aspects of building an integrated system of financial and non-financial indicators have been sufficiently studied in the scientific literature: the Balanced Scorecard (BSC); comprehensive models of measuring and assessing business efficiency, such as: The Performance Prism, the Tableau de Bord, the European Foundation for Quality Management (EFQM) model, the EP2M model, etc.

One of the technological platforms that can be used for integrated reporting of enterprises in the agricultural sector of the economy of Ukraine is XBRL (eXtensible Business Reporting Language). This platform improves the processes of creating, processing, distributing and analyzing information thanks to a standardized set of definitions, markings, calculations, references and contexts applied to digital and text data. High-quality content created using XBRL can be recognized as one of the approaches to sustainable development of agricultural business. Investigating the methodology for auditing non-financial reporting of enterprises in the agricultural sector of the economy of Ukraine, it can be determined that the basis of such an audit is a set of socially oriented processes and phenomena of the enterprise, which are in the spectrum of the plane of social responsibility, are part of the general system of business management and are subject to audit procedures. Due to the lack of generally accepted standards for the definition, collection and reporting methodology when choosing an economic basis for assessing non-financial indicators of enterprise activity, it is advisable to focus on a specific area of activity of the enterprise in the context of business processes. This complicates the comparison of non-financial reports of different enterprises, as well as the comparison of reports of one enterprise from year to year due to different compilation methodologies. As a result, in practice, auditors feel confident not about the entire non-financial report, but only about its individual indicators or their groups. An important aspect of the audit is the assessment of data collection methods and processes for preparing non-financial reporting in accordance with established verification criteria, which are the basis for conducting an external audit and forming an audit opinion, providing a basis for assessing, measuring and interpreting the subject of control by both the auditor and the user.

The selection of criteria for external audit of non-financial reporting of enterprises of the agricultural sector of the economy of Ukraine also has its own characteristics.

Criteria for external audit of non-financial reporting may include audit standards and assurance, guidelines for reporting in the field of sustainable development, codes of professional ethics of auditors, internal regulations in the field of social responsibility and other regulatory documents.

Methods of non-financial assessment, based on the use of quantitative accounting data, indicators of the physical condition of accounting objects and other physical indicators, include the assessment of:

- functional activity of objects;
- effectiveness of management accounting;
- identified deviations from the norms in material and labor specifications;
- results of the activities of participants in the production process, allowing to assess the contribution of each of them to the total volume of production without the influence of financial factors;
- results of the activities of structural units to motivate participants in business processes and others.

In the context of providing assurance to non-financial information, the most significant methodological problem is to improve the quality of information disclosure and provide evidence regarding the reliability of non-financial report indicators. This issue concerns, first of all, the process of preparing information - its collection, classification and generalization. According to International Standards on Auditing (ISA), accounting and information support for non-financial reporting is one of the most important contextual factors that ensures a high level of information reliability.

The conceptual paradigm of ensuring sustainable economic development determines the need to level potential risk zones in order to diversify them and reorient the strategic context of economic growth. In this aspect, it is necessary to take into account the degree of influence of foreign investment on ensuring a reduction in the risk of potential economic threats, the formation of strategic guidelines for sustainable development, and the expansion of the degree of influence of innovative transformations.

Since the beginning of the full-scale invasion, Ukraine has received financial support from international partners for a total of 66 billion US dollars. In the period 2022-2023, the main foreign investors were companies (brands) that already had facilities in Ukraine at the time of the full-scale invasion. Among them: Carlsberg, Cersanit, Kronospan, Laude, Nestle, Phillip Morris, Velux and others. The vast majority of these international corporations allocated funds for the relocation of production, repair of damaged facilities, and social projects. However, the unconditional focus of the international community is on the defense industry in Ukraine. International corporations BAE Systems (Great Britain), Baykar (Turkey) and Rheinmetall (Germany) are working to start building new enterprises on the territory of Ukraine even during military operations on its territory. As part of this, it is planned to invest more than 300 million US dollars in the Ukrainian economy. In addition, foreign investors pay special attention to investing capital in the construction sector in Ukraine. For example, in 2023, corporations such as Rolls-Royce

(Great Britain), Chicago Atlantic (United States of America), and Wasatch Group (United States of America) invested more than 250 million US dollars of investment capital.

The synergistic effect of transformational changes in the sphere of sustainable development of the economic system of the state determines the need to monitor the level of investment attractiveness of the national economy and identify key aspects of progressive shifts.

The economy of Ukraine functions taking into account the need to defend its national interests in the international arena. The formation of favorable conditions for ensuring an increase in the level of investment attractiveness of the economy involves the following fundamental economic transformations (Fig. 1.2.10).

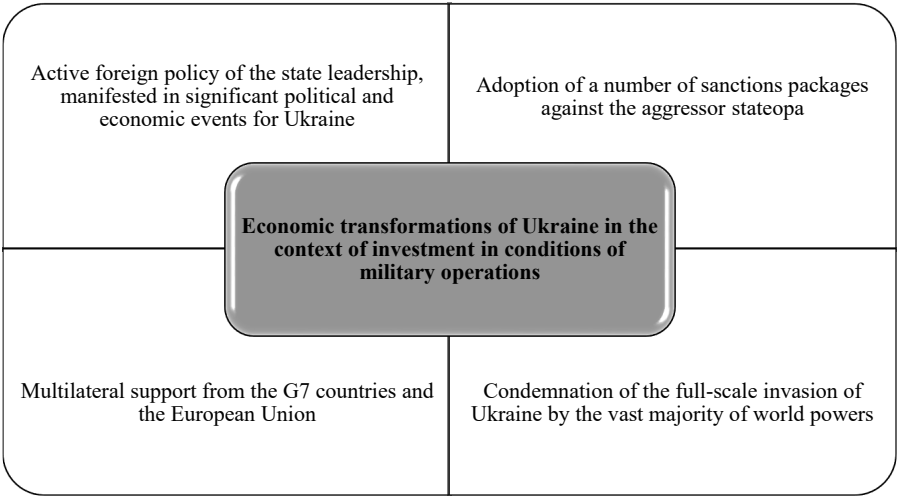


Fig. 1.2.10. Economic transformations of Ukraine in the agrarian sector of the economy in the context of investment in conditions of military operations

Taking into account the above, it can be argued that there is an urgent need to increase the level of the investment attractiveness index of the agricultural sector of the state economy by reducing the negative impact of factors of the external economic environment, revising legislation and making changes in accordance with the standards of the European Union countries, carrying out reforms, creating innovation zones, stopping military operations on the territory of the country, developing special refinancing programs.

The investment agenda of the national economic system reproduces the features of the implementation of a complex of strategic vectors for ensuring economic transformations. The choice of mechanisms and tools for regulating the conceptual

principles of forming a strategy for developing the investment attractiveness of the national economic system depends on the spectrum of solving priority problem aspects, namely: the sectoral affiliation of the state's economic system, the level of its competitiveness in the world arena, the state of the institutional environment, the state of regulatory and legal support, etc.

Thus, it is obvious that the formation of a single generalized reference model for managing the investment attractiveness of the national economic system is impossible.

The corresponding study of the obtained economic calculations is based on measuring the spectrum of influence of factors of external and internal economic influence on the formation of the level of investment attractiveness of the economic systems of the state of the world in order to cluster them according to the following main types of clusters, namely:

- cluster with a high level of investment attractiveness of the economic system of the state;
- cluster with a sufficient level of investment attractiveness of the economic system of the state;
- cluster with a moderate level of investment attractiveness of the economic system of the state;
- cluster with a low level of investment attractiveness of the economic system of the state.

The dynamics of comparative analysis of the state of the economic systems of the world through the prism of indicators of the level of their investment attractiveness, the comparative aspect of data for 2020 and 2023 is presented in Table. 1.2.1.

In order to conduct a comparative analysis of the spectrum of the corresponding clustering of the level of investment attractiveness of the economic system of the world, two periods were selected - 2020 and 2023. To assess the comprehensive impact of the dispersion, cluster and discriminant analysis of the specified problematic aspect of determining the level of investment attractiveness of the economic system of the state, a special software package Statistica and Deductor Academic were used.

In the context of changes in the economic system of the state, new priorities for the system of development of the investment attractiveness of the national economy for the current period are being formed (Fig. 1.2.11).

Therefore, the system-functional approach to the strategic provision of the functioning of the system for the development of the investment attractiveness of the national economy is formed on three main postulates, namely:

- conducting a comprehensive in-depth analysis of the economic situation in the state, taking into account the specifics of its problematic aspects;
- formulating a strategic plan for ensuring the progressive development of the national economic system in the long term;
- monitoring and ensuring an effective level of management of innovative changes (for example, outsourcing, formulation of key economic indicators, benchmarking at the macroeconomic level, etc.).

Table 1.2.1

Dynamics of comparative analysis of determining the state of economic systems of countries in the world through the prism of indicators of their investment attractiveness, comparative aspect of data for 2020 and 2023

| YEARS / CLUSTERING DYNAMICS | 2020 | | 2023 | |
|-----------------------------|---|---|---|--|
| | Cluster name | Cluster composition | Cluster name | Cluster composition |
| | Cluster with a high level of investment attractiveness of the state's economic system | Austria, Belgium, Netherlands, Norway, Sweden, Denmark, Finland, France, Germany, Luxembourg, Switzerland, United Kingdom | Cluster with a high level of investment attractiveness of the state's economic system | Sweden, Denmark, Finland, France, Germany, Luxembourg, Switzerland, United Kingdom |
| | A cluster with a sufficient level of investment attractiveness of the state's economic system | Ireland | A cluster with a sufficient level of investment attractiveness of the state economic system | Czech Republic, Ireland |
| | Cluster with a moderate level of investment attractiveness of the state's economic system | Czech Republic, Poland | Cluster with a moderate level of investment attractiveness of the state's economic system | Poland, Kazakhstan, Bulgaria, Turkey, Montenegro, Lithuania |
| | Cluster with a low level of investment attractiveness of the state's economic system | Greece, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Montenegro, Albania, Armenia, Belarus, Bulgaria, Croatia, Cyprus, Estonia, Georgia, Portugal, Romania, Turkey, Ukraine | Cluster with a low level of investment attractiveness of the state's economic system | Greece, Belarus, Cyprus, Estonia, Romania, Ukraine, Portugal |

Increasing the share of the investment decision implementation sector by simplifying the system for selecting investment projects and programs

Attracting additional financing for the implementation of innovative investment projects of a national scale

Improving the system of resource provision for transformational economic transformations

Fig. 1.2.11. Current priorities of the system for developing the investment attractiveness of the national economy in conditions of a full-scale military invasion

World practice shows a high degree of interest in the implementation of investment transformation processes at the macroeconomic level. The investment agenda emphasizes the complexity of solutions for the system for the development of investment attractiveness, taking into account the need to implement a range of structural economic transformations and transformational shifts.

The formation of strategic priorities and operational objectives of the strategic management system for the development of the investment attractiveness of the agricultural sector of the economy of Ukraine necessitates the identification and analysis of a large number of threats to this system through the prism of innovative support, transformational economic transformations in the medium and long term.

The following factors have the greatest share among the factors of direct influence on the investment attractiveness of enterprises in the agricultural sector of the national economy:

- human resources;
- duration of the investment program;
- condition of property and financial resources;
- amount of expenses.

Improving the indicators of these factors will positively affect the investment attractiveness of the enterprise and the inflow of investments in general.

In the management aspect, it is advisable to consider the investment attractiveness of an enterprise as a system of financial, economic and other relations that arise in the process of ensuring the effective development of the enterprise and meeting the requirements of potential investors. To assess the state of this system, you can use a variety of indicators that reflect various aspects of the enterprise's activities that are important for its future and interesting for investors. Based on the above, we will define the concept of "management of the investment attractiveness of an enterprise" as a process of purposeful influence of the enterprise's management on the system of financial, economic and other relations that arise in the process of ensuring the effective development of the enterprise and meeting the requirements of potential investors. The purpose of this process is to ensure the investment attractiveness of an enterprise in the agricultural sector of the economy. Taking into account the requirements of potential investors and the influence of external environmental factors, the enterprise's management develops a set of actions that form, coordinate and control financial, economic, production, labor and other relations within the enterprise in order to ensure its investment attractiveness. Based on the results of the assessment, an analysis of the factors and reasons for its change is carried out, then decisions are made to regulate internal relations and planned tasks are established or adjusted for each direction of the enterprise's activity in accordance with the main task of managing the investment attractiveness of the enterprise - ensuring positive dynamics of the state of the investment attractiveness system of the enterprise. To increase the probability of fulfilling the planned tasks to improve the investment attractiveness of enterprises in the agricultural sector of the national economy, motivation of this process is necessary, aimed at improving the financial and economic performance of the

enterprise, the results of which are monitored and evaluated, like other areas of activity. Based on the main tasks and areas of activity to ensure investment attractiveness, the following main functions of managing the investment attractiveness of enterprises in the agricultural sector of the economy can be distinguished:

- planning;
- organization;
- motivation;
- assessment and control;
- analysis;
- regulation;
- coordination.

In today's dynamic conditions of social development and fierce competition, it is important for every enterprise in the agricultural sector of the economy to be competitive, successfully withstand competition, and create value for society. Financial stability and successful operations of enterprises in the agricultural sector are directly related to non-financial indicators and the orientation of activities, positions in ratings, reputation, openness, and social responsibility. One of the effective modern tools for improving work and achieving competitive advantages is non-financial reporting. Currently, the conditions for managing an enterprise go beyond financial and economic indicators and also require data on social and environmental aspects of activities. European integration processes and the entry of domestic enterprises in the agricultural sector into the world market require the introduction of modern practices of interaction between both the state and business, and, in turn, business and society, which would make it possible to strengthen the mutual responsibility of all participants in public life and create conditions for their further successful development. As practice shows, 75% of global investment fund managers believe that a company's sustainability performance affects its investment attractiveness. The provision of non-financial indicators in companies' annual reports is becoming increasingly common around the world.

Non-financial reporting contains information about economic performance, social and environmental performance. Non-financial reporting refers to the disclosure and reporting of a company's performance in the field of sustainable development to internal and external stakeholders (stakeholders). The main objective of non-financial reporting is to inform about the economic, environmental and social consequences of the company's daily activities. This report also reflects the organization's value and management model, demonstrates the connection between its strategy and commitment to a sustainable global economy. Non-financial reporting is a tool for corporate social responsibility. The main goal of non-financial reporting is to help enterprises in the agricultural sector of the economy measure, understand and communicate to stakeholders about their economic, environmental, social and management activities, and then set goals and manage changes more effectively. That is, this report serves as the main platform for communicating sustainable development results and impacts – positive or negative – which becomes a real basis for creating social, environmental, and economic benefits for everyone.

Non-financial reporting has different:

- forms of preparation, from those defined and approved by international standards that determine its content and format, to those compiled in a free form according to one's own ideas and concepts;

- names, namely: sustainable development report; corporate social responsibility report; social report; report on progress in implementing the principles of the Global Compact; integrated report, etc.

Non-financial reporting compiled according to GRI standards, as a tool for managing a company to measure social responsibility, has its advantages - both internal and external. Internal advantages include:

- deepening the understanding of risks and opportunities;
- emphasis on the connection between financial and non-financial indicators;
- impact on long-term management strategy, policy and business plans;
- streamlining business processes, reducing costs and increasing efficiency;
- benchmarking and assessing development performance in accordance with the implementation of laws, regulations, codes, standards and voluntary initiatives;
- comparing productivity within the enterprise.

Among the external benefits:

- improving the reputation and trust in the enterprise;
- involving external stakeholders to assess the true value of the organization, its tangible and intangible assets;
- identifying the impact of the organization on expectations for sustainable development.

The GRI sustainable development reporting standards are developed taking into account the real contributions of stakeholders and are enshrined in the public interest. Along with this, there are other standards and reports that are rapidly gaining popularity, including the international IIRC standards and SASB standards (USA), which relate to sustainable development issues.

In the context of a full-scale military invasion of the territory of Ukraine, the aspect of ensuring the protection of the national economic system from the influence of fluctuations of various kinds becomes paramount. Therefore, ensuring a high level of investment attractiveness of the national economic system through the prism of digital processes plays a conceptual role in the formation of globalization transformational shifts. To overcome the consequences of crisis phenomena and expanded reproduction in Ukraine, it is necessary to activate and increase investment activity, which would ensure this expanded reproduction with a constant flow of financial resources. Table 1.2.2 presents the latest stages of the process of ensuring strategic management of the system for developing the investment attractiveness of the agricultural sector of the economy of Ukraine in the context of transformational shifts and economic fluctuations.

As a result of the study of the current state of investment attractiveness in the economy of Ukraine, it can be stated that the dynamics of the investment attractiveness index of the economy of Ukraine has been decreasing in recent years, which is due to the influence of a number of factors of external and internal economic transformations, the consequences of a full-scale military invasion of the country's territory.

Table 1.2.2

The latest stages of the process of ensuring strategic management of the system for developing the investment attractiveness of the Ukrainian economy in the context of transformational shifts and economic fluctuations

| No. | Name of the strategic management stage | The purpose of the strategic management stage | Research methods used at this stage |
|-----|--|---|---|
| 1. | Conducting a critical analysis of the degree of influence of external and internal economic factors | Identification of potential and existing economic threats, grading them by degree of risk and formulating key aspects of solving problematic issues | Foresight, factor method, generalization, grouping, comparison |
| 2. | Formulation of priority strategic goals in the medium and long term | Definition, formulation and detailing of tactical and strategic priorities and operational objectives of the strategic management process of the system for developing the investment attractiveness of the state economy | Foresight, generalization, grouping, theory of logic |
| 3. | Conducting strategic analysis at the macroeconomic level | Critical analysis of the state of the economic environment in the country, assessment of its level of competitiveness on the world stage | SWOT analysis, comparison, analysis and synthesis, grouping, foresight, clustering |
| 4. | Formulation of a list of major and secondary potential risks and economic threats to the strategic management system for the development of the investment attractiveness of the state economy | Formulation of a list and grouping, reorientation and prioritization of potential threats to the strategic management system for the development of the investment attractiveness of the state economy | Grouping, comparison, generalization, analysis and synthesis, analytical hierarchy process, classification, cognitive map, expert assessments |
| 5. | Conducting a critical assessment of the level of investment attractiveness of the national economic system | Detailing and development of methodological support for assessing the level of development of the investment attractiveness of the state economy | Grouping, comparison, generalization, analysis and synthesis, classification, expert assessments, scaling, cluster analysis, correlation analysis |
| 6. | Creation and modeling of possible scenarios for the development of events regarding the impact on the level of investment attractiveness of the national economic system | Development and implementation of mechanisms to ensure a high level of development of the investment attractiveness of the state economy in difficult conditions of influence of factors of the external and internal economic environment. | Scenario approach, abstraction, scaling, cluster analysis, idealization, cognitive map |
| 7. | Formulation of tactical and strategic steps to ensure a high level of investment attractiveness of the national economic system | Creation of a set of fundamental mechanisms to ensure a high level of development of the investment attractiveness of the economy through a set of tactical and strategic steps at the macroeconomic level. | Grouping, generalization, systematic approach |
| 8. | Development of comprehensive mechanisms to ensure a high level of investment attractiveness of the national economic system in conditions of risk diversification | Development and implementation of a set of strategic plans, priority mechanisms, and strategic measures to ensure a high level of development of the investment attractiveness of the state economy. | Target programming, idealization |

Summarizing the above, it becomes obvious that determining the level of investment attractiveness is a parallel process to carrying out investment research and assessing the investment environment at the micro level, which will become a serious basis for increasing investment attractiveness in market conditions.

The main stages of strategic management in the context of assessing the role of non-financial reporting in the formation of the investment attractiveness of enterprises in the agricultural sector of the national economic system are the following:

- 1) conducting a critical analysis of the degree of influence of external and internal economic factors;
- 2) formulating priority strategic goals in the medium and long term;
- 3) conducting a strategic analysis of the macroeconomic level;
- 4) formulation of a list of major and secondary potential risks and economic threats of the strategic management system for the development of the investment attractiveness of the state economy;
- 5) conducting a critical assessment of the level of investment attractiveness of the national economic system;
- 6) creation and modeling of possible scenarios of events regarding the impact on the level of investment attractiveness of the national economic system;
- 7) formulation of tactical and strategic steps to ensure a high level of investment attractiveness of the national economic system;
- 8) development of comprehensive mechanisms for ensuring a high level of investment attractiveness of the national economic system in the context of risk diversification;
- 9) monitoring the status of the strategic management system for the development of the investment attractiveness of the national economic system;
- 10) development of scenarios for the prospective development of the investment attractiveness of the national economic system in the short, medium and long term.

In Ukraine, there are several fundamental approaches to assessing the degree of effectiveness of the functioning of the state-level mechanism for responding to threats to the surrounding economic environment (Fig. 1.2.12). Thus, taking into account the above, it is necessary to create and use a state mechanism for rapid response to threats to the surrounding economic environment, namely, a strategy for protecting the country's economic system.

At the current stage of development of the economic system, it is necessary to take into account the social and public position of the enterprise, which is very important in the conditions of a post-industrial society. The inclusion of non-financial reporting in the reporting, which reflects, along with financial and economic indicators, non-financial indicators and an integral indicator, will allow assessing the role and significance of the enterprise in solving socially significant problems. Those enterprises that have long set their sights on foreign investors and operate outside Ukraine understand the importance and value of a positive image of their enterprise, and this is not only its profitability, which can be seen in financial reporting, but also the strategic vision, development prospects, which are revealed in non-financial reporting. In recent years, Ukrainian enterprises have been increasingly deepening their integration into international business and international

reporting standards. Therefore, taking into account the global practice of developed countries and the need to introduce a comprehensive analysis of the issue, it is advisable to create a separate expert approach in the context of assessing the degree of effectiveness of responding to threats from the surrounding economic environment.

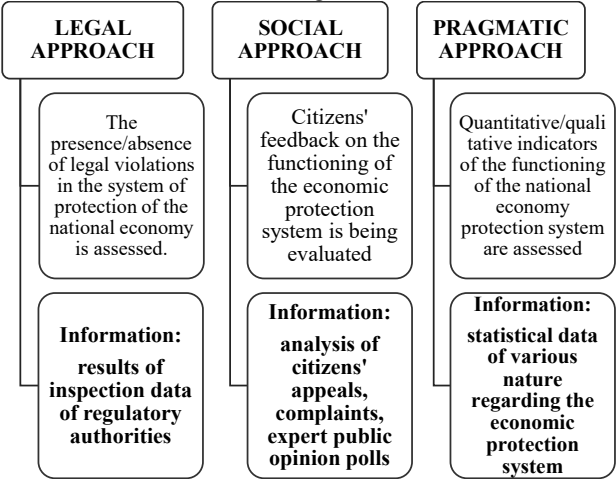


Fig. 1.2.12. Fundamental approaches to assessing the degree of effectiveness of the functioning of the state-level mechanism for responding to threats from the surrounding economic environment in forming the investment attractiveness of enterprises in the agricultural sector of the economy

The corresponding approach, in the context of the fundamental characteristics, will include a symbiosis of the previous three approaches to assessment, adding an expert assessment of determining the effectiveness of the functioning of the national economy protection system in the conditions of a full-scale military invasion. The appropriate assessment will be based on the main complex questions of a detailed examination for different groups of respondents, which in its entirety will form the public opinion of various groups of the population regarding the general economic situation in the country and the determination of its individual prospects. The impartiality and openness of the appropriate expert survey will eliminate possible potential risks to the system of protecting the economy of Ukraine in the medium and long term.

Taking into account global trends towards increased responsibility of business for the use of natural resources, the priority goal of the post-war recovery of the Ukrainian economy, and in particular the agricultural sector, should be the transition to sustainable management technologies and the development of sectoral environmental accounting and reporting. Achieving this task requires the joint efforts of the state, as a subject of state agrarian policy, the scientific community, as a subject of information support, and agricultural enterprises.

1.3. SOLVENCY MANAGEMENT IN THE SYSTEM OF ENSURING THE FINANCIAL AND ECONOMIC SECURITY OF AN AGRICULTURAL ENTERPRISE

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In the modern Ukrainian economy, many enterprises are facing the problem of replenishing the shortage of their own working capital. This has led to widespread disruptions in the synchronization of cash flows, a lack of funds to repay urgent debts, and a decline in enterprises' solvency indicators.

Entrepreneurial activity in some sectors of the Ukrainian economy is accompanied by a high risk of insolvency. This risk is especially acute in the agricultural sector after the full-scale invasion. As a result, up to 70% of agricultural enterprises are unprofitable and insolvent. At the same time, the peculiarities of market relations in Ukrainian agriculture give rise to overdue debts even among profitable producers. Therefore, the issue of overcoming insolvency is particularly relevant today.

Under current challenging economic conditions, where enterprises face various risks on a daily basis, it is crucial to establish the appropriate solvency level, as the loss of solvency threatens a company with bankruptcy. It is worth noting that, for a company, solvency is the ability of an economic entity to fulfill its obligations to creditors, suppliers, personnel, and the government – in the required amounts and within set deadlines. This indicator is a strategic measure of a company's financial stability, reflecting its creditworthiness and the effectiveness of its financial resource management.

Solvency reflects the ability of an economic entity to cover its financial obligations. Based on this, a company's solvency can be assessed by subtracting liabilities from assets, which constitutes the shareholder capital. There are also other solvency indicators that highlight various aspects of solvency for more detailed analysis. A significant number of enterprises have negative shareholder capital, which indicates insolvency. Negative shareholder capital signifies the absence of the company's balance sheet value and points to losses for business owners. Essentially, if a company were required to be liquidated immediately, it would need to sell all of its assets and use the proceeds to settle liabilities, leaving only the shareholder capital as the remainder of its value. Let us consider various academic perspectives on the essence of a company's solvency.

Iorgacheva M.I., Kotsyurubenko G.M., Kovaleva O.M. emphasize that the solvency of an economic entity is determined by its financial stability, which is indicated by the amount of current assets financed through long-term sources. The state of current solvency or insolvency reflects whether the current assets are adequately supported by long-term financing sources. The critical nature of solvency underlines the fact that any business entity seeks to increase its level of solvency and thus develops methods for strengthening

and improving it (Iorgacheva et al., 2023).

Snitkina I.A. states that a company's solvency at the microeconomic level should be understood as its ability to meet financial obligations using its own or borrowed resources. This includes making payments to satisfy all counterparties, fulfilling obligations to employees, and meeting obligations to the state. This definition highlights the importance of financial settlements both within the enterprise and with external partners (Snitkina, 2019).

We agree with the viewpoint of Kharchenko O.S., who notes that solvency is a key element that ensures a company's stability and competitiveness both in the short term and in the future, enabling it to quickly respond and adapt to internal and external factors in a modern market environment (Kharchenko, 2015).

Stasyuk L. emphasizes that there are two types of solvency: current (short-term) and prospective. Current solvency reflects the company's ability to settle payments at a given moment and is assessed based on its financial flows: cash inflows must be sufficient to cover current liabilities. It also shows the company's ability to meet its short-term obligations on time. Prospective solvency, on the other hand, assesses the company's ability to fulfill financial obligations in the medium and long term (Stasyuk, 2019).

It should be noted that solvency is interdependent with the balance between available funds, the volume of liquid assets, and the company's financial liabilities. The key components of solvency are grouped and presented in Fig. 1.3.1.

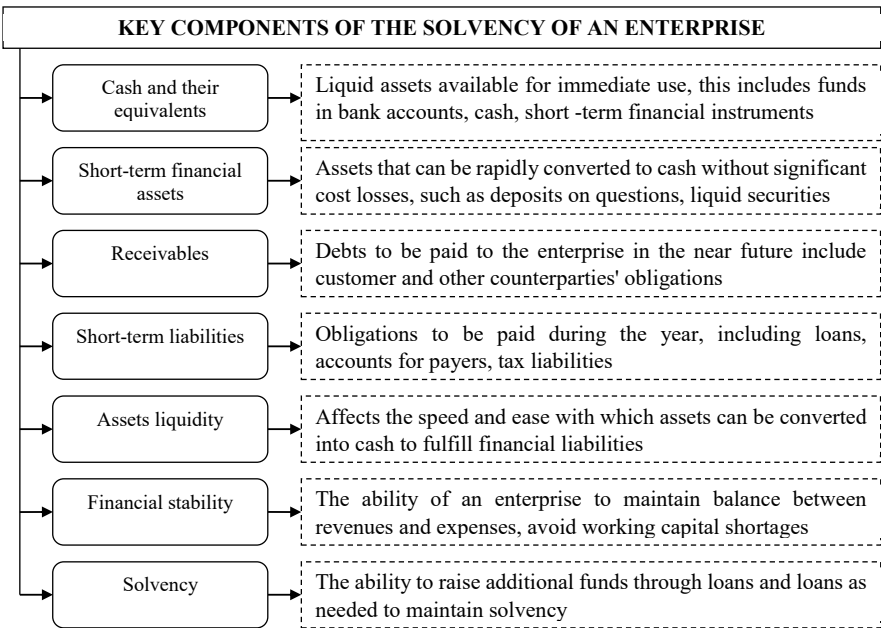


Fig. 1.3.1. The key components of the solvency of agrarian enterprise

We share the viewpoint of Tomchuk O.F., who states that the operations of domestic enterprises are significantly complicated by a prolonged non-payment crisis, an increase in accounts receivable and payable, unfavorable tax legislation, and an acute shortage of financial resources. In order to maintain their position under such conditions, enterprises must constantly monitor and improve their financial indicators. The ability of economic entities to make scheduled payments on time and in full, settle urgent liabilities, and maintain a stable pace of activity is a crucial factor in competitiveness and financial stability. Solvency and liquidity ensure stable financing of operational activities, which is manifested in the availability of financial resources and the reliability of relationships with other economic entities. Therefore, there is an urgent need to analyze and develop new approaches to effective solvency management for enterprises (Tomchuk, 2023).

It is appropriate to mention the statement by Olesenko I.S., who emphasizes that financial stability and solvency provide a company with competitive advantages in attracting investments, obtaining loans, choosing suppliers, and recruiting highly qualified personnel. Moreover, such a company avoids conflicts with the state and society, as it meets its obligations to the budget in a timely manner, pays contributions to social funds, wages to employees, dividends to shareholders, and repays loans with interest to banks (Olesenko, 2022).

It should be noted that solvency serves as the foundation for ensuring the stability of business operations, effective financial management, and maintaining a strong reputation with partners, investors, and creditors. In today's reality, the solvency of domestic enterprises is decreasing due to the lack of payment discipline, a constant increase in receivables and payables, reduced production capacity, and a worsening shortage of financial resources.

It is important to note that the following key indicators are used to analyze a company's solvency: the current liquidity ratio, which shows the enterprise's ability to cover its short-term obligations with current assets; the quick liquidity ratio, which evaluates the ability to settle debts using the most liquid assets; the absolute liquidity ratio, which indicates the portion of obligations the company can immediately repay.

Thus, it should be emphasized that solvency is the foundation of a company's financial stability and viability. It enables the company to maintain competitiveness, achieve strategic goals, and sustain effective interactions with market participants. Solvency management is a core principle of financial management, requiring a systematic approach, prompt monitoring, and continuous improvement of managerial decisions.

The management of enterprise solvency and financial-economic security requires a systematic approach that incorporates various methodologies and tools. We share the view of Rogatina L.P., who states that managing an enterprise's solvency and financial-economic security is aimed at reducing the risks that accompany its operations. For each enterprise, a key task is to forecast its financial and economic condition, assess risks in light of its functional operations, and implement measures to protect against the influence of various internal and external factors. Financial-economic security is ensured through the implementation of a comprehensive, coherent, balanced,

and coordinated system of actions that respond to existing threats. Without such an integrated system, it is impossible to overcome crisis phenomena, stabilize the economic situation, or establish effective mechanisms for social protection (Rogatina, 2020).

The continuous assurance of financial and economic security for every business entity is a necessary condition for maintaining operational stability and achieving key objectives. The level of economic security of an enterprise depends on the efficiency of its management and specialists, who must be able to anticipate potential threats in a timely manner and mitigate their negative consequences.

The opinion of Preobrazhenskaya O.S. is also appropriate here, asserting that the main goal of managing an enterprise's financial-economic security is effective risk management, threat minimization, and the neutralization of external destructive factors beyond the enterprise's control. In order to adapt to changes in the external environment, financial and economic security management must focus on improving resource utilization efficiency, expanding market access, establishing effective interaction with external stakeholders, and ensuring enterprise competitiveness in the short term (Preobrazhenskaya, 2020).

It should be noted that the implementation of such methodological approaches to managing solvency and financial-economic security enables enterprises to ensure stability, minimize risks, and create the conditions necessary for long-term development amid economic instability.

An interesting perspective is offered by Bondarchuk N.V., Pedko A.S., who emphasize that financial and economic security plays a crucial role in the operations of any enterprise, especially in times of instability, and is ensured through the implementation of the following measures: achieving the company's set goals and fulfilling its tasks; ensuring access to resources and markets; maintaining an adequate level of financial and economic performance; creating conditions for sustainable development; and protecting against internal and external threats and risks (Bondarchuk et al., 2023).

Kovalchuk A.M. also highlights – and we agree with his view – that the level of financial and economic security is influenced by various external and internal factors. Among the external factors are the state's economic policy, regulatory frameworks, market conditions, the country's strategic development, tax and interest rates, investment activity, the state of the consumer market, and the advancement of digital technologies. Internal factors include the technological specifics of production, the level of innovation, human resource potential, management processes, and the enterprise's own investment activity (Kovalchuk, 2020).

Therefore, considering the above, it is essential to underline the importance of monitoring and effectively managing the level of an enterprise's financial and economic security. In the context of managing enterprise solvency, it should be noted that solvency management is the process of ensuring that the company can fulfill its obligations to creditors, suppliers, employees, and the state within established deadlines. Solvency is a key indicator of financial stability and the overall effectiveness of the enterprise's

operations. The methodology for managing enterprise solvency is illustrated in Fig. 1.3.2.

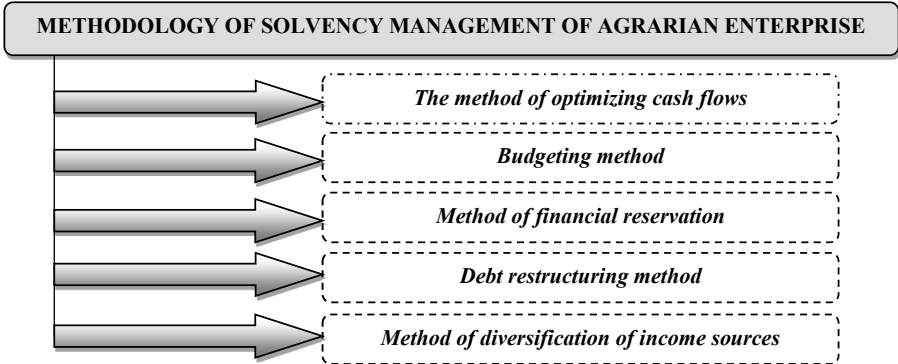


Fig. 1.3.2. Methodology for agrarian solvency management

In analyzing Fig. 1.3.2, it is crucial to emphasize the importance of implementing tools for cash flow forecasting and management, developing cash budgets for each business unit, creating a contingency fund for unforeseen expenses, expanding the product range, and entering new markets.

One of the key conditions for ensuring the financial and economic security of the agricultural enterprise FG “Vpered-Agro” is its solvency. An enterprise is considered solvent if it can meet its debt repayment schedule with counterparties on time and without violating contractual terms. The solvency level of enterprises is largely determined by their industry-specific characteristics. Table 1.3.1 presents the solvency indicators of FG “Vpered-Agro”, which operates in the agricultural sector.

Table 1.3.1

Solvency assessment indicators FG “Vpered-Agro”

| Показник | 2020р. | 2021р. | 2022р. | 2023р. | 2024р. | Ratio in % (deviation,+;-) 2024 to 2020. |
|---------------------------------|--------|--------|--------|--------|--------|---|
| Absolute liquidity ratio | 3,74 | 3,08 | 0,04 | 0,03 | 0,01 | 0,27 |
| Quick ratio | 12,30 | 12,87 | 0,10 | 0,09 | 0,11 | 0,91 |
| Current ratio (total liquidity) | 145,14 | 39,40 | 2,07 | 1,95 | 2,56 | 1,76 |
| General solvency ratio | 162,68 | 43,56 | 3,61 | 3,20 | 3,70 | 2,28 |

The analysis of liquidity and solvency indicators indicates a decline in the company’s financial stability from 2020 to 2024.

The absolute liquidity ratio dropped sharply from 3.74 in 2020 to 0.01 in 2024, indicating a serious deterioration in the company's ability to quickly cover its short-term liabilities. This reflects a 27% change compared to 2020.

The quick ratio also decreased significantly from 12.30 in 2020 to 0.11 in 2024,

pointing to weakened ability to cover current liabilities with moderately liquid assets. The deviation in 2024 is 91% of the 2020 value.

The current ratio (total liquidity) also dropped drastically, although it remained at 2.56 in 2024. This still indicates a substantial decline from 145.14 in 2020, with a final deviation of 1.76% of the 2020 level.

The general solvency ratio also declined, although it increased slightly to 3.70 in 2024 compared to 3.20 in 2023. However, the drop compared to 2020 remains significant.

Overall, the company is facing serious liquidity and solvency issues that must be addressed to restore financial stability.

The analysis of liquidity and liability indicators over the 2020–2024 period reveals major changes in the structure of the company's assets and liabilities, which require close attention. Highly liquid assets dropped from UAH 21,000 in 2020 to UAH 9,000 in 2024, a decline of 42.72% from 2020, indicating a significant decrease in assets that can be quickly converted to cash. Moderately liquid assets increased substantially from UAH 657,000 in 2020 to UAH 1,771,000 in 2024, representing a 169.75% growth, highlighting greater reliance on less immediately available resources. Low-liquid assets grew from UAH 150,000 in 2020 to UAH 542,000 in 2024, a 262.81% increase, indicating an undesirable trend of accumulating less liquid assets.

Most urgent liabilities rose sharply from UAH 6,000 in 2020 to UAH 316,000 in 2024 – an increase by a factor of 52.6 – signaling significant short-term repayment pressure. Short-term liabilities increased from zero in 2020 to UAH 591,000 in 2024, indicating rising obligations due within a year, which also heightens financial risk. Long-term liabilities are not specified for the entire period, which may indicate either their absence or an unsatisfactory level – this can be both a positive or negative factor, depending on the enterprise's capital structure.

Comparing the liquidity rates listed in Table 1.3.1, it should be noted that the liquidity of the FG “Vpered-Agro” balance differs from the absolute, since the first inequality ($A1 \geq P1$) is performed in only four years (2020-2023), two other inequalities are performed ($A2 \geq \text{tic2}$; $A2$; $A3 \geq$).

During the period from 2020 to 2024, FG “Vpered-Agro” survived significant changes in asset management and liabilities. The main problem is a sharp increase in fixed and short-term liabilities, as well as reducing highly liquid assets. This may indicate increasing financial pressure, which requires immediate attention to ensure the solvency and stability of the enterprise in the future.

The dynamics of assessment of current assets in FG “Vpered-Agro” for the study period is given in Table 1.3.2. An analysis of the financial indicators FG “Vpered-Agro” from 2020 to 2024 reveals positive changes in the efficiency of current asset utilization and increased operational scale.

Net revenue from sales increased from UAH 1,041 thousand in 2020 to UAH 4,583 thousand in 2024, indicating significant growth in sales volume and overall business expansion. This reflects the successful implementation of a growth strategy and revenue improvement.

The average annual value of current assets grew from UAH 868 thousand in 2020 to UAH 2,100 thousand in 2024, indicating increased investment in current assets to support

the growing scale of operations and to maintain liquidity.

Table 1.3.2

Assessment of current asset turnover FG “Vpered-Agro”, UAH thousand

| Indicator | 2020p. | 2021p. | 2022p. | 2023p. | 2024p. | Ratio in % (deviation,+;-) 2024 to 2020. |
|--|--------|--------|--------|--------|--------|--|
| Net income from sales of products (goods, works, services) | 1041,0 | 2425,0 | 2215,0 | 3212,0 | 4583,0 | 440,24 |
| The average annual value of current assets | 868,0 | 1127,0 | 1385,0 | 1611,0 | 2100,0 | 241,87 |
| Rotation ratio of current assets | 1,20 | 2,15 | 1,60 | 1,99 | 2,18 | 182,02 |
| The load ratio of current assets | 0,83 | 0,46 | 0,63 | 0,50 | 0,46 | 54,94 |
| The duration of one turnover of current assets, days | 300,0 | 167,0 | 225,0 | 181,0 | 165,0 | 55,0 |

The current asset turnover ratio improved from 1.20 in 2020 to 2.18 in 2024. This indicates a substantial increase in the efficiency of current asset utilization: the enterprise became more effective at generating revenue per unit of current assets, which is a positive signal for its financial condition.

The current asset load ratio decreased from 0.83 in 2020 to 0.46 in 2024, indicating improved efficiency in current asset utilization. The lower this ratio, the more productively the enterprise is using its resources with less financial strain.

The duration of one turnover cycle for current assets dropped from 300 days in 2020 to 165 days in 2024. This means a significantly shorter time is now required to convert current assets into cash, improving the company’s liquidity and operational efficiency.

Overall, from 2020 to 2024, the enterprise has demonstrated positive trends in revenue growth and improved current asset utilization efficiency. The increase in asset turnover ratios and reduction in turnover cycle duration highlight enhanced operational effectiveness, allowing FG “Vpered-Agro” to generate income more rapidly and use its resources more efficiently.

To ensure the financial and economic security FG “Vpered-Agro”, it is considered appropriate to calculate the probability of bankruptcy. We will assess the likelihood of the enterprise's bankruptcy using four models: Tereshchenko O.O., Savytska H.V., Sabluk P.T., and Chupis A.V. (see Table 1.3.3).

Tereshchenko Model: From 2020 to 2022, the Z-score remained above 1.0, indicating financial stability. However, in 2023 the score dropped to 0.98, and further declined to 0.78 in 2024, signaling emerging financial distress and a risk of bankruptcy.

Savytska Model: The enterprise maintained a Z-score above 8 from 2020 to 2022, signifying a low risk of bankruptcy. In 2024, however, the score decreased to 7.64, reflecting a notable decline in financial stability.

Sabluk Model: The enterprise showed no risk of financial difficulties until 2023. In 2024, the evaluation changed to “at risk,” indicating increasing vulnerability.

Table 1.3.3

Bankruptcy Probability Models

| Model | Author | Set of indicators to diagnose bankruptcy probability |
|--|-------------------|---|
| Bankruptcy diagnostics (conducting an express analysis of the financial condition) | Sabluk P.T. | Beaver's coefficient; return on assets (6-8% indicates a healthy state); the ratio of liabilities to assets (healthy state is assessed if this indicator is < 37%); the ratio of the amount of equity and non-current assets to the amount of assets (healthy state is assessed at 0.4); the ratio of current assets to short-term liabilities (favorable state, when the indicator is greater than 1). |
| Bankruptcy risk prediction model for agricultural enterprises | Chupis A.V. | COC – ratio of working capital to total assets; D/E – ratio of borrowed to equity capital. |
| Z = -1.3496 - 0.6183COC + 0.6867D/E | | |
| Financial crisis diagnostic model | Tereshchenko O.O. | where X1 – the ratio of cash receipts to liabilities; X2 – the ratio of balance sheet currency to liabilities; X3 – the ratio of net profit to the average annual amount of assets; X4 – the ratio of profit to revenue; X5 – the ratio of inventories to revenue; X6 – the ratio of revenue to fixed capital. Z > 2 – there is no threat of bankruptcy, 1 < Z < 2 – financial stability is violated, 0 < Z < 1 – there is a threat of bankruptcy. |
| Z = 1.5 X1 + 0.08 X2 + 10 X3 + 5 X4 + 0.3 X5 + 0.1 X6 | | |
| Model for diagnosing the risk of bankruptcy of agricultural enterprises | Savytska H.V. | X1 – share of own working capital in the formation of working assets, coefficient; X2 – ratio of working and fixed capital; X3 – turnover ratio of total capital (ratio of net revenue to total capital); X4 – profitability of enterprise assets; X5 – coefficient of financial independence (specific weight of own capital in the total balance sheet currency). Z > 8 – probability of bankruptcy is low or absent; from 5 to 7.99 low; from 3 to 4.99 medium; below 3 high; – below 1 100% |
| Z = 0.111 X1+13.239 X2 + 1,676 X3 + 0,515 X4 + 3.8 X5 | | |

The calculation of the probability of bankruptcy FG “Vpered-Agro” financial group is given in Table 1.3.4.

Table 1.3.4

Bankruptcy probability dynamics FG “Vpered-Agro”

| Years | Savytska H.V. | Chupis A.V. | Tereshchenko O.O. | Sabluk P.T. |
|-------|-----------------|-------------|-------------------|-------------------|
| | Normative value | | | |
| | $Z > 8,0$ | $Z < 1,0$ | $Z > 1,0$ | |
| 2020 | 11,41 | 0,18 | 3,16 | “not threatening” |
| 2021 | 8,89 | 0,34 | 2,37 | “not threatening” |
| 2022 | 10,70 | 0,61 | 3,02 | “not threatening” |
| 2023 | 8,05 | 1,05 | 0,98 | “threatens” |
| 2024 | 7,64 | 1,69 | 0,78 | “threatens” |

Chupis Model: Z-scores were below the 1.0 threshold from 2020 to 2022, pointing to financial strain. In 2023 and 2024, scores rose to 1.05 and 1.69 respectively, suggesting some improvement and relative financial stability, though potential risks remain.

Between 2020 and 2024, FG “Vpered-Agro” experienced a gradual decline in financial health, particularly in 2023 and 2024, as shown across all models. Liquidity and solvency ratios decreased, and bankruptcy risk indicators moved into the critical zone. The enterprise must take urgent measures to stabilize its finances and restore long-term solvency.

Analysis of the results of calculations of the probability of bankruptcy of an enterprise for the period from 2020 to 2024 shows changes in the level of financial stability according to various assessment models.

Tereshchenko O.O. model in 2020-2022, the Z values remained at the level, indicating the financial stability of the enterprise ($Z > 1.0$). In 2023, the Z value dropped to 0.98, which is on the verge of danger, and in 2024 it dropped again to 0.78, indicating the potential financial malaise of the enterprise. This indicates a deterioration in the financial condition in recent years.

The indicators of the Savitskaya model indicate that the enterprise was not under threat of financial difficulties throughout the entire period from 2020 to 2023 ($Z > 8.0$). However, in 2024, there is a significant improvement in the reduction of Z to 7.64, which indicates a significant deterioration in the financial stability of the enterprise.

According to the model of Sabluk P.T. FG “Vpered-Agro” throughout the entire period was not threatened with financial difficulties, which is confirmed by the assessment of “not threatened” until 2023. However, in 2024, there is a threat of financial instability decreasing to “threatened”.

According to the model of Chupis A.V. in 2023 and 2024, the Z indicators of 1.05 and 1.69 exceeded the normative value of 1.0, which indicates a relatively stable financial situation, although with a slight risk of financial insolvency. This may indicate a slight tension in the financial flows of the enterprise. In previous years (2020-2022), the Z indicators are less than the normative value of 1.0, which indicates an increase in the financial stability of the enterprise.

During the period from 2020 to 2024, FG “Vpered-Agro” experienced certain financial difficulties, in particular, in 2023–2024, liquidity indicators decreased according to all models. Solvency management in the system of ensuring financial and economic security of FG “Vpered-Agro” is a complex, multifaceted concept, which is influenced by many internal and external factors. It is possible to ensure a proper level of financial security if an enterprise develops and implements an interconnected management process of its solvency.

Solvency depends on the effectiveness of liabilities, enterprise assets and risks. In the conditions of world and domestic financial crises, there is an urgent need to form the optimal structure of the enterprise's capital, assessing its impact on the financial condition of the enterprise, which leads to management decisions, capable of violating its solvency, financial stability and threatening financial security. Ensuring the proper level of financial security of the enterprise is not only a basic factor in its effective functioning and strategy of medium-term development, but also the key to the safe functioning of the country as a whole. The analysis of scientific achievements on the management of solvency management in the financial security system of the enterprise determines the logic and structural concept, the purpose of which is to increase the level of financial security of the

enterprise and improve its solvency.

Financial security is one of the main components of economic security at both macro and micro levels. The absence or low level of financial security of enterprises makes it impossible to achieve and maintain the proper level of financial security of the state. Solvency is an important characteristic of the enterprise and is the ability to maintain the equilibrium, competitive condition today and in the future, constantly responding and adapting to exogenous and endogenous factors in the market environment.

Improving the management of solvency in the system of ensuring financial and economic security of FG “Vpered-Agro” is an important task that requires the introduction of comprehensive decisions. Prospective directions of improvement of solvency management in the system of ensuring financial and economic security of FG “Vpered-Agro” are grouped in Fig. 1.3.3.

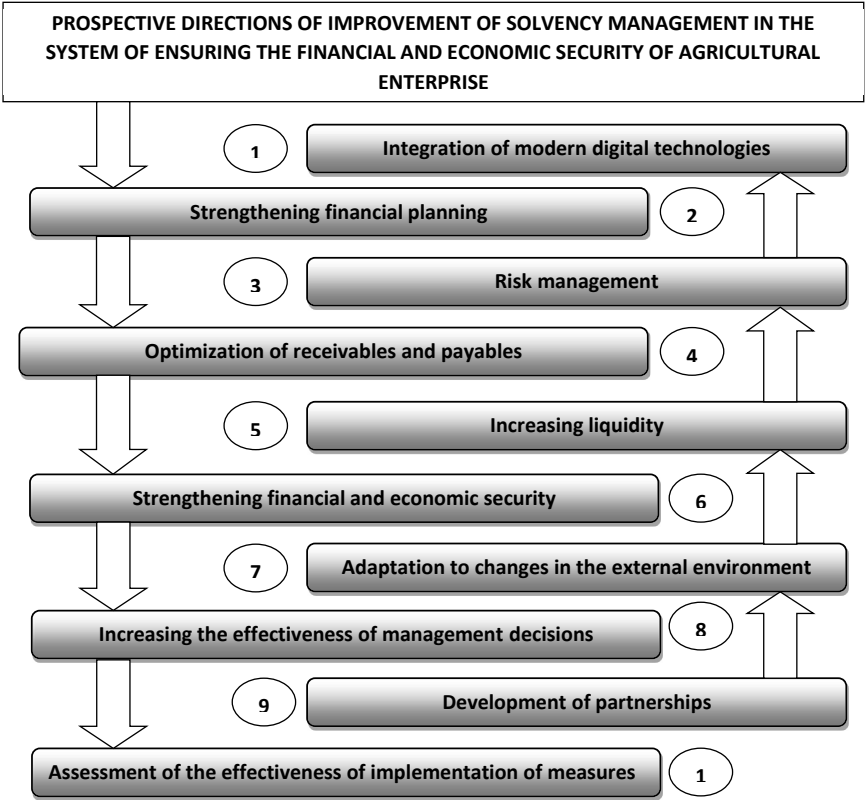


Fig. 1.3.3. Prospective directions of improvement of solvency management in the system of ensuring financial and economic security of FG “Vpered-Agro”

Exploring Fig. 1.3.3, it should be noted that in order to effectively manage the FG “Vpered-Agro” solvency management, it is necessary to use automated financial management systems (ERP, CRM) to monitor real-time financial flows, to implement large data analytics (Big Data) tools for solvency forecasting. It is important to create flexible budgets that can be quickly adapted to changes in the environment. Risk management system should also use hedging tools to protect against currency, interest and other financial risks. In the context of increasing liquidity, it is advisable to provide sufficient liquid assets to perform short -term liabilities. It is also recommended that you develop a comprehensive system of measures to prevent threats that may affect solvency. It is mandatory to use financial ratios to monitor the current state and prospective development, as well as monitor macroeconomic trends and prompt adaptation to changes.

The introduction of these areas will allow FG “Vpered-Agro” not only to improve solvency, but also to strengthen financial and economic security, which is the key to its stability and competitiveness in modern conditions.

It should be noted that we did not pay much attention to the analysis of the strengths and weaknesses of the methods under study. This was done for several reasons. First, some of the techniques are inherent in the same disadvantages. Secondly, most importantly, we needed to compare the current techniques with each other from one position: their compliance with the goals of solvency analysis. There are currently no parameters of such a comparison. In this regard, we have developed a special system for evaluating the methods of diagnostics of solvency, the main content of which is presented in Table 1.3.5. The binary SWOT analysis of SWOT-analysis of methods of diagnostics of solvency (insolvency) of FG “Vpered-Agro”, by analogy with SWOT analysis, but for the purpose of diagnostics.

Table 1.3.5

The binary SWOT analysis system is offered by the methods of solvency
(insolvency) of the enterprise

| № | Question | The serial number of the respective group of techniques | | | | | |
|----|--|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | Is the specificity of enterprises taken into account? | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | Are the final ratings? | 1 | 1 | 1 | 0 | 0 | 0 |
| 3 | Are there any weight values? | 1 | 1 | 1 | 0 | 0 | 0 |
| 4 | Known methodology for determining the weight values of indicators? | 1 | 0 | 1 | 0 | 0 | 0 |
| 5 | Are there standards? | 1 | 1 | 1 | 0 | 0 | 1 |
| 6 | Are standards for domestic enterprises justified? | 0 | 0 | 1 | 0 | 0 | 1 |
| 7 | In addition to the balance sheet use data of other forms of reporting | 0 | 0 | 0 | 1 | 1 | 1 |
| 8 | Are the liquidity rates involved in the calculation? | 1 | 1 | 1 | 1 | 0 | 1 |
| 9 | Is it possible to determine the effect of the time factor? | 0 | 0 | 0 | 0 | 1 | 0 |
| 10 | Are you simple calculations? | 0 | 1 | 1 | 1 | 1 | 1 |
| 11 | Is analytical accounting data possible? | 0 | 0 | 0 | 0 | 0 | 1 |
| 12 | Is the technique applicable for the period less than the quarter? | 0 | 0 | 0 | 0 | 1 | 1 |
| 13 | The calculation is carried out in accordance with the concept of cash flows? | 0 | 0 | 0 | 1 | 0 | 1 |
| 14 | Does the method of cash flow take into account? | 0 | 0 | 0 | 1 | 0 | 1 |
| 15 | Final Sum of Points | 5 | 5 | 8 | 5 | 4 | 9 |

Column numbers correspond to the sequence numbers of groups of models presented above.

It is appropriate for us to appreciate the binary SWOT analysis system from the standpoint of its advantages and disadvantages. Disadvantages: 1. The high proportion of subjectivism during the selection of questions for analysis; 2. It is possible to ask the question so that any technique for diagnosing insolvency to determine as poor quality.

Benefits:

1. Due to the use of unambiguous answers “so-no”, which are assigned, respectively, the value and subjectivity of quantitative assessment is reduced to zero. In proof we will give the following analogy. The binary system is the basis of modern electronics, cybernetics and computer science and fully justifies itself. The answer “yes-no” is unambiguous and implies the prevention of side interpretations, respectively, and the number of points is quite objective;

2. The system is open. This means that it is important, there is no rigidly determined set of questions. New issues may be implemented in connection with users' needs;

3. The assessment of insolvency diagnostics is carried out on a qualitative side;

4. The second disadvantage also contains the dignity of the proposed system, which is as follows. The user, based on his status, nationality, purpose of analysis, can come from the opposite, that is not immediately analyzing the techniques. First, you can develop a system of questions that are interested in the relevant techniques. Then test. But from techniques that will score the maximum number of points and will be most suitable for use. There is also a different option. You can pre-specify the required amount of points that the user wants to receive and draw conclusions according to this amount;

5. Multicularity, which is the flexibility of the system based on the needs of the user. The analysis of techniques can be carried out by several vectors. Two use of “yes-no” answers: with assignment respectively scores 1 and 0. The amount makes it possible to compare the techniques with each other; Comparison of the number of positive answers with the number of negative one technique. This makes it possible to evaluate the feasibility of using the chosen technique based on the goals of the analysis. If the amount of positive answers exceeds the amount of negative ones, then the method should be applied. If not, then it is not worth it; Analysis, based on a predetermined amount of points.

According to the proposed binary SWOT analysis system, we have tested the analyzed techniques for the diagnosis of solvency of FG “Vpered-Agro”. We set the required amount of points in the amount of 10. The results of practical testing showed that none of the current techniques provides a set of a given amount. In this regard, the question arises of the need to develop a new method of diagnosis of solvency.

Improvement of the modern system of solvency analysis of FG “Vpered-Agro” requires a thoughtful approach to the development of a new method of analysis, free from previously identified shortcomings of existing techniques:

- identification of the liquidity of the enterprise and its solvency;
- use as an information base of analysis only data;
- not inclusion in the system of diagnostics of financial status of cash flow analysis, etc.

In this case, the new technique should take into account the possibility of using not

only reporting data, but also analytical accounting data. For external users, this state of affairs is a limiting factor because such information is a commercial secret of FG “Vpered-Agro”. However, we believe that the elimination of insolvency is the prerogative of managers in the process of crisis management of enterprise finances, so they will act as priority users. This does not exclude the possibility of using the new technique by external users, but the degree of accuracy of determining insolvency and its causes in this case will be lower.

The initial stage of developing a new technique we propose to consider a quantitative assessment of the effect of the time factor as one of the criteria for solvency evaluation. Almost all existing techniques are based on the use of quantitative and cost. Data on the past state of FG “Vpered-Agro” trends are concluded that the enterprise in the future or for this purpose is extrapolation of these trends for the future. Some of the techniques may also use accounting forecasts and income and loss report. This approach allows you to determine the level of financial stability and liquidity in the future, but does not answer the question: will the enterprise pay its debts at the future specific time?

The analytical studies have led us to the conclusion that the availability of sufficient funds in the enterprise (financial stability, liquidity and profitability) does not guarantee the payment of obligations within the period and in full. Supporting payment resources is necessary, but still insufficient factor in repayment of debts. Important stabilizing solvency here is the synchronicity of cash flows, due not only to sufficient saturation of the flow of payment funds, but also, above all, quality management of cash flows, we believe that to ensure the solvency which have already come. The effect of the time factor, in our opinion, is ensured:

- 1) the ability of managers of FG “Vpered-Agro” in the absence of funds to attract the necessary payment resources in time and in sufficient volumes;
- 2) higher accuracy of determining the need for cash at a certain date for current payments;
- 3) sufficient quality of financial management at all other facilities of the Organization of Finance.

The set of proposed characteristics is heterogeneous in their interpretation. The above characteristics highlight the effect of the time factor on the qualitative side. For the use of quality systems, quantitative calculations we propose to use SWOT analysis (table 1.3.6).

To this end, we propose to divide all the characteristics used in this table into two classes. It is advisable to include different aspects of planning, because we believe that it is, first and foremost, that determines the effect of a factor of time.

At the same time, according to the concept of SWOT analysis, they are strengths and weaknesses, as well as characterize the capabilities and threats to solvency. Planning of sales, schedule of receipts, net cash flows and cash balances, as well as the need for short-term credit determine the possibility of receipt of payment funds to ensure solvency. Planning the schedule of costs and payments allows you to determine the threat of exceeding the cost of funds over their receipt. Drawing up estimates in one or three variants, as well as the lower time border of planning of the year and quarter are weaknesses of financial work to ensure the solvency of FG “Vpered-Agro”. At the same

time, multi -metricant monthly planning, in our opinion, is a strong side of budgeting to ensure solvency. It is advisable to note that on the basis of SWOT analysis, qualitative characteristics are considered in this context; solvency, and not all the economic state of FG “Vpered-Agro”.

Table 1.3.6

Transfer of qualitative characteristics of the time factor
to quantitative assessment using SWOT analysis

| Characteristics | Maximum number of points |
|---|-----------------------------|
| First grade | |
| 1. Palia planning, in particular: | |
| 1.1. sales volume (capabilities) | 3 |
| 1.2. Graphics of sales revenues (opportunities) | 3 |
| 1.3. Cost graphics (threats) | 3 |
| 1.4. Graphics of payments (threats) | 3 |
| 1.5. clean cash flows and balances (opportunities) | 3 |
| 1.6. the need for short -term credit (capabilities) | 3 |
| 2. Drawing up estimates in several scenarios: | |
| 2.1. one option (weakness) | 1 |
| 2.2. three options (real, optimistic, pessimistic) (weakness) | 2 |
| 2.3. More than three options (force) | 3 |
| 3. Lower temporary planning border: | |
| 3.1. year (weakness) | 1 |
| 3.2. quarter (weakness) | 2 |
| 3.3. month (force) | 3 |
| Together: Maximum number of points | 30 |
| Second class | |
| 4. Higher economic education with the financial bid specialists of the planning division (A) | 1 |
| 5. Lack of family ties between planning department employees and specialists of other units of the enterprise (B) | 1 |
| 6. Proficiency of specialists of the planning department in Microsoft Excel (C) | 1 |

We believe that the degree of solvency of the enterprise will be determined by the quality of all financial work. To determine it, we propose to use a tribal assessment, as well as the introduction of corrective characteristics of second -class indicators: availability of higher economic education with the financial slope of specialists of the planning department; lack of family ties between the staff of the planning department and specialists of other units of the enterprise; Ownership of Microsoft Excel staff. For them, we consider it the appropriate use of the zero-single assessment system, due to the fact that these indicators are either not. For first class characteristics, we offer a tribal rating (zero-one-twin-three). Such an assessment is intended to determine not only the presence or absence (assessment of “zero”) of a separate property, but also to evaluate the latter of its quality.

The characteristics of the second class we propose to use to assess the quality of

characteristics of the first class the technique of the corresponding assessment is presented in Table 1.3.7.

Table 1.3.7

Factor of time when assessing the quality of first-class characteristics
in a modified binary system SWOT analysis

| Influence | Option 1 A+B+C | Option 2 A+B | Option 3 B+C | Option 4 A+C | Option 5 A | Option 6 B | Option 7 C |
|--|-------------------|-----------------|-----------------|-----------------|---------------|---------------|---------------|
| 1. Availability of planning, including: | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.1. sales volume | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.2. sale revenue graphics | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.3. cost graphics | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.4. payments graphics | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.5. net cash flows and cash balances | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 1.6. short -term loan needs | 3,0 | 3,0 | 2,0 | 2,0 | 2,0 | 2,0 | 1,0 |
| 2. Assembly of estimates for several scenarios | | | | | | | |
| 2.1. one option | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 |
| 2.2. three options (real, optimistic, pessimistic) | 2,0 | 2,0 | 0,0 | 2,0 | 2,0 | 0,0 | 0,0 |
| 2.3. More than three options | 3,0 | 0,0 | 0,0 | 3,0 | 0,0 | 0,0 | 0,0 |
| 3. Lower temporary planning border | | | | | | | |
| 3.1. year | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 |
| 3.2. quarter | 2,0 | 2,0 | 2,0 | 2,0 | 2,0 | 2,0 | 2,0 |
| 3.3. month | 3,0 | 0,0 | 0,0 | 3,0 | 0,0 | 0,0 | 0,0 |
| Maximum score | 33,0 | 27,0 | 18,0 | 26,0 | 20,0 | 18,0 | 11,0 |

Here we offer seven possible combinations of the characteristics of the second class, called ABC, respectively. In the first embodiment, there are all the characteristics of the second class, so we consider it advisable to assign the quality of the first characteristic “availability of planning” of the maximum assessment of three points in all sections. Microsoft Excel is easy to calculate the estimate, taking into account any changes in any operational plan. In this regard, the number of possible planning scenarios (second characteristics) is not limited. Therefore, he is also given three points in the option. The qualification, as well as the ownership of the software, makes it possible to make a financier without great labor costs and attract additional staff to make monthly budgets (third characteristics). This state of affairs is determined by three points in the proposed methodology. According to the first variant, the maximum quantitative assessment of the characteristics of the first class will be 33 points.

According to the second variant with the high qualification of a specialist, but the lack of skills to work with the table editor, that is, in the manual method of drafting the estimates, the number of scenarios of the latter will not exceed three (estimate of two

points), and the planning limit - a quarter (estimation of two points). This is due to the multiplicity of labor costs in the absence of computer skills. In this regard, the second option will be 27 points.

Insufficient qualification, in terms of, determines the possibility of drawing up estimates in only one version, which corresponds to a score of one point. Operational budgets, which determines the lower temporary border in one quarter, with a assessment of two points. In general, the third variant of the maximum quantitative evaluation of the first class indicators will be 18 points.

The fourth variant is determined by the presence of family ties between employees of all units of FG "Vpered-Agro". This state of affairs, in our view, first, significantly increases the likelihood of abuse; Secondly, it determines the possibility of emerging personnel in the financial staff of persons not for professional suitability, but by affinity, which reduces the quality of planned work in this regard, the budgeting assessment is proposed by maximum one unit and will be two points. At the same time, we consider it possible to prepare multivariate monthly budgets with a valuation of three points. Thus, the fourth variant of the maximum quantitative assessment will be 33 points.

The sum of points on the fifth, sixth and seventh variants is determined by the combination of the results of the second, third and fourth variants and is, respectively, 20, 18 and 11 points. The simultaneous imposition of the influence of the characteristics of the second class A and B determines the quality of planning by one point.

We consider the maximum values to be grouped at four intervals: 1) less than eleven points; 2) from eleven to 18 points; 3) from 19 to 26 points; 4) from 27 to 33 points. characterizes a certain degree of quality of planned work. We have determined that it characterizes the effect of the time factor.

So, we believe that this figure can have four gradations depending on the quality of the planned work. The interval range is regressive in nature: for the first interval of nine points, for the second - six points, for the third - five and for the fourth - four points. The narrowing of the ranges is determined by the increase in the set of conditions, the fulfillment of which provides the corresponding level of the factor of time.

To determine the range of repayment of obligations within the period corresponding to each interval, we have developed the following algorithm. Since the score range of points for each interval is regressive, the range of oscillations of degrees should have a similar tendency. For this purpose, 33 points we received for 100 percent of the degree of repayment of obligations within the period. Therefore, one point will be approximately equal to 4.17 percent, so we received a "unit of degree", which is one point. Its multiplication by the number of points allows us to determine the range of degree for each interval. As a result, we get four intervals: 1) less than 37.53 percent, 2) from 37.53 inclusive to 62.55 percent; 3) from 62.55 inclusive to 83.4 percent; 4) from 83.4 inclusive to 100 percent.

It seems to us that for convenience it is necessary to round the obtained numbers to whole. The maximum measure of repayment of obligations is determined by the lower, and before the index - the upper limit of the interval. The visual interpretation of the results

is presented in Table 1.3.8. The use of square and round brackets is conditioned by the rules of mathematics and shows the ownership of the values of the corresponding interval.

Table 1.3.8

The effect of the time factor for four intervals of the degree of repayment of obligations within the period and its interpretation

| Interval, points | Interval, % | Interpretation | |
|------------------|-------------|---|---|
| | | Maximum degree of repayment of obligations in time, % | The maximum cost of leveling liabilities within a deadline, % |
| 1.[0;11] | 1. [0;38] | менше 38,0 | 100,0 |
| 2.[11;18] | 2. [38;63] | 63,0 | 62,0 |
| 3. [18;27] | 3. [63;83] | 83,0 | 37,0 |
| 4. [27;33] | 4. [83;100] | 100,0 | 17,0 |

From the standpoint of FG “Vpered-Agro” the model is proposed in terms of, reflects the following facts:

1) The degree of repayment of obligations allows to estimate the amount of debt, which will not be repaid by multiplying the degree of obligations. This, on the one hand, is a prerequisite for the creation of payment reserve to prevent insolvency, on the other - allows you to determine in advance the amount of sanctions in the event of the fact of insolvency.

2) the ratio of the volume of reserve payment to the debt under which they are reserved is a direct analogue of the coefficient of absolute liquidity, the normative value of which is from 0.2 to 0.5. For the fourth interval in Table 3.3, the maximum degree of obligations within the term is 17 percent. This state of affairs determines the need to create funds of up to 17 percent of the amount of debt or 0.17 in units. Thus, we determined the degree of insolvency of enterprises depending on the quality of planning, that is, the influence of internal factors.

3) After that, it is advisable to pay attention to the factor that is external to the enterprise. This is his receivables. The lack of the latter in time and in full can lead to an unplanned break in payment.

4) Considering the research of American scientists, as well as the above results of our study, we can draw the following conclusion. The imposition on the solvency of the influence of negative factors of both external and internal nature gives the basis of calculation of their complex influence.Having made the degree of leveling of obligations due to the quality of planning the likelihood of delayed receivables with a term of up to 30 days we get a final degree of 22 percent or in a unitic terms 0.22. This value practically corresponds to the normative interval of the absolute liquidity ratio (0.2-0.25). It should be noted that we have taken the maximum degree of indebted obligations for the fourth interval. Depending on the number of points proposed in the SWOT analysis system, this value may decrease. So, we have determined the maximum border value of the degree of leveling for the best interval.

The reason for the choice of minimum parameters (the degree of indemnification of obligations within 17 percent and a period of 30 days) was the essential identity of the value of the effect of the time factor and the absolute liquidity factor. The economic interpretation of the latter is, on the one hand, the possibility of repaying current liabilities only the account.

5) The consequence of the analysis of the proposed methodology is the approval that the lower the value of the effect of the time factor, the greater the need for reserve funds. In this it is advisable to note that the cost of reserving large amounts of cash (lost benefit and loss of purchasing value from inflation) in the future will exceed the costs associated with the quality of financial work for the enterprise. Therefore, from this position, FG “Vpered-Agro” is more profitable to organize the work of the planning department so that the sum of points by the effect of the time factor ranges from 27 to 33.

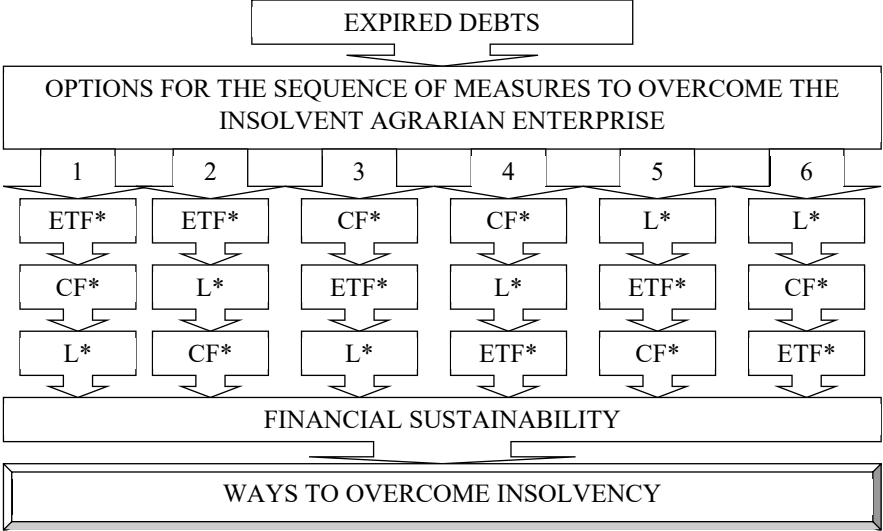
6) We can use the proposed methodology for the classification of enterprises by the effect of the factor of time. A limiting factor in the case is the problem of access to information because of its confidential nature. The classification of this kind will be useful to the enterprise for ranking debtors by the effect of the factor of time. At the same time, this situation will determine the degree of timeliness and sufficiency of receipt of funds for payments with their creditors, which will significantly reduce the level of non - payment of obligations.

We believe that the effect of the time factor is of particular importance for FG “Vpered-Agro”. This is due to the specifics of the agricultural sector: slow cycle of funds, availability of significant domestic turnover, significant dependence on weather conditions (high production risks), seasonality of production, etc. This state of affairs determines the increased need for FG “Vpered-Agro” in quality planning. The latter, in turn, according to the proposed concept, is a qualitative characteristic of cash flow management. Planning quality is reflected in the effect of the time factor. Thus, the most important role of planning in the management of finances of FG “Vpered-Agro” determines the important role of the effect of the time factor for the goals of management of cash flows of the entity of the agrarian sector and, therefore, its financial recovery.

The proposed methodology does not contradict the concept of cash flows, according to which the model of FG “Vpered-Agro” is presented as a set of tributaries and outflows of funds. Moreover, it seems to us that the method of calculating the effect of the time factor harmoniously fits into this concept. This is due to the basic purpose, based on which this technique was developed. The purpose is to synchronize cash flows. Thus, the method of calculating the effect of the time factor is used in relation to cash flows that are part of the relevant concept.

The main role of analysis of insolvency in the process of ensuring the financial and economic security of the enterprise is the possibility of developing the consistency and algorithm of overcoming it on the basis of the identified nature of insolvency. The nature of insolvency, in turn, depends on four groups of indicators: the effect of the factor of time, cash flows, liquidity and financial stability. The degree of their impact on insolvency may be different. Depending on this, the procedure of actions of the enterprise for the purpose of financial recovery will also be different. Within the framework of the system of systematic analysis of insolvency, we have investigated the possible variants of

combining the main characteristics of insolvency. The nature of the combination of the effect of the factor of time, cash flows, liquidity and financial stability is represented by Fig. 1.3.4.



*ETF – the effect of the time factor; CF – cash flows; L – liquidity

Fig. 1.3.4. Scheme of options for sequence overcoming insolvency

The sequence of overcoming insolvency is represented by six options. Specific reasons for insolvency - arising from the effect of the time factor (ETF), cash flows (CF), liquidity (L) and financial stability cause fluctuations in the force of influence of these categories on insolvency. This state of affairs causes the different share of these categories in influencing insolvency. The structure of influence causes the ability to rank the effect of the factor of time, cash flows, liquidity and financial stability for the purposes of determining the sequence of leveling their negative impact on solvency. The logic of using the system of systematic analysis of insolvency in the process of financial recovery is presented to us in this form.

The presence of overdue debts is determined as a sign of insolvency. This situation allows you to identify the fact of insolvency. After that it is necessary to determine the nature of insolvency. Based on the methodology of systematic analysis of insolvency, the share of four basic indicators in the impact on insolvency is determined. This allows you to determine the structure of their impact on insolvency. The structure of the effect of the effect of the factor of time, cash flows, liquidity and financial stability makes it possible to rank them from the standpoint of force on insolvency. The nature of insolvency is largely determined by the cause, the degree of influence on it is maximum, that is, the dominant indicator in the ranking series. In the first pair of options presented in Fig. 1.3.4., overcoming insolvency dominates

the level of the effect of the factor of time. Therefore, according to the methodology of systematic analysis of insolvency, the nature of the latter can be interpreted as temporary, in the third and fourth variants - as monetary -current, and in the fifth and sixth - as liquid. We believe that insolvency can be temporary, monetary or liquid in the case of finding the enterprise at the stage of financial stability (when, judging by research, the impact of financial stability in quantitative assessment of the nature of insolvency is determined by one point). If the enterprise is in the stage of hidden bankruptcy, financial instability or explicit bankruptcy, insolvency is financial and current.

The second set of measures is determined by the direction of synchronization of cash flows in order to eliminate monetary insolvency. The measures in this direction seem appropriate to consider from two positions. First, measures contribute to increasing funds. In agriculture, it is advisable to develop industries that provide high frequency of receipt (meat and dairy cattle breeding, about vegetables of closed soil, poultry) and directly provide an increase in the saturation of cash flow by payment. This is also facilitated by the creation of agricultural products at the enterprise, such as mills, bakeries and sausage shops.

The third set of measures is intended to increase liquidity (elimination of liquid insolvency). It is advisable to divide the measures into three groups: inventory management, accounts receivable and extension (savings) of monetary revenue. The optimal list of inventory management measures is presented in the following form: reasonable minimization by quantity and standards, normalization of working capital. Measures to manage receivables, debt include: financing for the assignment of monetary claim, transfer of debt, assignment, investment tax credit, innovation of debt, exchange of claims of creditors for shares and share of participation, restructuring of overdue debts, state subsidies.

The fourth set of measures is aimed at eliminating financial and current insolvency that it is advisable to divide the measures of this direction into two - groups: independent of external factors and dependent on them, the first group can include: increase in authorized capital, for example, by the issue of shares, updating of non -current assets on the basis of financial lease). It is advisable to include in the second group of measures: increase in the state of purchase prices for agricultural products, reorganization of the business entity with the formation on the basis of its property complex of new enterprises, merger with large agro-industrial holdings, etc. Thus, the use of the results of systematic analysis of insolvency in the plan of financial recovery allows to determine the specific composition and sequence of implementation of measures to eliminate insolvency to ensure financial and economic security of FG "Vpered-Agro".

The difference between our approach to drawing up a financial recovery plan and the existing one is as follows. Now the main emphasis in the plan of recovery is on the need to increase profits. To this end, certain investment projects are being developed and substantiated. To implement them to enterprises that are in a difficult financial position, additional financial resources are needed, which are difficult to find, in conditions of chronic insolvency and low investment attractiveness of such a plan is problematic. In addition, not every enterprise in need of financial recovery requires a lot of investment projects. Sometimes it is enough to order cash, placement of available financial resources and financial planning. We propose, by finding the nature of insolvency, to determine the

structure and sequence of measures for financial recovery:

- if the nature of the insolvency of the temporary one, then it is sufficient to draw up the payment schedule and the desire of the guidance to fulfill their payment obligations;
- if the nature of monetary flow, then sometimes to synchronize cash flows is sufficient to draw up a cash flow plan and quality planning of short-term credit;
- if the nature is liquid, it is advisable to change the structure of current assets by improving production-commercial planning, marketing, the use of specific tools for managing accounts receivable;
- if the nature of insolvency is financial and current, then there is a need to increase profit (including through the implementation of investment projects).

Let us illustrate the method of using the results of financial analysis of insolvency, as well as show its relationship with other sections of the enterprise health plan.

To this end, we will give an example of FG “Vpered-Agro”, since this enterprise is the most typical for the studied set of enterprises, as evidenced by our research. The basis of financial recovery is a systematic analysis of insolvency (section of four plans of financial recovery), the preliminary results of which are presented in Table 1.3.9.

Table 1.3.9

The results of the previous analysis of FG “Vpered-Agro”

| Parameters | 2020 p. | 2021 p. | 2022 p. | 2023 p. | 2024 p. |
|---|----------|----------|----------|----------|----------|
| 1. The degree of non -payment of liabilities within a period, % | 1,0 | 2,0 | 28,0 | 31,0 | 27,0 |
| 2. The nature of the combination of cash flows, ((+) - the inflow, (-) outflow), including | | | | | |
| - from current activity | (+) | (+) | (+) | (+) | (+) |
| - from investment activity | (-) | (-) | (-) | (-) | (-) |
| - from financial activity | (-) | (-) | (-) | (-) | (-) |
| 3. The current liquidity ratio is | 12,30 | 12,87 | 0,10 | 0,09 | 0,11 |
| 4. compliance with the parameters of financial stability, ((+) - conformity, (-) - discrepancy), including: | | | | | |
| a) The value of the autonomy coefficient is greater than 0,6 | 0,99 (+) | 0,98 (+) | 0,72 (+) | 0,69 (+) | 0,73 (+) |
| b) the value of the coefficient of maneuverability is greater than 0.4 | 0,02 (-) | 0,07 (-) | 0,01 (-) | 0,01 (-) | 0,01 (-) |
| c) inventories ≤ (equity+long -term capital) - non - current assets | (+) | (+) | (+) | (+) | (+) |
| d) non -current assets ≤ (equity+long -term capital) - inventories | (+) | (+) | (+) | (+) | (+) |

The values of non-payment of obligations within the term were calculated in accordance with the method of determining the effect of the time factor in the binary SWOT analysis system. For FG “Vpered-Agro” the effect of the time factor is characterized by the second option (Table 1.3.10) due to the inability of the staff to work in Microsoft Excel. This provides an estimate of 27 points. The lack of sales revenue

causes a decrease in this grade by three points. The final estimate for FG “Vpered-Agro” is determined by the amount of 24 points. This situation is characterized by the degree of insolvency in the form of 27 percent in 2024. To evaluate in Table 1.3.10 data from the standpoint of the system of systematic analysis of solvency, it is advisable to identify the nature of insolvency of FG “Vpered-Agro”.

Table 1.3.10

Determination of the nature of insolvency of FG “Vpered-Agro” according to the methodology of systematic analysis of insolvency

| Parameters | Balls | Interest |
|--------------------------------|-------|----------|
| 1. The time factor effect is | 8,0 | 40,0 |
| 2. Cash flows | 5,0 | 25,0 |
| 3. Liquidity | 4,0 | 20,0 |
| 4. Financial sustainability of | 3,0 | 15,0 |
| The amount of score of | 20,0 | 100,0 |

These tables indicate that insolvency for FG “Vpered-Agro” is financial and current (assessment of financial stability of more than one point). The point assessment in Table 1.3.10 allows for a reasonable conclusion that the procedure for overcoming insolvency is determined by the number one sequence in Fig. 1.3.4. Since the greatest impact on insolvency influenced the effect of the factor of time, it is advisable to first improve the qualification of the specialists of the planning department in FG “Vpered-Agro” in the work with the software, as well as to carry out planning in all registered sections.

Studies allow you to make a number of generalized conclusions and proposals:

1. In order to effectively manage the solvency of FG “Vpered-Agro” it is necessary to use automated financial management systems (ERP, CRM) to monitor financial flows in real time, the introduction of tools of analytics of large data (Big DATA) to forecast solvency. It is important to create flexible budgets that can be quickly adapted to changes in the environment.

2. According to the proposed binary SWOT analysis system, we have tested the analyzed methods of diagnosis of solvency of FG “Vpered-Agro”. We set the required amount of points in the amount of 10. The results of practical testing showed that none of the current techniques provides a set of a given amount. In this regard, the question arises of the need to develop a new method of diagnosis of solvency.

3. The study of factors that influence insolvency showed the need to revise the existing methods of its diagnosis from the standpoint of their adequacy goals for the analysis of the insolvency of the enterprise. We have been identified and substantiated as sufficient three criteria for compliance with these goals: the effect of time factor, cash flows and liquidity. The use in combination with them of the proposed binary SWOT analysis system revealed the shortcomings of existing algorithms for determining insolvency.

4. The selection of the effect of the time factor as the most important characteristic of insolvency has determined the need to algorithmize its calculation. To this end, we have modified the binary SWOT analysis system. The proposed methodology of its implementation allows to determine the degree of insolvency depending on the quality of financial work for the enterprise.

1.4. PECULIARITIES OF ACCOUNTING AND ANALYSIS OF ECONOMIC ACTIVITIES OF ENTERPRISES UNDER MARTIAL LAW

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Ukraine's economy is in a difficult situation. The efficiency of business activities, the preservation of entrepreneurship, and the maintenance of business activity at a stable level are the main factors that can slow down the aggravation of the crisis and ensure the flow of revenues to budgets of various levels. Under such conditions, management of public activities, thorough analysis of production, economic and financial information, correct interpretation of the results of such analysis, and management accounting itself become particularly important. Early detection of negative trends reduces the risks of a protracted crisis within a particular business entity or even prevents its bankruptcy. The accumulation, systematization and analysis of information about activities and business activity has become the basis for management, formation and implementation of relevant management decisions and even the development of a general vector of enterprise development in difficult socio-economic conditions, which in aggregate does not allow to devalue the role of management accounting.

In fact, Ukraine has long been on the path to European integration, improving and transforming the mechanisms for implementing accounting and financial reporting, but the importance of management accounting has become noticeable only in the current environment, when information continues to acquire special value, and the ability to analyze it allows professionals to formulate a strategy and tactics in particularly difficult times for the domestic economy.

Accounting in Ukraine has been shaped by national and international accounting standards. From year to year, new accounting rules are introduced in accordance with the economic situation in the region. All innovations are mainly designed to simplify and facilitate the work of enterprises. There is a large number of explanations from the tax authorities, articles by analysts and practitioners who publish them in popular accounting magazines, etc. In other words, if an accountant has any misunderstandings about the correctness of accounting for certain transactions, he or she can always get advice from the tax authorities, which can then be used in court. Today, the economic situation has changed dramatically, forcing the authorities to take measures to resolve it.

On February 24, 2022, the Russian Federation launched a full-scale armed offensive against Ukraine, which resulted in the introduction of martial law by Presidential Decree N 64/2022. The Ukrainian Chamber of Commerce and Industry confirmed that the circumstances in which Ukraine found itself from February 24 until the official end of martial law were extraordinary and inevitable, i.e., they fall under the definition of force majeure. The rules of doing business have changed dramatically. Many Ukrainians were

forced to leave their homes and go abroad. However, many entrepreneurs remained in Ukraine and continued their business activities, including some who moved to safer regions. This resulted in the massive cessation of activities of many enterprises, and for those that remained, turnover decreased, and standard operating procedures underwent significant transformations. Therefore, the study of the peculiarities of accounting for the activities of entities that are still operating or those that want to start their own business in this difficult time and in fundamentally new environmental conditions determines the relevance of this research. Domestic scientists and specialists have sufficiently covered the issue of analysis and accounting of economic activity of enterprises under normal business conditions. In particular, the analysis of the economic activity of the enterprise and its separate areas of activity was studied by Nitsenko, V.S. (2016), Honcharenko, N.G. (2020) and others; accounting – Pyatigorets, G.S. and Koptsyukh, O.S. (2017), Patsarnyuk, O.V. (2021).

However, the mentioned studies in the conditions of military operations have a significant difference, which leaves an impression on the business processes of enterprises, and therefore on the analysis of their activities. As noted by expert I. Onyshchuk, in Ukraine more than 200 changes and amendments have been adopted in the budget legislation with the aim of prompt response and creation of appropriate conditions for continuity of functioning and provision of various financial needs (measures of territorial defense, protection of public safety and functioning of the budget sphere, communal enterprises). According to estimates, during military operations, according to A. Honcharuk (2022) it is necessary, first of all, to conduct an inventory and analyze the financial and economic activity of enterprises that are in a state of bankruptcy. Analysis should be carried out taking into account the regional location of the enterprise, especially this applies to businesses that are located and have assets in Chernihiv, Sumy, Kharkiv, Luhansk, Donetsk, Zaporizhzhia, Kherson, Mykolaiv, Odesa and Vinnytsia regions. Special attention should be paid to such issues as prevention of legalization (laundering) of proceeds obtained through crime, financing of terrorism and financing of proliferation of weapons of mass destruction; cyber security; accounting estimates and disclosures in order to correctly assess the impact of these events on the audit report". Thus, a scientific and methodological base has been formed regarding the object of research under martial law.

The regulatory and legal basis for the organization of economic activities of enterprises and organizations is given in the conditions of martial law in the Table 1.4.1. The peculiarity of these legal documents is their temporary effect, i.e. after the termination or cancellation of martial law, enterprises and organizations must switch to the normal system of functioning and taxation. Analysis of financial and economic activity is possible in several cases:

- 1) for the needs of the company's management - operational, current and strategic analysis;
- 2) when conducting an audit in order to identify the correctness and reliability of the display of accounting indicators in reporting documents.

A brief overview of the scheme for the analysis and audit of the financial and economic activity of the enterprise, taking into account the explanations of the Audit Chamber of Ukraine (APU), under martial law is shown in Fig 1.4.1.

Table 1.4.1

List of regulatory and legal documentation regarding the organization of economic activities of enterprises and organizations under martial law

| Name of the regulatory document | Adopting body | Date and number of adoption |
|---|---|-------------------------------|
| Order "On ensuring the implementation of calculations of enterprises, institutions, organizations in the conditions of martial law» | Cabinet of Ministers of Ukraine (CMU) | 11.03.2022 p. № 212-p |
| Notice "Regarding certification of force majeure circumstances (circumstances of force majeure)" | Chamber of Commerce and Industry of Ukraine | 28.02.2022 № 2024/02.0-7.1 |
| Resolution "Some issues of ensuring the conduct of economic activity in the conditions of martial law" | Cabinet of Ministers of Ukraine (CMU) | 18.03.2022 p. № 314 |
| Clarification "Regarding state registration under martial law" | Ministry of Justice of Ukraine | 20.03.2022 p. |
| Letter "Helping Ukrainian businesses to evacuate from the war zone" | Ministry of Justice of Ukraine | 17.03.2022 p. |
| Resolution "Some issues of financial support" | Cabinet of Ministers of Ukraine (CMU) | 12.04.2022 p. № 438 |
| Resolution "Some issues of organizing the work of employees of economic entities of the state sector of the economy during the period of martial law" | Cabinet of Ministers of Ukraine (CMU) | 26.04.2022 p. № 481 |
| Resolution "On Amendments to Certain Resolutions of the Cabinet of Ministers of Ukraine on Provision of Financial State Support to Entities" | Cabinet of Ministers of Ukraine (CMU) | 29.04.2022 p. № 521 |
| Letter "On clarification of the scope of application of the resolution of the Cabinet of Ministers of Ukraine dated April 26, 2022 N 481" | Ministry of Education and Science of Ukraine | 24.05.2022 p. № 1/5500-22 |
| Clarification "Procedure of registration of a foreign non-profit organization in Ukraine under martial law" | Coordination center for the provision of legal assistance | 02.06.2022 p. |
| Clarification "Regarding the submission of a declaration on the conduct of economic activity during the period of martial law" | Coordination center for the provision of legal assistance | 13.07.2022 p. |

ISA 570 (revised) "Continuity of business" - in terms of taking into account the impact of military operations and martial law, the Covid-19 coronavirus pandemic, and other global impacts. In connection with the above, the auditor needs to take into account: updating forecasts and sensitivity analysis taking into account the identified risk factors and various possible outcomes; review of projected compliance with contractual conditions (covenants) in various scenarios; changes in the company's operation plans regarding future actions; expansion of information disclosure;

ISA 560 "Events after the reporting period" - in terms of making appropriate changes to the forecast values of indicators by management personnel, in connection with military

operations and martial law. The auditor takes into account all current and potentially high levels of risk and their possible impact on such indicators.

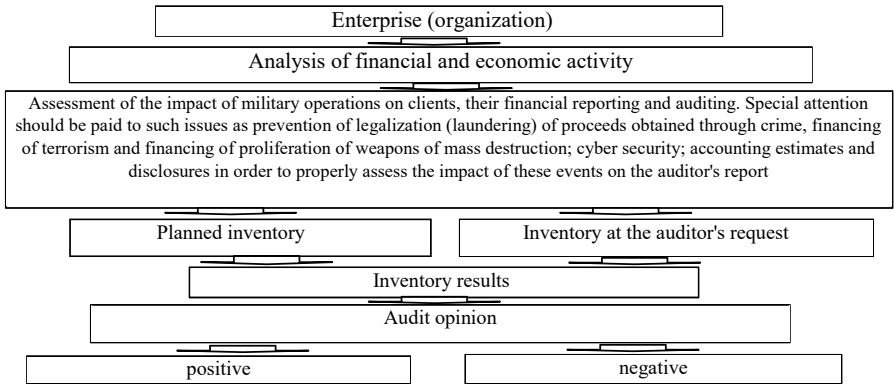


Fig. 1.4.1. Scheme of analysis of financial and economic activity of an enterprise or organization

Military aggression by Russia and the introduction of martial law throughout the territory of Ukraine have seriously changed the conditions for the functioning of enterprises (organizations). There was a need to adjust the methodology of analysis at the enterprise. Conducting an analysis of financial and economic activity is possible in several cases:

1) for the needs of the company's management - operational, current and strategic analysis;

2) when conducting an audit in order to identify the correctness and reliability of the display of accounting indicators in reporting documents. In the first case, the analysis involves the adjustment of existing indicators for incurred losses and destroyed material and technical values, which are reflected in the balance sheet of the enterprise, and taking into account possible adverse events on economic activity in the short, medium and long-term periods of operation.

The largest military conflict in human history - World War II - ended on September 2, 1945. Military action in Europe virtually ceased in May 1945. But on February 24, 2022, the continent was again on the brink of war. Ukraine, a country in central Europe, called for an invasion by the aggressor, the Russian Federation, which cynically called the war a "special operation." Fierce fighting is taking place in Ukraine, some cities and towns are under occupation, there are already a significant number of civilian and military casualties, destroyed cities and businesses.

According to the Kyiv School of Economics, the amount of direct damage to Ukraine's infrastructure during the war reached \$ 63 billion or UAH 1.8 trillion as of March 24 (Table 1.4.2). Total losses of Ukraine's economy due to the war are projected, taking into account both direct and indirect losses (fall in gross domestic product,

cessation of investment, outflow of labor, additional spending on defense and social support, etc.) range from \$ 543 billion to \$ 600 billion (2022).

Table 1.4.2

Losses of the economy of Ukraine from damage to physical infrastructure (in case of complete destruction of facilities), from the beginning of hostilities until March 24, 2022

| Infrastructure facilities | Number of units | Total losses, million US dollars |
|--|-----------------|----------------------------------|
| Roads | 8265 | 27 546 |
| Residential buildings | 4431 | 13 452 |
| Civil airports | 8 | 6 816 |
| Factories and enterprises | 92 | 2 921 |
| Healthcare facilities | 138 | 2 466 |
| Nuclear power plants | 1 | 2 416 |
| Railway infrastructure and rolling stock | н/д | 2 205 |
| Bridges and bridge crossings | 260 | 1 452 |
| Ports and port infrastructure | 2 | 622 |
| Institutions of secondary and higher education | 378 | 601 |
| Administrative buildings | 35 | 574 |
| Military airfields | 10 | 390 |
| The AN-225 "Mriia" plane | 1 | 300 |
| Shopping and entertainment centers | 11 | 188 |
| Religious buildings | 44 | 150 |
| Cultural buildings | 42 | 144 |
| Kindergartens | 165 | 133 |
| Thermal and hydroelectric power plants | 7 | 101 |
| Other | x | 412 |
| Total | x | 62 889 |

The study of natural and social phenomena is impossible without analysis. The term “analysis” itself comes from the Greek word “analyzis”, which means “dividing”. Thus, in a narrow sense, analysis is the division of a phenomenon or subject into its constituent parts (elements) to study them as parts of a whole. This division allows us to look inside the subject, phenomenon, process under study, understand its inner essence, and determine the role of each element in the subject or phenomenon under study.

Aristotle is rightly considered to be the founder of the analysis of economic activity, who, in addition to the direct development of economic thought, tried to penetrate the essence of economic phenomena and study the laws of their development. The analysis of

economic activity was further and more intensively developed by English and French scholars of the seventeenth and eighteenth centuries, namely the classics of political economy, who first applied the abstract method of research. W. Petit's development of the labor theory of value marked the beginning of the study of internal dependencies of the production process.

The development of the analysis of economic activity was continued by the school of physiocrats, who transferred research on the origin of surplus product to the sphere of production, laying the foundation for the analysis of both capitalist production and capital.

Of particular importance in the history of the analysis of economic activity are the works of A. Smith and D. Ricardo. Analyzing capital, A. Smith was the first to divide it into fixed and circulating. D. Ricardo characterized capital as the main factor in the development of productive forces in society. He also considered the production fund, the stock of means of production. He was the first to raise the question of the relative and real value of goods. At the same time, it should be noted that many environmental phenomena and processes cannot be understood only through analysis.

Quite often, it is necessary to use other methods that are appropriate to human thinking. In this sense, the closest to analysis is synthesis, which reveals connections and dependencies between the individual parts of the subject under study and connects them into a single whole. Modern dialectic is based on the unity of analysis and synthesis as scientific methods of studying reality. Only analysis and synthesis together provide a scientific study of phenomena in a comprehensive dialectical relationship.

In science and practice, different types of analysis are used, including physical, chemical, mathematical, statistical, and economic. They differ in objects, goals, and research methods. Economic analysis, unlike physical, chemical, etc., refers to an abstract and logical method of studying economic phenomena where neither microscopes nor chemical reagents can be used, where both must be replaced by the power of abstraction.

Human analytical abilities arose and improved due to the objective need to constantly evaluate one's actions and deeds in the environment. This has always led to the search for the most efficient ways of working and using resources.

With the increase in population, improvement of the means of production, growth of material and spiritual needs of people, analysis has gradually become the first vital necessity of a civilized society.

With the development of human society, the role of analysis grows, the range of objects of analysis expands, and the analysis itself improves. As a result of conscious activity, people gradually expanded their relationships with the natural environment, enriching their understanding of various objects and phenomena. Gradually, a rather separate type of activity related to analytical research of these objects and phenomena became necessary. Thus, analysis appeared in mathematics, chemistry, medicine, and other sciences.

The same process took place in economic activity. The development of productive forces, production relations, increasing production volumes, and expanding exchange contributed to the allocation of economic analysis as an independent branch of science.

Today, it is necessary to distinguish between general theoretical economic analysis, which studies economic phenomena and processes at the macro level (at the level of socio-economic formation, at the state level of the national economy and its individual sectors), and specifically economic analysis at the micro level, i.e., analysis of economic activity, which is used to study the economy of individual enterprises.

While the general theoretical economic analysis from a scientific point of view was significantly developed in the works of economists in the last century, the analysis of economic activity (AEA) as a science (a special branch of knowledge) has emerged relatively recently.

The formation of AGD is due to the general objective requirements and conditions inherent in the emergence of any new field of knowledge.

Firstly, to meet a practical need, the industry emerged in connection with the development of productive forces, improvement of production relations, and expansion of production. Intuitive analysis, approximate calculations, and memory estimates used in artisanal and semi-artisanal enterprises became insufficient in the conditions of large production units. Without a comprehensive all-round AGD, it is impossible to manage complex economic processes and make optimal decisions.

Second, it is related to the development of economic science in general. As is well known, the development of any science leads to the differentiation of its branches. Economic analysis of economic activity was formed as a result of the differentiation of social sciences. Previously, the functions of economic analysis (when they were relatively less important) were considered within the framework of such scientific disciplines as balance sheet management, accounting, finance, and statistics. It was these sciences that led to the emergence of the first simplest methods of analytical research.

However, in order to substantiate current and five-year plans for economic and social development of enterprises, there was a need for a comprehensive comprehensive study of the activities of enterprises. The above-mentioned sciences could no longer meet all the demands of practice.

The need arose to separate the AEA into an independent field of knowledge. Later on, the role of economic analysis grew to a greater extent due to the study of economic activity.

Interest in it increased significantly. More or less comprehensive analytical studies of production began to be conducted.

The analysis became an important tool for the planned management of the enterprise's economy and for identifying reserves for improving production efficiency. Historical aspects of the development of business analysis are shown in Fig. 1.4.2.

The first stage is characterized by the formation of economic activity analysis. The first books on balance sheet analysis appear.

The second stage covers the issues of restructuring accounting, control and analysis of economic activity, and is characterized by special books on the analysis of economic activity, which are devoted to the analysis of the balance sheet and already have a

methodological orientation, which can be taken as a starting point for the development of the analysis of economic activity.

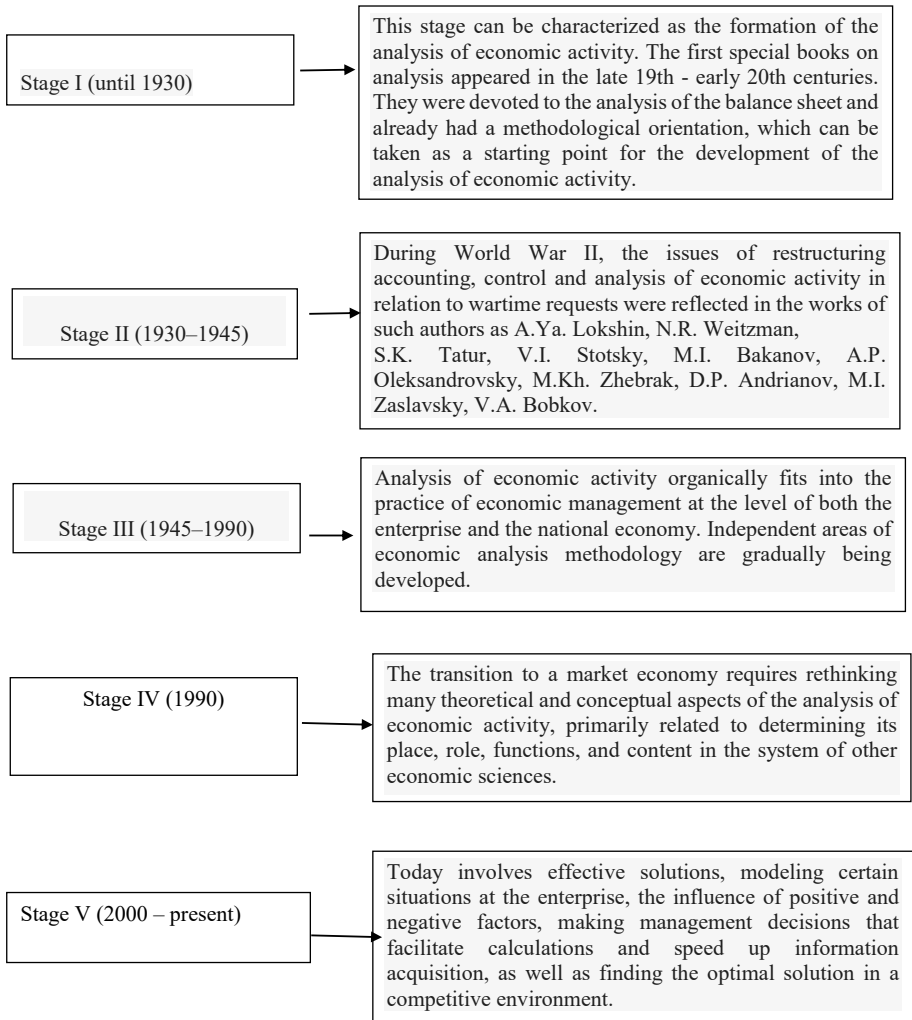


Fig. 1.4.2. Historical aspects of the development of economic activity analysis

The third stage defines the analysis of economic activity, which is necessary for managing the economy at the level of both the enterprise and the national economy, and for performing these actions in practice.

The fourth stage is characterized by the transition to a market economy, requiring a rethinking of many theoretical and conceptual aspects of economic analysis, including its place in the system of economic sciences. Independent areas of economic analysis methodology are being developed.

Stage V involves effective decisions, modeling of certain situations in the enterprise, and managerial decision-making, which facilitates calculations and speeds up the receipt of information through the use of computerized calculations.

Thus, after analyzing Fig. 1.4.2, we can say that historical aspects have developed very rapidly, even during the Second World War, scientists had the opportunity to study the analysis of economic activity.

Along with the dynamic changes in the economic situation in Ukraine and the continuation of martial law, this area remains relevant for further research.

In such anxious times, no one is immune to force majeure. Going concern is one of the principles of accounting and financial reporting of Ukrainian companies, according to which the company is considered to be a going concern for the foreseeable future. It has neither the intention nor the need to liquidate, cease operations, or seek protection from creditors. Its assets and liabilities are accounted for on the basis that the entity will be able to realize its assets and settle its liabilities in the normal course of business.

That is why, despite force majeure in the form of martial law, it is necessary to ensure the continuation of accounting activities at the enterprise. The information received by external and internal users is very important, as it serves as the basis for making important economic decisions. Business cannot exist without accounting, so the government has to make concessions to support taxpayers in difficult times not only in terms of reducing the tax burden (which also applies to accounting), but also in terms of simplifying accounting.

Let's consider all business sectors in order of their vulnerability to the external environment. Thus, a large-scale system of benefits and exemptions has been deployed to support small and medium-sized businesses. In particular, according to the Law of Ukraine "On Amendments to the Tax Code of Ukraine and Other Legislative Acts of Ukraine Regarding the Validity of Norms for the Period of Martial Law", the following changes were introduced for individual entrepreneurs (IEs):

- 1) The payment of the single tax by sole proprietors of the 1st and 2nd groups is voluntary, i.e. you can pay this tax at will, while sole proprietors of the 3rd group of the single tax must pay the tax on a general basis starting from March 2022;

- 2) exemption of single tax payers from paying the unified social contribution (USC) for themselves and for mobilized employees, starting from March of this year;

- 3) reduction of the single tax rate from 5% to 2%. At the same time, the restrictions on the reduced rate with respect to the maximum amount of income of up to UAH 10 billion for sole proprietors of the 3rd group were lifted by the Law of Ukraine "On

Amendments to the Tax Code of Ukraine and Other Legislative Acts of Ukraine on Peculiarities of Taxation and Reporting during the Period of Martial Law”;

4) mobilized entrepreneurs or entrepreneurs in the military are fully exempt from the tax burden, as well as from the obligation to file a VAT return.

A significant number of sole proprietors were forced to go abroad, and some of them, being able to continue their activities outside Ukraine, naturally faced a number of questions about how they were entitled to do so. The official explanation of the

of the State Tax Service of Ukraine states that such entrepreneurs have the right to open accounts in foreign banks in their own name. The funds from the sole proprietorship's activities will be credited to this account. However, for accounting purposes, all amounts credited to this account will be included in the total annual income. It is important to ensure that all business transactions strictly comply with the entrepreneur's KVEDs and the need to fulfill their tax obligations.

A large number of innovations affected payroll and related payments and benefits. In particular, the penalty for late payment of the unified social tax was canceled, and all penalties for the period of martial law were canceled.

In addition, sole proprietors of groups 2 and 3, as well as legal entities and single tax payers of group 3, were exempted from paying the unified social contribution for mobilized employees. At the same time, group 4 single tax payers, as well as independent professionals, were not empowered to independently decide on non-payment of the USC for mobilized employees, as well as those who voluntarily joined the territorial defense.

Today, a certain number of employees are forced to leave their jobs to ensure their own safety and the safety of their loved ones, to fulfill their constitutional duties, or have disappeared altogether. Depending on the reason for the absence from the workplace, the peculiarities of calculation and payment of wages also change.

If an employee is mobilized or becomes a territorial defense volunteer, in addition to his or her position and workplace, such an employee retains his or her salary. Article 119 of the Labor Code of Ukraine provides for the use of average earnings when calculating payments to mobilized employees.

At the time of the study, this payment is calculated at the expense of the enterprise, and there are no compensations from the budget. However, since July 19 of the year under study, there have been changes in labor legislation. According to Law 2352-IX of 01.07.2022, the employer is exempted from the obligation to maintain the average salary of employees called up for military service, while retaining their jobs (positions). It is worth noting that employees serving in the territorial defense are still entitled to such payment, as such an organization operates exclusively on a voluntary basis. Along with this, a new 90-day vacation was introduced in connection with the employee's stay outside the state border of Ukraine, and all vacation pay is paid before the start of the vacation, unless otherwise provided by law, labor or collective agreement.

In order to protect the labor rights of employees, the Law of Ukraine “On the Organization of Labor Relations under Martial Law” N 2136-IX dated 15.03.2022 is amended to allow for unscheduled state control over compliance with labor legislation.

The calculation of payments to employees is described in the Procedure for Calculating the Average Wage, approved by Resolution of the Cabinet of Ministers of Ukraine (the “CMU”) No. 100 dated February 08, 1995, which contains in paragraph 1 of the list of cases of its application the item “involvement of employees in the performance of military duties” (the “Procedure No. 100”).

According to it, a two-month calendar period preceding the month in which the mobilization took place is used to calculate the average monthly salary.

Employees who have left the territory of hostilities but are able to perform their work duties remotely may continue to work under the previous remuneration conditions. In this case, it will be enough for the employer to issue an order to transfer the employee to a remote (home-based) form of work. For control purposes, it is also appropriate to immediately regulate all the conditions of remote work in such an order.

For employees whose work tasks cannot be performed remotely, it is recommended to use the novelty of labor legislation, in particular, to suspend the validity of employment contracts. At the same time, the CMU Resolution “On Amendments to the Procedure for Calculating the Average Wage” amended the wage calculation scheme by excluding from the calculation period the time for which there is no data on the employee's accrued wages due to military operations during martial law.

Because of the Russian Federation's armed aggression against Ukraine, the vast majority of the civilized world is helping Ukraine. In addition to military and technical assistance, humanitarian aid is a separate type of assistance. Given the scale of such assistance, it is necessary to increase responsibility for its spending at the legislative level. In a letter dated April 27, 2022, the Ministry of Finance of Ukraine reminded of the current Accounting Procedure for Humanitarian Aid, adopted in 1999. It applies to all legal entities established in accordance with the legislation of Ukraine, regardless of their organizational and legal forms and forms of ownership, as well as to representative offices of foreign business entities that are required to keep accounting records and submit financial statements. This means that the basis for accounting for business transactions, including receipt, write-off or transfer of assets, are primary documents, documents containing information about a business transaction (an action or event that causes changes in the structure of assets and liabilities, equity of the company). Such assistance is accounted for by debiting the accounts of cash, goods, inventories and other property in correspondence with account 48 “Targeted financing and targeted receipts”.

In times of war, many businesses provide assistance to the army or other entities involved in the defense of the country and its population. In accordance with the Law of Ukraine “On Amendments to the Tax Code of Ukraine and Other Legislative Acts of Ukraine on Peculiarities of Taxation and Reporting during the Period of Martial Law” of 30.03.2022, such entities may receive tax benefits:

1) transactions on voluntary transfer or alienation of funds, goods, including excisable goods, provision of services in favor of the Armed Forces of Ukraine and territorial defense units, without preliminary or subsequent reimbursement of their value, are not considered sales transactions for tax purposes;

2) full inclusion in expenses of funds and property transferred to the Armed Forces of Ukraine and other units;

3) the amount of reimbursement of the cost of fuel consumed in the provision of transportation services to meet the needs of the Armed Forces of Ukraine and territorial defense units is not included in the taxable income of individuals providing such services.

The expropriation of property under the legal regime of martial law or a state of emergency may be carried out with prior full compensation of its value. In case of impossibility of prior full compensation for the expropriated property, such property shall be expropriated with subsequent full compensation of its value. Property shall be seized under the legal regime of martial law or a state of emergency without compensation for the value of such property.

The forced alienation or seizure of property is documented by an act of acceptance and transfer and an act of forced alienation or seizure of property. In this case, such property does not need to be written off the balance sheet of the enterprise. The need for further accounting is due to the fact that after the end of martial law, such property must be returned to the owner. To ensure the accuracy of accounting, it is recommended to introduce an additional subaccount to account 10 "Fixed assets" with the transfer of all property seized by the state to it. In this case, depreciation is accrued in a simple manner and then credited to account 977 "Other operating expenses". After the property is returned to the company's ownership, it will be enough to simply transfer it from the additional subaccount to the previous place of accounting.

One of the accounting issues directly affected by martial law is the depreciation of fixed assets. According to the requirements of NP(C)BU 7 "Fixed Assets", depreciation is charged during the useful life (operation) of fixed assets, which is set by the enterprise (in the administrative act) when recognizing it as an asset (when crediting it to the balance sheet) and is suspended for the period of its: reconstruction; modernization; completion; refurbishment; conservation. Therefore, if the company operates according to national standards, depreciation continues to be charged, even though martial law is a force majeure circumstance. In other words, in such circumstances, depreciation should be accrued in the usual manner. However, if the company decides to stop depreciation, it must be formalized in accordance with the law. One of the options for such accounting treatment is to temporarily decommission the fixed asset by issuing a corresponding order from the manager and drawing up a decommissioning certificate. In this case, depreciation is suspended until the facility is put back into operation.

However, the negative aspect of stopping depreciation is that, despite the fact that the physical depreciation of an asset has stopped, it is subject to obsolescence under any circumstances. Another similar option is somewhat more costly in terms of time and money - conservation of fixed assets. The procedure for such a set of measures is regulated by Regulation N 1183. It should be noted that the decision not to depreciate fixed assets is purely voluntary.

A significant set of innovations affected the VAT calculation procedure. Given the restrictions imposed on the tax authorities' e-services during martial law and cyberattacks, VAT payers cannot register tax invoices and adjustment calculations in the Unified State Register of Tax Invoices (USRTI).

Thus, in the VAT tax returns for February 2022, tax liabilities and tax credit were formed on the basis of tax invoices (TI) and adjustment calculations (AC) registered in the URTI before February 24, 2022, as well as the primary accounting documents available to the taxpayer, which were prepared in accordance with the Law of Ukraine “On Accounting and Financial Reporting in Ukraine”. For subsequent reporting periods during martial law, tax liabilities and tax credits must be formed on the basis of primary settlement documents available to the VAT payer. However, this procedure for VAT calculation creates many inaccuracies and contradictions that will be extremely difficult to track in the future.

The Law of Ukraine N 2260 restores the possibility of conducting: desk audits (of tax returns submitted, timely registration of tax invoices/adjustment calculations, timely submission of tax returns and timely payment of agreed amounts of tax liabilities); documentary unscheduled audits conducted at the request of the taxpayer and/or documentary unscheduled audits of taxpayers, which received tax information indicating that the taxpayer violated currency legislation in parts

The State Tax Service did not forget to point out that the requirements of the legislation on the moratorium (suspension) of the application of penalties (financial sanctions) for the period of martial law, state of emergency and/or quarantine do not apply.

At the end of April, Ukraine faced a major shortage of fuel at gas stations. This situation was entirely caused by the destruction of the logistics of supplying many goods and the panic of Ukrainians. The shortage of fuel and petroleum products is critical for the country's vital functions. Under martial law, the Cabinet of Ministers of Ukraine increased the established trade margin on diesel fuel and gasoline by 40-43% to overcome the shortage. At the same time, a 7% VAT rate was introduced for the import and supply of fuel and petroleum products to Ukraine. According to forecasts, the fuel shortage did not disappear before August. However, this deficit has already been resolved in many regions.

The introduction of martial law has significantly affected the normal accounting procedures. The largest segment of business, namely small and medium-sized businesses, is very vulnerable to the impact of such significant economic changes. Therefore, to support it during the martial law period, the government introduced a number of easements. In particular, the government introduced voluntary payment of the single tax, exemption from paying the unified social contribution for themselves and for mobilized employees, and a reduction in the single tax rate from 5% to 2% for the third group of single taxpayers. In addition, a moratorium was introduced on fines for late filing of reports and payment of taxes, as well as on the accrual of penalties and scheduled and unscheduled state supervision (control) and state market supervision for the period of martial law. In addition, as the economic situation has changed, new specific accounting transactions have become popular, such as the recording of transactions for the free transfer and seizure of property in favor of the Armed Forces of Ukraine and territorial defense units. In addition, the procedure for depreciating such property, as well as those fixed assets that companies cannot use for their operations due to their location in the

combat zone, has also been changed. In this case, such entities may continue to depreciate such assets to compensate for losses from obsolescence or temporarily decommission them and consolidate them.

With regard to changes in payroll accounting, employees may continue to receive an indefinite unpaid leave of absence. However, the employer has the right to refuse to grant the employee all other types of leave, except for maternity leave. To support employers whose employees were subject to general mobilization or joined the Armed Forces voluntarily, the government has developed a mechanism for reimbursement of unified social contribution. In addition, the procedure for calculating the average salary of mobilized employees was changed by excluding from the calculation period days for which there is no data on accrued salaries.

The amendments also included: simplification of the procedure for changing working conditions; deferral of salary payments; a new procedure for suspending an employment contract; correcting gaps in the procedure for terminating an employment contract; introduction of a new vacation for employees abroad; and exemption of employers from the obligation to maintain average earnings for employees called up for military service.

In addition, the following changes were made: simplification of the procedure for changing working conditions; deferral of salary payments; a new procedure for suspending an employment contract; correcting gaps in the procedure for terminating an employment contract; introduction of a new vacation for employees abroad; and exemption of employers from the obligation to maintain average earnings for employees called up for military service.

The main innovations in VAT were changes to the procedure for registering VAT invoices and calculating adjustments to them in the Unified Register of Tax Invoices. In the VAT tax returns for February 2022, tax liabilities and tax credit were formed on the basis of TI and SA registered in the URTI before February 24, 2022, as well as the primary accounting documents available to the taxpayer. In subsequent reporting periods during martial law, tax liabilities and tax credit should be formed on the basis of primary settlement documents available to the VAT payer. In view of this, taxpayers who are able to meet the deadlines for the registration of TI and SA in a timely manner are exempt from liability for late performance of their obligations.

For the period of martial law and the state of emergency, transactions involving the importation into the customs territory of Ukraine and the supply in the customs territory of Ukraine of fuel and oil products (including those produced in the customs territory of Ukraine) are subject to a 7% VAT rate.

The proposed working paper makes it possible to assess ethical threats taking into account the factors caused by martial law.

At the planning stage, special attention should be paid to reviewing the risks in the light of military aggression. Martial law is a factor that significantly affects the continuity of any business entity. International Standards on Auditing 570 “Continuity of Activity” defines operational, financial and other factors that affect continuity, but the standard does not provide for the assessment of continuity during hostilities (Information letter of the

Board of the Audit Chamber of Ukraine Consideration by the auditor of the continuity of activities during the audit of financial statements, 2022). All these factors must be considered through the prism of military events condition (Table 1.4.3).

Table 1.4.3

Operational factors affecting the continuity of the business entity taking into account martial law

| Factors | The essence of the factors | Clarification of the essence of the factor (the impact of martial law) |
|-----------|---|---|
| Operating | 1. Intentions of management to liquidate an entity or to cease operations. 2. Loss of key management personnel without its replacement. 3. Loss of the main market, key customer (s), franchise, license or main supplier (s). 4. Difficulties with the workforce. 5. Lack of important resources. 6. The emergence of a very successful competitor. | 1. The impact of martial law on the company's personnel (mobilization, joining the territorial defense) and the costs associated with the payment of personnel; 2. Suspension or interruption of activities due to disruption of the supply chain, termination of operations, loss of production capacity or commercial facilities, restriction of movement and disruption of logistics; 3. Damage or destruction of property; 4. Failure to comply with the terms of contracts due to force majeure, adverse changes in the terms of contracts, breach of credit agreements, inability to repay accounts payable and delays in repayment of receivables; 5. Significant reduction in sales, profits, cash flows from operating activities. |

Analysis of business activities is a comprehensive study of all existing processes of the main activities of the enterprise and their structural units. First of all, the analysis requires determining cause-and-effect relationships and development trends in order to substantiate strategic management decisions and evaluate their effectiveness. This can be achieved through its intensive use with the application of the main types and tasks.

The analysis of economic activity provides possible information about the efficiency of the enterprise, with the help of which we can analyze and decide on further actions, opportunities for a better and more efficient final result of the activity. The use of analytical processes makes it possible to track the development of the enterprise by its main indicators. The above stages of analysis development help to identify the essence and characteristics of analytical work carried out in modern conditions, which leads to the search for reserves and elimination of negative factors to improve the efficiency of management decision-making and the final results of the entity's business.

Management accounting is developing dynamically in Ukraine, driven by the growing value of information, digitalization of business processes and the global economic system as a whole. An additional driver is the increase in risks, complication of

business conditions and other factors that together contribute not only to the improvement of management implementation mechanisms, but also to the exacerbation of the crisis, which has already critically slowed down the development and reduced the business activity of Ukrainian enterprises.

In Table 1.4.4 there are discussed the financial factors that affect the business continuity of the entity, taking into account martial law.

Table 1.4.4

Financial factors affecting the continuity of the business entity
taking into account martial law

| Factors | The essence of the factors | Clarification of the essence of the factor (the impact of martial law) |
|-----------|---|--|
| Financial | <ol style="list-style-type: none"> 1. Excess of liabilities over assets or excess of current liabilities over current assets. 2. Loans with a fixed term, the repayment of which is approaching, in the absence of real prospects for prolongation or repayment; or excessive use of short-term loans to finance long-term assets. 3. Signs of cancellation of financial support by creditors. 4. Negative cash flows from operating activities, as evidenced by financial statements for previous periods or projected financial statements. 5. Negative key financial ratios. Significant operating losses or significant reductions in the value of assets used to generate cash flows. 6. Debts or termination of dividends. 7. Inability to pay creditors on time. Inability to fulfill the terms of loan agreements. 8. Transition from the system of payment on credit for the delivered goods, received service to the payment system at the time of delivery of goods, receipt of services. 9. Inability to obtain financing for the development of new basic products or to finance other significant investments. | <ol style="list-style-type: none"> 1. Arrest or expropriation of assets for the needs of the state after December 31, 2021; 2. Restrictions on access to cash and cash equivalents or restrictions on cash transactions; 3. Impairment of financial and non-financial assets (including events and information after the reporting date); 4. Instability and significant changes in prices for capital instruments, debt securities, commodity prices, foreign exchange rates and / or interest rates after December 31, 2021, which will significantly affect the assessment of assets and liabilities, income and expenses in the following 12 months. |

In search of effective methods of preventing crises, domestic entrepreneurs implement many steps provided for by the selected anti-crisis management mechanisms.

However, each such strategy should be based on information, data and reliable facts that, in the aggregate, comprehensively characterize the production and economic activities of the enterprise, describe financial flows and contain facts indicating potential or real risks and negative trends in its activities. In Table 1.4.5 there are analyzed other factors that affect the business continuity of the entity, taking into account martial law.

Table 1.4.5

Other factors affecting the continuity of the business entity
taking into account martial law

| Factors | The essence of the factors | Clarification of the essence of the factor (the impact of martial law) |
|---------------|---|---|
| Other factors | 1. Failure to comply with capital requirements or other legal or regulatory requirements, such as solvency or liquidity requirements for financial institutions. 2. Incomplete legal or regulatory proceedings against an entity that, if satisfied, may give rise to claims that the entity is unlikely to be able to satisfy. 3. Changes in laws or regulations or government policies that are expected to adversely affect the entity. 4. Lack of insurance or insufficient insurance against disasters in case of their occurrence. | 1. Announcement of plans to terminate or dispose of fixed assets; 2. Other circumstances that significantly affect the activity. |

Thus, management accounting, considering it as a system of working with production, economic and financial information, is the basis for management, formulation of appropriate decisions and their implementation. Modern scholars emphasize that this type of accounting is characterized by such components as:

- accounting of expenses/income as part of the management of financial flows of an enterprise based on the use of information on their movement. This component of management is critically important in times of crisis, since the study of expenses and income in their analytical context provides key data for determining the future financial result, its change, the dynamics of growth or decline, the likelihood of losses or even bankruptcy;
- cost accounting, as an area of accounting work responsible for collecting information on the costs of creating goods and services and providing for its detailed study with the subsequent formation of decisions necessary to optimize the ratio between cost and profitability of sales;

- systematization and analysis of data as part of strategic planning, in particular, economic interpretation of information, its use for the implementation of tactical and operational management steps to counteract crisis phenomena and achieve strategic.

A distinctive feature of management accounting is its significant dependence on accounting and statistical accounting, but, at the same time, the absence of a clearly regulated implementation procedure.

The main focus of management accounting is information, and the reason for its development in times of crisis is the need to effectively use such information as an influential tool for managing crisis conditions. Accordingly, taking into account all of the above aspects, management accounting is a system of identification, measurement, analysis, preparation and transmission of financial and non-financial information to executives and managers (or other interested users), which they use to support the implementation of management of an economic entity, planning and control and prevention of aggravation of crisis conditions characteristic of today.

Summarizing the essence of management accounting in the current business environment, the following can be said:

- First, it is the work with internal information, its collection and transfer for further processing. Management accounting is not adjusted by the provisions of the National Accounting Standards or IFRS. Each business entity independently decides on the procedure for working with information, its use and even on the general need to implement management accounting at the enterprise, which is determined on the basis of an assessment of the benefits and costs, as well as the subjective attitude of management to the importance of management accounting in general;

- Second, the idea of management accounting does not deny the use of external information. In particular, in a crisis, it is important to take into account the facts about the activities of competitors in the market for comparison with the prospects of the enterprise in a particular segment, about the needs of users, interests and priorities, which, of course, have changed dramatically in the conditions of war;

- Third, the effectiveness of management accounting is directly proportional to the frequency of information updates. Accordingly, reports may be submitted much more frequently than accounting or financial reports. The information collected “yesterday” is no longer as useful and relevant as the information obtained “today”, which also applies to management reporting;

- Fourth, the basis for obtaining information always remains the primary documentation of the business entity. In order for the data to be useful and the documents to be informative, it is advisable to process and process the documented materials in a timely manner. Otherwise, the importance of management accounting as an operational method of forming management decisions is lost.

Management accounting means efficiency, correctness and timeliness; it is flexibility that allows deviating from the strictly regulated accounting framework, requires an atypical view of information in order to predict various options for further development of the enterprise and form hypotheses about the consequences of the impact of crisis

phenomena on the state of economic activity; it is adaptability, which is manifested in the ability to quickly transform and adapt the enterprise to the current situation or internal needs of the state entity.

The purpose of management accounting is to promptly obtain information from the management and managers, as well as the owner or other stakeholders (investors, creditors, etc.) about the current state, the situation in which the enterprise is located and how the crisis affects the state of its operations, stability and activity.

This part of management helps to clearly describe the current state of the income-cost relationship and summarize the prospects for the profit-money relationship. Such accounting is aimed at a deeper processing of information than the usual analysis of cost and income indicators. That is why the results of management accounting include the interpretation of data on the property of the business entity, the ratio of receivables and payables, the timing of payments on liabilities, cash gaps, in fact, everything that can reflect the financial situation not only in a positive light, but also focus on problematic aspects, affect the reputation of the company and its owners, change the market position and attitude of consumers, investors and other information users.

Analyzing the practical context of using management accounting, it should be noted that it has a special role for medium and large businesses. First of all, this is due to the high cost of collecting, processing and analyzing information data, which a small business entity is not always able to finance, or the benefit from the information obtained will be lower than the cost of finding and working with it. For large businesses, management accounting is a method of rationalizing management based on the results of processing data on past experience and current activity of the enterprise; for small businesses, it is an additional cost, since the use of operational information and accounting data is sufficient to identify weaknesses and prospects for activity. In addition, in times of crisis, additional costs are tangible for small businesses, the value and price of information continues to grow and, accordingly, each component of management accounting becomes more expensive.

When we talk about the components of management accounting, we mean such elements as information gathering and its use. The scale of an enterprise affects the number of specialists involved in these stages. Current practice shows that the key aspect of management accounting is information collection - interpretation and systematization of data. For their further processing, representatives of medium and large businesses may involve additional specialists, since the main task of management accounting is to provide data for analysis and decision-making. Such information is covered in reports, the frequency of which may be even once a day, to ensure the completeness and correctness of the reflection of trends and changes in the activities of the business entity; such an organization is especially important in a crisis.

The list of the main reports most often prepared by Ukrainian enterprises as part of management accounting includes the following:

- three internal reports - profit and loss (income/expense), cash flows and balance sheet;
- sales report in various sections: by counterparties, by nomenclature, by geographical segments (markets), etc.;

- data on margin - the difference between income (revenue) and cost;
- report on the structure of costs by components (cost price). An important indicator for management is the percentage of salary;
- report on the structure of costs in the breakdown: variable/fixed costs;
- report on inventory;
- internal budgets - as a variant of the financial plan for the future;
- payment schedule, which includes payment schedules by different counterparties, as well as coverage of obligations to pay taxes and fees (Patsarniuk, 2021).

The next feature of the practical context of using management accounting in a crisis is the changing situation in the market and in the economic sector of Ukraine as a whole. Management accounting is effective only if it is based on the use of reliable, complete and transparent information. In a time of war, information can quickly lose its relevance, which necessitates prompt adjustments to the tactics of implementing management decisions made on the basis of accounting work. Thus, 38% of domestic business representatives claim that their activities and management cannot be stabilized due to the unpredictability of the situation in Ukraine and in the domestic market, in particular, 35% say that there is unpredictability in the actions of the state, which can worsen the state of business (Honcharuk, 2022).

Such trends have a significant impact on the organization of management accounting, forcing companies to abandon long-term planning and the use of long-term strategies for organizing management work.

The study, conducted in September 2022 by the Center for Innovation Development, the Office for Entrepreneurship and Export Development, and the national project Diia. Business together with Advanter Group with the support of the Ministry of Digital Transformation, the Ministry of Economy of Ukraine, the Ministry of Finance of Ukraine, the Ministry of Community and Territorial Development, the Ministry for Reintegration of the Temporarily Occupied Territories, the Coalition of Business Communities for the Modernization of Ukraine, and the USAID Competitive Economy Program, reflects the attitude and readiness of businesses to plan management work:

- 50.9% of Ukrainian enterprises implement management intuitively, which indicates a partial rejection of the use of management accounting as the basis for long-term planning and forecasting;

- 22.7% indicated that they promptly adapt their business strategy and flexibly adapt their action plans in a crisis, which indicates the widespread use of management accounting in the work of a business entity;

- 11.4% of respondents indicated that they do not see the point in using business plans and development strategies in the current environment, management accounting is part of the current management of operational processes;

- 9.4% report updating both the business strategy and the business plan, and are in a state of transformation, which requires a detailed study of the enterprise's information base and the involvement of external information. Such work is extensive and requires a high level of organization among specialists responsible for organizing and implementing management accounting and making appropriate operational decisions;

- 5.6% of business entities claim to have an updated strategy for further activities and also note that they have established the basic elements of planning, primarily financial planning. Work on the adaptation of the management accounting system within the enterprise continues (Honcharuk, 2022).

Thus, the development of the use of management accounting by Ukrainian enterprises in the conditions of a difficult socio-economic situation can ensure the achievement of the following results:

- first, to streamline and rationalize the use of all types of resources (financial, tangible and intangible) that are limited;
- second, to find which resources are the most effective and largely support the profitability of the business entity;
- thirdly, to review the cost of goods and services, determine the feasibility of their production and sale under martial law, taking into account the ratio of the costs of their creation and the benefits of their use.

Thus, we consider management accounting to be a promising tool for managing information resources of an enterprise, and its development is a particularly important component of rationalizing the use of large amounts of information that are only growing and gaining in value in the structure of business processes.

As a result of the analysis, management accounting is defined as a system of identification, measurement, analysis, preparation and transmission of financial and non-financial information to managers and executives; the main purpose of data collection is to use them to support the implementation of management of an economic entity, planning and control, and to prevent the aggravation of crisis conditions characteristic of today. Given the practical context of management accounting, the author identifies its constituent elements, in particular, information collection (interpretation and systematization) and use (analysis and presentation). The aggregate of information received by specialists is summarized and reflected in the relevant reports, the role of which is limited to the practical presentation of the main trends of activity to the management or owner of the business entity.

Domestic business is highly dependent on crisis phenomena, which necessitates the mandatory use of management accounting to maintain a permanent control of activities. That is why we consider it necessary to continue further research on management accounting, to define it as an important element of accounting and planning work, and to formulate appropriate recommendations on the practice of its use as a tool for preventing the aggravation of crisis conditions.

All of the innovations and changes studied are not exhaustive, because, unfortunately, the war is not over yet. But one thing is for sure: as long as the blue and yellow flag flies over the country, the government and business will do their best to adapt their activities to the new conditions in order to survive in this difficult time. And no matter what positive or negative changes we face, we will win, so such research should continue to help everyone find high-quality, proven useful information that will become a weapon for business in the current environment.

CHAPTER 2. ACCOUNTING AND ECONOMIC ASPECT OF ENTERPRISE DEVELOPMENT STRATEGY

2.1. INTERNATIONAL FINANCIAL REPORTING AND AUDITING STANDARDS AS THE BASIS OF TRUST IN ACCOUNTING INFORMATION IN THE AGRICULTURAL SECTOR

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The agro-industrial complex (APC) is the foundation of economic stability and food security of each state, generating considerable export potential. In the face of deepening the processes of globalization and the growth of requirements by investors, creditors and other stakeholders to the qualitative characteristics of accounting information, the issue of its accuracy and transparency becomes extremely relevant. International financial reporting standards (IFRSs) and international audit standards (ISAs) are recognized in the world as effective tools to ensure a high level of trust in financial reporting of economic entities, including enterprises engaged in agricultural activities.

The issues of using IFRS and ISA in the agro -industrial complex attract the attention of many domestic and foreign scientists. In particular, theoretical and practical aspects of accounting for biological assets and agricultural products in accordance with IAS 41 "Agriculture" were investigated, among others, L.G. Melnyk, N.V Proskurina, as well as foreign researchers such as A. Hendricks and S. Van der (S. Van Der Weele). Problems of adaptation of general principles of IFRS to the specifics of agricultural production, including the influence of seasonality and natural and climatic factors, were considered in the works of O.V. Gudzi, O.M. Efimenko and others.

At the same time, the issue of audit of financial reporting of agricultural enterprises in the context of use of ISA is the subject of scientific intelligence IV. Zihlei, 2016, pp. 115–122), M.S. Kuzel. Researchers emphasize the need to take into account the sectoral risks and the specifics of audit procedures when checking the financial reporting of agricultural producers. Despite the considerable amount of scientific works in this field, the issue of developing complex conceptual approaches to increasing the level of trust in accounting information in the agro -sector on the basis of IFRS and ISA integration, taking into account modern technological trends, remains relevant and needs further research.

The purpose of the research is an in -depth study of the role of IFRS and ISA as a fundamental basis of trust in accounting information in the agriculturalfer, identification of key problems that arise when applying them, and developing conceptual approaches aimed at increasing the level of confidence of stakeholders in the financial statements of agricultural enterprises. The agro-industrial complex (agro-industrial complex) is a key sector of the national economy that provides food security, currency income and social

stability, especially in the conditions of global challenges and military threats. Its strategic role is manifested not only in the production of agricultural products, but also in the formation of export potential, employment of the population and development of rural areas.

Ukraine is traditionally one of the leading exporters of agricultural products, including cereals and oilseeds. In 2023, the share of agroindustrial complex in the export structure of the country exceeded 40%, which indicates its significant contribution to the formation of foreign exchange earnings and maintenance of payments.

In addition, the agricultural sector provides the employment of a large part of the population, especially in rural areas, contributing to reducing unemployment and social tension. The development of agroindustrial complex also stimulates related industries, such as mechanical engineering, chemical industry, logistics and trade.

At the world level, the agricultural sector plays a critical role in providing food security, especially in the conditions of population growth and climatic changes. Innovations in agriculture, such as digitalization, biotechnology and sustainable methods of production, become key factors for improving the efficiency and ecological stability of agricultural production. Ukraine, with considerable agrarian potential, can play an important role in global food chains, providing stable supply of quality products to international markets. The summary of the contribution of the agro -industrial complex to the economy of Ukraine is given in Table 2.1.1.

Table 2.1.1

The main indicators of development of the agro -industrial complex of Ukraine
in 2023

| Indicator | Value (2023) | Source |
|---|-----------------------|---|
| The share of APC in the GDP of Ukraine | 17% | State Statistics Service of Ukraine |
| The share of agricultural products in export is | 41% | State Customs Service of Ukraine |
| Employment in agriculture | 2,8 million | State Statistics Service of Ukraine |
| Agricultural land area | 42,7 million hectares | Ministry of Agrarian Policy and Food of Ukraine |
| Basic export positions | Cereals, oil, meat | Ministry of Agrarian Policy and Food of Ukraine |

From the data of Table 2.1.1, we can see that the agroindustrial complex continues to play a decisive role in the economy of Ukraine, ensuring the stability of the state budget and acting as a driver of economic growth. The share of the agricultural sector in the GDP of the country is significant 17%, and more than 40% of all export revenue is formed precisely at the expense of agricultural products, which indicates its strategic importance for payments and international trade. The sector provides millions of Ukrainians, especially in rural areas, creating social support for a large part of the population.

In addition to economic indicators, it is important to emphasize the importance of agriculture in ensuring food security at both national and global levels. Stable volumes of production of grain, oil and other agricultural products form the export potential of Ukraine, strengthen its position as one of the key players in the global agrarian market and provide currency income in economic instability and military threats.

In today's context, increasing globalization processes and economic integration between states is significantly increasing the importance of quality accounting information as a basis for effective management, decision-making and financial transparency. Increasingly, enterprises, especially in the agricultural sector, are entering into partnerships with international investors, credit institutions, as well as integrated into international trade chains. In such circumstances, the requirements for reliability, timeliness and understanding of financial statements are significantly increasing. Reliable accounting information becomes a tool that reduces risks, increases the efficiency of resource management and allows you to form a positive image of the enterprise at the international level.

In parallel, digitalization and development of financial technologies make new requirements for formats and reporting channels. The use of cloud solutions, automation of accounting processes, the use of artificial intelligence in the field of financial information analysis necessitates the need to adapt traditional accounting practice to new realities. In this regard, international institutions strengthen the requirements for financial statements, introducing new standards and criteria for its quality. Thus, the International Accounting Council (IASB) regularly updates IFRSs according to global challenges and expectations of stakeholders, which emphasizes the need for flexibility and adaptability of national accounting systems.

The quality of accounting information determines the ability of stakeholders (owners, investors, controlling bodies, etc.) to objectively evaluate the financial condition of the enterprise, to predict its development and to make appropriate management decisions. It is especially relevant for the agricultural sector, which is estimated to be one of the most sensitive to changes in the external economic environment. Enterprises in this industry face high risks-both natural-climatic and market, so confidence in their reporting is crucial. That is why the introduction of unified international approaches to accounting allows to ensure not only transparency but also the stability of the functioning of enterprises during periods of turbulence.

In addition, increasing accounting requirements is also an indicator of corporate governance development. The role of non -financial reporting, in particular integrated, which covers issues of social responsibility, sustainable development, environmental impact - is growing - which is already taken into account by investors and international donors when making decisions. Thus, a quality accounting system is transformed from an internal accounting tool to the strategic resource of the enterprise. International financial reporting standards (IFRSs) are generally recognized rules that allow you to compare, transparency and objectivity of accounting information. In turn, international audit standards (ISAs) create the basis for independent verification of financial statements and confirmation of its accuracy. The introduction of IFRS and ISA in the agricultural sector is a prerequisite for the integration of Ukrainian enterprises into global economic systems, in particular in the context of the Association Agreement with the EU.

Studies show that the introduction of international standards allows to reduce information asymmetry between the enterprise and external stakeholders, helps to improve the investment climate and increase the value of companies. The works of modern Ukrainian scientists emphasize not only the formal application of standards, but also a deep rethinking of the methodology of accounting and audit in the context of digitalization, sustainable development and transparency of reporting.

For example, S.O. Kuznetsova justifies the need to change approaches to the quality of accounting information in connection with the transformation of the digital economy. Ishchenko Ya.P. It emphasizes the importance of adaptation of IFRS in corporate agricultural structures as a tool for providing transparency for external investors. The relevance of the topic is also confirmed by current trends - the state gradually requires IFRS reporting for big business, which creates a precedent for medium-sized enterprises, in particular in agroindustrial complex.

The integration of Ukrainian agricultural enterprises into the world economic space depends largely on their ability to form financial reporting, which is clear and comparable to international investors and creditors. The transition to international financial reporting standards (IFRSs) is a key step in this direction, increasing transparency of accounting information, attracting foreign capital and potential reduction in funding (Proskurina, 2018, p. 46). However, the process of implementation and use of IFRS in the agricultural sector of Ukraine faces a number of specific difficulties caused by the unique characteristics of agricultural production.

One of the most difficult problems is the assessment of biological assets. International Accounting Standard 41 Agriculture (IAS 41) requires the estimation of biological assets at fair value minus expected sales costs. The determination of this fair value is often complicated by the absence of active markets for certain types of biological assets, a long production cycle, as well as a significant impact of biological transformations and natural and climatic conditions. Insufficiently developed infrastructure of the land and agricultural market also complicates the objective assessment of assets.

Similar difficulties arise in the accounting of agricultural products, which at the time of the harvest is also estimated at fair value in accordance with IAS 41. The volatility of prices for agricultural products in world and domestic markets can lead to significant fluctuations in the financial results of agricultural enterprises, which requires careful analysis and disclosure. International Accounting Standard 41 "Agriculture" (IAS 41) is a key normative document that defines the procedure for accounting and submission of financial information on biological assets and agricultural products. The basic principle laid down in the standard is to recognize biological assets at the date of initial recognition and at each reporting date at their fair value minus expected sales costs. This reflects the economic essence of biological transformations and provides financial reporting users with more relevant information about the value of assets capable of physical changes.

IAS 41 defines a biological asset as a living animal or plant (IFRS Foundation, 2023). Agricultural activity covers the management of biological assets for the purpose of sale of agricultural products, the transformation of biological assets into agricultural products or obtaining additional biological assets. The standard requires recognition of a biological

asset if and only when:

- the enterprise controls the asset as a result of past events;
- there is a likelihood of receiving future economic benefits related to the asset;
- the fair value or cost of the asset can be valued.

The initial recognition of biological assets acquired as a result of the exchange of exchange for other assets, in addition to cash, is estimated at the fair value of the asset obtained, adjusted for the amount of money transferred or their equivalents. If the fair value of the asset obtained cannot be determined, its value is estimated at the fair value of the asset transferred.

IAS 41 provides a hierarchy of fair value valuation methods, giving priority the most reliable input. The main methods of evaluation are:

- market prices (the best proof of fair value is the presence of an active market for such biological assets in the current state and location. In this case, market prices are used without adjusting or with minimal adjustment for transportation costs and other costs required for sale) (IASB, 2023, PAR.17-19);

- discounted cash flows (DCF) (if there is no active market, fair value can be determined at the present value of the expected future net cash flows from the asset discounted at the current market rate for such asset) (IASB, 2023, Par. 27-29). This method requires significant assumptions about future prices, production and costs;

- sectoral coefficients (in some cases, industry indicators, such as the cost of a hectare of land under a certain crop or cost of the head of livestock of a certain age and breed, adjusted to the specific characteristics of a particular biological asset) (IFRS Foundation, 2016) can be used.

The comparative analysis of these methods is given in Table 2.1.2.

Table 2.1.2

Comparative analysis of methods of valuation of fair value of biological assets

| Comparison criterion | Market prices | Discounted cash flows (DCF) | Sectoral coefficients |
|--------------------------------|-----------------------------------|---|---|
| Data availability | High for standardized assets | Low, requires forecasting | Average depends on the availability of sectoral statistics |
| Complexity of application | Low | High, requires special knowledge and models | Medium |
| Subjectivity of the assessment | Low, based on market transactions | High, depends on assumptions and forecasts | Average depends on the representativeness of the coefficients |
| Relevance of the result | High for active markets | High in the absence of an active market | Average, used as an auxiliary method |
| Link | (IASB, 2023) | (IASB, 2023) | (IFRS Foundation, 2016) |

The Ukrainian Agrarian Market is characterized by a number of features that complicate the use of methods for assessing the fair value of biological assets:

- insufficient active markets (for many types of biological assets in Ukraine there are no steel and liquid markets, which makes it impossible to use market prices as a major source of information for valuation);
- information asymmetry (availability and quality of information necessary for the use of discounted cash flows is often limited. Forecasting future prices for agricultural products and expenses is a difficult task because of the volatility of markets and the impact of macroeconomic factors);
- instability of the legislative and regulatory environment (frequent changes in agrarian policy and state support system can affect expected cash flows and discount rates, complicating long-term forecasting);
- the influence of the shadow sector (the presence of a significant shadow sector in the agricultural economy can distort market prices and complicate their use to estimate fair value).

Biological transformations, such as growth, reproduction, production and degeneration, are an integral part of agricultural activity and have a significant impact on the value of biological assets. IAS 41 acknowledges that these transformations can lead to an increase and a decrease in the economic benefits associated with the asset (IASB, 2023, Par. 13). The valuation of fair value should reflect the current state of the biological asset and the expected future transformations. For example, the assessment of cattle takes into account its age, breed, health and weight gain or dairy productivity. When evaluating perennial plantations, their age, variety, condition and expected yield are taken into account.

Natural and climatic conditions and related risks (diseases, pests, natural disasters) are important factors that should be taken into account when assessing the fair value of biological assets in the agricultural sector. These factors can significantly affect the physical condition of assets, their productivity and expected future cash flows. For example, drought can reduce crop yields, and an epidemic of cattle disease to its death or a decrease in productivity. The valuation of fair value should reflect the likelihood of such risks and their potential impact on the value of the asset. This can be taken into account by adjusting the expected cash flows or discounting.

The International Accounting Standard 20 "State Grant Accounting and Public Aid disclosure" (IAS 20) establishes the procedure for accounting and disclosure of state grants and other forms of state aid provided to enterprises. In the agricultural sector, state support plays a significant role, stimulating agricultural development, providing food security and supporting rural areas (OCD, 2023). The use of IAS 20 is important for ensuring transparency and reliability of state aid in the financial statements of agricultural enterprises. An important aspect of accounting in the agricultural sector is the accounting of state subsidies and grants. Agrarian enterprises in Ukraine often receive significant state support, the accounting of which is regulated by IAS 20 "Accounting for State Grant and Disclosure of State Aid". The application of this standard requires a clear definition of the conditions of state aid, the procedure for its recognition and reflection in the financial statements, which may be difficult in connection with the variety of forms of state support

and the peculiarities of their provision in the agricultural sector (International Accounting Standards Board, 2023).

IAS 20 defines state grants as an assistance provided by the state in the form of transfer of resources to the enterprise in exchange for the past or future compliance with certain conditions related to the operating activities of the enterprise. The standard covers various forms of state aid, including monetary subsidies, preferential loans, tax benefits, assets on preferential terms, etc.

In the context of the agricultural sector, IAS 20 is of particular importance, since state support is often given in specific forms related to agricultural production, such as subsidies for the purchase of agricultural machinery, maintenance of organic agriculture, compensation for sowing costs, livestock subsidies, etc.

In Ukraine, agricultural enterprises receive state support for various programs that may include:

- direct payments (subsidies): provided directly to the bank accounts of enterprises for fulfillment of certain conditions (for example, per hectare of cultivated land, on the head of cattle). Accounting for such grants is usually carried out as grants related to income;

- compensation for interest rates on loans: the state partially or fully compensates for the costs of enterprises to pay interest on bank loans. Accounting for such assistance can be considered as a decrease in financial costs;

- partial compensation for the cost of agricultural machinery and equipment: the state reimburses part of the cost of purchased new equipment; Such grants are usually carried out as grants related to assets;

- support for the development of individual industries (organic agriculture, gardening, animal husbandry): providing additional payments or benefits to enterprises engaged in priority for the state. Accounting depends on a specific form of support;

- budget subsidies: providing funds to cover certain costs of enterprises (for example, for the purchase of fuel and lubricants). Accounting is carried out as a grant related to income. The accounting of each of these forms of state support requires a thorough analysis of the conditions of its provision and appropriate application of the provisions of IAS 20 (Ministerstvo Finansiv Ukrainian, 2019).

IAS 20 assumes that a state grant is recognized if and only when there is a reasonable confidence that:

- the enterprise will fulfill the conditions related to the grant;

- Grant will be received (International Accounting Standards Board, 2023).

State grants should be reflected in a systematic basis for periods in which the enterprise recognizes related costs, which the grant should be offset (IASB, 2023, Par. 18).

The standard distinguishes between two main approaches to displaying grants in income reporting:

- reflection as income: grants related to income (ie grants that compensate for already incurred or future expenses) are recognized as income during the same periods as the corresponding costs;

- reduction of the carrying amount of the asset: grants related to the acquisition of assets (ie grants, the main condition of which is the purchase, construction or other purchase of long -term assets) can be reflected by reducing the carrying amount of the relevant asset. In this case, the income is recognized as a useful use of the asset in the form of reducing depreciation costs. Alternatively, a grant can be recognized as deferred income, which is systematically recognized as income during the useful use of an asset.

Choosing the method of accounting for grants related to assets is the accounting policy of the enterprise and should be applied consistently to all grants of this type. Conditional grants are grants whose provision depends on the fulfillment of certain conditions concerning the future activity of the enterprise. Such grants are recognized as income only when the conditions of their provision are fulfilled and there is a reasonable confidence in obtaining a grant. By the time of fulfillment, conditional grants are reflected as liabilities (deferred income).

If the resulting grant becomes refunded due to non -compliance with the conditions of its granting, the amount to be refunded is recognized as the consumption in the period in which such need arose. Returning a grant associated with an asset may also lead to a adjustment of accumulated depreciation, which would be recognized without grant.

Accounting for conditional grants and their return requires from agricultural enterprises carefully monitoring the fulfillment of the conditions of providing state aid and timely display of relevant operations in accounting.

Conditional grants are recognized as income only after fulfilling the appropriate conditions. By this point, they are accounted for as an obligation. In case of failure to comply with the conditions and the need to return the grant, the corresponding amount is recognized as expenditure. The classification and basic principles of accounting of state grants in the agricultural sector are presented in Table 2.1.3.

Another specific characteristic of agricultural production is its pronounced seasonality. The uneven income and expenses during the annual operating cycle creates additional difficulties in the preparation of intermediate financial statements and the analysis of the financial condition of the enterprise. This requires the use of special approaches to the distribution of costs and recognition of income, as well as the adequate disclosure of seasonal fluctuations in the financial statements (Proskurina, 2018, p. 48].

The seasonal nature of the activity of the agricultural sector significantly influences the formation of income, expenses and financial results of enterprises. Most production operations, including sowing, harvesting campaign and sales, are concentrated in limited time periods of the year, which leads to uneven income and expenses during the financial year (OCD, 2023).

These fluctuations create significant challenges in the preparation of intermediate financial statements in accordance with IAS 34 "Intermediate Financial Reporting". During such periods, there may be distortion of profitability, asset turnover and liquidity, which complicates the analytical assessment of the financial condition of the enterprise (IFRS Foundation, 2023).

Table 2.1.3

Classification and accounting of state grants in agricultural agricultural to IAS 20

| Form of state aid | Terms of provision | Accounting according to IAS 20 |
|--|--|---|
| Subsidies for the purchase of agricultural machinery | Confirmation of the fact of acquisition | Recognized as a grant associated with assets. Displayed as a delayed income or reduction of the balance value of the asset |
| Interest rates compensation | Repayment of credit and compliance with the terms of the program | Recognized as a grant related to income. Included in the income of the period when loan maintenance costs are recognized |
| Livestock subsidies | Fulfillment of requirements for quantity/quality of products | Recognized as a grant related to income. Is shown in the income statement |
| Preferential loans | Compliance with the terms of using funds | The difference between the market and preferential rate is accounting as a subsidy and recognized as income of future periods |
| Return grants in case of failure to comply with conditions | Failure to comply with the terms of the contract | The amount to be refunded is recognized as the expense of the current period according to IAS 20 (par. 32–33) |

Special accounting policies, including the distribution of costs between quarters, reserves, or estimated future income, can be used to eliminate the impact of seasonal fluctuations. This allows you to provide more uniform recognition of income and expenses according to the principle of accrual.

The disclosure of seasonality in the notes to the financial statements is an important tool for transparency. Businesses should explain how seasonal factors affect indicators, in particular what methods and assumptions were used in the preparation of intermediate reporting. Typical examples of seasonality influence are presented in Table 2.1.4.

In the context of ensuring the trust in the accounting information of agricultural enterprises, the audit of financial statements, conducted in accordance with international audit standards (ISA), plays an important role. Independent audit confirmation of the reliability and objectivity of financial statements increases the level of trust by investors, creditors, suppliers and other stakeholders (Mazur, 2023). The audit helps to improve internal control, corporate governance systems and reduce the risks of unjustified management decisions. However, conducting a quality audit in the agricultural sector requires the auditors of deep knowledge of sectoral specificity, understanding of the features of biological processes, the influence of natural and climatic factors, as well as the ability to evaluate the specific risks associated with agricultural production.

Table 2.1.4

Impact of seasonality on the elements of financial reporting of agricultural enterprises

| Indicator | Seasonal influence | Accounting approach is possible |
|-------------------|---|---|
| Revenue | Concentrated in the period after harvesting | Distribution of income based on previous statistics |
| Costs | Grow during sowing and cultural care | The distribution of costs between periods |
| Financial results | Significant fluctuations in profitability by quarters | Adjusting results based on seasonal changes |
| Assets turnover | Low in periods of product accumulation | Discovering factors in notes to reporting |
| Cash flows | Uneven receipt and disposal of funds | Use of forecasts |

The agricultural sector is a unique industry in terms of audit because it is characterized by a high level of risk, seasonality of production, biological assets and a significant share of state support. These features require auditors not only to thorough knowledge of international audit standards (ISA), but also to a deep understanding of agrarian specificity (Mazur, 2023).

The use of ISA in the audit of agricultural enterprises begins with the study of the environment of the entity (ISA 315), including the analysis of factors that influence the financial statements: weather conditions, biological risks, market price fluctuations, etc. For example, significant risks of curvature of financial statements may be related to the valuation of the fair value of biological assets or the reflection of government grants. The auditor should apply procedures in response to identified risks (according to ISA 330), which often includes analytical procedures, document checking, physical inventory of biological assets, and staff surveys.

Particular attention is paid to audit of accounting estimates that are typical of agrarian reporting, for example, when evaluating biological transformation or expected crops. In such cases, the auditor is guided by the MSA 540 provisions, which allows the use of specialized experts - agronomists or appraisers. To demonstrate how seasonality affects the financial results of the agricultural enterprise, let us consider the example in Table 2.1.5.

Table 2.1.5

Impact of seasonality on the financial results of the agricultural enterprise

| Indicator | I quarter | II quarter | III quarter | IV quarter | Year |
|---------------------------------|-----------|------------|-------------|------------|-------|
| Income, thousand UAH. | 500 | 1,200 | 3,000 | 1,300 | 6,000 |
| Expenses, thousand UAH. | 800 | 1,000 | 2,000 | 1,200 | 5,000 |
| Financial result, thousand UAH. | -300 | 200 | 1,000 | 100 | 1,000 |

As can be seen from Table 2.1.5, the income is significant in the third quarter, which corresponds to the harvest period, while costs are concentrated in the first half of the year. This imbalance indicates the importance of taking into account the seasonality in determining the materiality of the auditor according to ISA 320.

In addition, in the audit of agricultural enterprises, it is necessary to pay attention to the possibility of fraud, especially in terms of overestimation of estimates or incorrect recognition of income from state subsidies, which is under the regulation of ISA 240.

The ISA 500 emphasizes the importance of obtaining proper and sufficient audit evidence, in particular when assessing the physical availability of assets and their documentary confirmation.

According to the requirements of ISA 450, the auditor is obliged to evaluate all the detected distortions to determine whether they can lead to a significant distortion of the financial statements.

The use of ISA in the audit of agricultural enterprises is a multi -level process that requires taking into account the specifics of the industry, the high qualification of the auditor and an interdisciplinary approach. Adaptation of procedures to the risks of biological assets, seasonality and state support ensures the efficiency of audit and reliability of financial statements (Mazur, 2023).

In the process of audit of agricultural enterprises, the assessment of materiality and audit risk plays a key role, since it is on the basis of these parameters that audit procedures are planned. The essentiality in the context of the agricultural sector has its own specificity - seasonality, the presence of biological assets, the dependence on weather conditions and state support significantly affect the indicators of financial reporting. According to MSA 320, materiality is defined as a value that can affect the economic decisions of users of financial statements. Audit risk, according to ISA 200 and 315, consists of a significant distortion and the risk of non -detection. In the agrarian context, it is especially important to consider the inherent sectoral risks - biological, weather, logistics and fraud risks. For the illustration, Table 2.1.6 shows the classification of specific risks faced by auditors of agricultural enterprises.

Table 2.1.6

Classification of specific risks of audit of agricultural enterprises

| Risk category | Examples | Potential consequences for audit |
|--------------------|--|--|
| Biological risks | Animal diseases, falling, decreased yield | The difficulty of assessing the fair value of assets |
| Weather risks | Drought, frosts, floods | Fluctuations in revenue and crop loss |
| Storage risks | Dressing products, theft | Inventory loss, the need for adjustments |
| Risks of subsidies | Non -compliance with state aid conditions | Recognition of obligations, refund |
| Risks of fraud | Overestimation of biological assets assessment | False reporting, risk of non - detection |

Therefore, the variety of risks in the agricultural sector requires the auditor of an individual approach to evaluating each object of inspection, taking into account the specific conditions of activity of the enterprise.

In the audit planning process, the auditor should take into account not only general procedures (ICA 300), but also special factors, including seasonality of production cycles, the nature of accounting for biological assets and the availability of expert estimates. For example, the valuation of the fair value of livestock or crop is not daily, but on certain reporting dates, which necessitates the use of ISA 540.

The auditor must not only check the accounting records, but also ensure that there are confirming evidence of the physical availability of biological assets, property rights and changes in their biological condition - this is explicitly specified in ICA 500.

Particularly noteworthy is the audit of agricultural products. The auditor should check the correct accounting of the cost of production, reflect its movement in warehouses and the accuracy of income formation during sale. Analytical procedures are often used for this purpose - to compare the yield by years, to compare the hectare costs and so on.

Understanding the relationship between risks and audit procedures is key. This is shown in Fig. 2.1.1, which illustrates how the type of risk affects the choice of procedures.

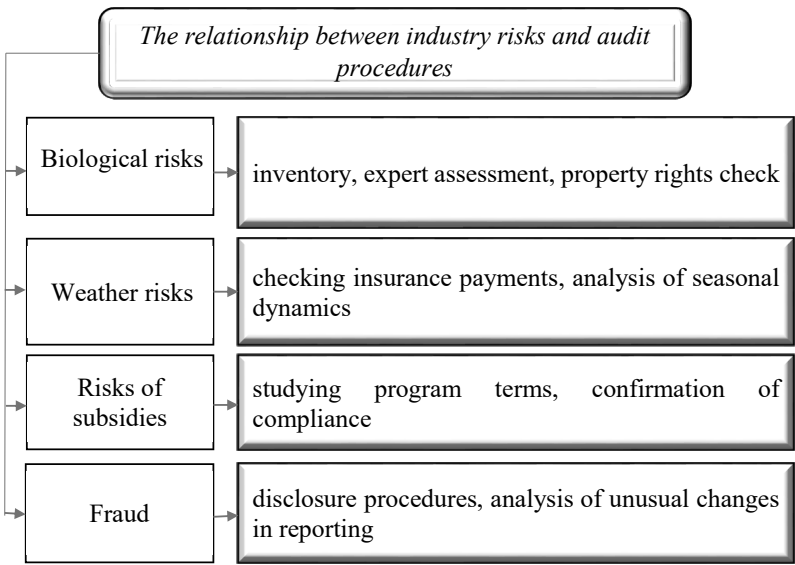


Fig. 2.1.1. The relationship between industry risks and audit procedures

Thus, the peculiarities of audit in the agricultural sector require a specialist in high qualification, analytical thinking and the ability to take into account external economic and natural factors. The reliability of financial reporting of such enterprises depends

largely on the depth of the auditor's analysis of the specific risks and the effectiveness of adapted procedures.

Agrarian enterprises audit requires a comprehensive approach to checking such key areas as state subsidies and grants, income and expenses, taking into account seasonality, as well as the use of expert knowledge and analytical procedures to detect distortions. According to ISA 540, the auditor should carefully check the accounting estimates and preconditions on which information on subsidies is based, as well as compliance with the conditions of their provision.

Features of accounting of state aid, in particular its conventionality, cause the need to check each case separately. The auditor must receive confirmation of the fulfillment of the terms of the programs (for example, the targeted use of funds, compliance with the stated areas of activity), as well as to be sure of timely and full disclosure in the notes to the financial statements.

An example of such a check is an audit of a grant provided by the company for the purchase of equipment. Table 2.1.7 shows how an example of calculation of amounts that should be recognized in revenue during the reporting period may look like.

Table 2.1.7

Calculation of depreciation obtained grant on agricultural machinery

| Indicator | Value |
|-------------------------------------|---------------|
| Total grant amount | 600 000 UAH |
| The cost of purchased equipment | 1 000 000 UAH |
| The term of use of equipment | 5 years |
| Annual grant depreciation | 120 000 UAH |
| Amount recognized as income in 2024 | 120 000 UAH |

As can be seen from the calculation, the total amount of the received grant was UAH 600,000 at the total cost of the purchased equipment of UAH 1,000,000. According to the established useful use of equipment, which is five years, the amount of the annual recognition of the grant in the income is UAH 120,000. This means that every year the use of equipment recognizes an income of UAH 120,000, thereby evenly distributing a grant throughout the period of operation of the asset.

This approach ensures compliance with the principle of accrual, according to which income is recognized in the period in which related costs or economic benefits arise. This achieves a reliable and fair reflection of the performance of the enterprise in the financial statements, which is one of the key requirements of both IAS 20 and ISA 540. Observance of this approach also minimizes the risk of distortion of financial indicators and increases the level of confidence of users of financial information in the enterprise.

Thus, conducting an audit of grant revenues, taking into account the rules of depreciation, helps not only to properly distribute income, but also ensures that the principles of transparency, objectivity and justice in accounting, which are of particular importance for agricultural sector enterprises, which are often recipients of state support.

Therefore, the amount of the grant is recognized as part of the income in proportion to the accrued depreciation of the asset, which ensures compliance with the principle of accrual in accordance with IAS 20 and ISA 540. Therefore, the amount of the grant is recognized as part of the income in proportion to the accrued depreciation of the asset, which ensures compliance with the principle of accrual in accordance with IAS 20 and ISA 540.

Seasonality in income and expenses is another characteristic feature of an agricultural sector, which should be taken into account by the auditor. Since most income is generated after harvesting and costs are distributed unevenly during the year, it is necessary to check for the correct reflection of cost periodization and corresponding income.

In such situations, the ISA 520 advises to apply analytical procedures to identify unusual trends - for example, when the costs of seeding are significantly different from previous years in the absence of economic justification, or income suddenly increases without a proper increase in production.

The attraction of experts is to attract additional value in such an audit. As stated in ISA 620, the involvement of agronomists, zootechnics, veterinarians or professional appraisers allows the auditor to obtain proper and sufficient evidence in cases where he does not have special knowledge of biological transformation, animal assessment or agro-technology.

It is important to emphasize that any expert evaluation should be verified by the auditor for compliance with the criteria of accuracy, objectivity and relevance. The auditor is responsible for the general conclusion and should be convinced of the competence of the specialist involved. Thus, the audit of subsidies, seasonal fluctuations and complex estimates in agriculture requires a multidimensional approach, deep sectoral knowledge and the application of standards that provide transparency, reliability and analytical conclusions.

Agrarian enterprises audit attributes increased requirements for sectoral qualification, knowledge of international financial reporting standards (IFRSs) and international audit standards (ISA), and observance of professional ethics. The peculiarities of the agricultural sector, in particular biological assets, seasonality, accounting of subsidies, natural risks, require not only deep accounting knowledge from the auditor, but also an understanding of the specifics of agricultural production.

One of the key competencies is IFRS knowledge, including IAS 41 "Agriculture" that regulates the accounting of biological assets. The use of ISA 315, 330, 540 and 620 is mandatory when assessing risks, checking accounting and cooperation with experts.

Another important element is the independence of the auditor, which according to ISA 200, provides objectivity when making professional decisions. Any personal, financial or business relationship with the client may call into question the accuracy of the auditor's opinion. Professional ethics is the cornerstone of the audit profession. It includes honesty, objectivity, professional care and confidentiality. For example, an auditor who faces the situation of possible fraud in the sphere of distribution of subsidies is obliged to

act in the interests of society, while following the principle of professional skepticism. Confirmation of the importance of knowledge and ethics may be an example of the relationship between the auditor's qualification and the quality of the audit. Table 2.1.8 presents a conditional calculation of the impact of the auditor's qualification on the probability of detecting errors in the reporting.

Table 2.1.8

Impact of the auditor's qualification on the quality of the audit of agricultural enterprises
(conditional model)

| Auditor qualification category | The level of knowledge of IFRS | Experience in the agricultural sector (years) | The probability of detecting significant distortions |
|--------------------------------|--------------------------------|---|--|
| Low | Base | 1 | 45% |
| Average | Satisfactory | 3 | 65% |
| High | Deepened | 5+ | 90% |

The data presented in Table 2.1.8 illustrate the conditional model of the auditor's level of influence on the quality of the audit of financial reporting of agricultural enterprises. The table distributes auditors by three main qualifications: low, medium and high levels. Each category describes knowledge in the field of international financial reporting standards (IFRSs), the number of years of work experience in the agricultural sector, and the probability of detecting significant disabilities in the reporting.

Low qualification auditors have only basic IFRS knowledge and minimal experience - one year of work in the agricultural sector. Accordingly, their ability to detect errors and inaccuracies is estimated at only 45%. This indicates the high risks of unreliable audit when involving specialists with insufficient qualifications.

Medium -sized auditors demonstrate a satisfactory knowledge of standards and have at least three years of experience in agriculture. In this case, the probability of detecting significant distortions increases to 65%. This is a significant improvement compared to the basic level, but still leaves space to improve the quality of audit services.

The highest level of qualification involves in -depth knowledge of IFRSs and the availability of experience over five years of work in the agricultural sector. In such preparation, the likelihood of detecting significant errors in the report reaches 90%, which actually guarantees high quality of audit and significantly increases the level of confidence in the results of financial audit.

From Table 8, we see that the higher the level of qualification of the auditor - the higher the likelihood of qualitative detection of errors, which directly affects the accuracy of the financial statements.

Therefore, for effective work in the agricultural sector, the auditor should be not only a technically prepared, but also ethically stable specialist with a deep knowledge of IFRS, ISA and the specifics of agriculture. Continuous training, certification and observance of ethics standards is the key to high trust in the results of audit of agricultural enterprises.

The application of international financial reporting standards (IFRSs) and international audit standards (ISA) is a key factor in improving the level of confidence in the accounting information of agricultural enterprises by various stakeholders. In the context of growing globalization and integration of the agricultural sector into the international markets, high -quality and transparent financial reporting, prepared in accordance with IFRS, becomes a prerequisite for ensuring comparability, understandability and accuracy of the data presented. This, in turn, directly influences the decisions of investors, creditors, state bodies, suppliers and buyers on cooperation with agricultural companies.

The introduction of IFRS provides a single methodological basis for reflecting the financial condition and results of the activities of agricultural enterprises, which greatly facilitates the analysis and comparison of their indicators both with each other and with companies of other industries and countries. This makes investors more reasonably evaluate the risks and potential return on investment in the agrarian sector, which contributes to the attraction of foreign and domestic capital. Creditors, based on transparent and reliable financial statements, can more accurately determine the creditworthiness of borrowers and establish adequate terms of credit. Using IFRS reports, public authorities receive a more objective picture of the agricultural sector to develop effective state policy and control budgetary use. Suppliers and buyers, with access to quality financial information, can make more balanced decisions on the conditions of cooperation and assessment of financial stability of their counterparties.

Along with the use of IFRS, an important role in ensuring the trust in accounting information is played by mandatory audit of financial statements, conducted by independent auditors in accordance with the ISA. Audit is a tool for confirming the reliability and objectivity of the financial statements, reducing the level of information asymmetry between the management of the enterprise and external users. An independent audit report gives confidence to the stakeholders that the financial statements reflect the real state of affairs of the company and does not contain significant distortions.

Quality audit has a direct impact on the investment attractiveness of agricultural enterprises. Investors tend to trust the financial statements that have undergone an independent check that reduces their information risks and can reduce the cost of raised capital for the enterprise. The financial statements confirmed by the auditor also facilitates access to international capital markets and promotes cooperation with foreign partners. The study of the level of confidence of stakeholders in the financial reporting of agricultural enterprises show that this level depends on many factors, including the size of the enterprise, its organizational and legal form, the level of corporate governance and the quality of use of IFRS and ISA. Enterprises that publish financial statements, compiled in accordance with IFRS and confirmed by an independent auditor, usually enjoy more trust by investors and creditors.

The prospects for increasing the level of trust in accounting information in the agricultural sector are directly related to the further implementation and qualitative use of IFRS and ISA. This includes advanced training of accountants and auditors, development

of methodological recommendations, taking into account the specifics of the agricultural industry, strengthening the quality of financial reporting and audit, as well as increasing the level of corporate transparency of agricultural enterprises. Consistent observance of these areas will help to strengthen the confidence in accounting information, improve the investment climate and further development of the agricultural sector of Ukraine.

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The scientific novelty of the study is to develop a conceptual model of increasing confidence in the accounting information of agricultural enterprises on the basis of integration of the principles of IFRS and ISA, taking into account the specifics of the industry and current trends of information technology development.

The proposed model is based on the following key elements:

1. Improvement of the IFRS application methodology in the agricultural sector:

- development of sectoral methodological recommendations for the evaluation of biological assets and agricultural products, taking into account the specifics of different types of agricultural activity and regional features;

- clarification of approaches to accounting of state subsidies and grants, taking into account the peculiarities of their provision in the agricultural sector;

- development of recommendations for reflecting the seasonality of production in the financial statements, including the use of segment accounting and analysis of key indicators of activity by periods;

2. Increasing the role of audit of financial statements of agricultural enterprises:

- development of sectoral audit standards that would take into account the specific risks of agricultural business, such as biological risks, weather risks, risks of price fluctuations for agricultural products;

- introduction of mandatory certification of auditors specializing in the audit of agricultural enterprises in order to improve their qualification and the level of professional competence;

- promotion of the use of information technologies in the audit process, in particular, the use of analytical procedures based on large data to identify potential frauds and errors;

3. Introduction of modern information technologies in the accounting process:

- development and implementation of specialized software products for accounting in agricultural enterprises that would take into account the specifics of the industry and provide automation of accounting of biological assets, agricultural products and other specific operations;

- use of blockchain technologies to ensure transparency and constant accounting

information in the supply chains of agricultural products;

- use of Business Intelligence (BI) systems for analysis of credentials and providing stakeholders of prompt and analytical information about the activity of the enterprise;

4. Raising corporate governance and internal control:

- introduction of effective internal control systems aimed at preventing fraud and accounting errors;

- increasing the role of audit committees in the supervisory boards of agricultural enterprises in ensuring the independence and objectivity of financial reporting;

- ensuring transparency of property structure and management system of agricultural enterprises.

The integration of these elements into a single conceptual model will improve the quality of accounting information of agricultural enterprises, ensure its authenticity and transparency, which in turn will contribute to the increase of confidence by investors, creditors and other stakeholders, as well as to increase the competitiveness of the agricultural sector. The scientific novelty of the study is to develop an integrated conceptual model of increasing confidence in the accounting information of agricultural enterprises. This model is a new combination of existing and proposed approaches, which takes into account the specifics of the agricultural sector and current trends in information technology development. The main elements of scientific novelty are presented in Table 2.1.9.

Table 2.1.9

Elements of the scientific novelty of the conceptual model of increasing confidence in accounting information in the agrosphere

| № | Element of scientific novelty | Characteristic |
|---|--|--|
| 1 | Integration of control and audit mechanisms | Combination of internal control and internal audit into a single system to increase the accuracy of accounting information |
| 2 | Taking into account the specifics of agricultural production | Adaptation of accounting procedures and evaluation criteria for seasonality, biological assets and features of agrarian cycle |
| 3 | Use of modern IT decisions | Application of automated accounting systems and blockchain technologies to ensure transparency and unchanged data |
| 4 | Developing a system of analytical confidence indicators | Implementation of indicators to monitor the level of trust in accounting information based |
| 5 | A comprehensive approach to risk assessment | Formation of an integrated system of identification, analysis and minimization of risks in the field of accounting and reporting of agricultural enterprises |

Within the framework of the proposed conceptual model, special attention is paid to the integration of control and audit mechanisms. The combination of internal control and

internal audit functions allows you to create a single coordinated accounting system, which helps to increase their accuracy and timely detection of possible violations at all stages of the financial process. This ensures the systematic and continuity of accounting information monitoring.

At the same time, an important area is to take into account the specifics of agricultural production in the organization of accounting work. Seasonality of agricultural operations, biological features of assets and frequency of production cycles require adaptation of traditional accounting procedures and evaluation criteria. It is only possible to achieve a real reflection of the results of the activities of agricultural enterprises in the financial statements.

An essential component of the proposed model is also the introduction of modern information technologies in the accounting process. Automation of accounting transactions, use of blockchain systems for the protection of accounting data, use of software solutions for the agricultural sector significantly increase the transparency and promptness of processing of financial information. The use of digital technologies minimizes the risks of errors and significantly increases the protection of information from unauthorized intervention.

An important place in the concept is the development of a system of analytical indicators aimed at regular monitoring of the level of trust in accounting information. The use of such indicators allows you to detect deviations and evaluate the quality of financial statements based on objective criteria. This not only increases the level of internal control, but also forms trust in the enterprise by external users of financial information.

Another important aspect of the conceptual model is a comprehensive approach to accounting and financial reporting assessment. Creating an integrated risk system and analysis system allows businesses to respond in a timely manner to potential threats of both internal and external nature. This approach helps to reduce financial losses, stabilize the activity of the enterprise and increase the overall reliability of the accounting system.

Thus, the conceptual model presented in Table 9 is an important step in the development of a system of accounting information of agricultural enterprises. Integration of control and audit mechanisms, adaptation to the specifics of agricultural production, the use of modern IT decisions, the creation of analytical trust indicators and a comprehensive approach to risk assessment form a holistic and innovative basis for increasing confidence in accounting information. The implementation of these elements will allow agrarian enterprises not only to improve the quality of financial reporting, but also to ensure higher transparency of activity and to strengthen confidence by investors, partners and controlling bodies.

The peculiarity of the proposed model is the combination of the principles of international financial reporting standards (IFRS) and international audit standards (ISA), taking into account the specifics of the agricultural sector, which allows you to adapt accounting and verification methods to real agricultural conditions. Significant attention is paid to the development of sectoral recommendations for accounting of biological assets, seasonality of production, as well as accounting of state subsidies and grants.

In addition, the study proposes to strengthen the role of audit of financial reporting of agricultural enterprises through the development of sectoral audit standards,

certification of auditors in the field of agribusiness and the active use of modern analytical technologies. The introduction of specialized IT solutions for agricultural accounting, the use of blockchain to control the transparency of supply chains, as well as the use of Business Intelligence systems for data analytics open up new opportunities for managing industry enterprises.

Particular attention is paid to increasing the level of corporate control and the development of effective internal control systems, which should ensure the detection and prevention of violations in the accounting system. Transparency of property structure, strengthening the role of audit committees in supervisory boards, as well as integration of risk-oriented approach into the practice of internal audit will ensure the stability of agricultural enterprises in the dynamic market.

The implementation of the proposed elements of scientific novelty will not only improve the quality of accounting information and the accuracy of financial reporting of agricultural enterprises, but also ensure the increase of confidence by investors, financial institutions, international partners, and will help to increase the competitiveness of the agricultural sector of Ukraine in the global market.

Therefore, international financial reporting standards and international audit standards are key tools for providing trust in accounting information in the agro-industrial complex. However, their effective application requires taking into account the specifics of agricultural business and overcoming existing problems related to the estimation of biological assets, agricultural accounting, seasonality of production and other sectoral features. In this context, it is important to develop adapted techniques based on the best international practices, but take into account Ukrainian realities.

The developed conceptual model of increasing confidence in the accounting information of agricultural enterprises involves improving the methodology of use of IFRS, strengthening the role of audit, introducing modern information technologies and raising corporate governance. The proposed approaches allow you to create a flexible but at the same time an effective accounting and control system that meets the requirements of both domestic and international financial information.

Particular attention is paid to the importance of introducing specialized information systems for accounting in the agricultural sector, the development of mechanisms of analytical monitoring of assets, risk assessment and increased transparency of accounting data through digitalization of processes. Business technology, Business Intelligence, automated audit platforms create fundamentally new conditions for reliable and operational accounting management.

Also, considerable attention in the conceptual model is paid to the development of corporate governance: the formation of effective supervisory councils, the functioning of audit committees, improving the transparency of property and improving internal control systems. This allows not only to guarantee the quality of accounting information, but also to create conditions for stable financial development of enterprises.

Further scientific research can be aimed at developing specific methodological recommendations and practical tools for implementation of the proposed conceptual model based.

2.2. IMPROVEMENT OF ACCOUNTING AND ANALYTICAL SUPPORT OF PAYMENTS WITH CONSUMERS IN THE UTILITY SECTOR

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Utilities are an integral part of the life of the population, and the correct accounting and control of the calculations guarantee the timely receipt of funds necessary for the stable functioning of enterprises, updating of infrastructure and improving the quality of service. Problems related to receivables, untimely payments and imperfect accounting can lead to financial difficulties, delays in fulfillment of obligations to suppliers of resources and employees, as well as the increase in social voltage among consumers.

In order to ensure a comfortable and safe life of the population, as well as the stable functioning of the economy, an important role is in housing and communal services, which is a basic infrastructure component that determines the quality of housing conditions, the availability of water, heat and energy, waste and improvement.

Housing and communal services are one of the priority sectors of the economic complex that ensures the life of settlements and significantly influences the development of economic relations in states. According to the legislation of Ukraine, housing and communal services are the result of economic activity aimed at ensuring the living conditions and/or stay of persons in residential and non-residential premises ... on the basis of relevant contracts.

Sarapina O. A., Stefanovych N. Ya., Pinchuk T. A., Shram T. V. allocate that a municipal enterprise is an enterprise operating on the basis of communal property of the territorial community, or an enterprise in which the share of communal property of the territorial community is 50 percent or more (Sarapina et al., 2023).

Teroshyna I. M. believes that housing and communal services are: "A set of economic activity aimed at providing residential and communal needs of consumers, creating the necessary conditions for the normal life of the population and the functioning of settlements" (Teroshyna, 2016). The development of communal services is strategic, because its effective functioning directly affects the quality of life of citizens, the level of social stability and the attractiveness of regions for investment. Improvement of management, modernization of infrastructure and introduction of innovations in the field of housing and communal services can be a key to solving many socio-economic problems at both local and state levels. The value of communal services as an infrastructure component in ensuring socio-economic development is as follows:

- ensuring the basic needs of the population- water supply, heat supply, supply of electricity, maintenance of housing stock, removal of waste and landscaping of territories;
- support of uninterrupted functioning of urban infrastructure, including transport, roads, green areas, lighting and other public objects;

- economic development of the region by creating jobs, attracting investments and promoting the development of small and medium -sized businesses;
- increasing the level of environmental safety by ensuring the negative impact of human activity on the environment, disposal of waste and conservation of natural resources;
- social stability that promotes social harmony, improve the living conditions and reduce the level of social tension among the population. The study of leading scientists of Ukraine covers aspects of adaptation of modern accounting methods to the features of communal enterprises, the development of transparent reporting, which meets the requirements of stakeholders, as well as the introduction of innovations in the field of financial resources management. Their scientific contribution contributes to the formation of accounting information, which is the basis for effective management, analytics and strategic decision -making in the field of utilities.

The characteristic features of communal enterprises are that in the process of their production they do not use raw materials and basic materials and do not produce their own material products.

Today, housing and communal services are faced with numerous challenges, including poor quality of services, physical and moral wear of infrastructure, imperfection of management processes, insufficient funding and increasing energy shortage. At the same time, increasing the level of urbanization and strengthening environmental requirements require the introduction of modern technologies, cost optimization, improvement of accounting and control systems, as well as ensuring sustainable development of the industry.

Utility companies have a negative profitability of equity and assets. They provide housing and communal services at regulated tariffs and have a high degree of depreciation of fixed assets (Prokhorov, 2020).

There are many serious problems in the field of utilities that threaten its stable functioning. Among the most urgent challenges are the loss of a large part of enterprises, lack of transparency in their activities and lack of systemic reforms, which restrains the development of the industry. The low efficiency of communal enterprises by scientists is explained by the availability of tariff restrictions and low business activity (insufficient income compared to resources spent to generate such income), the inconsistency of the costs incurred with possible income, inefficient asset management.

An important tool for the effective management and development of housing and communal services is the classification of enterprises in this area. Its value is as follows:

- management optimization;
- rational allocation of resources;
- formation of a transparent reporting system;
- development of specialized development programs;
- improving the quality of services;
- integration with legislative requirements (Zahiriak et al., 2021).

It is also important for public utilities to focus on innovations in a timely manner, the use of which will allow you to identify, in a timely manner, areas that need improvement.

This allows you to implement modern technologies and management decisions in specific sectors of housing and communal services.

Classification of utilities is carried out according to different criteria, depending on their activity, organizational and legal forms and functions. In our view, the basis of their classification should be types of services offered. The main approaches to the classification of services provided by utility companies are:

1. By type of activity:

- housing and communal services of heat, water, gas and electricity supply, maintenance of housing stock.
- transport services - city bus, trolleybus, tram depot.
- communal services for the improvement of territories, sanitary purification, funeral bureaus.
- communication information services, telecommunications and Internet services.
- cultural and leisure services - theaters, museums, parks of culture.
- educational and social services- educational institutions, kindergartens, rehabilitation centers.

2. By scale of activity:

- local: serve one settlement.
- regional: cover several administrative units or regions

3. By technological direction:

- infrastructure: maintenance of urban infrastructure.
- resource supply: supply of resources (heat, water, electricity).
- service: providing services to the population (for example, cleaning of territories).

This classification helps to clearly structure the functioning of communal enterprises and determine their role in the life support system of territorial communities.

The activity of communal enterprises is characterized by specific features that are conditioned by the terms of contracts with resource supplies, consumers of services, as well as legislative norms governing the procedure for payments in this area. Information systems in such enterprises are used not only for interaction with the population, but also for the organization of accounting, management and tax accounting. At the same time, these functions are universal and have much in common with similar processes in other enterprises. Thus, the development of housing and communal services not only meets the basic needs of the population, but also creates the conditions for raising living standards, improving the environmental situation and economic stability of the regions. The development of this area is a strategic task that requires a comprehensive approach and coordinated actions of all stakeholders. The main problems of utility companies are identified such as poor quality of services, physical and moral wear and tear of infrastructure, imperfection of management processes, insufficient funding and increasing energy shortages.

In market conditions, economic relations between enterprises are based on cash payments, where enterprises can simultaneously play the role of both suppliers and buyers. The presence of debt is an objective result of such relationships. The limited

financial resources increase the impact of debt on the financial condition of the enterprise and its economic results. In particular, receivables lead to temporary withdrawal of working capital, which negatively affects its turnover.

The national accounting standard (standard) 10 “Receivables” provides the following definition of receivables: “Accounts receivable – the amount of debt of receivables to the enterprise on a certain date”. Regardless of the economic situation, each utility faces significant investments in current assets, in particular in receivables. Its existence is a natural consequence of economic activity, and the task of optimizing its volume remains one of the most important challenges for management. The intensification of inter - economic relations between enterprises emphasizes the need for effective management and control of the level and structure of receivables.

Increasing or decreasing the amount of receivables affects the financial condition of the enterprise. The increase in receivables is negatively reflected in the turnover of assets, can cause loss of liquidity, inhibition of investment activity, and, in the end, the loss of the enterprise. Conditionally, all receivables can be divided into two types: acceptable and unreasonable, which is of great importance in management. Permissible receivables are not the result of deficiencies in the economic activity of the enterprise and arises as a result of the use of forms of payments for goods, works, services. Unreasonable receivables arise as a result of shortcomings in the activity of the enterprise, for example, in the detection of defects, theft of TMCs, cash.

This classification of receivables reveals the nature of its various types and allows it to be more detailed.

Depending on the occurrence of receivables is divided into:

- receivables for work, goods, services;
- promissory notes received;
- accounts receivable;
- other current receivables.

Receivables for goods, works and services arise when the enterprise sells goods on credit, that is, with a deferral payment.

The promissory notes received are the debt on payments with buyers, customers and other debtors for shipped products (goods), works performed and services provided, which are provided with the promissory notes received.

When selling goods on credit, an enterprise has a risk of repayment of all receivables. Therefore, the enterprise always has receivables for which there is doubt. Dubious debt is the current receivables for products, goods, services, for which there is uncertainty about its repayment by the debtor. Doubtful debts overstate the real result from sales, therefore, according to the principle of prudence, the enterprise must determine the possible costs of non-repayment of part of the debts by buyers at the time of determination of income from sales, and not in the period when buyers were unable to pay the goods.

In recognition of receivables with hopelessness, that is, receivables, which there is a confidence that the debtor is not turned or for which the statute of limitations has expired, it will be written off at the expense of the reserve.

It is known that in the general sense of management - it is an integrated process of planning, organization, coordination, motivation and control that is necessary to achieve

the goals of the enterprise. The management process is an information process, that is, the process of formation, perception, transmission, processing and storage of information.

Department of receivables is one of the functional areas of enterprise management. The proper organization of receivables contributes to the effective management of its size and terms at the enterprise and strengthening control over timely calculations. The key to the management of receivables is to determine the terms of loan provided to buyers who have an impact on sales volumes and money (Zhulyn and Zeniuk-Dzhun, 2020).

In general, in our opinion, the main tasks of management of receivables are:

- determining the degree of risk of non -payment of accounts by buyers;
- calculation of the forecast size of the reserve of doubtful debts;
- providing effective recommendations for reducing the number of potentially insolvent buyers.

- control over the implementation of financial plans for a month and quarter regarding the repayment of the accounts receivable.

The main purpose of accounting management management is to minimize its volume and duty collection. The following tasks are solved in the management process:

- determining the amount of investments in receivables by commercial and consumer credit;
- formation of principles and conditions of credit policy on buyers of products;
- determination of the range of potential debtors;
- ensuring the collection of receivables;
- acceleration of payments with the help of modern forms of refinancing receivables.

Therefore, the accounts receivable management policy is part of the overall management policy of non -current assets and marketing policy of the enterprise aimed at expanding the volume of sales (performance of works, providing services). Its value is to optimize the total amount of debt and ensure its timely collection.

Studies testify to the combination of legal and economic content of the concept of “calculations”. A narrow understanding of the concept of “calculations” is conditioned by a visible part - payment in accordance with pre-accrued obligations, which leaves the reason and conditions of payment. The following interpretations are ignored by cases such as partial calculations, payment without obligations, etc.

Let us consider in more detail the legal essence of the concept of “calculations”, in particular the difference with the terms “settlement relations” and “settlement payments”, “monetary obligation”. Estimated legal relations as the only object of legal regulation act as a separate subject for civil, economic, financial, banking law.

In the legal literature, the interpretation of the concept of “calculations” depends on the field of law, in particular in terms of civil law, the basis of the calculations is the contract and the will of the parties in these relations, instead the financial and legal aspect of payments lies in the broad organizational and legal approach from the state of state. That is, the contract is an important, but still only one of the components, an element of economic, economic relations of exchange and monetary circulation, the form of implementation of which in economic relations is calculations.

Great approaches to understanding the concept of “calculations”, which indicates its ambiguity as follows:

1) any way of termination of liabilities (both monetary and non-monetary) between the parties, including fulfillment of obligations in kind and enrollment of homogeneous counter-(consistent) requirements (broad value of the term “calculations”);

2) monetary liabilities (obligations) of the parties, payments (narrow value of the term “calculations”), which is often limited to the sphere of non-cash payments made by economic entities through financial and credit institutions

However, the range of payments outside the contract is quite wide, since the monetary obligation may arise not only on the basis of a civil transaction or on other grounds provided for by civil law, but also on the grounds caused by labor relations and administrative subordination, in particular, tax, customs, financial relations, etc. Scientists also consider monetary payments as part of monetary turnover. There are a group of relationships in which the movement of money both in cash and in non -cash form is not related to the payment duty (i.e. calculations), namely: production, release, storage, transportation, transportation, withdrawal and collection of cash, cash transactions, replacement of damaged banknotes and coins. The listed relationships are not related to payments as a payment obligation, but reflect the public-legal nature of financial and legal regulation-the rules governing these relations, the rules of conduct on public funds are defined. In some cases, in particular payments in the exchange of currency (sales), the calculations are in some way related to the obligation of payment, but they do not derive from the obligation but the will of the payer.

In any case, the calculations are within the legal field defined by the state, and the state establishes its norms of law, based not only on reasons of the need to regulate civil and legal relations, but also from the tax and other interests of the state. The same public need makes it necessary to establish certain restrictions, benefits or special calculation regimes that are exclusion from the general regime of payments in the country.

In this case, the main task is to create a certain environment, a regime in which civil relations occur, the participants of which do not resolve many issues (in particular, the principles of calculations), but perceive this environment as something given, pre-determined, what cannot be changed. By their nature, such an environment is public requirements, conditions, principles and others, which are compulsory in nature, in which some will of the subjects of settlement relations are allowed. In other words, one of the main criteria for the distribution of civil and financial-legal regulation can be taken as follows: all relations of a contractual nature, which allows free expression of subjects of entities, are civil-legal, and other relations that are established for them are financially legal.

The term “settlement legal relations” translates the concept of “calculations” from a broad socio-economic category into a specific legal and details components of the concept under study, in particular the range of participants, their rights and responsibilities, to reveal the subject of relations.

The subject of settlement legal relations differs from the subject of calculations, and if the calculations are intended to fulfill obligations, then the subject of payments for each

of the participants exists separately: for the debtor (payer) to pay the obligation, for the creditor - to maintain funds in a proper amount in a timely manner, and for the bank. Accordingly, the calculations are made between the parties, and the settlement relations are between all their participants. Calculations, as an object of legal regulation, are a complex structure that includes parties, participants in settlement relations, the object, their rights and responsibilities and a number of other elements. The list of elements that ensure the fulfillment of debt that arise in the process of economic activity are as follows:

- subjects (participants) of settlement relationships: non -financial sector (inter - economic calculations of enterprises, etc.); personal sector - population; financial sector (banks and other institutions that make interbank payments);
- object of calculations a) goods and services; b) contributions to the budget, etc.);
- place of calculations: domestic (single and non -origin) and interstate (international);
- principles of organization of non -cash payments - the basic principles of their conduct;
- payment time (term, early, planned, deferred, overdue payments);
- communication systems of money transfer (postal communication, special services (communications, couriers, paramedic service, collection service), telegraphic telecommunication, telephone communication, electronic communications, international communications SWIFT;
- the form of calculations - the specific form of motion, inherent in a certain payment instrument in payment turnover: transfers (credit, including postal, debit) open account (planned payments), letters of credit, collection;
- payment method - a way of repayment of debt (gross method, credit of mutual requirements and liabilities (clearing);
- payment instruments: credit transfers tools (payment requirements-orders, payment requirements), tools of debit transfers (promissory note, check, collection), intermediate instruments (letters of credit, plastic cards (banking and non-banking);
- availability of payment guarantee; guaranteed payments (promissory notes, checks, letters) and non-guaranteed payments (payment assignments, payment requirements-orders, payment requirements);
- the presence of intermediate units (intermediaries) in calculations (with the participation of intermediaries - direct, and without their participation - transit);
- the order of payments;
- payments (wholesale (large) and retail (small)).

According to the above elements, the role of the bank's institution, as a necessary element of the subjective composition of this legal relationship, should be considered as a specific feature of the calculations. In the process of economic relations, calculations appear as an element of an economic contract, but acquire relatively independent value, moving into the plane of monetary relations and are carried out only in the forms established by law.

Settlements with customers are a set of financial and economic relations that arise between the enterprise and its customers (consumers) in the process of providing goods,

works or services. These relationships cover the processes of accounting, receipt of payments, control over the timeliness of payment and debt settlement. The main characteristics of payments with customers can be distinguished as follows:

1. Grounds for calculations - contractual obligations between the enterprise and customers;
2. The form of payments is monetary (non-cash or cash);
3. Accounting for accounting operations to control receivables and income;
4. Documentation- consumption accounts, acts of work performed, invoices, etc.

The need for information on the status of payments with customers is conditioned by the need to ensure efficient management of financial resources of the enterprise. Thus, in general, information on the status of payments with customers is a key element to maintain financial stability and improve the efficiency of the enterprise. Effective organization of payments with customers helps to provide timely receipt of funds, reduce the level of receivables and reduce the risks of its repayment.

Regulatory support of the organization of accounting and control of payments with customers is a key element in ensuring the transparency and efficiency of financial and economic activity of housing and communal services. The basis of such security is the laws, regulations, regulations and sectoral standards that regulate the procedure for organizing accounting processes, control and interaction with customers of services. The value of regulatory regulation is as follows:

1. Provides a single approach to accounting and control organization.
2. Minimizes the risks of financial loss and contributes to the development of the industry.
3. Promotes confidence in utility companies.
4. Guarantees the observance of the rights and interests of both businesses and customers.

Therefore, compliance with regulations on accounting and control is a prerequisite for ensuring financial stability, legal protection and successful functioning of the enterprise.

In modern economic conditions, the legislation is quite dynamic, which requires a systematic analysis of the provisions of regulations. Features of formation of market relations require a harmonious coordination of international legal norms, provisions of the Tax Code of Ukraine, provisions (standards) of accounting, current legislation of Ukraine and other normative documents with challenges that accompany the process of formation of receivables. The formation of developed systems and models of accounting, as well as the legal framework of accounting, is not easy and difficult. It requires the highest level of theoretical training of scientists and practitioners who develop recommendations for improving accounting and its system. The assessment of legislative documents made it possible to form key aspects of regulatory support for the organization of accounting and control of payments with consumers of services in the utility:

1. The need to conclude with customers (consumers) of written contracts that clearly regulate the procedure for payments, conditions of payment and provision of services.

2. Exercise control of receivables.

3. Protection of personal data in accordance with the Law of Ukraine “On Protection of Personal Data” in the context of information processing related to the personal accounts of customers.

4. The need for inventory of payments, regular control of accounts and documents, including acts of verification of payments, to confirm the accuracy of financial indicators.

5. In case of disputed issues regarding the settlements with the customers of the enterprise are guided by procedural norms to resolve disputes in court.

Comprehensive compliance with regulatory requirements ensures the transparency and efficiency of the processes of accounting and control of payments with customers of services. The accuracy and promptness of providing economic information are decisive factors for the successful development of the enterprise and the country's economy as a whole. The crucial importance in solving this problem is the automation of accounting, which greatly expands its capabilities. With all the variety of accounting programs available on the market today, the user of computer systems must make the right choice based on specific needs, requests and software. It is necessary to take into account the existing differences in the construction of domestic accounting and countries with developed economy (Orel, 2013).

If in Ukraine until recently accounting was limited to accounting and registration tasks, then in developed countries these issues are not a major part of accounting. The main attention is paid to financial analysis and rapid processing of information. Therefore, it is very important to properly evaluate the task and purpose of accounting automation. The task of automation is to improve the quality of accountants and accounting as a whole. A computer is just a tool that allows you to use a specialist qualification as fully as possible and simplify the daily routine work of an accountant.

The transition to automated accounting requires not only desire and money, but also significant preparatory work, both organizational and methodological. Such a transition to the enterprise should be organized in stages, it is advisable to start it before the start of the reporting period (from the quarter, year), since as the source information for entering it in the computer is a balance (form № 1), balances under the relevant articles (accounts), reporting for the previous period.

For the enterprise, one of the important stages of accounting automation is to evaluate the composition and volume of the required document circulation, to determine the list of documents that should be conducted in electronic form and which in paper. In this regard, it is necessary to clearly identify the automation task. As practice shows, the highest number of accounting errors, without the use of computer technologies (ie in paper technology), occurs at the stage of transferring accounting data from one accounting register to another, as well as when compiling various certificates and reports. The use of automated accounting allows you to fully free itself from this kind of errors due to the fact that, as a rule, only one accounting is maintained with automated accounting, and all others are automatically formed, so the risk of error when transferring data between accounting registers is minimal.

“The BAS Small Business program” greatly simplifies and optimizes the documentation management process, providing automation of transactions related to the discharge of primary documents and contracts. It helps to avoid errors in requisites and arithmetic calculations, which is especially important for improving the accuracy and reliability of accounting.

The basis for regulating the legal relationship between the utility and the consumer, as well as the protection of the interests of both parties, is a contract with consumers of services. The contract is a legal agreement that regulates the rights and obligations of the parties: the utility providing services and the consumer that receives them. This Agreement determines the conditions, order, volume, quality and cost of utilities, as well as mutual obligations of the parties. The main provisions of the contract are:

- parties to the contract;
- the subject of the contract;
- the rights and obligations of the parties;
- cost of services and payment procedure;
- the procedure for accounting for consumed services;
- responsibility of the parties;
- the term of the contract;
- force majeure;
- the procedure for resolving disputes;
- details and signatures of the parties;

When concluding a contract, it is important to follow the following aspects:

-the contract must comply with the rules of the Law of Ukraine “On Housing and Communal Services” and other normative legal acts.

- It can be concluded in writing or in public (through accepting standard conditions).

The process of contracting with the help of software involves the creation of contracts based on standard templates using pre -prepared texts loaded from external files. Due to the integration with the information database, the counterparty data are pulled out of the database automatically, and it is possible to adjust the parameters manually if necessary. After all data is entered, the contract is automatically formed in a given format, ready for further action - either printing or sending the counterparty e-mail.

Upon completion of the reporting period, as of the first day of the following month, they are charged for consumed water supply and sewerage services. For this purpose, in the menu “Sales - sale of goods and services - to create” in the open window “Sales of goods” we indicate the counterparty and the contract according to which the sale of services is carried out. Further manually using the “Add Counter” button, the consumption amount is automatically entered, or the norm, if the subscriber does not have a meter. After that, pressing and closing, an account is formed for the subscriber, who, if necessary, can be printed immediately. The Magazine “Sales of goods and services” is intended to summarize information on accrued payments for consumption and payments received.

To account for the calculations of the utility with consumers of services use the account 36 “Payments with buyers and customers”, which systematizes information on

the available receivables (on debit) and the state of its payment (on credit.). At the same time, use the type of correspondence of accounts approved by the Instruction on the application of the account No. 291.

“The BAS Small Business Program” offers a wide range of standard reports that provide the user with flexible opportunities for analyzing balances, accounts and postings in various sections. The main ones are the following:

1. Account Card 361 Report is a standard tool for analyzing operations with maximum detail, to the level of separate accounting wiring. The account card shows all accounting postings concerning the selected account in chronological order for a certain selected period of time.

2. Report “Currently Saldo Salda Account 361” is used for a detailed analysis of accounting data on a separate accounting account. The report allows you to track changes in receivables during the selected period. The features of the report are displaying the initial and end balances of the account and turnover for the selected period.

3. The General Book is an indispensable tool for an accountant that allows you to systematize and analyze all enterprise credentials.

The consumer's personal account is one of the main elements of subscriber accounting, which accumulates all information about the subscriber, provides its anonymity and performs the function of the identifier. The personal account has a unique number that can quickly find the necessary data in accounting records and documents. Unlike personal data, such as surname, first name and patronymic, personal account number is not confidential information, which makes it a convenient means of sharing data between organizations that interact in the process of working with subscribers.

Basic rules of numbering of personal accounts of consumers of services are presented as follows:

- use only numbers in personal account numbers. Letters and other characters complicate the introduction of such numbers on mobile devices and self-service terminals when paying;

- avoid long numbers;

- if possible, include the house number and the apartment number for ease of memorization by subscribers;

- do not use slight zeros (such as “001”);

- if necessary, it is advisable to divide the personal account number into the premises of the personal account into two separate (450866.1 and 450866.2).

Housing - utilities use 2 types of personal accounts:

- active personal accounts - used for accounting and billing;

- deactivated personal accounts - are used in situations where it is no longer necessary to calculate (in cases of combining two apartments in one or termination of servicing a certain home).

Deactivated accounts, although not used for further accruals, remain part of the overall accounting of the enterprise, since in the past periods they have been recorded. It is impossible to delete such information because it is to be stored for at least three years. At the same time, deactivated accounts may have a debt, and the utility preserves the right to accept payments for its repayment.

The personal account includes the following reference information:

- data on the area of the real estate - for the billing, if the accrual is performed by area;
- data on the number of people living - for accounting if the accruals are performed by the number of persons;
- name of the account owner - for identification of the owner of the personal account, as well as for the formation of certificates, search of information, formation of specific reports;
- contact data of the owner, his passport data, INN code, pension number - for the formation of relevant certificates and specific reports;
- the address of the placement of the object by which the personal account is fixed - to identify the owner of the personal account, as well as for the formation of certificates, search of information, formation of specific reports.

The balance of personal account characterizes the financial condition of the utility:

- a negative balance indicates a debt on the personal account, when the amount of invoices exceeds the amount of payments made;
- zero balance means the absence of debt or overpayment when the amount of invoices is equal to the amount of payment;
- positive balance if the amount of payment exceeds the amount of accounts.

According to the Law of Ukraine “On Personal Data Protection”, information related to the personal account is not public and must be protected from disclosure. Violation of personal data processing requirements provides for liability. Therefore, it is important to collect and store only the information about subscribers that is really necessary for the needs of utilities.

Control in a utility is an important tool for ensuring the efficiency of financial resources management, compliance with the legislation, and maintaining the proper level of customer service. The control function is manifested when the planned and achieved characteristics of the object are compared, deviations that either contribute to the achievement of goals or adversely affect the end results. The control not only condemns, but also approves. If the control is evaded towards the detection of a violation alone, then every value will lose another, no less important side of its activity.

The main tasks of control of payments with customers in the utility company are:

1. Ensure the credibility of the credentials.
2. Monitoring of receivables and timely detection of overdue payments.
3. Control of payment discipline of customers and identification of consumers who systematically violate the terms of the contract with the further initiation of measures to eliminate debt.
4. Ensuring compliance with contractual conditions.
5. Increasing the efficiency of work with debtors.
6. Optimization of financial flows.
7. Prevention and detection of abuse and fraudulent schemes or attempts to conceal debt.

The main types of control are:

1. Internal control that includes:

- financial control - checking the correctness of accounting, the state of payments with debtors and creditors;
- operational control - monitoring of the processes of accrual of services, accounting of payment and reporting;
- Administrative control - checking the performance of their duties by employees in accordance with job descriptions.

2. External control:

- audit control - an independent check of financial statements to confirm its accuracy;
- control by state bodies - verification of compliance with the rules of legislation by bodies, such as the State Tax Service or Local Self -Government Bodies.

The economic condition of any enterprise depends on the influence of three key factors that determine the efficiency of its activity and competitiveness: the level of technology and technology, the quality of labor and motivation for work, organization and production management. These three components are interconnected and form a comprehensive approach to ensuring the sustainable development of the enterprise and the economy as a whole. The high level of each of them provides the enterprise with competitiveness and financial stability. The main need to control the status of payments with customers is explained by the following factors:

1. Financial stability:

- ensuring timely and full receipt of payments from consumers;
- reduction of receivables and minimization of risks of income loss.

2. Legal observance:

- verification of compliance of economic transactions by the current legislation;
- Prevention of penalties, sanctions and legal spores.

3. Operational efficiency:

- ensuring the correctness and timeliness of utilities;
- identification and elimination of deficiencies in the accounting and calculation system.

4. Control over the use of resources - monitoring the costs of material, labor and financial resources to ensure their rational use.

5. Consumer satisfaction is to identify problems in interaction with consumers and improve the quality of service.

Control as a management function is an integral part of management activity, subordinate to the achievement of the tasks of the management system. Its organization and forms at each stage of the development of a utility enterprise must meet the goals of management, which are determined by the peculiarities of economic and political development of a particular formation.

The control process is defined not only as accurate and consistent actions, but also in deep understanding, intuitive abilities and practical experience of the controller. The main stages of conducting control of payments in the municipal enterprise, scientists distinguish the following:

- evaluation of the results of control and decision -making;

- development of measures to improve the calculations;
- formation of registers and reports;
- evaluation of internal accounting and control procedures;
- analysis of the state of calculations;
- verification of contracts with customers;
- preparatory stage.

Each stage must be documented, and its results are brought to the management of the enterprise for further actions. Thus, control is the basis for maintaining the stable operation of the utility, as well as ensuring transparency and efficiency of its activity. The introduction of a loyalty system for consumers who are paid on time and regularly for utilities is an effective way to reduce receivables. Within the framework of this system, we invite housing and utilities to return part of the money to consumers who will comply with the conditions of timely payment during the year.

The proposed loyalty system involves the return of part of the funds paid to consumers as a result of the reporting year in the amount of 2% of the amounts paid. It works provided that the consumer makes payment for the services provided during the year, and all payments are recorded in the personal office.

According to the results of the year, if the conditions of timely payment are met, the housing - the municipal enterprise must return the consumer to a certain percentage of the amount paid. These funds are credited to the consumer's account in the personal office and can be used to pay for future receipts for the services of the enterprise. The mechanism of action of the loyalty system can be represented as follows:

1. Fixation of timely consumer pay during the year in his personal office.
2. Bonus accrual at the end of the year by returning to the consumer 2 percent of the amount paid. The funds are transferred to the consumer's personal account with the possibility of using them to pay for future receipts.
3. The discount is realized as after realization, that is, it does not reduce the original cost of sales, but is taken into account after fulfilling the conditions of the system. Thus, when implementing services using a loyalty system, it is necessary to adjust part of the income of the enterprise, since the refund to consumers reduces the actual income for the reporting period.

The main advantages of such a loyalty system can be distinguished:

- consumer motivation for timely payment for services;
- reduction of receivables;
- promoting the formation of trust between the enterprise and consumers.

The introduction of such a system requires proper technical and accounting support to avoid differences in the data and ensure compliance with the current legislation.

The use of the proposed loyalty system helps to reduce the accounts receivable of the enterprise, providing stable and continuous cash receipts. The reduction of debt has a positive effect on the ratio of its turnover, which, in turn, increases the amount of equity of the enterprise. This reduces the dependence on credit resources, ensure timely payment of wages to employees and direct funds for the modernization of equipment, increasing the efficiency of the enterprise as a whole.

The reserve of doubtful debts can be compared with a “rescue boat” for an enterprise that provides financial security in case of bad receivables. Its formation is a manifestation of the principle of prudence and allows to cover possible future losses. The calculation of the reserve is carried out by two basic methods aimed at ensuring the financial stability of the enterprise and reducing the risk of losses:

1. The absolute amount method when the estimation of questionable debts is carried out for each individual debtor.
2. The method of doubt (classification of receivables), which is based on the application of a certain amount of doubt to the total amount of receivables.

Table 2.2.1 shows the comparison of these methods of reserve accrual.

Table 2.2.1

Comparative characteristics of methods of calculating the reserve of doubtful debts

| Method of absolute amount | The method of doubt |
|--|--|
| Doubtful receivables - 70 000 UAH | |
| <p>KP “CCL”:</p> <p>Debt - 50 000 UAH. The probability of reproduction is 30%.</p> <p>Reserve: $50000 \times 0.3 = 15000$ UAH.</p> <p>Vistula LLC:</p> <p>Debt - 20 000 UAH.</p> <p>The probability of reproduction is 10%.</p> <p>Reserve: $20000 \times 0.1 = 2000$ UAH.</p> <p>General Reserve:</p> <p>$15000 + 2000 = 17000$ UAH.</p> | <p>Total receivables - 70 000 UAH.</p> <p>The doubt ratio is 5% (determined on the basis of historical data).</p> <p>Reserve: $70\,000 \times 0.05 = 3\,500$ UAH.</p> |

We propose to calculate the value of the reserve by the method of doubt, which is based on the application of a certain coefficient of doubt to the total amount of receivables. This method is convenient for mass estimation of debt.

The use of the method of doubt for a utility company has the following advantages:

1. Objectivity of calculations - the method is based on the analysis of historical data and statistics, which provides a more realistic assessment of the risk of receivables.
2. Flexibility and adaptability - the coefficient can be adjusted depending on changes in the activity of an enterprise, economic environment or policy of management of receivables.
3. Easy to use - the method is clear and relatively easy to use.
4. Financial risks - allows the enterprise to create reserves to cover possible hopeless debts, which helps to maintain stability.
5. Improving financial planning - the method helps to precisely predict cash flows and evaluate the real value of assets.
6. Provision of compliance with standards - contributes to compliance with accounting and financial statements, in particular IFRSs, which provide for care in recognition of income and expenses.
7. Strengthening trust - transparency in forming a reserve increases trust by creditors, investors and other stakeholders.

In the notes to the annual financial statements, receivables are subject to disclosure on the following maturity: up to 6 months, from 6 to 12 months, from 12 to 18 months, more than 18 months. In our opinion, such classification is inappropriate because the proposed categories cover considerable time intervals, which complicates their practical application. In addition, the duration of such intervals does not meet the requirements necessary for the effective creation of a doubtful debt reserve. Such mismatch can affect the accuracy of accounts valuation and its impact on the financial condition of the enterprise.

It is advisable to distribute the distribution on a quarterly basis, that is, to determine the periods of total receivables within up to three, six, nine and twelve months. This approach allows to provide more flexible and accurate control over the debt, responding in a timely manner to its growth. Thus, it is advisable to classify receivables on the following grounds:

1. For the needs of financial statements:

- current: current up to 6 months and initially - doubtful from 6 to 12 months;

- Long -term: high -rise from 12 to 18 months and critically overdue for more than 18 months.

2. To calculate the doubtful debt reserve:

- from 30 to 60 days;

- from 60 to 90 days;

- from 90 to 120 days;

- up to 30 days.

An important component of the strategy of improving the state of payments with debtors in housing and utilities is to make claims to debtors because:

1. Claims help remind the debtors of their obligations by stimulating them to timely payments and reducing the number of overdue debts.

2. Timely claims contribute to the stability of the financial flows of the enterprise, since it allows you to quickly resolve issues with debtors and provide funds.

3. Regular claims to reduce the overall level of receivables, which in turn improves the financial performance of the enterprise.

4. Claims help identify problem debtors in the early stages, which allows you to take appropriate measures to minimize the risk of default and bad debt.

5. Claims stimulates the responsible attitude of consumers to their financial obligations, improving payment discipline as a whole.

6. Claims may start negotiating with debtors on the conclusion of a debt restructuring agreement or other way of repayment, which avoids litigation.

7. The claims are an important part of the legal process of debt collection and provides the enterprise with legal grounds for further action in case of debt.

As a result, claims are an effective tool for improving payments with debtors, which contributes to the stability and development of utility companies.

Quarter software: the subscriber department of the utility is designed to automate the processes of calculation and accounting of consumption of utilities based on BAS Accounting products. It provides integrated settlement management with subscribers, both individuals

and enterprises. The program provides full automation of the subscriber department, including the implementation of calculations, recalculations, donations, control over debtors, as well as the formation of a complete set of regulated and internal reporting.

The main advantage of using this additional module to the main BAS Small Business Program is the ability to work with accounting devices (meters). The functionality of the Quarter: Subscriber Department of the Utilities Enterprise in the part of accounting devices are as follows:

1. Management of apartment metering devices in different measurement units and at location.

2. Calculation of losses and average consumption in the removal of meters for repair or check.

3. Accrual to subscribers who have not submitted indicators according to the chosen algorithm: average, depending on the number of residents, or in a constant value.

4. Automated reception of meters through Viber-Bot and Web Resources.

5. Keeping home metering devices with the option of connecting several houses at the same time or individual groups of personal accounts (entrance, section, floor).

6. Automated reception of meters through Viber-Bot and Web Resources.

7. Distribution of subordinate services for public places and losses on the functioning of the system depending on the surface of the building.

8. Fixation and distribution of costs for replacement or installation of a home metering device with display in subscribers' receipts.

9. Distribution of consumption by home metering with 100% of apartment devices.

Thus, key attention should be focused on providing effective payments with residents, accounting for consumed resources, forming accounts and controlling their payment. Improvement of accounting processes in the field of utilities will help to improve the efficiency of management and improve the quality of services in housing and communal enterprises.

Document management of payments with buyers is a rationally organized system of creation, verification, processing and submission to the archive of primary accounting documents, the quality of which is characterized by the use of operograms and workflow schedules by the enterprise.

There are the following stages of workflow at the enterprise: registration of primary documents and transfer to accounting, check the correctness of the document and the legality of the operation, the process of document processing, storage of documents.

With a high turnover of the enterprise, the loss of documents significantly complicates the work of the accountant, forcing him to constantly monitor the receipt of lost documents. Yes, you first need to make a sample from the issue of such lack, then find out the cause of its occurrence, interview the responsible persons about the missing documents, inform the counterparties, and after a while check the receipt of the documents for which the request was made. Distorting the amount of receivables when payments with buyers makes a real analysis of the enterprise's activity.

A long cycle of workflow in calculations with buyers can cause the loss of primary documents, which significantly complicates the work of the accounting service of the enterprise. In this regard, it is necessary to apply a rational document management of

payments with buyers, which will ensure the stability of the accounting department of the enterprise.

In order to design the document management system, it is necessary to establish the procedure for the creation and movement of documents at the enterprise, as well as to identify the number of persons responsible for filling them or making a decision on them, all this is a document management system.

The document management system at the enterprise should contain the following steps:

1. Development of the accounting service.
2. Development of job descriptions of an accounting worker.
3. Creating a workflow schedule.
4. Creating accounting information technology.
5. Development of cases of cases in the order of current storage of documents.
6. Preparing cases for long -term storage.

The problem of effective management of receivables is becoming increasingly important in domestic enterprises. The state of our country's economy is characterized by an unstable political situation, unmanaged inflationary processes and other negative factors for economic development. As a result of these factors, enterprises arise a large amount of receivables, which they are unable to manage, resulting in reducing their solvency and business activity, which in turn leads to a crisis of non -payment. In such circumstances, the need for effective management of receivables, assessment of its quality, preventing the appearance of bad debt increases.

Among the methods of managing the timeliness of payment are the following:

- use of the discount system;
- development of payment collection system;
- transfer to another payment form;
- personal contacts with the counterparty;
- application of the sanctions stipulated by the contract;
- request of guarantee letters for payment with determining the payment schedule;
- referral of acts of beasts;
- coordination of payment by the Security Service.
- termination of shipment, termination of work, provision of services;

The following methods of work on debt repayment are also possible: negotiation, appeal to court, appeal to the factoring company, appeal to collectors. In the process of economic activity of the enterprise of the housing and communal sphere, they provide services and their implementation, which leads to the emergence of settlement relations. The proper organization of these calculations depends on the stability of financial support, the timeliness of supply of products and the fulfillment of contractual obligations.

Internal control over payments with customers of such services is an important tool for ensuring the financial stability of the economy. With its help, there are shortcomings in the accounting system, respond promptly to payments delays and minimize the risk of delay, and increase the efficiency of financial flow management.

The responsibility for ensuring the proper functioning of the internal control system in the utility company should rely on the chief accountant, which is responsible for the organization of control in such a way that, if necessary, to provide the manager with all the necessary data to make accurate decisions in both current activities and in strategic planning.

Control procedures are carried out with the help of two main methods: actual (inventory) and documentary (economic analysis, counter -check, mutual verification, comparison of data). These methods provide a comprehensive approach to assessing the state of financial and economic activity of the enterprise and contribute to effective management. One of the key methods of control is an inventory that provides checking the actual availability and state of assets of the enterprise, including receivables. The peculiarity of its conduct is the refusal to use accounting documents during a check, which allows to ensure the objectivity and reliability of the results obtained. The results of the inventory are recorded in special acts that are the basis for analyzing and making management decisions.

The inventory of payments with customers uses an integrated approach that combines the inventory and analysis of contractual discipline. This includes verification of the fulfillment of the terms of the contracts on the quality and volume of services rendered, the correctness of the documents, compliance of the form and the validity of the calculations. The defining features of control of payments with customers of services in housing and communal services can be presented as follows:

1. Verification of the accuracy of payments - analysis of reality and documentary confirmation of each amount of debt.
2. The state of analytical accounting is the approval of accounting with primary documentation.
3. Detection of errors - timely correction of discrepancies in documents that avoids controversial situations.

If a stable debt is found during the audit, the controller examines its validity, analyzes the causes and establishes the limitation period. In the presence of bad debt, its write -off is controlled according to the principle of prudence.

For doubtful debts in the studied economy, a reserve is created in accordance with AS 10 "Receivables" by the method of absolute amount, when the estimation of doubtful debts is carried out for each individual debtor.

The control department on a permanent basis checks the accuracy of the reserve calculation and the validity of its formation. This provides:

- avoiding overestimation of income and lowering costs;
- compliance with the principles of reliability and caution in accounting.

The introduction of the control service at the enterprise greatly facilitates the process of monitoring and management of calculations, especially in the part of receivables. Depending on the organizational structure of the enterprise, two types of internal control are possible:

1. Divisional organizational structure - is used in large enterprises, where a separate internal control department operates in each division. This is suitable for complex structures, including several enterprises.

2. Team organizational structure - used at enterprises with a simplified organizational structure. In this case, the internal control department brings together specialists in different areas to ensure a multifunctional approach (Svitlychna, 2022).

To improve the efficiency of the newly created control department, we recommend that you follow the following sequence of procedures for controlling the receivables of customers of service customers:

- verification of correctness and completeness of display of receivables in the financial statements;
- verification of the presence of acts of verification and their compliance with analytical and synthetic accounting;
- identification of large debtors and compilation of their list;
- sending requests to confirm the debt;
- belief that receivables are recognized as with income from implementation;
- control of timeliness and completeness of payment of accounts;
- verification of availability, registration and terms of contracts;
- estimation of validity of debt writing for expenses;
- analysis of the results of inventory of receivables.

For a more efficient approach to assessing the status and control of payments with customers of services in the utility, we propose to use a model that includes several key stages and control mechanisms:

1. Analysis of receivables: segmentation of receivables by terms of its occurrence, determining the level of risk of the debtor, evaluation of the causes of overdue debt.

2. Automated calculation monitoring system: use of software, adjusting the system to automatically send reminders and messages to customers on overdue payments, introduction of tools for automatic calculation of penalties.

3.Regular inventory: carrying out regular inventory, verification of documents confirming the conditions of service provision, verification of the availability of transactions and contracts, as well as their compliance with current calculations.

4. Planning and Reporting: creation of a plan for debt restructuring for problematic debtors, formation of reporting on the state of receivables.

5. Communication with customers: establishing clear conditions and terms of payment for customers, prompt response to complaints, negotiation with clients with significant debt to resolve the situation.

6. Integration with other subsystems: connection of the control system with other financial subsystems, integration of receivables and costs of performance of services for each client.

The proposed model will not only reduce the risks of non -payment, but also make the process of calculations more transparent and controlled, increasing the efficiency of management of enterprise finances. Such a comprehensive approach helps to reduce the risk of errors, more efficient management of financial resources and improve the overall financial condition of the enterprise.

Thus, the proposed measures will allow timely reflection in the accounting of the utility company from the emergence of receivables in and its repayment, as well as conducting appropriate control of its condition.

2.3. SUSTAINABLE DEVELOPMENT MONITORING BASED ON AN INTEGRATED ACCOUNTING AND ANALYTICAL SYSTEM

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Sustainable development is one of the key concepts of modern socio-economic development, which determines the directions of activity of states, business and society in the conditions of limited resources and environmental challenges. Achieving the goals of sustainable development requires an effective monitoring system that ensures timely identification of trends, risks and opportunities for further improvement of strategies and practices. Integration of accounting and analytical processes into a single system is a prerequisite for providing a comprehensive approach to evaluating economic, social and environmental aspects of sustainable development. Integrated accounting and analytical systems allow you to automate the collection, processing and analysis of large data ranges, increasing the accuracy and promptness of management decisions.

Modern challenges, such as digitalization of the economy, strengthening requirements for corporate social responsibility, introduction of international standards of reporting on sustainable development (including GRI, ESG criteria), make the need to improve traditional approaches to monitoring and management of development of organizations and territories. At the same time, the absence of a holistic integrated accounting and information analysis system leads to data fragmentation, complicates the evaluation of results and forecasting. Thus, the development and implementation of an integrated accounting and analytical system for monitoring sustainable development is a topical area of scientific research, which is important for both the theory of accounting and analysis, as well as for the practice of managing sustainable development in enterprises, in regions and at the state level.

The concept of sustainable development was formed at the end of the twentieth century as a response to the exacerbation of global environmental, economic and social problems. One of the fundamental documents that has laid the ideas of sustainable development was the report of the World Environmental and Development Commission and Development of the UN "Our Common Future" (1987), in which sustainable development is defined as development that meets the needs of the current generation, without threatening the possibility of meeting the needs.

Sustainable development involves a harmonious combination of three main components: economic, social and environmental. The economic component is aimed at ensuring steady growth and increasing the well-being of society. The social component involves a fair distribution of goods, overcoming poverty, and ensuring equal opportunities for all citizens. The environmental component is to preserve natural resources, environmental protection and environmental safety.

Thus, sustainable development is not just an economic growth or environmental preservation, but an integrated model of development of society, based on the balance between meeting the needs of people and environmental protection.

In 2015, a new Global Sustainable Development Program was adopted at the UN Summit - the Agenda (Agenda 2030), which defined 17 sustainable development and 169 tasks for them. These goals cover the key areas of human development: poverty elimination, quality education, gender equality, clean water and sanitation, responsible consumption, climate change and others.

The principles of sustainable development are the basis for the formation of strategies and politicians at global, national and local levels. They reflect the basic values and guidelines that must be followed to achieve sustainable development goals.

The basic principles of sustainable development are given in Table 2.3.1

Table 2.3.1

Basic principles of sustainable development

| Principle | Essence |
|---|--|
| 1. The principle of integration of economic, social and environmental aspects | All decisions should take into account at the same time economic efficiency, social justice and environmental sustainability. Ignoring at least one of these components leads to unbalanced development and negative consequences in the long run. |
| 2. The principle of inter -trial justice | The needs of the current generation should be met in such a way that they do not worsen the living conditions of future generations. This principle requires the rational use of natural resources, conservation of biodiversity and minimizing environmental risks. |
| 3. The principle of participation | Sustainable development is possible only with the active participation of all stakeholders - state bodies, business, public organizations and citizens. The involvement of the population in the planning, implementation and control processes contributes to their effectiveness and legitimacy. |
| 4. The principle of prevention of harm. | Instead of eliminating the effects of environmental or social problems, it is necessary to prevent their occurrence. Preventive measures are more effective and economically appropriate in the long run.. |
| 5. The principle of “pollutant pays” | Responsibility for environmental pollution rests with the one who caused it. This stimulates economic entities to introduce environmentally friendly technologies and a responsible attitude to the environment. |
| 6. The principle of fair distribution of goods and resources | Development should provide equal access to resources, opportunities and benefits for all segments of the population, regardless of gender, age, place of residence or income level. |
| 7. The principle of openness and accessibility of information | The public has the right to timely and reliable information about the state of the environment, social processes and economic development. This contributes to conscious decision -making at all levels. |
| 8. The principle of adaptability and flexibility | Sustainable development strategies should be able to adapt to changing conditions, new challenges and risks such as global crises, technological changes or climate changes. |

In addition, an important aspect is the territorial balance of development. Sustainable development involves not only the development of large cities, but also the support of

rural areas, the regions that are lagging in development, with equal opportunities for all communities.

Modern business operates in conditions of increased attention to the issues of sustainable development, ethical conduct of economic activity and social responsibility to society. In the context of business activity, the concept of sustainable development has become implemented in the concepts of corporate social responsibility and ESG - approaches (ecology, social responsibility, corporate governance). Companies are increasingly integrating the principles of sustainable development into their strategies as a means of improving their competitiveness and attracting investors.

The social responsibility of business has become an integral part of the strategy of companies that focus on sustainable development. Business social responsibility covers a wide range of aspects, including environmental responsibility (the efforts of companies to minimize the negative impact on the environment, in particular through reduction of emissions, rational use of resources, waste processing and implementation business, honesty in cooperation with partners, suppliers and clients, as well as prevention of corruption), social initiatives (community investments, participation in charitable projects, support of educational programs, health care and cultural activities).

As a result, the concept of sustainable development is based on the idea of a comprehensive approach to human development, where economic growth, social well-being and environmental protection are considered as interrelated and equally important goals. The principles of sustainable development are guidelines for creating a fair, safe and prosperous world for present and future generations.

Effective monitoring and management of sustainable development processes require a clear system of indicators (indicators) that allow you to quantify and qualitatively evaluate the achievements of certain goals. Sustainable development indicators are an important tool for making sound decisions at national, regional and local levels.

Sustainable development indicators are quantitative or qualitative characteristics that reflect changes in the state of economic, social and environmental spheres of society in the context of achieving sustainable development goals. Their main task is to provide objective information to evaluate the dynamics of development, identify problematic zones and make management decisions. The system of sustainable development indicators is an extremely important element in the mechanism of implementation of sustainable development principles. It provides measurement of progress, identification of problem areas and creates an information basis for effective management of sustainable development at all levels.

The need to develop a system of indicators is due to several factors, in particular, the multidimensionality of sustainable development; the need to measure the results and consequences of implementation of sustainable development strategies; Provision of transparency and accountability of management processes. The basic requirements for sustainable development indicators are summarized in Fig. 2.3.1.

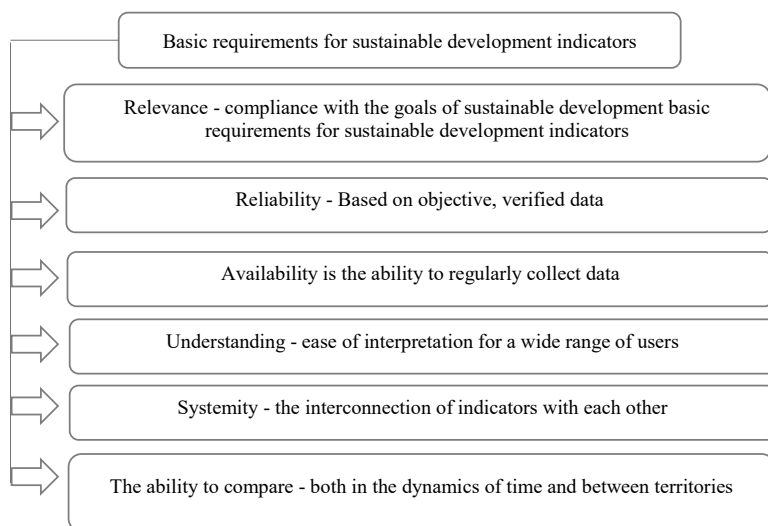


Fig. 2.3.1. Basic requirements for sustainable development indicators

One of the first international attempts to create a system of the UN Sustainable Development Commission was to create a basic set of 58 basic indicators grouped in thematic areas: social, economic, environmental and institutional aspects.

In 2015, 17 Sustainable Development and more than 230 global indicators were defined in 2015 with the adoption of the Sustainable Development Agenda by 2030 (Agenda 2030) to evaluate their achievement. The main groups of these indicators cover areas such as poverty, food security, health and prosperity, education, gender equality; clean water and sanitation; available and net energy; decent labor and economic growth; innovation and infrastructure; reduction of inequality; sustainable development of cities; consumption and production; control of climate change; conservation of oceans and land ecosystems; peace and justice; Partnership for sustainable development. Each of the goals has the appropriate tasks, as well as quantitative and high -quality indicators that allow you to track progress.

A typical indicator system has a multi -level structure. Basic indicators (general, universal indicators) are the same for all countries or regions (for example, Gross internal product per capita, poverty levels, greenhouse gas emissions). Specific indicators: consider the features of national or regional development (for example, the level of renewable energy in a particular country). Complex indices: combine several indicators into a single generalized indicator (for example, the Human Development Index, the environmental stability index). Sustainable development monitoring is also often used so

-called signal indicators, which indicate the appearance of potential threats or deviation from the desired trend. Examples of the main indicators in the components of sustainable development are shown in Fig. 2.3.2.

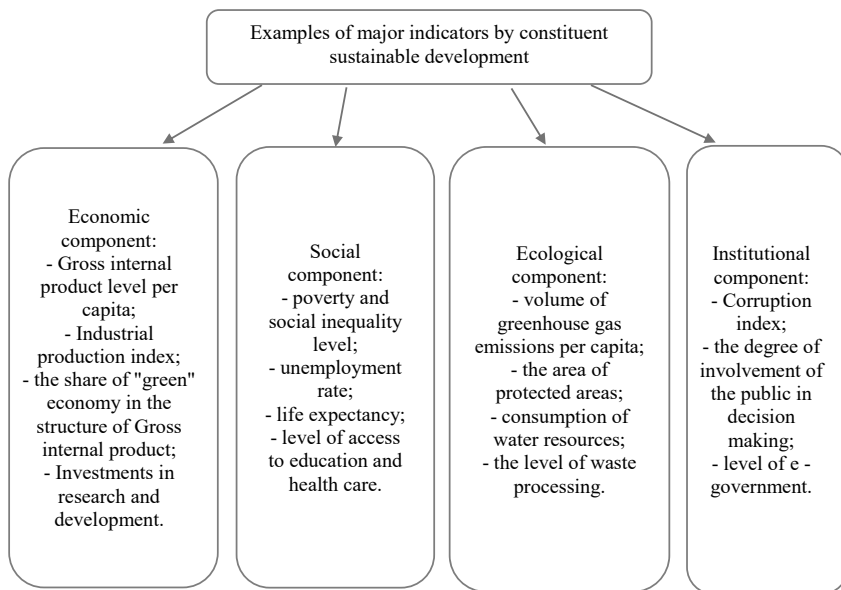


Fig. 2.3.2. Examples of major indicators by constituent sustainable development

Despite significant achievements in creating indicators, there are a number of calls, in particular, the different availability of statistics in different countries and regions; ambiguity of evaluation of some phenomena (for example, the impact of innovation on the environment); the problem of complex measurement of quality of life and welfare; The need to reconcile global and local indicators. It is also important to keep in mind that the indicators should be dynamic - in the process of changes in development priorities, there is a need to adapt the indicator system to new challenges and realities.

Further development of the system of sustainable development indicators involves:

- Big Data integration and digital technologies for information collection and processing;
- deepening the relationship between indicators and decision -making at different levels of management;
- development of localized systems of indicators for assessing the sustainable development of territorial communities and enterprises;
- increasing transparency and availability of data for all stakeholders.

In modern conditions, monitoring of sustainable development requires the effective organization of processes of collection, processing, analysis and interpretation of data.

One of the key tools for ensuring this process is accounting and analytical systems that integrate financial, economic, environmental and social information to support management decisions and evaluate development results.

The accounting and analytical system is a set of techniques, processes, technical means and staff that provides organized accumulation, processing and analysis of information for the needs of internal and external use. In the context of sustainable development, accounting and analytical systems should be focused not only on financial results, but also on environmental and social aspects of the organization or territory.

The main functions of accounting and analytical systems in the context of sustainable development are data collection, processing and systematization of information, analysis and interpretation of data, reporting, maintenance of management decisions. Accounting and analytical systems ensure regular accumulation of large amounts of data related to economic indicators, environmental impact and social development. These data can include both traditional financial indicators (income, expenses, profit) and non-financial indicators (emissions, number of environmental incidents, employee involvement).

Systems allow you to structure data on various aspects of sustainable development, providing comprehensive analysis. This includes the creation of databases, the segmentation of information by type of activity, regions, time periods, etc. With the help of analytical modules, accounting and analytical systems conduct a deep analysis of trends, reveal correlations between economic efficiency and environmental impact or social sphere, determine the risks and opportunities for further development. Systems generate integrated reporting, which reflects both financial and non-financial performance in accordance with international sustainable development standards (GRI Standards, Integrated Reporting <IR>, ESG-Standards, etc.). Objective and up-to-date information, formed based on accounting and analytical data, provides management of the ability to make informed decisions on strategic planning, investing, improving the efficiency of processes and reducing the negative impact on the environment.

Unlike traditional accounting and financial systems, integrated accounting and analytical systems for sustainable development should take into account such specific features as multidiscipline data (the need for processing not only financial but also environmental and social information), use of non-financial indicators (inclusion monitoring sensors, sociological surveys, etc.), big data analytics (use of modern technologies for the processing of large volumes of heterogeneous information), forecasting (construction of models of forecasting of development scenarios, taking into account environmental and social risks).

The presence of an effective accounting and analytical system, focused on sustainable development principles, is important for different groups of users of information, in particular the management of companies to make strategic decisions and increase the confidence of investors; investors and shareholders to evaluate the companies' business model and the risks of investing; state bodies for monitoring the implementation of national sustainable development plans and formation of state policy; The public to ensure the transparency of companies and raise awareness of their environmental and

society. Modern accounting and analytical systems actively use digital technologies (Fig. 2.3.3). The introduction of such systems can improve the quality of data, reduce the time for their processing, identify hidden trends and make more effective management decisions.

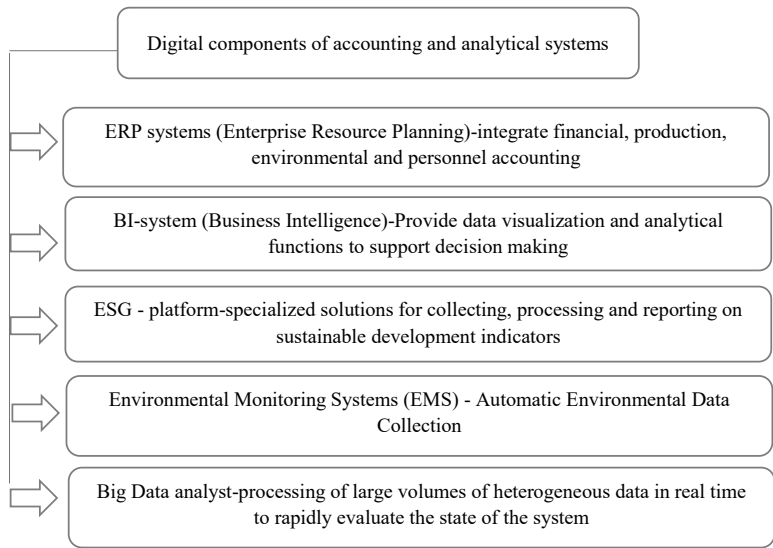


Fig. 2.3.3. Digital components of accounting and analytical systems to monitor sustainable development

Despite numerous advantages, the use of accounting and analytical systems faces some difficulties, in particular, the fragmentation of data between different units of organizations; lack of unified standards of collection and processing of non -financial information; insufficient level of digital literacy of staff; high cost of introducing complex analytical systems; Problems of reliability and completeness of data. Overcoming these challenges requires a comprehensive approach to the development of accounting and analytical systems, advanced training of staff and the introduction of digital technologies.

Therefore, accounting and analytical systems play a key role in ensuring effective monitoring of sustainable development. They ensure objective measurement of progress, support sound management decisions, and promote the transparency of organizations. The development of integrated accounting and analytical systems is an integral part of the successful implementation of sustainable development strategies at all levels-from enterprises to state.

Integrated accounting and analytical systems are an effective tool for ensuring a holistic approach to assessing the impact of activities on all areas of sustainable development. Due to the possibility of operative collection, processing and analysis of large ranges of data, they create the basis for predicting trends, risk assessment and developing effective management decisions. The development and implementation of integrated accounting and analytical systems as a tool for monitoring sustainable development is an extremely urgent area for both business and public administration. It helps to ensure balanced development, increase the efficiency of resource management, reduce environmental load and social risks, which meets the global challenges and needs of modern society.

The integrated accounting and analytical system are a complex organizational and technical platform that provides the combination, processing, analysis and storage of data required to monitor economic, environmental and social indicators of sustainable development. The main purpose of such a system is to create a single information space to support the decision -making process based on complex and up -to -date information.

The structure of the integrated accounting and analytical system is formed on a modular principle and includes several basic subsystems (Table 2.3.2).

Table 2.3.2

The structure of integrated accounting and analytical system

| The subsystem of the integrated accounting and analytical system | The task of the integrated accounting and analytical system subsystem |
|--|---|
| Data collection subsystem | Provides accumulation of information from various sources: internal information systems of the enterprise (ERP, CRM, HRM), external databases, environmental monitoring systems, sociological research, open registers, etc. It is important that this subsystem maintains both automatic and manual data input |
| Data Processing and Verification Subsystem | Data obtained from different sources require standardization, errors, verification for reliability and coordination with each other. The subsystem provides the quality of data required for further analysis |
| Analytical subsystem | Responsible for data processing, construction of analytical models, comparative analysis, forecasting and modeling of development scenarios. It is in this subsystem that complex estimates of sustainable development indicators are formed |
| Report management subsystem | Forms regular and special reports in accordance with the requirements of international and national sustainable development standards (GRI, ESG, SDGS). Supports Flexible Data Formats for Different User Group. |
| Data visualization subsystem | Provides visual presentation of information in the form of graphs, diagrams, cards, interactive panels (Dashboard), which facilitates data perception and allows you to quickly identify problem areas |
| Safety and access subsystem | Is responsible for protecting data from unauthorized access, ensuring the confidentiality of information and managing the rights of users of the system |
| Integration subsystem | Provides interaction of an integrated accounting and analytical system with other enterprise information systems or external platforms by using API, data exchange protocols, integration modules. |

Integrated accounting and analytical system provides a wide range of functional capabilities that contribute to effective management of sustainable development processes:

- comprehensive monitoring of economic, environmental and social indicators - the system allows you to track key indicators of activity in all three dimensions of sustainable development, to identify deviations and trends;
- support of management decisions - thanks to analytical functions, the system forms reasonable recommendations for strategic and operational management;
- evaluation of the effectiveness of implementation of sustainable development programs - the system analyzes the degree of achievement of the set goals and objectives within the framework of relevant strategic documents or corporate initiatives;
- risk analysis - integrated accounting and analytical system helps to identify risks (environmental, social, economic) and opportunities for further development, which allows to form adaptive strategies;
- automation of reporting processes - the system automatically generates reports in accordance with international standards, reducing the load on employees and minimizing the risks of errors;
- forecasting and modeling of development scenarios - thanks to the built-in forecasting algorithms, the integrated accounting and analytical system allows you to evaluate the likely scenarios of changes in key sustainable development indicators on the basis of different assumptions;
- multi-service analysis - the system is able to simultaneously evaluate several interconnected criteria, which ensures the complexity of approach to evaluation of activity;
- Flexibility of settings and scalability - an integrated accounting and analytical system can be adapted to the specific activity of a particular organization, industry or region, as well as scaled according to increased needs.

It is important for the effective functioning of the integrated accounting and analytical system to implement modern technological solutions, in particular, Big Data technology for processing large volumes of heterogeneous data; machine learning to identify hidden patterns and improve predictive models; cloud technologies to ensure data accessibility and optimization of IT infrastructure costs; IOT (Internet of Things) for automatic collection of environmental and production data in real time; blockchain technologies to increase the accuracy and protection of data.

The integrated accounting and analytical system are an integral part of effective monitoring of sustainable development. Its structure should ensure the collection, processing, analysis and visualization of information from various sources, while functionality should be focused on supporting management decisions and ensuring transparency of activity. The use of such systems contributes to a more comprehensive approach to the management of sustainable development and creates preconditions for achieving long-term goals of economic growth, social well-being and environmental safety.

Effective monitoring of sustainable development requires not only high-quality data, but also the use of appropriate models of collection, processing and analysis of information. Such

models allow you to systematically evaluate the achievements of sustainable development goals, identify risks, predict changes and optimize management decisions.

Collecting data for sustainable development purposes involves the integration of various sources of information and the use of methods that provide representativeness, relevance and reliability of data. Basic data collection models include surveys and questionnaires (used to obtain information on social aspects of sustainable development: employment level, access to education, level of welfare of the population, etc.), monitoring with the help of sensory networks and IOT (allows to collect environmental and production data in real time: level of pollution, water, water Statistical bodies, business registration information, tax revenues, social payments), Open Data and Big Data Approaches (use of open data sources (reporting companies, UN international databases, world bank) and large volumes of unstructured information (social networks, satellite monitoring certain aspects of sustainable development). The choice of data collection model depends on the specifics of the evaluated indicator, the resources of the organization and the required accuracy of the results.

Sustainable development monitoring data requires streamlining, cleaning and transformation of information for further analysis. Basic processing models include ETL processes (Extract, Transform, Load) (Standard Data Working Model: Data Extract from Different Sources, Convert into the desired format and download into a centralized data warehouse), data purification models (provide for detecting and correcting data. Different sources into a single data set, unified by structure and format), standardization of data (use of uniform classifiers, codes and methodological approaches, which ensures the comparability of data between different sources and periods), the use of metadata (support of basic data on the source, collection method, relevance period, which improves the quality of analysis). Quality data processing is the key to the accuracy and reliability of further conclusions.

Analysis of data for monitoring of sustainable development involves the identification of patterns, evaluation of dynamics, construction of forecasts and formation of management recommendations. The main analysis models include several types of analytics. Descriptive analytics (descriptive analysis) provides an assessment of the current state of monitoring objects, identification of basic trends and characteristics by individual sustainable development indicators. Diagnostic analytics examines the causes of certain changes in sustainable development indicators, identifies dependencies and factors of influence. Prognostic analytics uses mathematical models and machine learning algorithms to predict future changes in key indicators. Prescriptive analytics formulates recommendations for optimization of processes and achieving the desired results of sustainable development based on the modeling of different scenarios. Index analysis involves the construction of aggregate sustainable development indices based on a set of individual indicators, which allows to estimate the overall level of sustainability of the object. SWOT analysis in the context of sustainable development involves the identification of strengths and weaknesses, opportunities and threats to ensure a balanced development of an organization or region. Multiple statistical analysis means the use of clustering, factor and regression analysis methods for a deeper understanding of complex relationships between indicators. Each model of analysis has its advantages and

restrictions, so in practice, a combination of several approaches is often used to obtain a comprehensive assessment.

Data collection, processing and analysis models are key elements of effective sustainable development. Their correct choice and application depend on the reliability of the assessment of the current state, the objectivity of forecasting future changes and the effectiveness of management decisions. Modern technological solutions make it possible not only to automate these processes, but also to significantly increase their analytical depth, which is an important prerequisite for achieving sustainable development goals at global, national and corporate levels. Modern information and communication technologies, including database management systems (SQL, NOSQL), are actively used to implement these models; Business Intelligence (Power Bi, Tableau, Qlik) platforms; artificial intelligence -based analytical platforms (IBM Watson, Google AI); Cloud data for data processing (AWS, Microsoft Azure, Google Cloud); GIS technologies (ARCGIS, QGIS) for spatial data analysis. The integration of such tools into a single accounting and analytical system can significantly improve the quality and speed of information processing, as well as expand analytical capabilities.

In the context of digital transformation, information technologies play a key role in ensuring effective monitoring of sustainable development processes. They allow to collect large amounts of heterogeneous data, to process them promptly, to carry out a deep analytical analysis, to visualize the results and to provide access to information to a wide range of stakeholders. The use of information technologies increases the accuracy, timeliness and quality of monitoring, contributes to increased transparency and validity of management decisions.

Integration of IOT devices allows to receive in real time accurate data on consumption of resources, emissions of pollutants, the state of the environment. This allows you to respond promptly to critical changes and maintain process stability. Cloud services provide flexible access to data and computing capacities from anywhere in the world. They allow to combine data from different organizations and territories to build national or international monitoring systems.

AI/ML technologies are used for automatic processing of large data ranges, identifying hidden dependencies, predicting future trends and optimizing management decisions to achieve sustainable development goals. Geoinformation systems (GIS technologies) make it possible to perform spatial analysis of data, visualize information on maps, analyze the territorial distribution of sustainable development problems (eg, pollution level, infrastructure availability). Blockchain can be used to ensure the transparency and reliability of monitoring data, especially in the issues of accounting of greenhouse gas emissions, and the management of environmental initiative certification.

Examples of use of IT technologies in Sustainable Development Monitoring are given in Table 2.3.3.

Among the advantages of using information technologies in monitoring of sustainable development, it is advisable to distinguish: Increasing the speed of information processing (data are processed almost in real time, which allows to respond promptly to

deviations), expanding analytical capabilities (deep analytics helps to identify complex relationships between different aspects of sustainable development), reduction of costs). Improvement of transparency and accountability (information systems contribute to data openness and attract a wide range of stakeholders in progress assessment).

Table 2.3.3

Examples of using IT technologies in sustainable development monitoring

| IT technologies | Applied solution |
|--|---|
| Air quality monitoring systems | Using sensors to collect data on concentration of harmful substances and create open cards of contamination in real time |
| Aggregated Platforms of Sustainable City Development (Smart City Dashboards) | Integration of energy consumption, transport, safety, state of the environment for the formation of a comprehensive picture of sustainable development of urban territories |
| Analysis of satellite images | Use of satellite data to evaluate land use changes, forests, reservoirs, agricultural land |
| ESG analytics platforms | Information systems that combine the financial, environmental and social information of companies to evaluate their compliance with the principles of sustainable development |

Despite the numerous advantages, the use of information technologies faces certain challenges, in particular, the issue of personal data protection and confidentiality; high costs for the introduction of modern technologies; the need for data standardization and analysis techniques; shortage of qualified personnel to work with analytical systems; providing digital inclusion for different population groups. Overcoming these challenges is an important condition for the effective use of information technologies in the interests of sustainable development.

Information technologies open new opportunities for qualitative monitoring of sustainable development. They allow to carry out a more complete, accurate and prompt analysis of processes that influence the economic, environmental and social dimensions of society. In the future, improving technological solutions and expanding their application will help to achieve more effective sustainable development goals at global and local levels.

In the context of rapid digitalization of the economy and strengthening requirements for transparency of activity of enterprises, accounting and analytical systems are of particular importance. They become not only a means of fixing business operations, but also a tool of strategic management, assessing the efficiency of activity and monitoring sustainable development. Assessment of the current state of accounting and analytical systems reveals the main trends, problems and prospects of their development.

The general trends in the development of accounting and analytical systems are shown in Fig. 2.3.4.

Most enterprises are actively implementing information technologies in the field of accounting and analysis. There is automation of routine operations, use of electronic document circulation, integration of accounting programs with other business systems. The tendency to combine accounting, management, financial analysis and data analytics

into a single platform is observed in many enterprises. This allows you to ensure a holistic vision of the state of the enterprise in real time.

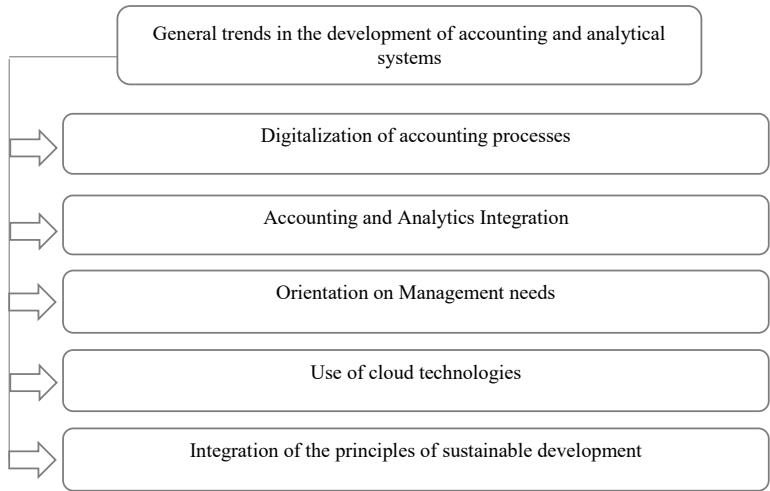


Fig. 2.3.4. General trends in the development of accounting and analytical systems

Modern accounting and analytical systems are increasingly focused on the needs of operational and strategic management. They provide information not only about past events, but also support the forecasting, planning and adoption of sound management decisions. Cloud solutions are popular due to their flexibility, scalability and accessibility. They allow businesses to reduce IT infrastructure costs and provide access to data from anywhere in the world. In response to the challenges of global stability of the enterprise, the indicators of environmental and social efficiency (ESG-indicators) begin to be introduced into their accounting and analytical systems, which contributes to the formation of a comprehensive system of monitoring of sustainable development.

Industrial enterprises often use ERP systems (Enterprise Resource Planning) that integrate accounting, production planning, material flow management and financial analytics. However, the degree of integration of analytical functions varies depending on the size of the enterprise and the availability of resources. In agriculture, accounting and analytical systems are focused mainly on the accounting of costs and income by types of products, as well as on the analysis of efficiency of use of land, resources, equipment. Digitalization here develops more slowly due to the limited financial resources and the specifics of the industry.

CRM-Relationship Management is actively implementing CRM and services in combination with accounting modules. The focus is on sales monitoring, inventory

accounting, consumer behavior analysis and optimization of logistics processes. Banks and insurance companies have a high level of development of accounting and analytical systems, including complex risk management systems, credit portfolio analysts, assets management and compulsory reporting in accordance with international standards (IFRS, BASEL III). It should be noted the presence of problematic aspects of functioning of accounting and analytical systems at enterprises. In many enterprises, accounting and analytical systems remain fragmented, individual modules work autonomously, which complicates obtaining a holistic information picture. Analytical potential is often limited to basic financial indicators. Many businesses do not use modern forecasting methods, scripts and risk assessment. Modern integrated accounting and analytical platforms require significant financial investments in the acquisition of licenses, adaptation of systems to business needs and staff training. Effective use of accounting and analytical systems requires the highly qualified employees in the field of accounting, finance, analytics and information technology, which is often a problematic aspect. Existing accounting and reporting standards do not always consider the current requirements for sustainable development and digital transformation, which limits the ability to integrated new accounting approaches.

At the same time, the transition to integrated accounting and analytical platforms should be distinguished among the prospects for the development of sustainable development monitoring based on accounting and analytical tools. We believe that the spread of accounting systems, management analytics, financial management and monitoring of sustainable development indicators is expected. Intellectual systems will be able to automatically analyze large amounts of data, formulate forecasts and recommendations for management decisions. Enterprises will integrate into accounting and analytical systems ESG indicators to assess the impact of their activities on the environment and society. Thanks to cloud technologies and automation of processes, the enterprise will be able to receive up -to -date data for real -time analysis. The development of international standards of integrated reporting will help to unify the requirements for accounting and analytical systems, increasing their transparency and comparability.

The problematic aspects of the functioning of accounting and analytical systems at enterprises and the prospects for their elimination for the needs of monitoring sustainable development are summarized in Fig. 2.3.5.

The social responsibility of business in the context of sustainable development is an important element of the modern economic system, so it requires appropriate accounting. Financial and management accounting of social responsibility of business helps to increase the transparency of businesses before interested parties, such as shareholders, employees, state bodies and society; Provides effective management of social investment and improves the image of enterprises. Effective accounting support for social responsibility ensures the integration of social and environmental aspects into the overall strategy of the company and business development in accordance with the demands of society and the environment.

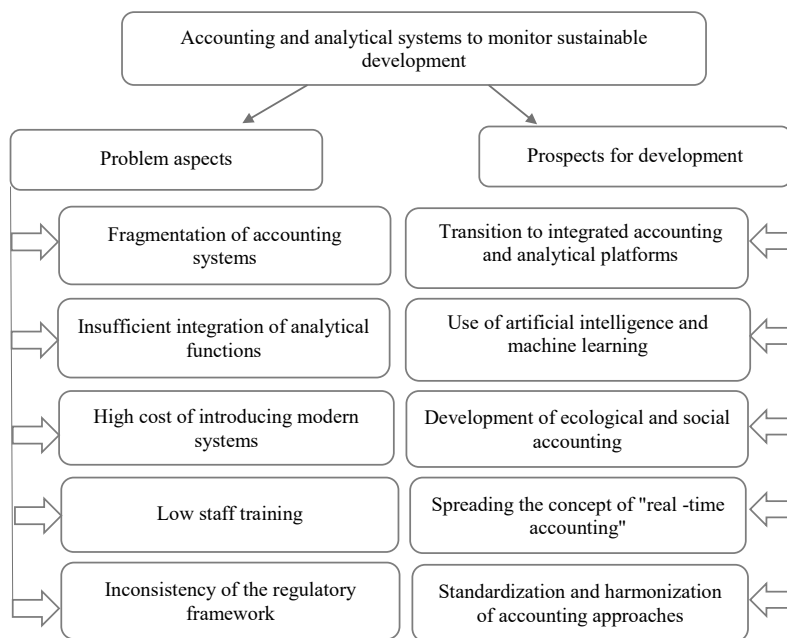


Fig. 2.3.5. Problem aspects of functioning of accounting and analytical systems at enterprises and prospects for their elimination for the needs of monitoring sustainable development

For social responsibility to be not just a declaration, but a real aspect of the company, it requires a clear accounting support. Social responsibility can be carried out in financial and non -financial forms, which provides a comprehensive approach to assessing the contribution of enterprises to the sustainable development of society. The financial accounting of business social responsibility includes reflecting the costs and investments related to social and environmental initiatives, charity or social projects, in relevant accounting items. Since social responsibility and in general the problems of society in economic dimension are increasingly subjects and subjects of a market economy, the measured components of this process are partially implemented within new or rethinking accounting objects. The choice of accounting objects is carried out taking into account that social activity of enterprises is to make decisions in the interests of the purpose and values of society, which is directed to the external environment for the formation of image in cooperation with the local community and authorities and necessarily involves the social block of the internal environment. A separate enterprise is not responsible for all social problems, but only those that generates its activities, which forms the accounting

objects. We consider it appropriate to distinguish the following basic objects of financial accounting of social responsibility of business: expenses for environmental measures; investments in social projects; costs of compliance with ethical standards of doing business; Charitable contributions and sponsorship support.

The disclosure of information in the report on the sustainable development of companies through non -financial (social) reports will allow you to present data not about how many good cases are done, but about what changes have been achieved on the results of these good cases. Therefore, reporting on the sustainable development of the company will allow stakeholders to evaluate the effectiveness of the company, based on their information requests, and the implementation of social measures will increase the business reputation of the company.

At the same time, management accounting of social responsibility of business is aimed at internal use of information to make strategic decisions. Among the tasks of management accounting of social responsibility of business should be distinguished evaluation of the effectiveness of social programs, determining the impact of social investments on financial results and formation of indicators of effectiveness of socially responsible activity. Management accounting methods allow to evaluate the contribution of each unit to the implementation of social initiatives, which contributes to the increase of management responsibility for the socio-economic development of the enterprise.

Companies calculate and monitor the costs of implementing social and environmental measures separately from the main activity. Internal control and audit mechanisms help to monitor the implementation of business programs, as well as evaluate their effectiveness and compliance with the goals set. Further development of accounting of social responsibility of business requires a comprehensive approach, including harmonization of international standards, state regulation in the field of social reporting, improving the method of measuring non -financial indicators of social responsibility and integration of digital technologies for automation of data collection and analysis.

Therefore, the assessment of the current state of accounting and analytical systems at enterprises indicates significant progress in the direction of digitalization and integration of accounting and analytical processes. However, there are numerous challenges related to technical, organizational and personnel aspects. Further development of accounting and analytical systems should be based on the introduction of innovative technologies, orientation on the requirements of sustainable development and increase of staff competence.

Sustainable development monitoring is an important tool for assessing the achievement of sustainable development goals at the level of enterprises, industries and the state. Modern challenges, including climate change, growth of social inequality, depletion of natural resources, require improvement of mechanisms of collection, processing and analysis of information. At this stage, it is urgent to develop comprehensive approaches to improving the system of monitoring of sustainable development, considering the latest technologies and concepts.

Existing systems are often characterized by distinct data in different directions of sustainable development - economic, social and environmental. The lack of unified data

for collecting and processing data complicates comparing the results of monitoring between different enterprises, regions and countries. Many systems work on outdated software platforms, which does not allow you to effectively process large amounts of data and promptly obtain analytical conclusions. The current systems mainly record the existing state of affairs, but the potential of the forecast analytics is used extremely limited. Often, monitoring is formally, without the active participation of the public, the scientific community, business and other stakeholders.

We believe that it is necessary to create a single information platform that would combine data from various sources: accounting systems of enterprises, environmental monitoring services, social surveys, state registers, etc. Such integration will ensure the completeness and reliability of the data. It is recommended to focus on international standards, including global reporting initiative (GRI), UN Sustainable Development Standards (SDG Indicators), SASB and others, which will harmonize sustainable development at global levels. Artificial intelligence tools, Big Data, cloud computing and blockchain for collecting, processing, analyzing and verifying data should be actively implemented. This will increase the efficiency and accuracy of monitoring. In addition to the basic data collection, accounting and analytical systems should provide opportunities for modeling of development scenarios, risk assessment, forecasting, and analysis of sustainable development trends. It is proposed to create public access mechanisms to monitoring results and organize regular consultations with representatives of business, scientists, public organizations and local communities to improve the quality and transparency of the system.

Effective monitoring is impossible without training. Education programs for employees of enterprises, analysts and civil servants on the use of modern accounting and analytical systems and sustainable development standards should be implemented. Methods for evaluating sustainable development indicators should be regularly reviewed and updated in accordance with new scientific developments, technological changes and international requirements.

The concept of integrated accounting and analytical system of sustainable development involves the formation of a list of structural components, which will include modules of data collection, data processing and validation, analytical module, reporting module and communication module (Table 2.3.4). Improvement of accounting and analytical tools of the Sustainable Development Monitoring System is a prerequisite for ensuring an effective transition to a stable model of economic development. Integration of modern technologies, standardization of approaches, attracting stakeholders and forecasting will allow you to create an effective and effective monitoring system that can ensure the achievement of global and national sustainable development goals.

The introduction of an integrated accounting and analytical system at the enterprise is a complex, step-by-step process that requires careful preparation, coordinated actions of all structural units and a clear strategic vision. Successful implementation of such a system provides an enterprise to increase the level of management efficiency, transparency of reporting, reduce costs and improve control over the implementation of sustainable development goals.

Table 2.3.4

Structure components of the integrated accounting and analytical system of monitoring of sustainable development

| Module | Tasks |
|---------------------------------------|--|
| Data collection module | Automatic receipt of information from primary sources, including financial statements, environmental monitoring, results of social surveys |
| Data Processing and Validation Module | Providing data quality check, structuring and standardization in accordance with the requirements set |
| Analytical module | Formation of sustainable development indicators, construction of forecast models, analysis of deviations and risk detection |
| Reporting module | Automated Creation of Regular Reports for Internal Use and Publication, including in interactive formats |
| Communication module | Interactive interaction with external users of the system through web portals, mobile applications, social networks |

In general, the process of introducing an integrated accounting and analytical system includes the following main stages:

- preliminary audit and determination of the needs of the enterprise;
- formation of requirements and technical projection;
- selection or development of software;
- system implementation: technical integration and settings;
- staff training;
- testing, launch and support;
- evaluation of implementation efficiency.

At the stage of the previous audit and determining the needs of the enterprise, a comprehensive survey of the current state of accounting, analytical and information processes at the enterprise is carried out. Audit covers the evaluation of available software and infrastructure; analysis of the needs for monitoring sustainable development (economic, environmental, social components); identification of existing problems and narrow places in the accounting and reporting system; study of staff competencies and degree of readiness. The results of the audit are the basis for the technical task for the development or adaptation of the integrated system.

Upon completion of the audit, a technical task is developed, which indicates the functional, technological and analytical requirements for the future system. At this stage, it is important to provide accounting for the specific activity of the enterprise; support for sustainable development indicators (in accordance with international or national standards); possibility of integration with available information systems (ERP, CRM, etc.); The need for automatic reporting and real -time analytics. System architecture is developed, data sources, information processing logic, control and protection mechanisms are determined.

Depending on the resources of the enterprise and the complexity of the requirements, two ways of selecting or developing software, in particular, the use of ready-made

software (such as BAS ERP, SAP, Microsoft Dynamics 365, Odoo, etc.) with appropriate adaptation or development of individual solutions based on open code or ordering of your own software in IT-computer. When choosing, special attention is paid to flexibility, scalability, the cost of support and the availability of technical support.

Implementation of the system, including technical integration and settings, covers the installation of the system on servers or cloud platforms; setting up interfaces, report patterns, user access; import of existing data; development of automation scenarios (for example, for monitoring CO₂-expels or costs of social programs); Testing the system on real data. In the case of complex structure of the enterprise, integration occurs in stages - first in the pilot unit, with further scaling.

The key factor in successful implementation is the training of users. At this stage, training and training sessions are held; Instructions, video tutorials, support documentation are developed; technical support (internal or external) is organized; Competent working groups or system administration centers are formed. Learning covers not only technical work with the system, but also the basics of sustainable development and principles of using analytical information to make decisions.

Before the final start, the system undergoes comprehensive testing at all levels of functioning; verification of accuracy of payments and reporting; Assessment of ease of use of interfaces. After successful testing, the system is officially put into operation. During the first months, active support of users, feedback, elimination of possible errors and improvement of individual modules are actively supported.

The final stage involves an analytical assessment of the results of the implementation, in particular, comparing the results achieved with the planned ones; measurement of economic, social and environmental effect; Formation of recommendations for further development of the system. If necessary, the functionality, expansion of the system or its integration with other digital control platforms are adjusted.

The step-by-step introduction of an integrated accounting and analytical system is an important condition for successful monitoring of sustainable development at the enterprise. Compliance with the logic of actions - from primary analysis to full operation - avoids errors, minimize the risks of implementation and ensure the expected results in the field of sustainable management.

The introduction of an integrated accounting and analytical system monitoring of sustainable development at the enterprise or in the organization provides not only the automation of individual accounting functions, but also the transformation of approaches to management, planning and control over the achievement of strategic goals. Such a system should provide the enterprise with significant advantages in the short and long term. Its effects cover economic, social, environmental and management components.

The expected results from the introduction of an integrated sustainable development monitoring system are shown in Fig. 2.3.6. One of the key advantages of the integrated accounting and analytical system is to provide quality and timely information support for the management process. Automated collection, processing and analysis of data allows the management to receive in real time generalized information on the state of basic

sustainable development indicators; detect deviations and risks in a timely manner, which allows to respond promptly to changes in the internal or external environment; make strategic decisions based on actual, reliable and related data; Introduce sustainable development policies at the level of units, based on objective information about their activities. The use of an integrated system minimizes the impact of the human factor, reduces the time for reporting and analytics, increases the accuracy of forecasting.

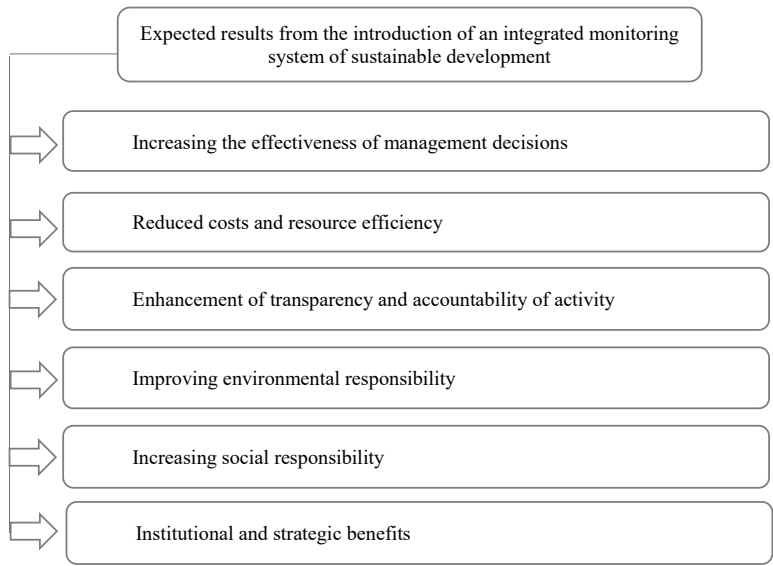


Fig. 2.3.6. Expected results from the introduction of an integrated monitoring system of sustainable development

The integration of accounting and analytical processes allows enterprises to significantly optimize their resources. Among the main effects is to reduce the cost of manual processing of information, duplication of functions and management decisions; reduction of paper reporting and transition to digital workflow channels; optimization of energy, raw materials, fuel and other resources through more accurate accounting and control; Reduction of environmental payments by introducing emissions and waste monitoring mechanisms. Thus, the system helps to increase the overall resource efficiency of the enterprise, which is an important component of sustainable development.

The integrated accounting and analytical system form a single information space that provides transparency of processes for both internal and external users of information. This includes automatic formation of standard and non -standard reporting in accordance

with the requirements of international and national standards; facilitating audit checks through centralized storage of information; simplification of the procedure of ESG reporting (environmental, social, management spheres); increased confidence of investors, partners and consumers in the enterprise; compliance with the principles of corporate social responsibility. Transparent monitoring system also provides public presentation of results in the field of sustainable development, which has a positive effect on the reputation of the organization.

Through the introduction of an integrated accounting and analytical system, the enterprise can monitor environmental indicators (emissions, water consumption, waste, use of alternative energy sources, etc.); analyze the dynamics of environmental load and take preventive measures; more efficiently implement environmental management policy; to prepare environmental passports, declarations and other forms of reporting. This contributes to compliance with environmental standards, reducing the negative impact on the environment and maintaining the image of an environmentally responsible manufacturer.

Monitoring of social aspects (employment, gender equality, labor protection, participation in community development) is also an important function of an integrated accounting and analytical system. The system allows you to track key social indicators in dynamics; analyze the effectiveness of social development programs; identify problem areas in the field of labor safety or labor relations; to prepare internal and external reporting in social aspect of sustainable development. Due to this, the enterprise forms a positive social image and increases the confidence of employees and the local community.

In the long run, the integrated accounting and analytical system becomes an important tool for the institutional development of the enterprise. It allows to form a culture of sustainable management; coordinate internal processes with sustainable development goals; implement the principles of integrated data based on data; To achieve compliance with international standards, such as ISO 14001, GRI, SDG Reporting Framework and more. The system also facilitates participation in international environmental and social initiatives, which opens access to new markets and investments.

Therefore, the introduction of an integrated accounting and analytical system for monitoring sustainable development is not only a technical improvement, but also a strategic step towards building a modern, efficient and socially responsible enterprise. The systematic approach to data collection and analysis makes it possible to achieve qualitative changes in decision -making, improve environmental security, social responsibility and overall business competitiveness.

Thus, the study found that sustainable development is a multidimensional concept that encompasses economic efficiency, environmental security and social responsibility. Enterprises seeking to achieve sustainable development goals should have tools for comprehensive monitoring of these three components based on reliable, structured and operational information. Analysis of the system of sustainable development indicators has allowed to distinguish key areas of measurement of progress - economic, environmental and social. However, the effectiveness of using these indicators depends on the

availability of information and analytical support, capable of synchronizing data from different sources and providing timely analytics for management needs.

The work substantiates the importance of introducing an integrated accounting and analytical system, which serves as a tool for monitoring the sustainable development of the enterprise. The developed concept of an integrated accounting and analytical system provides comprehensive monitoring of economic, environmental and social indicators of sustainable enterprise development in real time. Unlike existing approaches, the proposed system allows you to integrate data from heterogeneous sources (accounting, environmental monitoring, HR-Data) into a single analytical environment for prompt decision-making. Such a system not only optimizes management processes, but also strengthens competitiveness, forms an open, environmentally and socially oriented model of management, which meets the requirements of the modern knowledge economy. An innovative approach to assessing the effectiveness of sustainable development of enterprises based on dynamic analysis of key indicators in an integrated accounting and analytical system, which is to use automated collection and data analysis to assess the achievement of sustainable development goals, which increases the accuracy of assessment and efficiency of management measures.

The algorithm for the introduction of an integrated accounting and analytical sustainable development system, which covers all key stages, is generalized-from the previous audit to a full-fledged launch and evaluation of efficiency, which allows to provide a unified approach to the implementation of such projects in different sectors of the economy. The complex of expected effects from the introduction of an integrated system, in particular, increased transparency, improving the quality of management decisions, reducing costs and improving environmental and social responsibility of enterprises is determined, which allows to evaluate the feasibility of digital transformation of accounting functions in the context of sustainable development.

The practical importance of the conducted research is the development of a structured algorithm for the introduction of an integrated accounting and analytical monitoring system of sustainable development, which covers key technical, organizational and personnel stages, as well as determining the complex expected effects from the introduction of such a system, which include not only economic benefits. A typical algorithm for the introduction of an integrated accounting and analytical system has been developed-from the previous audit to the full launch of the system-takes into account the current requirements of digitalization, integration of data and adaptation to the individual needs of enterprises. The expected results of the introduction of an integrated accounting and analytical system include improving the efficiency of management decisions, reducing administrative costs, ensuring transparency of activity, as well as strengthening environmental and social responsibility. The system creates the basis for strategic management focused on achieving the goals of sustainable development and promotes the transformation of the enterprise into a more flexible, adaptive and responsible structure.

2.4. OPTIMIZATION OF THE ACCOUNTING AND ANALYTICAL SUPPORT SYSTEM AND CONTROL OF THE ENTERPRISE'S ACCOUNTS RECEIVABLE

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Consideration of the economy at the state level can be interpreted as a set of economic entities and methods by which a person creates goods to meet his own needs. This is a rather complex economic organism, which in turn relies on a huge variety of both production, commercial, and financial and information structures, connected by an extensive system of social and legal norms and united by a single concept of the market. Economic relations between different business entities are formed in different markets: markets of final goods and services, financial markets, markets of factors of production, credit markets. These relationships are mediated by the movement of cash and financial flows.

In different markets, economic relations between business entities, whether they are buyers, customers, contractors or suppliers, objectively cause the emergence of various types of debt. Their occurrence is associated not only with the peculiarities of the sphere of circulation, but also with the organizational features of production, financing and cash flow turnover. The formation of debt is associated with the immediate duration of the production cycle and the seasonality of production, which may also imply a certain time interval between production and the final sale of products. Consequently, the occurrence of debts is an objective process in the system of relations between enterprises and its counterparties. Moreover, with the growing scale of social production and the complication of economic relations, their size will certainly grow, which requires special attention to the effectiveness of the management of receivables.

The primary task of researching the relevant topic is to establish the essence of receivables. On this occasion, the positions of accountants, financial analysts, economists and lawyers differ somewhat due to different approaches to understanding these phenomena. Consider these concepts from a historical point of view. The appearance of the term "debtor" in the VI century. BC is associated with Ancient Rome, which introduced concepts such as "expensilatio" (the creditor's mark in his code with the consent of the debtor, who was the first to issue the latter a certain amount of money or value) and "acceptilatio" (mark of payment of debt). A debtor was a person who was given a certain amount of money or value. These amounts were considered receivables.

Jacob van der Schuer in 1625 called the debtor the one who has (the owner), who receives, who is supplied, sold or from whom they hope to receive payment, or, finally, the one who must pay. The creditor was called the one who gives (spends), with whom they pay, from whom they receive, with whom they deal, who sells, delivers, from whom they buy, the one to whom they have to pay. That is, the understanding of the "debtor"

and "creditor" was initially identified only with the person.

The first publication on the accounting topic and a kind of pioneer in accounting was the book by Luca Pacioli "The Sum of Arithmetic, Geometry, the Doctrine of Proportions and Relations," which was mainly devoted to mathematics and at the same time contained a whole section on double accounting with the title - the treatise "On Accounts and Records." A significant achievement of L. Pacioli is the introduction of the first classification of sources of debt coverage for goods: cash; credit; exchange of goods for goods; repayment of accounts receivable by accounts payable, as well as a statement of the purpose of accounting in the first section of the Treatise. L. Pacioli wrote: "This is the conduct of your affairs in the appropriate order and as it should be, so that you can get all kinds of information about both debts and claims without delay..."

And already in the first accounting work it was highlighted that accounting is conducted in order to quickly identify the amount of debts and claims (the legal nature of accounting) and, in accordance with this, conduct their business (the economic nature of accounting). Pacioli Luca formulated a rule that remains relevant in modern economic conditions: "no one can become a debtor without his consent."

In the late nineteenth and early twentieth centuries in German-speaking countries, G. Simon and P. Gerstner became interested in the issue of receivables. For example, when determining the assessment of receivables, G. Simon recommended reserving funds to cover possible losses (delcreder account). The debts themselves, according to Gerstner, in "accounting should be divided into secured and unsecured. The scientist also considered unacceptable the balance of receivables and payables. "The Dutch scholar Simon van Stevin (1548-1620) believed that accounting is a combination of micro- and macro-accounting, the latter "must provide data on the immediate state of settlements with accountable persons, materially responsible persons, as well as the state of settlements with creditors and debtors."

And only in the 20s. already the twentieth century. accounting practice has come to the division of the current account into separate active (debtors) and passive (creditors) accounts, which over time were also divided into a number of accounts. The beginning of the registration of doubtful debts and the accrual of a reserve for them is described in the works of scientists, starting from the 19th century. In particular, scientists such as K. I. Arnold, I. I. Babenko, A. Gilbo, G. Simon propose to create a reserve of doubtful debts and maintain a special account for them (the Delcredere account).

Subsequently, the "debtor" and "creditor" were already identified not only with the person, but also with the goods, money, accounts. According to the works of J. Luzzato notes that "the double aspect of each transaction became possible because not only people but also objects began to appear as debtors and creditors."

Already at the beginning of the twentieth century, S.I. Koretsky noted: "the relationship between two people entering into an agreement can be represented by the Latin terms" debit "(should) and" credit "(trust someone). So, in the case when the one who lends money to someone believes that this is a loan, and then he (the person) is called a creditor. The person who receives the loan becomes a debtor - this is a debit, and then he (the person) is called a creditor."

Professor Bodie Z. and Professor Merton R.K. of Harvard University defined

receivables as accounts receivable, believing that this is the amount that the buyer of the products must pay to the enterprise.

Some Ukrainian scientists consider receivables as cash withdrawn from the company or held by others for a certain time. We believe this approach is not entirely correct, because not always withdrawn from the company funds are converted into receivables. According to legal scholars, to characterize receivables, it is more correct to use the term "property claims" - the property of the subject includes its property claims to other persons acting as debtors in legal relations arising in other circumstances.

As for modern domestic scientists, Stepanenko A.I. notes receivables as unpaid by individuals and legal entities goods (works, services) and/or funds withdrawn from circulation of the enterprise, which document the right to receive debt in the form of cash and their equivalents or other assets (Stepanenko and Dubovik, 2022). Consequently, in scientific research there is no unambiguous definition of receivables. The study of modern scientific approaches to the interpretation of receivables revealed a number of shortcomings that need to be clarified, namely the narrow content direction and the lack of an integrated approach to the definition of this concept. Accordingly, according to international and national accounting standards, receivables are defined as the amount of debtors' debt to the enterprise on a certain date. But it should be noted that the term "receivables" according to international accounting standards has significant differences.

The methodological basis for the formation of information on receivables in the accounting is indicated in the National Regulation (Standard) of Accounting No. 10 "Receivables", according to which receivables are the amount of receivables to the company as of a certain date (National Accounting Regulation (Standard), 1999). It should be noted that IFRS does not have a special standard for receivables, but in the preparation of any statements it is necessary to adhere to the principle of conservatism. In foreign and national practice, there are no significant differences in the definition of receivables. Methodological approaches to accounting for receivables in accordance with international standards do not have a specific standard, as noted above, but should be guided by IFRS No. 1 "Presentation of Financial Statements," IFRS No. 18 "Income," IFRS No. 39 "Financial Instruments: Recognition and Measurement," according to which receivables are "the amount of debtors' debt at a certain date."

For a holistic understanding of the concept of "receivables" and "debtor," these categories should be considered not only from an economic point of view, but also from the legal content inherent in them. Regulatory documents regulating receivables are divided into 5 levels, namely:

1. Constitution of Ukraine, Codes, Laws.
2. Decrees and orders of the President of Ukraine, Resolutions of the Cabinet of Ministers of Ukraine.
3. National and international accounting standards.
4. Guidelines, instructions, explanations of the Ministry of Finance of Ukraine.
5. Internal documents - administrative documents, accounting policy.

If the enterprises of the first four levels cannot change and must adapt to existing conditions, then the internally developed internal documents are manageable, which allows flexible enough to regulate their own economic activities.

The ability to navigate between various contradictory regulations helps to correctly maintain accounting records at the enterprise and timely analyze and manage receivables. Summarizing the above, it can be noted that the concept of "receivables" has many interpretations, both in scientific and economic literature, and even in normative sources. There is no regulated classification of receivables, which in turn causes discrepancies in international and national accounting. The very fact of the occurrence of receivables at the enterprise of any form of ownership is a fairly objective process. The direct presence, value and its composition differently affect the results of the enterprise's management, since they have both positive and negative features (Fig. 2.4.1). Thus, the formation of receivables at enterprises is associated with direct and alternative costs: diversion of funds from circulation, the risk of non-return, the risk of losses from inflationary processes. At the same time, this brings significant benefits - lending to consumers increases sales. Without proper control, the debt can significantly exceed the permissible levels, which in the future will lead to a decrease in cash flows and a significant decrease in profits.

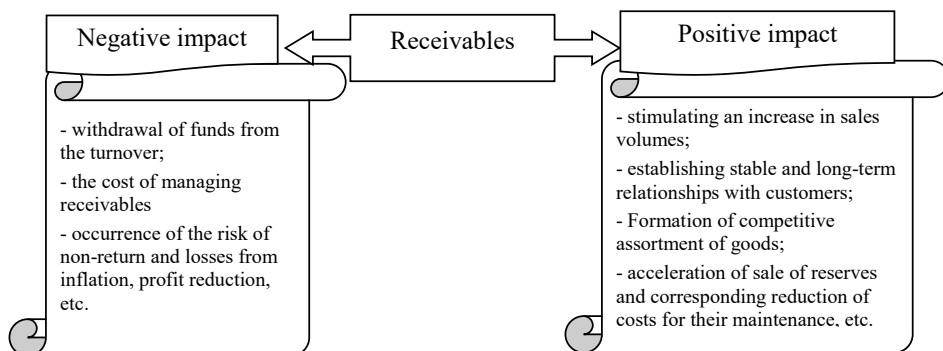


Fig. 2.4.1. Disadvantages and advantages of receivables.

As already noted, the basic document that regulates the procedure for recognizing, evaluating and reporting accounts receivable is an emergency National regulation (standard) of accounting No. 10 "Receivables," which determines that receivables are the amount of receivables of debtors on a certain date, and debtors, in turn, are individuals and legal entities that in the past owed the company certain amounts of cash, their equivalents or other assets (National Accounting Regulation (Standard) No. 10 "Receivables", 1999).

The emergence in general of receivables, as noted earlier, is a fairly objective process, due to the presence of risks during mutual settlements between counterparties in relation to business transactions. The formation of receivables is shown on the principle of accrual, according to which the shipment of products, goods, the provision of services, the execution of work to buyers or customers is considered an event that causes the current debt of debtors (in the absence of prepayment or immediate payment). Usually the debt of debtors to the enterprise arises from two events (inherently diametrically opposite), namely:

- shipment of manufactured products or goods, performance of works or provision of services in case of delay in payment of their cost;
- advance payment for products or goods, works or services in case the supplier fails to fulfill its obligations.

Receivables can also occur when calculating:

- with suppliers of resources, buyers of goods (products, works, services);
- budget for taxes and payments, insurance firms, banks, related parties (in the case of joint activities or participation in capital);
- other organizations (research, consulting, legal; provision of services - security, communications, information support, mail, etc.);
- individuals (for remuneration, settlements on accountable amounts, compensation for material damage).

It should be noted that the main risk in the formation of receivables is the risk of non-payment, may arise for the following reasons:

- 1) the customer is dissatisfied with almost not fully satisfied with the products or services of the company, and the delay in payment is the best way to pay attention to it;

- 2) the customer has enough funds, but the payment schedule drawn up by him does not coincide with the expectations of the company, that is, the budgets of both counterparties are not agreed;

- 3) the customer does not have enough funds to fulfill all obligations.

Consequently, there are many interpretations of the term "receivables" both economically and legally. The first mention of this term refers to the VI century. BC and remains relevant to this day. Summarizing the definition, it can be noted that receivables are receivables on a specific date that arose in the process of contractual relations with counterparties or with employees of the enterprise. This is an important part of operating activities that affects the size and structure of cash flows of enterprises. A sharp increase in the amount of receivables and the lack of quality control can adversely affect the solvency of the enterprise, its credit policy and indicate insolvency and even possible bankruptcy of buyers. As a system of relations, receivables are quite heterogeneous in their composition, which is why, from a theoretical point of view and in economic practice, it is divided into separate types. "Classification is a system of subordinate concepts (classes, objects), a means for establishing links between these concepts or object classes" (Zinchenko and Krutykh, 2018). "The purpose of classification is to determine the place in the system of any unit (object) with its properties" (Zinchenko and Krutykh, 2018). From the qualitative classification of receivables and payables, as well as optimally defined classification characteristics, not only the order of their accounting as a whole or individual components, but also the level of efficiency of their management, depends.

Analysis and generalization of approaches to the classification of receivables can be tried to systematize in the following areas:

1. By relationship objects that are formed when determining receivables.

Most cases can be divided into two main types of receivables: commodity and non-commodity. Commodity operations are called when it comes to payment for products (having a natural form), works or services. We can say the commodity debt of debtors arises as a result of the usual operating activities of the entity, which may include the sale

of goods, the provision of services or the performance of work. In turn, the non-commercial receivables include all other cases, except for the above.

It should be noted that if there are various characteristics of receivables classifications, most often its classification is carried out according to one specific characteristic within accounts according to a single Chart of Accounts. This is due to the modern accounting procedure that exists in Ukraine, where the actions of an accountant are strictly regulated. In countries with a market approach to the economy, the decision to place certain types of receivables in the balance sheet and the immediate degree of detailed painting of these articles is carried out by the enterprise, and therefore in each of them the structure and composition of receivables at the time of entering into the balance sheet may differ significantly.

2. Classification of receivables already in the formation of financial statements can be built on the following criteria: communication with the normal (normative) operational cycle; maturity; objects in respect of which the debtor's obligations directly arose; timeliness of payment of the debtor of his debt. The corresponding classification of receivables, which is proposed by National regulation (standard) of accounting, reflects its objective composition today.

3. In today's conditions, the most commonly used classification based on the characteristics of counterparties. In this case, in order to conduct analytical procedures, it was necessary to single out only the debts of national or foreign debtors according to the current Chart of Accounts. It is also necessary to single out a sign of debt in accordance with the relations of counterparties, namely: the emergence of debt of buyers or to buyers; the emergence of debt to suppliers or suppliers directly to us; recognition of debt of other counterparties. Which include employees, owners, budgetary organizations, extrabudgetary funds, as well as its own structural units, subsidiaries or branches. This grouping makes it possible to assess the clear "ownership" of debt and is significant for the implementation of control functions in the general management system.

4. For a qualitative assessment of the financial condition, it is necessary to conduct a detailed analytical accounting of receivables, which today has become easier in connection with the introduction of automated computer accounting programs. It is the use of the latter that will allow assessing your financial condition at a new quality level and can become the basis for making managerial decisions on receivables (Zinchenko and Krutykh, 2018). Given this new level of importance, the classification of receivables is obtained, which is used in the Anglo-American accounting system, according to which it is divided into the following groups:

- invoices to be received (this is a type of receivable that occurs when goods are sold to an "Open Account," without a written obligation of the buyer to pay the invoice);
- bills to be received;
- receivables not related to sales.

The opinion of specialists on the division of receivables into long-term and current cannot be considered unambiguous. According to some experts, such a division is an important tool for financial analysis, while others believe that the classification of receivables, like other classifications, is conditional and, therefore, optional. In our opinion, this is important for obtaining more reasonable conclusions based on the results of financial analysis, and accordingly, for developing the necessary recommendations.

Butynets F.F. provided proposals for the classification of receivables by liquidity level, namely:... " Divide the receivables on the balance sheet into long-term and short-term depending on the maturity, which fully corresponds to the classification of items of receivables on the balance sheet" (Butynets, 2009). So we observe that some authors see the classification more detailed, others - on the contrary, but in any case it must comply with the current regulatory framework.

5. Debt relations can also be divided at the place of their occurrence into external and internal. External debt - occurs with counterparties that are outside the enterprise (buyers, budget organizations, suppliers, extrabudgetary funds, etc.). Internal debt is formed within the enterprise itself in relations with employees, owners or structural units. The distribution of debt in this way makes it possible to clearly see the direction of cash flows.

6. Depending on the maturity of receivables in the balance sheet is divided into short-term and long-term:

- short-term include: short-term receivables for products, services, work; bills received short-term; other short-term receivables;

- long-term includes: long-term receivables for products, services, works; bills received long-term bills; other long-term receivables.

This approach to the classification of accounts receivable items in the balance sheet takes into account, first of all, the liquidity level of items, which is more useful for users of financial statements when assessing the financial condition of an enterprise, gives more complete information on the level of accounts receivable and the possibility of converting financial liabilities into cash.

7. The division of debt by maturity becomes important. The accounting ledgers do not reflect the expected and current periods of debt repayment. Accounts receivable on the actual maturity date would be better divided into urgent, overdue and deferred, which is reflected in the accounting on the relevant analytical accounts, where the term of execution of contracts is monitored. When determining whether the debt is doubtful for accounting, it is important to divide the collateral debt (guarantee, guarantee, bill, pledge). We believe that it is necessary to allocate secured and unsecured debt.

8. By the origin of the debt, two groups can be distinguished: payment with deferred payment and advance payments. This approach allows us to assess the degree of trust in relations with various counterparties.

9. Depending on the nature of the debt, it may be permissible (normal), arising in the process of operational and financial activities, and unjustified, associated with violation of financial discipline. This criterion is important not only for monitoring the state of debt, but also for a more correct assessment of income and expenses of operating activities.

10. On the basis of the fulfillment of the terms of the contract, the debt can be classified by the due date that has not yet come, overdue or with a deferred payment. This grouping makes it possible to strengthen monitoring of payment and contractual discipline and make timely decisions on the application or avoidance of penalties.

11. According to the probability of repayment, the debt is divided into debt, which is likely to be repaid, doubtful and hopeless. This grouping is important when establishing the procedure for settlements and repayment of debt or when it is written off from the balance sheet and income recognition.

12. By the duration of the relationship with counterparties, the debt is grouped into a constantly renewed in the process of operating and financial activities and one that occurs periodically or spontaneously. The first is formed usually during contractual relations with regular customers. All other debt can be classified as periodic or accidental. This approach to the division of debt provides an opportunity to maintain an appropriate level of stability and sustainability of the functioning of the enterprise when making managerial decisions.

To date, the scientific literature does not have a clear classification of factors that affect the receivables of the enterprise in terms of wording and complexity, although it is a basic component of the concept of "receivables management." That is why the classification should be based on a system of receivables management, which would be based on two blocks that are most often distinguished in the economic literature - credit policy and receivables management policy (Zinchenko and Krutykh, 2018).

The formation of receivables is determined by external and internal factors. External factors practically do not depend on the activity of the enterprise and it is almost impossible to limit their influence (Fig. 2.4.2).

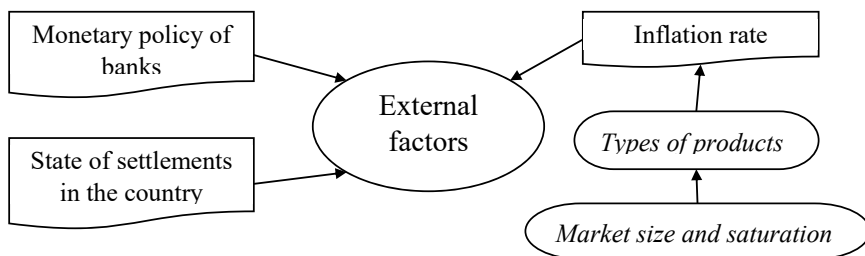


Fig. 2.4.2. External factors affecting receivables.

Therefore, external factors of influence also include:

- the general state of the economy in the country - in conditions of a general decline in economic activity, entities usually receive less profit, the liquidity of assets in general of the entity itself decreases. In connection with the late receipt of payment for their products or services, a consequential reaction of non-payments is created, which lead to the formation of receivables and delay in settlements with existing creditors;

- transport and logistics tariffs - too fast and often uncontrolled growth of prices or tariffs entails an increase in the volume of receivables;

- seasonality of production and seasonality of sales - the production of seasonal products (performance of work or provision of services) is associated with an increase in the amount of receivables, because before the onset of the season, organizations practically live in debt at the expense of future sales volumes;

- income level of the population. This factor can be explained by the following pattern: with the growth of incomes of the population and the invariability of tariffs - the probability of full and timely repayment of debts to the enterprise increases; and vice versa, with the

growth of tariffs and the immutability of incomes of the population or their growth at a slower pace, the probability of not timely payment for goods or services increases.

Internal factors can be much more controlled and the enterprise can independently influence them by making managerial decisions (Fig. 2.4.3).

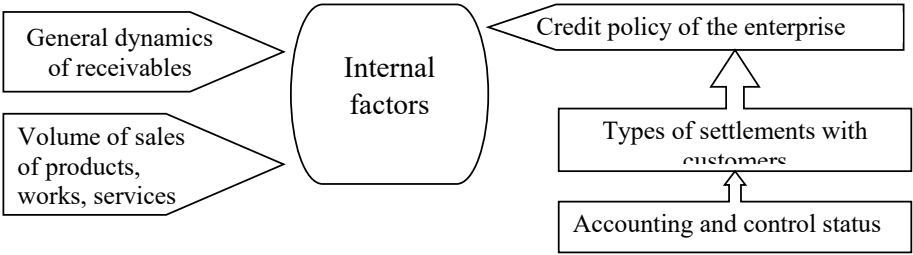


Fig. 2.4.3. Internal factors affecting receivables.

Internal factors affecting the volume of receivables include: credit policy of the enterprise; professional and personnel qualities of the financial manager for receivables; types of calculations used; status of receivables monitoring.

Blank IA also adds to the classification not only factors that directly affect receivables, but also factors that have such an impact through the mechanism for implementing credit policy indirectly. So, in the process of polemics, a vision of the classification of factors that directly affect the formation and size of receivables is proposed. Analysis of these factors and their consideration significantly affects management decisions and makes it possible to study and optimize receivables.

Legal regulation of accounting in the national legislative and regulatory field can be called a system of acts, according to which the entity conducts its activities and provides quality management of its accounting and reporting. Therefore, of course, a necessary condition for legally correct accounting of receivables, like any other link, is the study and development of the regulatory framework governing settlement operations.

First of all, it is worth noting that the accounting of receivables in our country is regulated by economic legislation. Thus, economic legislation acts as a normative base of economic law and order, namely the rules of organization and direct implementation and management of economic activity.

Legislative documents in the Ukrainian legislation regulate all settlement operations, dictate the order of their direct conduct and control the process of their observance. According to the Commercial Code, section 4, "an economic obligation is recognized as arising between an entity and a second participant (or participants) of economic relations on the grounds provided for by this Code, according to which one entity (obliged party, including the debtor) is obliged to perform a certain economic or managerial-economic action in favor of the second entity (pay money, transfer property, perform work, provide information, etc.) or refrain from such actions, and another entity has the legal right to

require another person to perform his duties" (Commercial Code of Ukraine, 2004).

Economic and property obligations that may arise between economic entities or between economic and non-economic entities - legal entities according to economic agreements are called economic and contractual obligations.

In Ukraine, the Tax Code regulates the relations that arise in the field of fiscalization of taxes and fees, in particular, defines the full list of taxes and fees paid in Ukraine and the procedure for their collection, defines their taxpayers, as well as the rights of taxpayers and their duties (Tax Code of Ukraine, 2010). The methodological basis for the formation of information on receivables in accounting is determined by National regulation (standard) of accounting No. 10 "Receivables" (National Accounting Regulation (Standard) No. 10 "Receivables", 1999) and National regulation (standard) of accounting No. 15 "Revenues" (National Accounting Regulation (Standard) No. 15 "Income", 1999). Accounting for settlements with customers and buyers is directly regulated by the Law of Ukraine "On Accounting and Financial Reporting" (On Accounting and Financial Reporting, 1999).

According to the Instruction "On non-cash payments in Ukraine in national currency" "non-cash payments are the transfer of a certain amount of funds from the accounts of payers to the accounts of recipients of funds" (Instruction "On cashless payments in Ukraine in national currency", 2004). These calculations are made by the bank on the basis of settlement documents in paper or electronic form. The specified instruction also regulates all types of non-cash payments and the procedure for their conduct, debiting funds from a bank account, document circulation rules, the procedure for calculating penalties.

For the qualitative organization of accounting for all receivables at the enterprise, it is worth using the Order on Accounting Policy, the working chart of accounts, and the primary documents developed for their own features. The accounting policy as a whole is a set of principles, procedures and methods for organizing the accounting system of a certain process. The order on accounting policy is the internal regulations of the organization of accounting of the enterprise. This document should take into account the following features: - the form of ownership of the enterprise and its organizational and legal structure; types of economic activity that determine the features and conditions of accounting; entity's scope of activities, product range, number of employees, etc.; selected taxation system, availability and conditions for obtaining benefits (Vasilyeva, 2013).

As for the rationalization of the organizational components of accounting, the Order on Accounting Policy, in particular, indicates the mandatory need to inventory assets and liabilities. Given that the Chart of Accounts has been developed for the purpose of application in all segments of the national economy, it is quite clear that in different enterprises only a separate part of accounts is used, which have more practical use for economic entities. Accordingly, each firm implements for itself an appropriate working chart of accounts, which optimally takes into account the features of its activities. Approval of such a work plan passes only through the head of the enterprise, since it is he who is fully responsible for the entire organization of accounting. In this case, the procedure for applying each individual account, established instructively, the

management has no right to change. It is also important to understand that the maximum stability of the chart of accounts used directly at the enterprise ensures a stable quality of accounting, and therefore it is important to thoroughly approach the issue of forming such a work plan and form it in the optimal way.

Information resources at the present stage have become an integral factor in the growth of the economic well-being of the enterprise. The use of reliable information has a significant positive effect - on its basis, effective accounting and analytical support is formed, which contributes to effective management.

Sources of information on receivables are primary documents, synthetic and analytical accounting data, financial statements. Using information, you can get a lot of data about receivables: determine the structure of receivables; training conditions; the state of debt; reasons for formation and nature of debt repayment; provision of receivables.

The study of information systems of the enterprise showed that, on the one hand, some of the information is redundant, and on the other hand, the necessary information is not enough. Based on this, we can conclude that the issue of reliability and quality of accounting and analytical information remains relevant. In this regard, management needs to move away from the old system of "concentration on accounting" and think ahead, using audit, planning and analysis. Accounting must interact with management, and this approach also covers the receivable aspect.

In a market economy, accounting and analytical information must meet certain requirements, in particular:

1. information should be useful for a wide range of users - external and internal;
2. information must be flexible so that it can be used in decision-making;
3. modern accounting and analytical information should be not only informational, but also economic in nature;
4. information should be intended to provide predictions for the future.

First of all, to improve the quality of accounting and analytical information, it is necessary to eliminate the shortcomings in the organization of accounting for receivables, which were described in the second section of the work. You need to start with the initial link - the organization, because it is there that the foundations for building the "correct" accounting are laid, which will allow you to obtain reliable, high-quality information about receivables.

An important aspect in the formation of accounting and analytical information on receivables is its classification, evaluation and recognition, a scientific approach to its definition. There are many contradictions in this issue, since there is no single interpretation of the term "receivables," as well as a single classification. The practical development of a single classification and a single interpretation could contribute to a more appropriate formation and functioning of the accounting and analytical system. Also a significant step in improving the quality of information is the connection with international accounting standards. This concerns their use in national accounting, reducing contradictions between aspects of international and national standards. This will help reduce discrepancies, bring accounting to a new "international level" and improve the existing "national" system.

A modern prospect for improving accounting and analytical information may be the introduction of a new form of reporting at the enterprise - integrated. Since traditional financial reporting often does not reflect the real value of modern enterprises and does not give a holistic view of their activities, reflecting only certain aspects, there is an urgent need for the emergence and formation of new integrated reporting.

The purpose of integrated reporting is to provide information that allows interested users to assess an enterprise's ability to generate future economic benefits over a specified period of time (Butynets, 2009). It is focused on the strategic course and prospects for the future. Integrated reporting is mainly used for management needs. At the present stage, integrated reporting is not used or little used in the domestic "accounting space"; there is no clear form and structure. However, the introduction of this form of reporting has its advantages: reporting data better meet the needs of investors; information providers have access to more accurate non-financial data; a higher level of trust in relations with key stakeholders; better resource allocation solutions, including cost reduction.

Settlements with buyers and customers are the most important direction of accounting work, since at this stage the main share of income and cash receipts of enterprises is formed. And calculation is one of the most massive phenomena in the economic life of any enterprise. Carrying out an uninterrupted production process, each enterprise, on the one hand, buys raw materials, fuel, containers, goods, and on the other - sells finished products. Untimely settlements create mutual debt between the manufacturer and consumers of products, lead to untimely payment of wages in cash, which causes dissatisfaction of employees and worsens the social situation.

An important condition for the successful functioning of production and economic relations between enterprises and the service sector is the rational use of the cashless payment system. The threat of a non-payment crisis requires an increase in the accounting discipline of business entities.

The primary document for settlements with buyers and customers is a contract, which in modern conditions is an important object of control and regulation of accounting activities of enterprises. We believe that when concluding a contract, special attention should be paid to its essential conditions. The main features of the materiality of the contract as an object of accounting supervision are its subject matter, price, form of payment and sanctions in case of unlawful behavior or violation of the terms of the contract. The essential terms of the business contract reflect the interests of its parties and can be general and personal. Thus, the contract price expresses the general interest of the subjects of contractual relations.

Therefore, essential conditions are a list of individual features of an economic contract that express the interests of its compilers and the totality of which is able to ensure the transition from possibility to reality. Recognition of an economic contract as an object of accounting requires the development of ways of its reflection in the accounting system.

It is advisable to use registrars of settlements with each buyer or customer separately, which will allow for more informative and transparent accounting and the ability to quickly monitor the status of settlements with buyers and customers.

A separate and rather frequent problem at enterprises is the lack of current systematic accounting of claims, which complicates the control over the correctness of settlements

with buyers and customers, leads to the omission of the deadlines set by the bank for partial or complete refusal to pay due to non-compliance with the terms of supply contracts and the occurrence of other violations of contractual discipline.

To eliminate this disadvantage, it is advisable to use a card for operational accounting of settlements with buyers and customers. Entries in this card should be regularly made by the chief accountant who keeps records of banking operations. The basis for display in the card are settlement, payment and bank documents. Maintaining an operational accounting card requires insignificant additional labor costs of accounting employees, but it becomes possible to increase the control functions of accounting and improve the state of calculations, prevent fines for violation of accounting discipline.

Also, one of the disadvantages of the organization of settlements of enterprises is the non-operational formation of a reserve of doubtful debts, despite the fact that National regulation (standard) of accounting 10 "Receivables" provides for the reflection in the balance of receivables for goods, services or works at net realizable value, which is calculated as the difference between the initial indicator of the value of receivables and the amount of the reserve of doubtful debts (National Accounting Regulation (Standard) No. 10 "Receivables", 1999).

The most expedient, in our opinion, is still the formation of a reserve on the basis of the solvency of individual debtors, which involves analyzing the solvency for previous years of each of the counterparties. In this case, the amount of the provision of doubtful debts is calculated by the percentage of bad debts to the paid receivables by each counterparty and the corresponding amount of receivables for this period.

However, we note that in this method there are some controversial aspects. We mean the calculation of the coefficient of doubt, based on the determination of the solvency of individual debtors. With an increase in the volume of doubtful receivables and, accordingly, the total number of debtors, calculations by this method are quite laborious, and the qualitative determination of the solvency of debtors, taking into account the specificity of the enterprise, is subjective and complex. But in the conditions of the present and military-political uncertainty, one should not expect disciplined payments by debtors and the absence of receivables as such. Therefore, in any case, control over this aspect will require more time and effort on the part of both accountants and managers of the economy.

In today's conditions, competition is an important element of the economy, therefore, in order to sell more goods and services, enterprises use "consistent payment." This, in turn, creates debt and the risk of non-payment. Since accounts receivable are a significant part of working capital, it should be the subject of analysis and research. Particular attention should be paid to the study of the dynamics, structure, composition and causes of occurrence.

Analysis of receivables, its composition and structure has the following objectives: analysis of the share of a certain type of receivables in the total assets of the enterprise; studying the composition of debt, identifying existing types in the enterprise; assessment of the validity of the amount of receivables; correct processing of receivables; calculation of liquidity indicators; determination of the impact of receivables on the financial results of the enterprise.

Any link in the activities of the enterprise must have a well-established mechanism for its effective functioning. This is especially true of accounting, because with its help the company carries out daily monitoring of funds and sources, determines the results of activities, makes managerial decisions. The functioning of accounting is impossible without high-quality accounting and analytical support.

Accounts receivable is an important part of the economy, so ensuring rational and effective accounting and cash flow is important. We consider it expedient to note that its sharp increase may adversely affect the cash flows of the economy and its solvency - this emphasizes the feasibility of analyzing this area. So, taking into account the above, in order to improve the quality of accounting and analysis, we will outline the system of accounting and analytical support for receivables (Fig. 2.4.4). Accounting and analytical support in the broadest sense is a control subsystem that performs appropriate functions and communicates with each other through information flows.

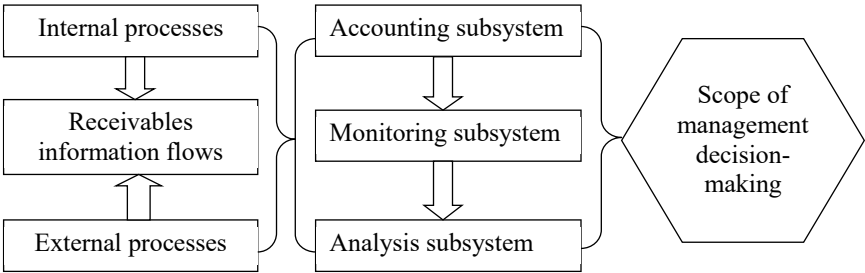


Fig. 2.4.4. Accounting and analytical support system for receivables

The main tasks of accounting and analytical support are:

- formation of an array of primary accounting information: detection, measurement;
- registration and accumulation of economic information; generalization of primary accounting information and formation of primary data;
- analytical processing of data.

The proposed system is designed to optimize the functioning of the mechanism of accounting and analytical support from the collection of primary information to decision-making and performs a number of functions (Table 2.4.1).

Table 2.4.1

Main functions and methods of accounting and analytical support

| Function | Essence | Methods |
|-------------|--|--|
| Information | Providing information about the activities of the enterprise of internal and external users | Collection and processing |
| Accounting | Displaying the facts of economic activity of the enterprise and indicators of external processes | Accounting |
| Control | Control of financial and economic activities of the enterprise | Control, internal audit |
| Analytical | Implementation on the basis of primary data of economic analysis | Analysis of the efficiency of the sub-category |

Having studied the system of accounting and analytical support of receivables and having identified their shortcomings, it is advisable to eliminate them for more rational accounting and improving the efficiency of the enterprise as a whole.

Usually, the study of accounting and analytical support of this area begins with the consideration of accounting software, because inaccuracies in the organization of the accounting process impede the effective functioning of accounting support, since it is the foundation and regulation of activities.

The order on accounting policy is an internal document that defines the principles and methods of accounting at the enterprise. This document should fully implement and reflect the accounting mechanism of the enterprise. Often the order "On accounting policy" has a number of shortcomings, the main of which is the absence of important elements of accounting, which may indicate an incomplete reflection of the main aspects of economic activity. Therefore, it is advisable to supplement it with the necessary elements of accounting, in particular, in terms of accounting for receivables, which will allow more fully highlighting the issues of accounting organization and strengthening control over settlements with buyers and customers.

Note the main elements of the organization of accounting for settlements with debtors, which should be covered in the order on accounting policy:

- classify receivables by grouping them by maturity;
- outline the recognition of doubtful and receivables;
- establish the procedure for determining the doubtful factor for the reserve of doubtful
- specify a clear procedure for recognizing current receivables as bad;
- specify the procedure for accounting and writing off bad receivables;
- indicate the form of accounting at the enterprise.

The recommended system of accounting and analytical support involves a combination of accounting, control and analysis subsystems. Therefore, we consider it appropriate to propose measures to optimize the functioning of the control.

In the current economic situation in Ukraine is characterized by a significant number of non-payments during economic activity. That is why an important factor in the financial stability of the enterprise is receivables, which arise in the process of economic relations with other counterparties. It is important to constantly monitor the actual state of receivables in order to provide minimal guarantees to users of financial reporting regarding the completeness, reliability and legality of the information provided.

In modern realities, there are significant changes in the economic, economic and social aspects of the activities of enterprises, which leads to a change in the control system. Accounting for receivables is fully regulated by law, but despite full control by the state, there are a number of problems in the system of relations with receivables, which often leads to untimely repayment of debts by debtors.

After analyzing the problematic aspects of accounting receivables, it can be argued about the negative impact on the overall quality of accounting regarding its occurrence and status of repayment. And therefore, this is an obstacle to the creation of an effective control

system for the timely repayment of debts, which reduces the competitiveness of the entity. The study of the theoretical and practical foundations of the system of internal control of receivables in farms showed the following (Fig. 2.4.5).

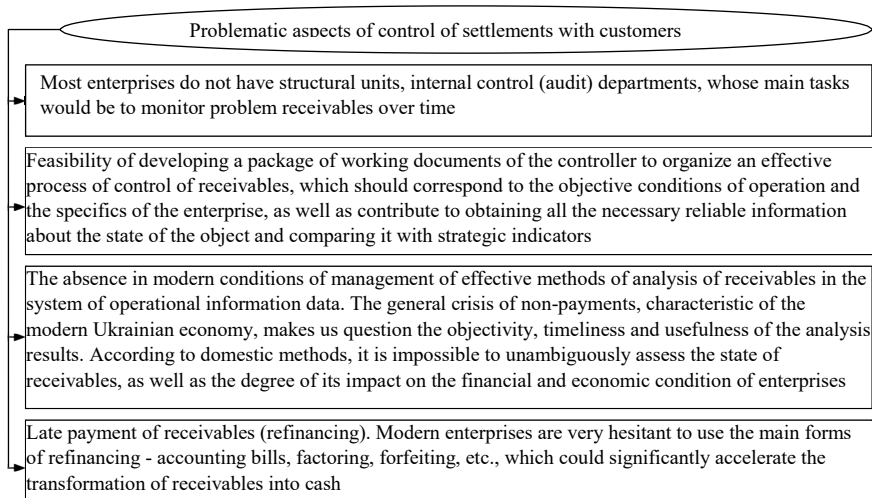


Fig. 2.4.5. Problematic aspects of control of settlements with customers

The organization of an effective system of internal control should be based on timely reporting on deviations, responsibility, balance, integration, consistency, complexity, distribution of responsibility. The purpose of control of settlements with debtors is to establish the reliability, completeness and timeliness of the coverage of data in documents, registers of accounting and reporting of the economy. Control involves checking planned indicators; formation of a monitoring system for payment terms; control over execution of contracts; search for reserves to improve the solvency of the economy and monitoring the results of the optimization decisions of management personnel.

To speed up the turnover of receivables and payables, it is necessary to establish the optimal ratio for the enterprise between them. It is believed that the situation is more comfortable in which the term of turnover of receivables of the economy is less than the term of turnover of the payables, because in this case the economy has the opportunity to pay its obligations with funds received from debtors. Important in an effective system of internal control over settlements with debtors is the ability to ensure the reliability of storage of the information base from third parties, in particular, the control of the system of preservation of documentation, the work of the archive, the algorithm of inventory of documentation in the archive and the provision of access to documents, etc. In general, effective internal control over receivables is possible with the close interaction of accounting, legal and financial departments.

In general, the possibility of wide implementation of effective internal control of

settlements with debtors will provide the management personnel of the economy with the most complete and reliable information on the state, structure and dynamics of relations with counterparties and will allow to correctly outline the main areas of activity and emerging tasks for the economy. Let's outline the priority tasks of controlling settlements with debtors:

- the need to introduce structural divisions that will monitor the composition and structure of receivables, the timing of its repayment;
- ensuring the legal validity of each amount of receivables;
- monitoring and diagnosis of the causes of debts and the calculation of their consequences;
- development of an effective methodology for analyzing settlements with buyers, customers, other debtors and development of working documents of the controller;
- active use of the main forms of refinancing: factoring, bill accounting, forfeiting, etc.; which will accelerate the transformation of receivables into cash.

The formation of a system of effective internal control over the quality of accounting in relation to settlements with debtors requires the development of a clear and perfect classification of receivables, as well as the unification of methods for its evaluation and accounting analytical documents. It is necessary to focus on the need to develop a model of the relationship between payables and receivables, which would allow qualitatively and quickly identify negative phenomena. We can agree on the need to optimize the management policy regarding receivables, since this is part of the general management approach regarding current assets and the marketing policy of the economy, aimed at expanding sales volumes and determining the efficiency of the enterprise. Consequently, qualitatively organized control over the completeness, timeliness and legal validity of settlements with debtors is the key to the success of development, stability and sustainability of domestic enterprises in the modern business environment.

Usually, enterprises carry out both external and internal control. The tax inspectorate carries out external with respect to the completeness of the calculation of value added tax. As for internal control, it is carried out through an inventory of product balances, reconciliation of payments, including counter-verification, and analysis of receivables.

The key tasks of monitoring settlements with customers are:

- checking the validity and timeliness of contracts for the sale of products, compliance with the obligations specified in the contracts;
- legality and reality of operations;
- evaluation of marketing activities;
- Search for new economically profitable markets;
- verification of potential losses at the stage of sale and responsible persons;
- correctness of determination of sales quality, justification of used tariffs and prices;
- verification of the determination of income in accounting according to regulation (standard) of accounting 15 "Income" (National Accounting Regulation (Standard) No. 15 "Income", 1999);
- justification of costs in accordance with the requirements of National regulation

(standard) of accounting 16 "Costs."

In the process of control, they check the systematic nature of operational control and accounting for the completeness of the execution of contracts, taking into account the need not only for the efficiency of applying sanctions for violation of contracts, but also for preventing them. In addition, the controllers carefully monitor the reality of operations for the sale of products, therefore, the receipt of payments recorded on cash accounts is compared with the write-off of the corresponding products, goods and material assets in correspondence on their credit debit 90 account.

Operational in-house control is aimed at the correct calculation of the volume of products sold, quality, price, compliance with the schedule (terms) of implementation, as well as compliance with the number of products received, the reliability of the pass system when selling products. For this purpose, a counter check of related documents is used: invoices, receipts, transport traffic letters, logbooks, product information, reports on the movement of goods, cash registers (when selling products and services for cash), etc. Along with this, they practice counter-checking accounts with counterparties. Consequently, when monitoring settlements with customers and customers of the enterprise, both general and special methodological techniques are used.

The possibility of wide implementation of effective internal control of settlements with debtors provides the management personnel of the economy with the most complete and reliable information on the state, structure and dynamics of relations with counterparties and allows you to correctly outline the main areas of activity and emerging tasks for the economy. In view of the above, we note the following recommendations for improving the system of control of receivables:

- determine a set of measures for constant monitoring of potential debtors (assessment of financial condition and solvency, reputation and image in the market).
- promptly monitor the receivables ratio. A significant excess of real receivables poses a threat to the financial stability of the enterprise. Also put into practice the management of the limitation of receivables in general and per customer and periodically review the limit amounts. In this case, it is necessary to determine the optimal amount of receivables, mobilizing the financial resources of the enterprise.
- monitor the status of settlements with debtors, while timely identifying types of receivables unacceptable for the enterprise. To organize control, it is possible to use the working document of the controller, which allows: to accumulate data on the timeliness of product shipment and documentation; analyze the status of settlements with debtors with the detection of non-repayment of debts of different periods; form a conclusion about the feasibility of working in the future with a particular buyer.
- improve the inventory system. Reconciliation of calculations can occur not only during the annual inventory. When carrying out business transactions (shipment and receipt of inventory, products, payment, etc.), it sometimes becomes necessary to verify the data with the data of a particular counterparty on a specific date. This allows you to quickly control your debt. At the same time, we suggest that the company use the recommended scheme of measures to conduct an inventory of settlements with customers.

In order to monitor the correctness of the conduct and organization of the inventory of settlements with customers, it is possible to use a working document - a control test,

which will allow summarizing information about violations that may occur in the enterprise during the organization and conduct of inventories. In the future, this document can be used to take appropriate measures to eliminate the deviations and shortcomings identified during the inspection.

It is also worth dwelling on the feasibility of the analysis, because thanks to it you can: monitor receivables, which will improve the quality of information about the debtor and reduce the risk of non-payment; calculate planned indicators of receivables; determine the optimal terms of repayment of debt by debtors; identify weaknesses (insolvent debtors, factors affecting non-repayment, risks of bad debt) for making effective management decisions. To achieve this goal, an optimization model for the analysis of receivables is proposed (Fig. 2.4.6).

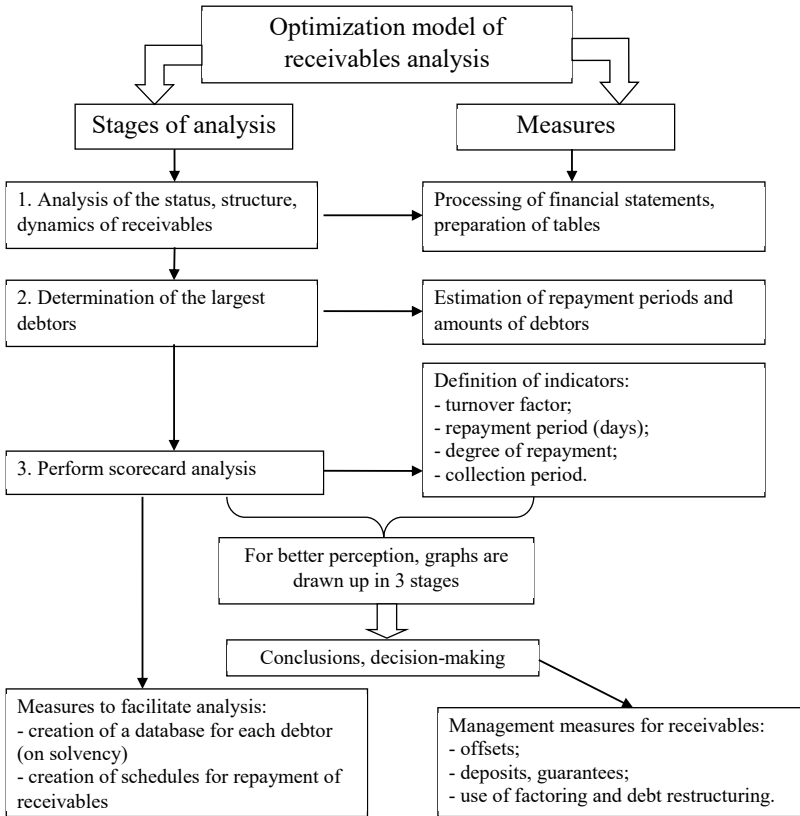


Fig. 2.4.6. Optimization model of receivables analysis.

The proposed model, in our opinion, analysis will allow:

1. Examine the composition, structure and dynamics of receivables.
2. Identify adverse factors of formation and repayment of debt.
3. Analyze trends and make necessary management decisions by identifying adverse factors.
4. Identify the largest debtors and create a database to prevent threats of "unstable repayment."
5. Build graphs based on analysis data that better demonstrate the dynamics of receivables than formulas.

Based on this model, several measures have been proposed for the effective management of receivables, such as factoring, restructuring, netting, collateral and guarantees. However, enterprises, based on the analysis, can supplement or reduce this list. Consequently, on the basis of research, the functioning of accounting and analytical support for receivables of the economy is optimized. Theoretical-methodical and practical aspects of control procedures of receivables are also investigated. In particular, the problematic aspects of control of settlements with debtors of the economy are identified and allocated to individual segments; the priority tasks of controlling the settlements of the economy with debtors are outlined; the key tasks of monitoring settlements with debtors are indicated.

The following recommendations for improving the system of control of receivables are indicated:

- determine a set of measures for constant monitoring of potential debtors (for example, assessment of financial condition and solvency, reputation and image in the market, etc.).
- promptly monitor the receivables ratio.
- put into practice the management of the limitation of receivables in general and per customer and periodically review the limit amounts.
- monitor the status of settlements with debtors, timely identify types of receivables unacceptable for the enterprise. To do this, it is recommended to use the working document of the controller, which allows: firstly, to accumulate data on the timeliness of shipment of products and documentation; secondly, to analyze the state of settlements with debtors with the identification of defaults of debts of different periods; thirdly, to form a conclusion about the feasibility of working in the future with a certain buyer.
- improve the inventory system. Reconciliation of calculations can occur not only during the annual inventory. At the same time, the farm was offered a scheme of measures for conducting an inventory of settlements with buyers.
- it is recommended in order to control the correctness of conducting and organizing an inventory of settlements with debtors using a working document - a control test that will generalize information about violations that may occur in the farm during the organization and conduct of inventories.
- optimization model of receivables analysis is proposed.

2.5. ACCOUNTING PROVISION FOR MANAGEMENT OF SALES EXPENSES IN ACCRDANCE WITH THE MARKETING STRATEGY OF THE ENTERPRISE

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The sale of finished goods completes the inventory cycle. The money invested in the acquisition of inventory and its processing during the production stage is returned to the company's manufacturing assets. The difference between the initially invested and received funds when selling finished goods is a monetary measure of an entity's operating profit. Sales are the physical process of moving goods from the seller to the buyer, along with the transfer of ownership and vice versa - money.

It should be understood that the sale of products is not a spontaneous (natural) process, but requires purposeful activities for the purpose of coordination and management. The set of actions to ensure and manage the process of selling products (works, services) is the sales activity at the enterprise. According to Gudzenko (2017) sales is a subsystem of economic activity, which includes the process of moving products from producer to consumer (sales); market research; satisfaction of the buyer's needs; management of the movement of material assets with the determination of the financial result, which is formed when creating new value in the production process.

For effective management of financial results from operating activities, there is not enough information on the dynamics of gross profit, other operating income, administrative expenses, sales expenses and other operating expenses, it is necessary to take into account possible areas for improving the optimization of expenses related to the sale of products through changes in accounting policies, priority for the main types of products that are in greatest demand and occupy the largest share in the sales structure, loyalty programs in the contractual. Let's consider the structure of sales expenses regulated by the main regulatory documents: UAS 16 "Expenses", the Instruction on the Application of the Plan of Accounts for Accounting for Assets, Capital, Liabilities and Business Transactions of Enterprises and Organizations, and the Guidelines for the Formation of the Cost Structure and the Procedure for Their Planning in Trading Activities (Table 2.5.1). Taking into account the above issues of classification and regulatory regulation of sales expenses and the need to optimize their amount, we propose the following division of expenses, which should be provided for in the Regulation on Accounting Policy:

1) basic expenses related to sales (labor costs of personnel involved in the sale of goods (products); contributions to social activities; lease costs of non-current assets involved in the sale of goods (products); depreciation of non-current assets involved in the sale of goods (products); maintenance costs of fixed assets, other non-current tangible assets, low-value wearing items, costs of sales of goods (products); costs of packaging;

Table 2.5.1

Comparative characteristics of the structure of sales expenses in accordance
with regulatory documents

| Elements of sales costs | NP(S)BU 16 "Costs" | Instruction on the Implementation of the Plan of accounts of accounting of assets, capital, liabilities and state gift operations of enterprises and organizations | Guidelines on the Formation of the Composition of Costs and the Procedure for Their Planning in Trading Activities |
|--|---|--|--|
| Labor costs of personnel involved in the sale of goods (products) | Remuneration and commissions to salespeople, sales agents and employees of sales units | Salaries and commissions to salespeople, sales agents, and sales staff | + |
| Contributions to social activities | - | - | + |
| Marketing and advertising expenses | + | + | Marketing campaign costs |
| Business trip expenses for employees engaged in sales | + | - | + |
| Expenses for lease of fixed assets, other non-current tangible assets and intangible assets that ensure the sale of goods (products) | + | - | + |
| Depreciation of fixed assets, other non-current tangible assets and intangible assets that ensure the sale of goods (products) | + | + | + |
| Expenses for maintenance of fixed assets, other non-current tangible assets, low-value wearing items, that ensure the sale of goods (products) | + | + | + |
| Packaging costs | + | - | + |
| Transportation costs | Costs of transportation of finished products (goods) between warehouses of subdivisions (branches, representative offices) of the enterprise; costs of transportation, transshipment and insurance of finished products (goods), transportation and other services related to transportation of products (goods) in accordance with the terms of the contract (basis) of supply | + | + |
| Insurance costs | + | - | - |
| Costs of warranty repairs and warranty service | + | - | + |
| Costs of storage, handling, processing, packaging and pre-sale preparation of goods (products) | - | + | + |
| Taxes, duties and other mandatory payments provided for by law | - | - | + |

transportation costs; insurance costs; costs of warranty repairs and warranty service; costs of storage, sorting, processing, packaging and pre-sale preparation of goods (products);

2) auxiliary expenses related to the refinement of the marketing product and pricing policy for the existing assortment - expenses for marketing research and advertising; business trips of employees engaged in sales;

3) expenses for the development of the marketing product and pricing policy for the assortment renewal - expenses for marketing research and advertising; business trips of employees engaged in sales, etc.

In accordance with subpara. 14.1.108 of clause 14.1 of Article 14 of the Tax Code (2011), marketing services (marketing) are services that ensure the functioning of the taxpayer's activities in the field of market research, promotion of sales of products (works, services), pricing policy, organization and management of the movement of products (works, services) to the consumer and after-sales service to the consumer within the business activities of such a taxpayer.

Marketing services include, among other things: services for placing the taxpayer's products at points of sale, services for studying, researching and analyzing consumer demand, entering the taxpayer's products (works, services) into sales information bases, services for collecting and disseminating information about products (works, services). When managing the amount of sales expenses, one should take into account the type of production (mass, serial, individual) and the dependence on the seasonality of production. After all, during the seasonal period, sales volumes and, accordingly, profits are much higher than during the off-season. The amount of sales costs in the off-season period will decrease, and in the seasonal period - will increase. The impact of the contractual policy on the accounting of sales costs requires detailed consideration. The contractual policy should be understood as a set of actions aimed at accounting modeling of the terms of business contracts and financial results from their fulfillment to attract new and retain regular customers (clients), while ensuring that the entity receives economic benefits.

Today, large, small and medium-sized enterprises play a significant role in the formation and survival in the market of regular customers (buyers and clients). In order to keep their orders, it is sometimes necessary to conclude a transaction agreement that will result in zero profit or an uncovered loss for the next contract with the profit from the order included (Table 2.5.2). In order to attract new customers, management should pay attention to improving the quality and competitiveness of products (price-quality ratio), as well as apply sales promotion measures, such as advertising. In order to retain regular customers, it is advisable to apply a loyalty program, ensuring that the operations performed in this case break even. The stages of the business life cycle that directly affect the ratio between sales costs and financial results from operating activities are: inception (creation of an enterprise); acceleration of growth; slowing down the growth rate; maturity decline.

At the first stage of "nascent (enterprise creation)", the main goal of a business entity's activity is to survive in the market, to maximize profits, the main task is to enter the market, to combine the components of the production process for the first time, to

overcome barriers to entry. Under these conditions, optimization of the assortment is important, and sales costs tend to increase.

Table 2.5.2

Characteristics of the impact of the loyalty program of customers in accordance with the concluded agreements on financial results from sales

| Options for concluding contract in accordance with to the reporting period | Characteristics of the financial result from the business transaction |
|--|--|
| Both contracts concluded in the same reporting period | The profit from the second contract covers the losses from the second contract and even exceeds |
| The agreements were concluded in different reporting periods. a) in the first reporting period period, the contract (loss or zero profit), and in the second profit) in the first reporting period, and in the second reporting period - profitable | In the first reporting period, the company has losses, and in the second reporting period - retained earnings and in the second reporting period - retained earnings |
| b) in the first reporting period in the first reporting period, a contract with a profit margin, and in the second reporting period reporting period - with a pledged loss | In the first reporting period, the company has undistributed earnings, and in the second reporting period period - uncovered losses |

The main goal at the second stage of “accelerating growth” is to generate short-term profits and achieve accelerated growth. The organization of labor is aimed at planning profits and developing incentive mechanisms, increasing the degree of aggressiveness of the company's competitive strategy, and establishing a system of production process linkages. The trend in sales expenses, including advertising costs, is upward. At the third stage of “slowing growth”, the main goal is systematic, balanced growth and the formation of an individual image; the main task is to grow in different areas of the technological process, improve the level of labor organization, completely overcome the barriers to entry, complete the formation of the human resources subsystem, begin to upgrade the technical base, and tend to generally reduce profitability. Under these conditions, sales costs need to be reduced.

The main goal at the fourth stage, maturity, is to ensure stability and maintain the level of development achieved for the longest possible period of time. Here, there is a tendency to reduce sales costs. The fifth stage, “decline”, is aimed at ensuring the renewal of all enterprise functions, growth is ensured through collectivism; the main task is rejuvenation, and in the field of labor organization, the introduction of the most modern achievements of scientific labor organization. Sales costs continue to decline.

Conceptually important is the approach whereby sales activities should be viewed as a process of organizational and economic operations that includes a logistics aspect (transportation, warehousing, inventory management, order service) and a marketing aspect (research and analysis of market conditions, determination of sales volumes, selection and management of distribution channels), and is carried out to achieve

economic results from the sale of products to consumers and create The marketing direction of sales activities positions the material values of as a market object. In the course of studying the theoretical foundations of accounting and control of sales activities, it has been found that an important factor in the efficiency of economic activity is a clear organization of sales policy. In this context, the proposal to develop a model of the sales policy of an agricultural enterprise is worthy of attention.

Thus, it can be argued that the efficiency of the enterprise largely depends on timely and complete information on operating costs, which can provide only an accounting system based on the existing legal framework. Accounting for sales activities at enterprises has always been and still remains a topical issue, because the transformation of commodity assets of the enterprise into cash plays an important role in the production process. It is carried out on the basis of the product sales process.

At the stage of marketing products, companies reimburse their costs, sell the value of the additional product and receive a corresponding profit. Sales of products - is to determine the feasibility of economic activity of enterprises and quantitative and qualitative assessment of their labor. An in-depth analysis of the classification of costs gives grounds to determine that the costs of sales relate to the operating costs of the reporting period. Their composition is shown in Fig. 2.5.1. Clarification of the essence of sales activities by stages and functional elements and expanding its boundaries requires changes in the organizational system and management of the economic process. This requires the creation of an appropriate sales information system - the collection, processing and synthesis of primary data for internal and external users, providing feedback between the elements of the economic mechanism.

Traditional methods of accounting and control of sales operations are not able to meet the needs of management in relevant information (regarding the choice of optimal and effective methods and techniques of sales promotion, identifying products that require additional efforts to promote them on the market). In such circumstances, operational control and sales management becomes more complicated. Analysis of costs by elements allows one to study their composition, to determine the specific weight of each element, the share of living and tangible labor in total production costs. In the general management model of sales policy at the enterprise, the leading place is occupied by the account and control of sales activity that will provide reception of positive financial results.

According to the considered provisions, accounting and audit of expenses of sales activity should provide:

- correct definition and reliable classification of operating costs;
- correct delineation of costs by type of activity;
- correct and complete documentation and timely reflection in the registers of sales costs;
- complete, reliable and unbiased information on marketing costs for management purposes;
- observance of legislative acts in the formation of information on costs incurred;
- completeness and reality of the reflection of sales costs in the reporting of the

enterprise;

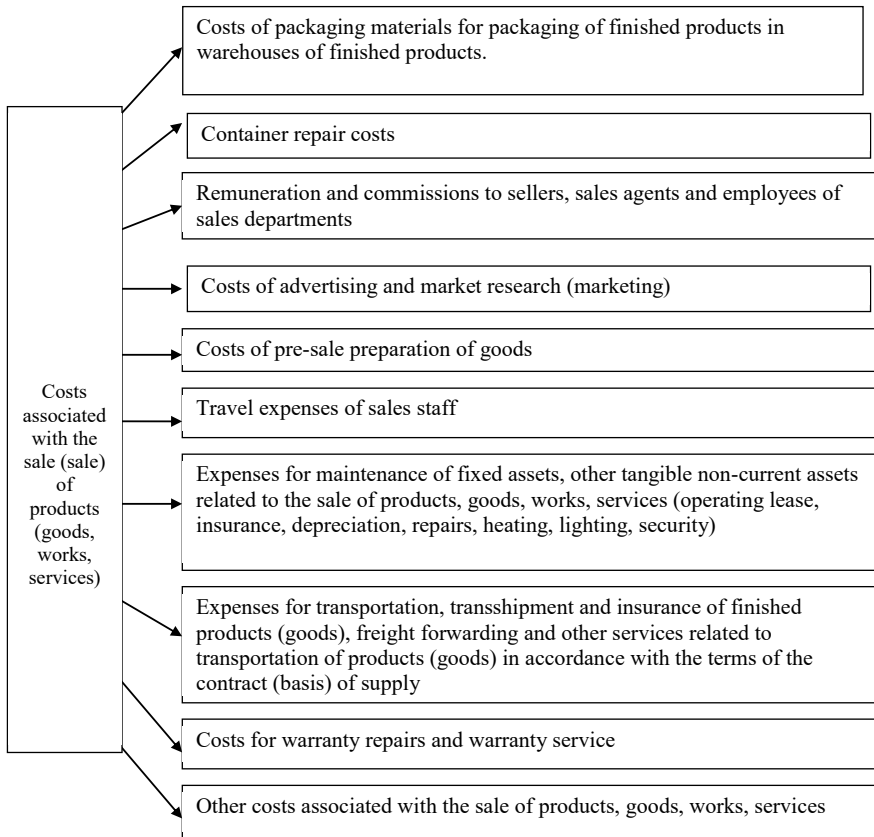


Fig. 2.5.1. The composition of sales cost

- correct determination of costs in accordance with the accounting policy of the enterprise;
- correct allocation of costs to the relevant reporting periods;
- completeness: whether all actually incurred expenses are reflected in the reporting;
- assessment: the correctness of determining costs in accordance with the adopted accounting policy;
- correctness of reflection: verification of costs in relation to their reality and

accuracy of reflection and belonging to the current reporting period;

- affiliation: whether all reflected costs belong to the enterprise;

- legality: compliance with laws, instructions, regulations and other regulations to determine and reflect costs;

- reliability: compliance of cost indicators with primary documents;

- consistency: consistency of cost determination methods during the reporting period;

- compliance: attribution of costs to the relevant reporting period in which they were incurred.

An important role in conducting clear financial and economic activities is the establishment and compliance with the company's accounting policies. Accounting policy is a set of methods and procedures used by the company to prepare and submit financial statements, i.e. the company's choice of certain and specific methods, forms and techniques of accounting based on current business rules and characteristics of the enterprise. Constant (from year to year) application of the chosen accounting policy, in other words - consistency - one of the basic principles of accounting, established by Art. 4 of the Law of Ukraine "On Accounting and Financial Reporting in Ukraine". However, this does not mean that by determining the approaches to accounting for assets or liabilities, the company will no longer have the right to change them. This possibility is provided in paragraph 9 of UAS 6 "Correction" of errors and changes in financial statements". It is allowed to transform the accounting policy in situations when:

- the statutory requirements of the enterprise change;

- the requirements of the body that approves the accounting regulations (i.e. the Ministry of Finance) change;

- the changes will provide a reliable reflection of events or transactions in the financial statements of the enterprise.

The first two cases are almost rare.

Changes in accounting policies that accurately reflect the events or transactions in the entity's financial statements are made if, in the accountant's opinion, the use of new accounting policies will more accurately disclose the entity's financial statements.

The standards do not specify the specific cases when it is necessary to change the accounting policy. Therefore, if the regulations that introduce changes in accounting policies prescribe the date of their start, it is from them that they will have to start. However, it is necessary to remember one of the basic principles of accounting, given in Art. 4 of the Law of Ukraine "On Accounting and Financial Reporting in Ukraine" are sequences. That is, the constant annual application of the company's chosen accounting policy, which can be changed only in exceptional cases. Note: for each single year, you can not re-sign the order of accounting policies, but make changes to the current (basic) policy. The Ministry of Finance recommends in this regard: "The administrative document on accounting policy can be adopted as a base for the time of the enterprise, which, if necessary, changes from a certain time" (see the above-mentioned letter to the Ministry of Finance № 31-34000-10-5 / 27793). If the changes cover most of the text or significantly affect its content, the accounting policy should be set out in full in a new version.

The consequences of the change in accounting policy are due to p. 11 - 13 UAS 6. Accounting policies should be applied to events and transactions from the moment they occur, except when this is not possible (paragraphs 11 and 13 of UAS 6). That is, we will have to review the operations for which new approaches have been chosen, for the entire time of their implementation and re-perform all the calculations as if they were used in the enterprise from the beginning.

When changing the accounting policy, it is necessary to determine its impact on the events and operations of previous periods. This is done by adjusting the balance of retained earnings at the beginning of the reporting year and re-providing comparative information on previous reporting periods (paragraph 12 of UAS 6). If the amount of retained earnings at the beginning of the reporting year cannot be determined reliably, the accounting policy applies only to events and transactions that occurred after the date of the change in accounting policy.

It should be noted that not every change in the accounting policy order falls under the definition of changes in accounting policies. A striking example is the change in the depreciation method. Although it is prescribed in the order of accounting policy, it is nothing more than a change in accounting estimates. This position was confirmed by the Ministry of Finance in a letter dated November 2, 2009 № 31-34000-20-23-5535 / 5708. Therefore, changes in accounting policies should be clearly distinguished from changes in accounting estimates. If it is impossible to distinguish, it should be considered as a change in accounting estimates, accounting for which is only promising (paragraph 14 of UAS 6). At the researched enterprise, the Order on accounting policy is approved annually. Let's analyze which provisions on cost accounting should be reflected in the Order on Accounting Policy, taking into account the legislative changes:

1. List and composition of articles for calculating the production cost of products (works, services). In accordance with paragraph 11 of UAS 16 "Costs" companies must set them independently. This paragraph specifies that the production cost includes:

- direct material costs;
- direct labor costs;
- other direct costs;
- variable overhead and fixed allocated overhead costs.

Despite a number of legislative inconsistencies in the accounting of general production costs in 2011, these rules will remain unchanged. They are included in the production cost in both accounting and tax accounting (paragraph 138.8 of the TCU).

2. List and composition of variable and fixed overhead costs (basic and additional salaries of general production staff and contributions to social activities; costs of water supply for the technological process; energy costs of the technological process, etc.). On the basis of item 16 of UAS 16 "Costs" the enterprises should establish them independently.

3. Base for the distribution of variable and fixed overhead costs. According to paragraph 16 of the UAS, variable overhead costs are allocated to each cost object (account 23) using the distribution base (hours of work, wages, volume of activity, direct

costs, etc.), based on the actual capacity of the reporting period. Fixed are established for each cost object using the distribution base (hours of work, wages, direct costs, etc.) at normal capacity. Unallocated fixed overhead costs are included in the cost of goods sold, works, services (account 90) in the period of their occurrence. Since for the purposes of determining the tax cost of overhead costs are also subject to distribution between production cost and cost of sales, determining an adequate distribution base is a question relevant to tax accounting.

4. Normal production capacity of structural units (units of output, volume of work performed and services provided, etc.) is the basis for the distribution of fixed overhead costs, which will be used for both accounting and tax purposes.

5. Defect cost rates. It is better to state this information in the separate order on the enterprise. After all, according to paragraph 138.7 of the TCU, enterprises have the right to independently determine the allowable norms of technically inevitable marriage in the order of the enterprise, provided that its size is justified (to be taken into account when determining the object of taxation). Such norms, independently established by taxpayers, are in force until the adoption of the relevant norms of the Cabinet of Ministers. At the present moment, such norms have not yet been established.

6. The period of creation of qualifying assets. UAS 31 "Financial costs" refers to qualifying assets that require significant time to create. However, it does not specify this segment. Hence, the conclusion that companies can determine it themselves. The Ministry of Finance recommends considering a qualifying asset, the creation of which takes more than three months (letter of the Ministry of Finance dated 01.06.06 № 31-34000-10-5 / 11601). This will also affect the accounting of financial expenses in tax accounting (paragraph 138.10.5, paragraph 146.5 of the TCU). This is where it is necessary to follow the recommendations of the Ministry of Finance, as self-employment leads to tax risks.

Documentation is the first stage of accounting, that includes: registration and recording of information regarding facts, transactions, processes, its processing and generalization. Relevant primary documents are provided for documenting business transactions. According to the Regulation on Documentary Support of Accounting Records, approved by the order of the Ministry of Finance of Ukraine dated 24.05.1995 № 88 primary documents are drawn up on standard forms approved by the Ministry of Statistics of Ukraine, as well as on specialized forms approved by ministries and departments of Ukraine (The Tax Code of Ukraine, 2011).

Primary documents must be drawn up at the time of the transaction, and if this is not possible, it must be immediately after its completion. They must be timely received by the accounting department and contain complete and accurate information on each transaction. The structure of the document flow should be such as to ensure the timely receipt of the necessary information for both accounting and control and operational management of product movement.

Depending on the needs of informational support of the managerial system, the stages of organization of primary accounting of sales activities, requirements for the initial registration of sales operations, as well as the features of documenting sales transactions

through different channels are revealed (Fig. 2.5.2). Sales cost data can be obtained by checking primary documents and accounting records. In accounting, the sales process is divided into parts with a separate reflection of income, cost of goods sold and financial results of sales. The study found that marketing costs are aimed at market research, market conditions, study changes in demand for products, and sales costs are limited and are aimed primarily at meeting the needs of consumers in the sale of products. Their volume and structure are determined by market conditions, the specifics of marketable products, consumer demand, strategic goals of the enterprise.

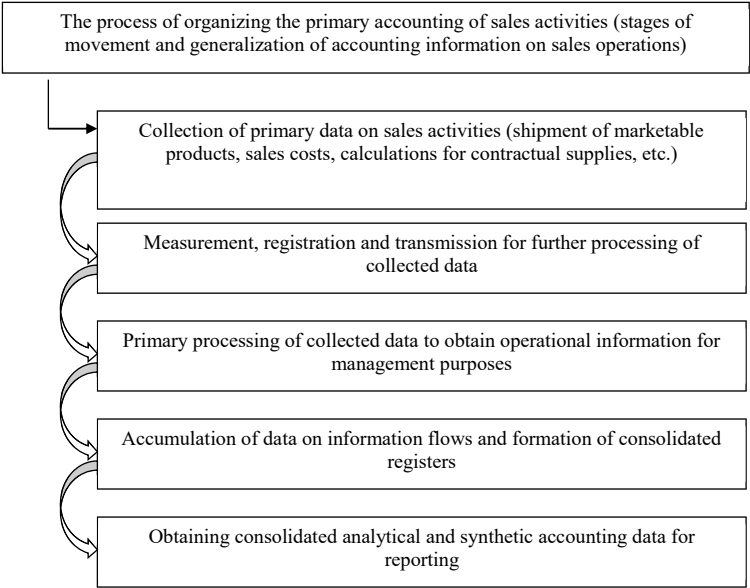


Fig. 2.5.2. Stages of organization of primary sales accounting in operating activities

Remuneration of employees is calculated based on the amount of revenue from the sale of goods or time worked at the enterprise in accordance with the timesheet, contracts with sellers and documents on the proceeds. On the basis of primary documents on labor remuneration, a consolidated statement of accrual and distribution of labor remuneration and deductions from it by objects of accounting is compiled on a monthly basis.

Disinfectants, low-value and perishable items and other materials are released to the wholesale warehouse or shop on the limit-withdrawal cards for receipts and invoices, and written off by relevant acts. If employees engaged in the sale of goods, receive funds for business trips or in the report, then in a timely manner, they must submit to the company's

accounting a certain list of documents.

The initial stage of the organization of the primary accounting of settlements with accountable persons is registration of the order of the head of the enterprise.

The order is the main document for sending an employee on a business trip. Without it, as we have already found out, the trip will not be considered a business trip. According to item 1.1 p.1 Instructions on business trip in the order reflect:

- destination;
- the name of the enterprise where the employee is sent;
- term of business trip;
- its purpose.

In addition, it indicates the names and positions of seconded employees. The general provisions of the Instruction on business trip give the head of the enterprise the right within the limits of norms at own discretion to limit the sums and the purposes of use of the means given out on business trip. At the same time, the manager may decide to reimburse the costs, that according to regulations is not necessary to reimburse, or increase the amount of daily allowances. This is reflected in the order.

In addition to the order, an estimate of business trip expenses is added. The General Provisions of the Instruction on Business Trips state that the company is obliged to provide the business trip in advance in the amounts established by regulations. Its amount is determined by cost estimates.

There are five categories of travel expenses:

- 1) daily (expenses for food and personal needs of the employee);
- 2) for the travel to the place, back and at the place of business trip;
- 3) for accommodation, taking into account the services provided in the hotel;
- 4) to pay telephone bills;
- 5) for the issuance of passports, visas, compulsory insurance, transfers, payment of taxes and fees and other costs associated with the rules of entry and stay at the place of business.

The money under the report is issued for travel expenses, purchase of various materials, small household, postage and other expenses. At the same time, it is necessary to adhere to the current rules for regulating cash circulation. An advance is issued to the accountable person in the amount necessary for the implementation of the planned measures, and only if the accountable person has no arrears on previously issued amounts. An advance is issued on the basis of a cash disbursement order or payment statement if the money is issued to several persons at the same time. Therefore, when issuing an advance on a payroll, the cash disbursement order should be issued not for each employee, but for the total amount of cash issued from the cash register. The accountable person has the right to spend the advance only for the purposes for which it was issued. In case of transfer of funds from the current (currency) account, the money under the report is issued on the basis of a payment order of the established form.

Justifying documents for the expenditure of cash for household needs can be:

- regarding the acquisition of material values: cash receipt of the purchase registrar

and delivery note to the warehouse; invoice, tax invoice, consignment note and documents for delivery of purchased property to the warehouse of the enterprise;

- regarding the work performed and services performed by the contractor: receipt of acceptance of money; the root of the profitable cash order and the act of acceptance-transfer of the performed works (services), etc.;

- regarding the costs of payment of wages for one-time work: employment agreement concluded with employees and executed in the prescribed manner, the statement of accrual of wages and deductions from employees;

- other documents - depending on the purpose of business expenses and related business transactions.

Electricity, heat, water supply and sewerage are supplied to the company in accordance with the concluded agreements.

In accordance with the concluded contracts, suppliers issue invoices for these services (heat, electricity, water supply). As they pay, they issue tax invoices and deeds.

After receiving documents from utility providers, the company's accounting department calculates utilities, according to which part of the utilities refers to a specific object of accounting (administrative costs, sales costs, other costs).

For the protection of the premises of the enterprise enters into contracts for the protection of each object (warehouse, shop, office).

Contracts are also concluded for advertising goods in the media. According to the acts of work performed, the corresponding amounts are related to selling expenses. Similar documents are drawn up and performed in work on the current repair of warehouses and shops, freight forwarding services, if they are performed by contractors. Packaging materials, materials spent on the repair of containers, are written off by relevant acts. In some cases, when organizing sales activities insures its goods. Insurance contracts are concluded about this and insurance policies are received from the insured, the amounts paid for them are also included in sales costs.

During the sale of goods there are costs directly related to the sale: wages of sellers, loaders, transport work, depreciation of fixed assets (trade equipment, retail space, cash registers), heating, lighting, etc. All of them refer to sales expenses, which are recorded in the active account 93 "Sales expenses". The debit of the account reflects the amount of recognized costs of sales (costs of packaging materials, transportation of products, goods under the terms of the contract, costs of marketing and advertising, wages and commissions to sellers, sales agents, sales staff, depreciation, repair and maintenance of fixed assets, etc. tangible non-current assets used to ensure the sale of products, goods, works and services) on the loan it is used a write-off to account 79 "Financial results".

Account 93 "Sales Costs" records and accumulates sales costs. Analytical accounting of sales costs of the enterprise is conducted in the information in terms of cost items and economic elements. When organizing the accounting by cost centers, the relevant registers are kept in the context of warehouses and services related to the sale of finished products.

The general method of accounting for sales costs by elements is similar to the method of accounting for production costs. That is, at the first stage the elements of costs are

formed, at the second stage they are written off to the financial results.

In the internal accounting, it is determining the possibility of direct or indirect allocation of costs to the relevant type of product. Indirect costs are shared between individual products. Data from the registers of analytical accounting are transferred to the journals-orders, where, at the end of the month, the final data are transferred to the general ledger, which calculates the turnover on debit and credit of each account.

The general ledger is used to summarize the data of journals-orders, mutual verification of records made on individual accounts and compiling the balance sheet. Due to the fact that the cost of sales affects the financial result, it is advisable to distribute these costs between individual types of products sold outside financial accounting. In this case, the costs can be distributed monthly as follows:

a) general expenses - between types of sold products in proportion to its production cost;

b) transport costs (if the share is significant) - by type of products sold, they are simply written off at the end of the month.

As a result of the research, it is established that the current accounting model reduces the analytical value of the cost indicator, complicates the pricing process. It is necessary to provide for the possibility of separate accounting of direct and indirect costs of marketing and sales activities in order to adjust the cost of sales in the amount of direct sales costs.

The reflection on account 90 shows only the production cost of the product and automatically suspends the monitoring of the economic process at the stage of production and does not allow to fully reflect the sales activities that involve additional measures to promote the product on the market and, consequently, mandatory additional costs.

Podmeshalska and Stepanenko (2018) based on this, the approach to changing the name and purpose of account 90 from "Cost of sales" to "Commercial cost" is noteworthy. This will make it possible to improve the method of accounting for the costs of sales activities, which are reflected in accounts 90 "Cost of sales" and 93 "Costs of sales".

The results of the study indicate the need to deepen the analytical accounting of sales to improve the management and control of sales activities. Analytical accounting should provide the opportunity to analyze the proceeds from the sale and choose the best of the available and possible areas of sale. In this case, the quantity, quality and effectiveness of analytical information will depend on the reality of the presentation of economic processes, during the implementation of which provides income and determine financial results.

When studying the peculiarities of the organization of analytical accounting, it was found that sales activities, providing the opportunity to obtain financial results, are on the border of external and internal environment of the enterprise. Other economic processes (supply, production) significantly depend on sales policy (markets).

The place of sales activity in the environment of economic formations through the system of analytical accounting requires the separation of accounting data for internal and external users (primarily for reporting) and strengthening the internal control of the sales

process. To do this, it is proposed to organize analytical accounting of income and expenses separately by areas, regions of sale, market segments.

Mulyk and Mulyk (2018) prove that, according to the results of the study in analytical accounting, it is advisable to identify significant aspects of the sales process. They should be considered as separate economic categories: the number of marketable and sold products, cost of sales, the amount of revenue and income, marketing costs, profit and loss. Other concepts and categories can be attributed to the objects of accounting, provided that they are potentially useful to consumers of accounting information.

Criteria for analytical detailing of accounting data to determine the financial results of sales in the operating activities of agricultural enterprises may be: the direction of information flows (external, internal); objects of analytics (enterprise as a whole, departments (shops, teams), types of marketable products); time periodization (for a certain period, on the current date); cost categories.

This practice will allow organizing an effective system of management accounting and internal reporting at the enterprise, significantly increase the quality of internal control. For the purpose of formation of operative analytical data on a course and results of sales activity, it is expedient to use the Information of the account of expenses of sales activity and the Statement of the account of sales on channels. Their management will provide an opportunity to control sales costs at the main stages of the sales process (from forecast market research to control sales activities), assess the feasibility of their implementation. The information can be used as a form of internal reporting on sales transactions.

The accounting system, which is based on the use of highly efficient computer technology, is a special form of accounting that meets modern management requirements.

A wide range of software products for automation of accounting for different types of enterprises poses a difficult task for potential consumers: to choose the best solution from many unfamiliar, unusual options and their combinations.

The basic capabilities of the program must meet the needs of the enterprise. Therefore, before choosing a future system, it is important to determine what activities the company is engaged in and in what areas it operates.

Agrarian enterprises should take into account approaches to the management and organization of their marketing based on the application of a holistic marketing concept. The integrity of the marketing concept is ensured by compliance with relevant principles that ensure the consistency of management influence on the processes of production and marketing of the enterprise's products. At the same time, the enterprise forms its own concept of managing its marketing, adapted to the conditions of the external environment and trends in the development of the subjects of industry, taking into account the organizational characteristics of the enterprise itself, which makes the marketing concept the central concept of business management.

In this context, the marketing concept of business management is actualized as the main tool for the formation of competitive advantages, because it allows to adequately match the requirements of the target market with the capabilities of the enterprise, which

allows it to form commercially significant product offers. The latter modifies the concept itself in the process of implementation, significantly expanding the range of issues it should cover.

The economic development of economic actors leads to an increase in the level of standardization and unification of products, which causes duplication of decisions of individual actors in the field of marketing activities and creates the problem of maintaining the level of influence on the choice of buyers in the target market. It was due to the urgency of this problem that the concept of relationship marketing began to develop in the mid-1990s. This concept envisaged the focus of the company's marketing activities to establish constructive, long-term and privileged relationships with potential consumers.

Nazarova and Misyuk (2017) argue that, along with the evolution of the category of “marketing”, there were also views on its basic principles, the analysis of the genesis of which also allows us to identify several approaches to their formation. Firstly, the principles of marketing allow to reveal its essential content and functional load in practical activities. At the same time, the main essential characteristic of the marketing principles is compliance with the consumer orientation based on the coordination of the capabilities of the manufacturer with the needs of consumers. Secondly, the marketing principles create a methodological basis for the formation of the marketing policy of enterprises, as well as the acquisition of all processes in the enterprise related to the implementation of marketing activities, signs of consistency and systematicity. This is achieved by adherence to the following principles:

- production of only what the consumer needs;
- entering the market not with the offer of goods and services, but with the means of solving consumer problems;
- organization of production of goods after researching needs and demand;
- use of the program-target method and an integrated approach to achieve the set goals, which involves the formation of marketing programs based on the use of a set of marketing tools, their combination, rather than individual marketing actions;
- application of the strategy and practice of active adaptation of production of goods to market requirements with simultaneous targeted influence on it in order to cover all links in the chain of goods promotion to the consumer;
- orientation of the enterprise and its marketing service not on the immediate result, but on the long-term perspective of effective communications based on strategic planning and behavioral forecasting of goods on the market;
- focus of each participant on achieving the final practical result in production and sales activities;
- integrated approach to linking goals with the resources and capabilities of the enterprise;
- constant search for new methods of improving production efficiency, creative initiative of employees aimed at widespread introduction of innovations, improving product quality, reducing production costs;
- development of strategies and tactics of active adaptation.

The strengthening of the role and importance of marketing approaches to commercial activities today can be explained by the following reasons. Modern features of the agricultural market functioning are characterized by differentiation of competitive situations. The latter actualizes the use of the concept of classical marketing at the micro level. In addition, the peculiarities of production and technological processes in agricultural production lead to a high degree of standardization of the conditions for obtaining and characteristics of products, which leads to market saturation with homogeneous goods. The latter deforms the marketing policy of the enterprise in the direction of actualization of the decisive role of product support.

At the same time, consumers tend to give preference to specific suppliers even for goods of a high degree of unification within certain limits, regardless of the latter's pricing policy, i.e., buying products at higher prices from suppliers with a positive and reliable reputation. The latter actualizes the tools for the formation of consumer preferences in the enterprise marketing system.

There are many reasons for the underdevelopment of marketing activities. These include, in particular, a shortage of qualified personnel, underdevelopment of marketing infrastructure, marketing culture of doing business, the practical absence of the institution of responsibility in business, and a focus on short-term business results due to the instability of the macroeconomic environment. We should also note the lack of customer orientation in the marketing activities of domestic enterprises, the lack of a service culture, quality after-sales service, and the insufficient level of constructive work with clients. This often leads to the fact that the consumer reacts to a limited set of marketing tools, such as assortment and sales promotion activities. In modern conditions, we can trace the situation of low efficiency of research and communicative marketing work of enterprises with end consumers.

Therefore, for the effective and smooth functioning of the market economic system, it is necessary to provide complete and reliable information to all market participants - producers, consumers, state regulatory authorities, etc. In this regard, there is a need to create a set of institutions of information and analytical infrastructure that will perform an analytical function, facilitating the decision-making process of market participants.

It should be noted that many works of scholars deeply reveal the processes of institutional transformations of the information component of the economy and the role of market infrastructure in them. Representatives of the neo-institutional trend of economic theory also have a considerable contribution in this area, for whom the problems associated with asymmetry of information are one of the main objects of research.

In the structure of the Ukrainian market research market, we do not currently observe a clear tendency to gravitate towards one or another category of customers. Over the past eight years, the structure has been changing to some extent, apparently due to the emergence of certain large customers in the market, rather than due to clearly defined trends. The only thing worth noting is the reduction in the volume of orders from foreign companies preparing to enter the Ukrainian market (Table 2.5.3). However, this can be explained in two ways: the Ukrainian market is becoming less attractive for foreign

companies, and foreign companies prefer their own research to that of domestic research agencies.

Table 2.5.3

Estimation of the structure of the marketing research market in Ukraine
in 2017-2024, by customer categories

| Customers of marketing research | Volume of orders, thousand dollars | | | | | | | |
|---|------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
| | thousand dollars | thousand dollars | thousand dollars | thousand dollars | thousand dollars | thousand dollars | thousand dollars | thousand dollars |
| Ukrainian company | 8774 | 13618 | 9586 | 8447 | 7234 | 16649 | 6396 | 12121 |
| Foreign company | 8115 | 20072 | 20538 | 14571 | 24278 | 9469 | 9336 | 12617 |
| A foreign company preparing to enter the Ukrainian market | 757 | 2057 | 2113 | 375 | 1157 | 509 | 431 | 14,1 |
| Research agency non-resident of Ukraine | 2032 | 3259 | 3959 | 3197 | 4344 | 1828 | 1066 | 1200 |
| Research agency - resident of Ukraine | - | - | - | - | - | 470 | 535 | 47,5 |
| Total | 19678 | 39006 | 36196 | 26590 | 37013 | 28925 | 17766 | 26001 |
| Customers of marketing research | Market share, % | | | | | | | |
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
| | % | % | % | % | % | % | % | % |
| Ukrainian company | 44,6 | 34,9 | 26,5 | 31,8 | 19,5 | 57,6 | 36 | 43,4 |
| Foreign company | 41,2 | 51,5 | 56,8 | 54,8 | 65,6 | 32,7 | 52,6 | 52,2 |
| A foreign company that is preparing to enter the market | 3,8 | 5,3 | 5,8 | 1,4 | 3,1 | 1,8 | 2,4 | 0,04 |
| Research agency - a non-resident of Ukraine | 10,3 | 8,4 | 10,9 | 12 | 11,7 | 6,3 | 6 | 4,19 |
| Resident research agency of Ukraine | - | - | - | - | - | 1,6 | 3 | 0,17 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

According to the Ukrainian Marketing Association, the number of domestic client companies is higher, but the volume of their orders is not very significant. It seems quite likely that domestic companies, being more familiar with the Ukrainian market, order only certain parts of a research project, carrying out the rest of the work independently. However, it is equally plausible that domestic companies may simply neglect the necessity of conducting marketing research. According to the same Association, a significant contribution to the total order portfolio comes from large transnational corporations—around 50%.

The market requires improvements in professional research methods. The share of qualitative research and online surveys is increasing, while mail surveys are becoming obsolete. Sociological methods are increasingly being utilized by businesses. This explains why companies from the business sector are turning to purely sociological firms,

which, without changing their specialization, strive to devote significant attention to marketing research.

At the same time, companies that previously positioned themselves solely as B2B research firms are expanding their activities by establishing call centers and conducting large-scale sociological surveys. The research market is diversifying while companies maintain their specialization and distinctiveness.

Marketing research for enterprises is often carried out by their internal departments. In other words, an operational marketing department conducts market research, the results of which can be used by most medium and large business units. However, the capabilities of such internal research are limited compared to external organizations that specialize in marketing analysis and can provide more accurate information about the external environment.

The formation of the Ukrainian market for marketing research since the country's independence developed as follows:

- Replication of Western practices: International companies that entered the new market without qualified personnel created such teams by learning through their own experience. Later, some specialists established their own companies based on foreign practices.

- Establishment of exclusively foreign branches: Client firms that preferred foreign products set up foreign branches in the Ukrainian market, and these branches captured a significant market share due to high-quality work and flexible pricing policies.

A distinctive feature of the national marketing research market is its specialization not only in business research but also in sociological studies, a substantial part of which includes political research.

Based on the above, it can be stated that a number of issues related to the interpretation of non-production costs, sales and marketing costs and their accounting remain controversial and problematic. Sales of products, in our opinion, should be considered as a dynamic process of product movement in a particular market, which confirms or does not confirm the effectiveness of business activities and, accordingly, confirms or does not confirm the competitiveness of the enterprise. In our opinion, sales expenses are standard and excessive productive costs associated with the full cycle of ensuring all procedures and requirements for product sales. As mentioned above, selling expenses are recorded in the synthetic account 93 of the same name. There are no subaccounts to this account, so each company has the right to choose its own list of subaccounts and analytical accounts for each of them. The composition of sales and marketing expenses within them is regulated by clause 19.

There are different viewpoints regarding the name of Account 93 "Selling Expenses". Some suggest that it would be appropriate to rename Account 93 to "Marketing and Sales Expenses", with the creation of two subaccounts under it—marketing expenses and sales expenses.

It should be noted that marketing accounting and audit is a systematic, critical and objective study of the environment, goals and strategies of the enterprise in the field of

marketing to identify opportunities, problems and develop a development plan that can improve the position of the enterprise through marketing.

The subject of study of accounting and audit of marketing activities is all elements of marketing, which can be grouped in accordance with its functions: analytical, managerial, production and sales. An integrated approach to the organization of marketing control allows to systematize and classify the existing features of the types of this control.

The classification parameters are the gradation of marketing initiatives in the context of marketing functions (taking into account the specifics of the formation of strategic and tactical initiatives), the level of marketing management, the developed system of expert assessments of the marketing system. It should be noted that the time to conduct a specific type of marketing audit depends on the state of the marketing system, data availability, staff qualifications and their readiness to perform the functions assigned to them to make the necessary decisions.

The creation of a new enterprise or the further development of an existing one is always associated with conducting economic calculations that allow for determining the ratio between incurred expenses and received revenues. In modern conditions, the administration of marketing expenses requires considerable attention, as it has become increasingly difficult to identify the benefits and income generated by the enterprise that are directly related to these expenses. The existence of such a situation makes it impossible to assess the effectiveness of a company's marketing policy based on accounting information and to distinguish its contribution to the overall development of the enterprise's activities and its business administration.

Special attention should be paid to the problems with regulatory and legal regulation of accounting for marketing expenses, as there is no regulatory document devoted exclusively to this issue, only letters from certain executive bodies regulating certain taxation issues, etc. Therefore, in order to avoid problems caused by the unreasonableness and inconsistency of certain provisions of the law, business owners should build a rational system of marketing communications in terms of accounting support for marketing operations. An example of a discrepancy is the comparable monthly volume of TV advertising and fines for violating the rules for its placement.

Currently, farms do not keep records of marketing expenses, even for internal needs, but we believe this is a mistake. A rational marketing policy will definitely lead to a decent representation of the farm on the market, improvement of financial results and development of research activities.

However, this problem is relevant for a large number of companies. Accountants of most companies still use the "Standard Regulation on the Composition of Turnover Costs and the Procedure for Their Planning and Distribution in Trade Activities" (hereinafter referred to as the Regulation), which allows for the classification of marketing communications costs based on the type of communication conducted.

Such classification by cost elements allows to improve the accounting of marketing expenses by detailing information in the accounting registers. However, the above classification does not fully reflect information on marketing communications costs, as

insufficient attention is paid to the detailing of marketing communications based on the purposes of their use and the corresponding accounting. Thus, according to the Regulation, other operating expenses include representation expenses (organization of receptions, conferences, holidays, exhibitions, fairs, etc.), where all of the above may be marketing communications of the company, having different purposes, including the formation of the company's image or sales promotion. Accordingly, if the company's goal is to stimulate sales, such expenses should be reflected in sales expenses with a breakdown by type of event. Thus, classified and systematized expenses will reflect more complete information about the marketing communications used, and their assessment will be more reliable.

Considering the existing classification of sales costs, it is worth noting that it pays considerable attention to detailing the costs of the sales department itself, and only one item is devoted to the costs of marketing activities. In this case, attention should be focused on two departments: sales, which is directly involved in sales, and marketing, which plans measures to stimulate sales and build customer loyalty.

Since a significant part of the marketing department's work is to plan the company's communication activities, the classification of costs with their division between departments will help to assess the effectiveness of such planning.

Taking a closer look at the activities of international holdings in the domestic market, we can say that the marketing department is given a lot of attention. The staff of this structure may include up to 20 people, so it is difficult to assess the scope of work of the marketing department under the current classification of sales costs. We propose to introduce the same level of detail in the reporting and to separate information directly on the expenses of the sales and marketing departments from the sales expenses, so it will be clear what part of the expenses is spent on planning and conducting communication activities and what part is focused on sales.

In the absence of an established marketing department at enterprises, including agricultural ones, we consider it expedient to create a separate position of an accountant-analyst-strategist, who should not only reflect retrospective and forecast facts of economic activity and conduct strategic accounting, but also provide analytical processing of marketing information while performing the functions of preparing strategic reports and its direct processing by analyzing strategic indicators, identifying certain deviations between In case of strategy adjustments, the accountant-analyst-strategist ensures that individual employees and departments of the enterprise are informed about the impact of strategy changes on the implementation of operational plans, making appropriate calculations.

In the context of economic development and transformational changes, the accounting system at most enterprises does not provide adequate information to users about marketing costs, which makes it difficult to conduct an effective marketing policy based on the use of accounting and analytical software. This problem concerns not only marketing activities, but also the general "material orientation" of the accounting system,

which does not take into account intangible factors of influence on which the efficiency of management in today's realities depends.

As a result of the thesis research, we can state that in turn, in order to improve the current chart of accounts, taking into account the proposals of various authors and the results of our own research, we propose to rename account 93 "Sales expenses" to "Sales expenses, advertising and marketing". At the same time, it is advisable to keep records of sales expenses in the context of subaccounts 931 "Expenses related to the work of the sales department", 932 "Advertising expenses", 933 "Marketing expenses". The proposed sub-accounts can be used in the practical activities of enterprises in various sectors of the economy.

In the current conditions of functioning of commercial and industrial enterprises, modern marketing requires much more than creating to create a product that meets the customer's needs. One of the most important areas of marketing is the promotion of goods on the market, which allows any commercial and industrial and production enterprise to indicate the current position on the the market of this brand or a particular product, analyze the market situation and analyze the market situation and competitive environment competitive environment. One of the most of the most promising forms of product promotion in our time are Internet resources, that is, the manufacturer's website, which allows you to place an order on the company's website.

Marketing and sales are aimed at different goals, and the costs of marketing and sales activities differ in their functional content and role in the business process. However, it becomes quite obvious contradiction that remains remains unaddressed by scientists. The marketing complex is a set of marketing activities, such as product, price, distribution and promotion. The last two objects are nothing more than sales and advertising sales and advertising. Therefore, it is advisable to consider sales of products to be considered as an integral part of marketing activities, and not vice versa, as provided for in domestic accounting in accordance with the content of the account 93 "Selling expenses", where only a small share of marketing costs is reflected in the is reflected in these expenses. In order to account for marketing expenses as part of a synthetic account, it is advisable to separate account 93 "Marketing and sales

Expenses" and its subaccounts. Based on the aforementioned issues related to the accounting support for marketing expenses, we propose implementing the following measures to improve the accounting of such costs at enterprises. Specifically, for the organization and maintenance of accounting for marketing expenses, it is recommended to develop an internal regulatory document titled "Regulation on the Organization of Managerial Accounting". We also suggest grouping primary documentation forms according to specific marketing system operations, creating a document flow schedule, and forming analytical accounting records for a new Account 93 titled "Selling, Advertising, and Marketing Expenses", which would consolidate information on overall marketing costs. The use of analytical registers will allow for the acquisition of reliable data regarding marketing expenses and will support appropriate managerial decision-making. For managerial accounting purposes and detailed analytical representation of marketing expenses, we recommend developing an internal consolidated "Marketing Expense Report" form.

CHAPTER 3. FINANCIAL AND ECONOMIC SECURITY MANAGEMENT

3.1. FORMATION OF ACCOUNTING AND ANALYTICAL SUPPORT FOR MANAGING FINANCIAL AND ECONOMIC SECURITY OF AN AGRICULTURAL ENTERPRISE

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A significant part of companies is faced with certain aspects of competition, lack of time and resources. To solve these problems, there is a need for operational management decision-making in accordance with the current situation. There is a direct relationship between the effectiveness of the management decision and the reliability, relevance, timeliness, clarity and completeness of information received by management. Accounting and analytical support is currently considered one of the main elements of the system for solving tasks and goals facing management.

Accounting information is necessary for the enterprise to make sound management decisions, control over the financial condition, ensure transparency of reporting, evaluation, performance, as well as for planning and forecasting (Vasilieva, 2018). It acts as an important resource for achieving strategic goals, allows you to quickly respond to market changes, provides internal control and increases the confidence of investors and partners. Given the importance of accounting information, we propose to consider approaches to the definition of "accounting information" in the scientific literature, depending on their approach to the study of accounting, management and analysis.

Zamlinsky V.V., Voloshina O.V., Stepanenko S.V. emphasize that accounting information is primarily an information resource that provides enterprise management (Zamlynskyj, Voloshina, Stepanenko, 2024). They believe that accounting information is the result of data processing and should support planning, control and analysis processes. Thus, these researchers view accounting information as an integral component of a management information system.

According to the views developed by Vasylishyn S.I., accounting information is an economic characteristic of the resources of the enterprise (Vasylishyn, 2020). The author considers it as a reflection of the economic processes taking place in the enterprise, and as a basis for calculating the financial indicators necessary for internal and external analysis.

Other scientists, like Bondarchuk N.V., Nikolajchuk Yu.M. focus on the formalization of accounting information (Bondarchuk, Nikolajchuk, 2016). They emphasize that accounting information should be clearly structured, classified and aggregated to form management decisions. Thus, this approach focuses on information processing algorithms, which should be based on mathematical models that optimize solutions.

Such scientists as Cescon F., Costantini A., Grassetti L., consider accounting information as a system covering various types of accounting (financial, Managerial, tax) (Cescon, Costantini, Grassetti, 2019). They emphasize the need for data integration to

create a comprehensive accounting information system that can ensure the relationship between different levels of enterprise management.

Consequently, accounting information in the scientific literature is interpreted differently, but in general it is perceived as a fundamental tool for managing and controlling the activities of an enterprise, which allows obtaining the necessary data for making decisions at different levels of management. Thus, accounting information is a system of data that reflects the financial and economic activities of the organization and provides users with the necessary information for making management decisions, which is formed on the basis of data from financial, managerial, tax accounting and analysis, and includes information about assets, liabilities, income, expenses and results of the organization.

In our opinion, the main characteristics of accounting information include its reliability, relevance, timeliness, clarity and completeness (Table 3.1.1).

Table 3.1.1

| Main characteristics of accounting information | |
|--|--|
| Principle | Characteristics |
| Reliability | Reliable accounting information reflects the real state of economic processes and is accurate and reasonable. This means that all data must be verified and consistent with reality. Reliability is achieved through the application of accounting methodologies that meet regulatory requirements, compliance with accounting principles, the use of verified data sources and regular monitoring. Reliable information reduces the risk of errors and manipulations. |
| Relevance | Relevant information is essential and meaningful to users because it directly influences decision-making. Relevance is determined by the ability of information to help predict future events or confirm the correctness of past decisions. Information is relevant if it answers questions that are important to specific users and helps them achieve their goals. |
| Timeliness | Timely information comes at the right time for decision-making and reflects events in the current period. This means that accounting information must be provided before its usefulness is reduced due to obsolescence. Timeliness of accounting data allows you to make operational decisions, respond to changes in the enterprise environment and prevent negative trends. |
| Clarity | Understandable information is easily perceived by users with different levels of knowledge and experience. It should be clearly and logically structured, set out without excessive complexity, so that users can quickly understand its essence and meaning. Clarity contributes to a more efficient use of information in enterprise management, which is especially important for external users, such as investors or regulators. |
| Completeness | Complete accounting information covers all necessary aspects of economic activity, without leaving missing data or important details. This means that the information must fully reflect all financial and non-financial indicators that are necessary for making informed decisions. Completeness provides comprehensive analysis and allows users to form a complete picture of the state of the enterprise. |

These characteristics work in combination, creating accounting information that is useful for decision-making, control, analysis and planning of the enterprise. This information is the basis for financial reporting and analytical processes that help the farm achieve its strategic and tactical goals.

For example, we note that reliability, relevance, and timeliness are critical to its usefulness in enterprise management. Reliability ensures data accuracy, while relevance determines the correspondence of information to user needs. Timeliness is necessary so that data does not lose its value, and clarity guarantees ease of perception of information without difficulties. In addition, the completeness of the information must be ensured to form a holistic view of the financial condition of the enterprise. Together, these characteristics create the quality of accounting information, which contributes to the effective management and achievement of the strategic goals of the enterprise.

Classification of accounting information plays an important role in ensuring effective management of the enterprise because it facilitates the systematization of data and simplifies their use for various purposes (Grabchuk, Lyaxovych, Vakun, 2021). Thanks to classification, information can be easily sorted by its purpose, form, level of detail and users, which allows you to optimize data processing and quickly find the necessary information for decision-making (Vasilieva, 2018). This improves the accuracy of analysis and forecasting, provides flexibility in reporting for internal and external users and helps to adapt accounting to the specifics of the enterprise. In addition, the classification allows you to distribute information according to the degree of importance, relevance and accessibility, which contributes to increasing the transparency of the accounting process and the reliability of the accounting system as a whole.

Accounting information is classified into different categories depending on its purpose, type, form, users and other characteristics. Classification of accounting information includes the definition of categories on the basis of which it can be distributed for specific purposes, which in turn contributes to improving the efficiency of enterprise management.

1. Classification by origin. Accounting information can be classified by the source of its occurrence into primary and secondary.

Primary information is data coming directly from accounting objects and reflecting the facts of economic activity. It is formed in the process of accounting for business transactions, such as purchases, sales, production processes, etc. It can be a variety of documents confirming the facts of expenses, income, transfer of goods, works or services (check, invoice, acceptance certificate, etc.).

Secondary information is data obtained on the basis of primary information, systematized, summarized and revised using accounting and analytical procedures. It is used for reporting, financial indicators and for making strategic and operational management decisions.

2. Classification by time of occurrence. Information used for management and analytical needs is also classified depending on the time of its occurrence on the current and future.

The current information is used for operational management and decision-making in the short term. It covers data on the current financial condition of the enterprise, capital turnover, account balances, expenses, income, as well as short-term liabilities and payables. Current information is fundamental to managing daily operations, generating reports to monitor financial results and managing liquidity.

Future information is used for forecasting and planning. It includes forecast data based on current trends and information on future market changes, technological innovations, as well as expected changes in financial and economic indicators. Such information is needed for strategic management, development of business plans, assessment of potential risks and planning of financial flows.

3. Classification by level of detail. Classification of accounting information by level of detail involves the division into aggregated and detailed information.

Aggregated information consists of generalized indicators that provide an overall picture of the financial condition of the enterprise. For example, it can be an annual financial report that contains totals of income, expenses, profits and losses of the enterprise for a certain period. Aggregated information is important to the company's senior management, shareholders and external users (for example, investors or lenders) because it gives an overview of the financial situation (Shtangret, Steciv, 2017).

Detailed information contains detailed information about certain aspects of the economic activity of the enterprise, which allows a deeper analysis of individual elements, for example, costs for specific items, receivables or the cost of individual goods or services. Detailed information is needed to make specific management decisions, for example, to adjust costs or optimize business processes.

4. Classification by volume. Information can also be classified by the scope of its coverage: quantitative and qualitative.

Quantitative information is accounting data that reflects numerical values: the amount of income, expenses, the number of products produced, the number of employees, the timing of work, etc. Such information is fundamental for financial calculations, analytical assessments, forecasting and management control. It allows you to monitor the efficiency of the enterprise, compare the actual results with the planned indicators (Vasilieva, 2018).

Qualitative information provides an idea of the intangible aspects of the enterprise, such as reputation, customer satisfaction, efficiency of management practices, innovative ability, etc. Quality information is important for strategic management and assessment of long-term development prospects.

5. Classification by purpose. By appointment, accounting information can be classified into managerial and financial. Management information is used directly for internal control and management decisions. It covers all aspects of the enterprise related to process management, cost optimization, efficiency, strategic planning and operational control. Management information allows management to respond quickly to changes, adjust strategies, analyze internal business processes.

Financial information is aimed at external users and must comply with international financial reporting standards. It reflects the overall financial results of the enterprise and its financial condition. This information is used to compile accounting reports, assess the

financial stability, liquidity and profitability of the enterprise. Such information should be transparent and accessible to investors, banks, regulatory authorities.

6. Classification by processing method. The information can be divided into processed and unprocessed.

Processed information is data that has been processed in the form of generalization, analysis, forecasting. It is the basis for decision-making because it provides guidance for accurate and informed conclusions based on collected and processed data.

Raw information is initial data provided without any analysis or processing. They are raw material for further processing and analysis in the process of management.

Classification categories of accounting information for management and analytical needs are an important tool for effective enterprise management. Depending on the type of activity, the scale of the enterprise and the specifics of its work, the classification of accounting information helps to ensure the accuracy, efficiency and expediency of the decisions made, which in turn increases the efficiency of management and analytical processes.

Every enterprise needs an effective and efficient accounting information system to be ahead in the conditions of market competition (Zhuk, Vasylyshyn, Zamlynskyj, 2023). As a rule, an information system is considered effective when it is able to achieve its goals and increase the effectiveness of the organization in terms of activities, process and results. We note that the accounting information generation system follows certain successive stages, including data collection, processing, analysis and reporting. Each stage is important for ensuring the quality of accounting information, and that the effectiveness of the entire system depends on the consistency of these stages.

At the same time, we emphasize that the accounting information formation system should be considered as part of a wider information system of the enterprise, that is, the integration of accounting information with other subsystems, such as financial management, production management and strategic planning, is distinguished. That is, it is this approach that allows you to achieve data consistency and their more efficient use in management.

We are convinced that the system of formation of accounting information is an organized set of elements, methods and processes that interact with each other to collect, process, store and analyze financial and management data of the enterprise. The main purpose of this system is to provide relevant, reliable and relevant information necessary for making sound management decisions.

At the same time, the managerial aspect of accounting information is emphasized by the fact that the main purpose of the formation of accounting information is to provide useful data for decision-making. We focus on the importance of reliability, timeliness and relevance of information for effective enterprise management.

Note that the formation of accounting information must adhere to a certain methodology, developing rules and principles governing accounting processes. It is important to apply accounting and reporting standards to ensure the quality and unambiguity of accounting information.

Today, an actual aspect in the formation of the accounting information system is modern technologies that contribute to the formation of high-quality and timely information. The introduction of information systems, automation of accounting processes and the use of the latest technologies such as artificial intelligence and data analysis to increase the efficiency and accuracy of accounting information are relevant.

In our opinion, the system of formation of accounting information is a comprehensive mechanism that combines various stages, methods, tools that provide the creation, processing and analysis of financial data of the enterprise, which aims to provide management with accurate and timely information necessary for making managerial decisions.

The formation of accounting information involves a consistent process involving the collection and systematization of primary data, their classification and verification, registration in accounting registers, aggregation to obtain generalized information, analysis of the financial condition of the enterprise, preparation of financial statements and preservation of documentation (Bondarchuk, Nikolajchuk, 2016). As a result of this process, structured and reliable information is created, which is the basis for making managerial decisions and ensuring the economic security of the enterprise. We offer the stages that must be considered in the process of forming accounting information (Table 3.1.2).

Table 3.1.2

Stages of accounting information formation process

| Stage | Description of accounting information generation process stage |
|--|---|
| Collection of primary information | Collection of data on the facts of economic activity (documents, checks, invoices, acts of acceptance, etc.) confirming the transactions that occurred. |
| Registration of accounting documents | Registration of primary accounting documents reflecting the fact of a business transaction, and their verification for compliance with norms and requirements. |
| Entering data into accounting registers | Transfer of information from primary documents to accounting registers (journals, books, cards). This includes a mechanism for systematizing data for ease of further use. |
| Generalization of data | Summarize information on specific accounts, categories or periods. At this stage, the grouping and classification of data for reporting. |
| Analysis and processing of information | Data validation, error detection and correction. Various methods of analysis are used to calculate the indicators of the financial and economic activity of the enterprise. |
| Generation of reports and analytical materials | Based on generalized data, reports (financial, accounting, statistical, etc.) are compiled for internal and external use. |
| Making management decisions | Use of the formed accounting information for the development of management decisions based on the analysis of financial indicators, performance, forecasting. |
| Control and adjustment | Evaluate the effectiveness of the accounting process, identify problems or deficiencies, adjust accounting procedures or processes to improve the accuracy and efficiency of data collection. |

This table reflects the general stages of the formation of accounting information in the enterprise, allowing to ensure its correct maintenance, analysis and use for making effective management decisions.

Thus, the system of formation of accounting information provides an integrated approach to data management, which contributes to improving the efficiency of the enterprise and achieving its strategic goals.

The basis for the formation of accounting information, which in the future will be used for decision-making, is, firstly, the collection and classification of primary documents, which involves the recording of all financial, production and management operations that occur in the process of the enterprise (Vasylishyn, 2020). This stage is decisive, because the quality of the initial data directly affects the accuracy of further analysis and, ultimately, the validity of managerial decision-making. Further, the data are analyzed to identify the main trends and calculate key indicators. The results obtained are interpreted and summarized in the form of financial and internal reports that are provided to management for decision-making. This process is completed by monitoring the implementation of decisions made and, if necessary, adjusting further actions.

In the management system, special attention is paid to qualitative indicators, which are sometimes key for making managerial decisions (Cescon, Costantini, Grassetti, 2019). For example, aspects such as the competitive position of the organization, relationships with partners and the structure of its business processes are subject to analysis. The main emphasis is on non-financial data accumulated in the accounting system from various sources: media, the Internet, sociological research, competitor documents, employee opinions, expert opinions, and technical documentation. This non-financial data is the basic information for accounting, which provides the information needs of the management system.

Note that the composition and structuring of accounting information is also determined by the specifics of business processes implemented by the organization as a result of activities (Table 3.1.3). At the same time, it should be noted that, although managerial functions are often similar at different enterprises, each enterprise has its own set of business processes that distinguish it from others, for example, agribusiness enterprises. This table covers the main business processes of the agricultural enterprise and includes accounting and analytical information that is necessary for each of them.

Thus, the system of formation of accounting information must be consistent with the process of making a managerial decision. In this context, the management of the organization establishes the volume and frequency of information collection for each management decision, determines the format of its presentation and selects tools for the preparation and transmission of the necessary data.

For an agrarian enterprise, the formation of a system of accounting and analytical support for the management of financial and economic security is an important process, which includes the development and implementation of tools and techniques for assessing, analyzing and controlling the financial and economic aspects of the enterprise. The purpose of such a system is to ensure the stability, efficiency and sustainable development of the enterprise, in particular in ensuring its financial and economic security.

Table 3.1.3

Accounting information system in the management process in the context of business processes of agribusiness enterprises

| Business Process | Composition of accounting information |
|---------------------------------------|---|
| Procurement of resources | Contracts with suppliers, material accounting documents, resource prices, procurement plans. |
| Production process | Accounting for the costs of sowing work, the cost of fertilizers and plant protection products, reporting on the performance of work. |
| Harvesting | Data on yields, collection costs, data on product losses, accounting for collected products. |
| Storage and processing | Data on warehouse balances, storage costs, product quality accounting, indicators of loss during storage. |
| Implementation process | Sales contracts, revenue accounting, market analytics, data on logistics costs and sales of products. |
| Financial analysis and budgeting | Budget indicators, reporting of financial results, profitability data, analysis of income, expenses and financial results. |
| Human Resources Management | Accounting for payroll calculations, information about personnel, data on labor productivity. |
| Economic Security | Data on risks, assessment of financial stability, analytics of competitors, etc. |
| Innovation and Development Management | Information on new technologies, data on research and development, costs of innovative projects. |

First of all, we note that the formation of this system for an agrarian enterprise has its own characteristics due to the specifics of the agricultural sector, in particular seasonality, dependence on weather conditions and the significant influence of external economic and social factors. For example, agricultural enterprises operate in conditions of seasonal fluctuations, which requires special attention to forecasting income and expenses, as well as budgeting. The accounting and analytical support system should take into account these fluctuations and ensure timely monitoring and adjustment of financial flows.

Weather and climatic conditions can significantly affect the yield and productivity of agricultural production. Therefore, it is important to include methods of forecasting and assessing natural risks in the accounting and analytical support system, as well as to ensure financial planning taking into account unforeseen circumstances.

Agricultural production requires specific accounting methods, such as accounting for biological assets (farm animals, plants), requiring special valuation standards and techniques. The system should take into account the variability in the cost of products at different stages of its development (from sowing to harvesting). Agricultural enterprises

often receive state subsidies and subsidies, which can be important for financial stability. The system of accounting and analytical support should take into account the specifics of such revenues, ensuring accurate accounting and compliance with the requirements of the legislation.

It should be noted that the use of modern agricultural technologies, such as precision farming, geographic information systems and drones for monitoring, requires the integration of these technologies into the accounting and analysis system to ensure more efficient resource management and increase the productivity of the economy.

Agricultural enterprises face numerous risks, such as changes in price policy, disparity in prices for agricultural products, that is, prices for agricultural products vary significantly depending on various factors that can lead to a discrepancy between the prices of raw materials, products and the costs of its production, fluctuations in world prices for agricultural products, as well as economic instability (Vasileva, 2018). At the same time, the accounting and analytical support system should include tools for assessing and managing such risks in order to reduce their negative impact, for example, analysis of price trends and forecasting, hedging strategy (insurance against price fluctuations), cost and efficiency analysis, monitoring of world prices and economic indicators, financial planning and budgeting, inventory planning and logistics, etc.

For example, S.I. Vasylyshyn identifies tools for risk assessment - the use of quantitative risk assessment methods, such as sensitivity analysis, scenario analysis and Monte Carlo method, to determine the likelihood of risks and their impact on financial results; development of a system for assessing the financial, production and economic risks of an enterprise and plans for their minimization (Vasylyshyn, 2020).

Thus, the system of accounting and analytical support at an agricultural enterprise should take into account specific aspects of activity, providing adaptation to the conditions of seasonality, weather conditions, technological innovations and changes in the legislative and economic situation.

Vasileva L. emphasizes that the accounting and analytical support system "plays an important role in the functioning of financial and economic security system by the enterprise, ensuring the interaction of various structural units and responding to changes in the internal and external environments" (Vasileva, 2018).

It should be noted that the system of accounting and analytical support for the financial and economic security of the enterprise should be built on the principles that allow to effectively assess, control and minimize the risks associated with the financial and economic aspects of the enterprise. The basic principles of the formation of such a system include:

1. The principle of complexity. The system should cover all aspects of the financial and economic activities of the economy, including accounting, financial analysis, management accounting and cost control. It is important to ensure the integration of all elements of accounting and analysis to form a single information space.

2. The principle of consistency. Accounting and analytical support should function as a single system, where each element is interconnected with others. The information collected and processed should be systematized for adoption of decisions (Vasylyshyn, 2020).

3. The principle of transparency. To ensure effective control and analysis of financial and economic security, it is important that the system is transparent. This includes access to financial information and ensuring it is correct, up to date and accurate. According to Shtangret A.M., Steciv L.P. "the formation of a system of accounting and analytical support largely depends on the information needs of economic security actors" (Shtangret, Steciv, 2017).

4. The principle of responsibility. Responsibility for ensuring financial and economic security at different levels of management should be clearly distributed. This allows you to effectively respond to changes and risks.

5. The principle of objectivity. All indicators and data used in the accounting and analytical support system should be objective and based on facts, and not on subjective assumptions. This allows you to adequately assess the real state of financial and economic security enterprise.

6. The principle of efficiency (Grabchuk, Lyaxovych, Vakun, 2021). For timely detection and response to changes in the financial and economic situation, the system must ensure the prompt flow of information. This includes the use of modern technologies to automate the collection, processing and analysis of data.

7. The principle of adaptability. The system must be flexible and able to adapt to changes in the external environment, including changes in legislation, economic conditions and financial reporting requirements. It should provide the ability to quickly modify and update accounting and analysis methods.

8. Principle of preventive control. An important aspect is proactive control over possible risks and threats to financial and economic security. This involves the timely identification of potential threats and the development of measures to minimize them.

In our opinion, the formation of a system of accounting and analytical support for the financial and economic security of an enterprise requires an integrated approach that combines theoretical foundations with practical aspects of financial and economic security management. Taking into account the proposed principles, the process of creating and implementing a system of accounting and analytical support for the financial and economic security of an enterprise provides (Fig. 3.1.1).

The main advantages of such a system of accounting and analytical support are:

- improving the efficiency of financial flow management;
- Timely identification of financial problems and risks;
- increasing the level of financial discipline and reducing the likelihood of violations.

Thus, the system of accounting and analytical support for the management of financial and economic security is necessary to ensure the sustainable development of the enterprise. It allows not only to control financial flows, but also to respond effectively to changes in the external environment and internal processes of the enterprise. The introduction of such a system requires careful preparation, the use of modern information technology and proper control.

Improving the analytical framework for the management of the financial and economic agrarian enterprise is an important direction, since it allows to improve the risk management strategy, ensure the stability and development of the enterprise, as well as minimize losses in case of crisis situations.

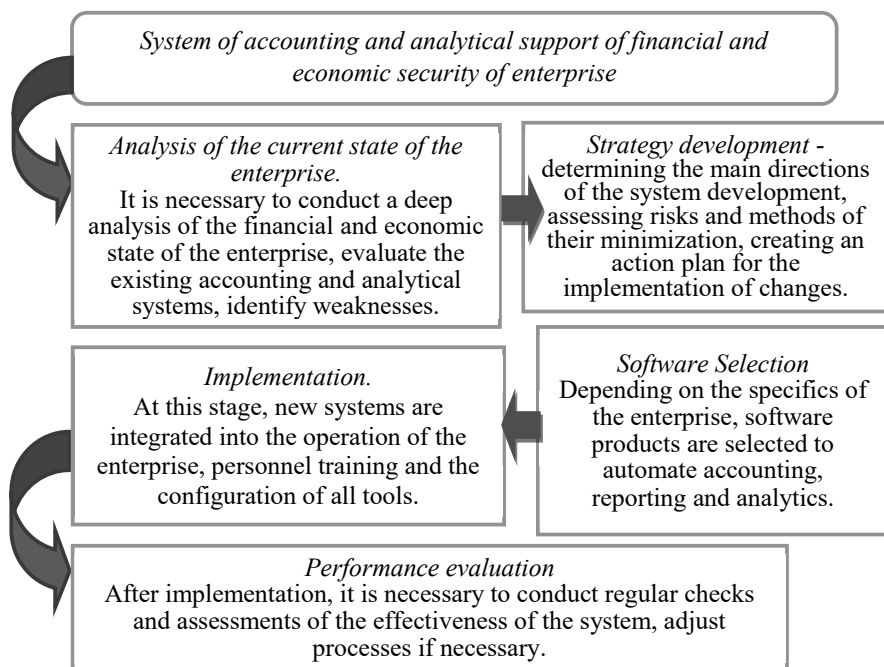


Fig. 3.1.1. Stages of creation and implementation of the system of accounting and analytical support of financial and economic security of the enterprise

Agricultural enterprises often face various financial and economic risks - fluctuations in prices for agricultural products, changes in legislation, weather conditions, lack of financing, etc. (Shtangret, Steciv, 2017). Therefore, one of the areas of improvement is the development of modern analytical tools for a comprehensive assessment of these risks.

Note that for this purpose we propose to use analytical tools for risk assessment, namely: the use of forecast models for risk assessment allows to more accurately determine the probability of occurrence of these risks, their impact on the enterprise and develop effective strategies to minimize them; application of financial analysis methods; taking into account external factors (weather, market prices, changes in legislation).

As Vasylyshyn S.I. emphasizes the introduction of information technologies for monitoring financial processes (Vasylyshyn, 2020). The author notes that analytical processes should be based on real data, which requires effective monitoring of financial flows in the enterprise, which can be achieved by automating the accounting and control of financial transactions, introducing information systems for collecting and processing data (ERP systems, business analytics), using analytical platforms for making decisions based on real-time data.

We are convinced that the accounting and analytical support for the management of the financial and economic security of an agrarian enterprise largely depends on the professional risks of an accountant, since it is the accounting information, its accuracy and correctness of interpretation by an accountant, that forms the basis for the effective functioning of this system. Any errors or shortcomings in the process of processing and analyzing accounting data can lead to distortion of the results of financial statements, which directly affects management decision-making and the state of the financial and economic enterprise as a whole.

Since the intensity and frequency of occurrence of situations related to the professional risks of the accountant are stochastic in nature and difficult to predict, accurate and impartial assessment of such risks is difficult (Shtangret, Steciv, 2017). The accounting system records only the consequences of such risks, in particular fines, penalties and penalties arising from violations during the execution of business transactions or tax payments. Therefore, enterprises are faced with the need to develop effective tools for predicting, analyzing and minimizing the professional risks of an accountant. Management of professional risks of an accountant is an important element of the general system of financial and economic security of an agrarian enterprise. Not only the stability of financial flows, but also the protection of the enterprise from external and internal threats that may arise in the process of its activity depends on its effectiveness.

Thus, the management of professional risks of an accountant at an agricultural enterprise requires taking into account the specifics of agribusiness. It is important to introduce effective methods of accounting and control, training of accounting employees and the use of modern technologies to reduce risks and ensure the financial and economic security of the enterprise. If a serious professional risk of an accountant is identified, the following approaches can be chosen (Zamlynskyj, Voloshina, Stepanenko, 2024):

- "risk avoidance" consisting in the termination of cooperation with certain employees or groups of accounting personnel whose activities may cause significant damage to the enterprise;

- "risk insurance," which involves concluding contracts with insurance companies that cover liability for damage caused by employees who are most exposed to risks. It can be, for example, low-skilled workers, students, pensioners or those who previously had problems with the disclosure of trade secrets in previous jobs. It also determines the amount of insurance premiums paid to insurance companies, thus creating a fund to cover the consequences of occupational risks.

We are convinced that it is necessary to develop a system of constant monitoring of the financial situation of an agrarian enterprise to identify potential threats, which involves regular analysis of financial statements, assessment of changes in economic indicators (it is necessary to analyze the dynamics of the main financial and production indicators, which allows timely detection of deviations from normal values and timely response to changes), conducting stress tests is a method of assessing the resistance of an enterprise to external and internal economic shocks.

Stress tests can predict the consequences of various scenarios (for example, lower

product prices, higher costs, currency fluctuations), which can help in identifying possible threats to the financial and economic security of an enterprise, developing indicators and thresholds for identifying threats and possible problems (Zamlynskyj, Voloshina, Stepanenko, 2024). After analysis and stress testing, it is necessary to identify the main threats that may affect the activities of the enterprise. It can be both internal factors (for example, a decrease in the effectiveness of management decisions) and external (changes in legislation, economic instability in the country or in the world market).

The development of such a monitoring system allows agricultural enterprises to respond in a timely manner to changes in the economic situation, optimize resources and ensure stability and competitiveness in the market.

Scientists who study and analyze the system of formation of accounting and analytical support for the management of financial and economic security of agrarian enterprises emphasize that the variety of objects and their qualitative characteristics, the growth of the share of operations performed by the organization, as well as other aspects of its activities, complicate the processes of accounting, collection and processing of information. "In this regard, there is a need to improve methodological approaches that would more effectively satisfy user information requests" (Grabchuk, Lyaxovych, Vakun, 2021).

Modern enterprises, in particular agricultural, are faced with the need to introduce alternative approaches to accounting and reporting that would meet the needs of owners and management. Traditional reporting is not always able to provide complete and prompt information about the status of the organization, so this role is often assigned to management accounting and reporting. We agree with the statement of S.I. Vasylishyn, who notes that "since the management of financial and economic security of the message mainly depends on the management decisions of internal users, then its information support should be based on improving the forms of internal reporting" (Vasylishyn, 2020).

Thus, in order to meet the needs of external and internal stakeholders who need information on the financial and economic security of agrarian enterprises, it is proposed to introduce the "Management Reporting Report" in a special form - "Internal Report on Financial and Economic Security," this report combines financial data and textual information on the impact of various types of risks on financial and economic security, has the status of "trade secret" and serves as the basis for the adoption by the managers of the agricultural enterprise of justified decisions aimed at strengthening its financial stability, and, accordingly, financial and economic security.

In our opinion, the preparation of the appropriate form should be carried out at the request of the managers of the enterprise, but at least once 1 a quarter. The functionality of this form of internal reporting is ensured by synchronizing the assessment indicators of different risk groups with the articles of the "Statement of Financial Position (Balance)." The practical significance of the proposed form is the possibility of an adequate assessment of the risk environment of the agrarian business, as well as the formation of sound management decisions to strengthen financial and economic security and strengthen internal control. Here is the proposed form "Internal report on financial and economic security." For example, we will make such a report for the object "fixed assets."

I. The financial aspect. The value of the assets of the enterprise, which is reflected in

the balance sheet, is essential for assessing the financial and economic security of the enterprise, since it determines the level of liquidity, financial stability and the ability of the enterprise to fulfill its obligations. The internal report on the financial and economic security of the enterprise contains an analysis of the risks associated with the financial indicators and assets of the enterprise. Basically, such a report covers the analysis of fixed assets, their depreciation, impairment, as well as potential risks that may arise due to incorrectly chosen valuation methods, changes in market conditions or the technical condition of equipment.

1. Cost of fixed assets.

Fixed assets of the enterprise are one of the key elements that determine its financial stability and ability to produce products. The cost of fixed assets at the reporting date is 12,500 thousand UAH. This amount is associated with a number of financial risks that can significantly affect the financial and economic security of the enterprise.

The first risk is asset impairment, which can be caused by several factors, including changes in market conditions, aging equipment or insufficient modernization of fixed assets. In this regard, a risk analysis and an assessment of the possible impairment of assets were carried out. The risk of impairment is estimated at UAH 1,600 thousand, which corresponds to the amount of potential losses due to changes in market conditions or a decrease in the value of assets due to their physical deterioration.

As part of this analysis, the method of depreciation of fixed assets was changed to a straightforward method. This made it possible to better take into account the depreciation of assets and ensure a more stable calculation of their value during the period of use.

2. Potential risks.

The main risks that may arise in the valuation of fixed assets include:

- Amortization method is incorrect. If the company has chosen a depreciation method that does not correspond to the actual use of fixed assets, this can lead to significant errors in the financial statements. In particular, excessive or underestimated depreciation may distort the financial results of the enterprise, in particular in terms of profit or loss.

- Errors in the valuation of assets. Such errors may arise from inaccuracies in the valuation of assets, in particular due to insufficient consideration of market fluctuations or the physical condition of fixed assets. As a result, the accounting value of fixed assets may not correspond to the real state of affairs, which leads to a violation of the principles of reliability and truthfulness of financial statements.

- Decrease in value due to market fluctuations. Market conditions can change very quickly, and the value of fixed assets can be adversely affected by a drop in demand or a decrease in the competitiveness of the products produced by these assets. As a result, this can lead to significant depreciation of equipment.

- Failures in the operation of fixed assets. Deterioration of the equipment and failures in its operation can lead to a halt in production processes and additional costs for the repair or replacement of equipment. This can adversely affect the implementation of the planned indicators and cause serious damage to the financial results of the enterprise.

3. Possible consequences and recommendations.

Inconsistency of the structure of fixed assets of the enterprise strategy can significantly reduce its competitiveness. If fixed assets do not meet the modern requirements of production or do not have the necessary level of efficiency, this can cause problems in achieving the strategic goals of the enterprise.

Therefore, the company needs to regularly audit fixed assets and their technical condition. Particular attention should be paid to the modernization of equipment in accordance with modern digital standards and technologies, which allows to increase the efficiency of its use and reduce the risk of malfunctions.

An important aspect is also risk management with the rapid sale of fixed assets to cover financial obligations. If it is necessary to sell fixed assets to obtain liquid funds, significant losses from impairment of assets are possible due to limited market demand.

To reduce these risks, the company should ensure:

1. Regular revaluation of fixed assets in accordance with changes in the market situation, which allows to accurately reflect their real value in the reporting.
2. Selection of optimal depreciation methods that meet the conditions and specifics of the use of assets, in particular, a straightforward depreciation method that allows you to more accurately reflect the depreciation of assets.
3. Modernization of fixed assets, in particular through the introduction of new technologies, which allows to increase the efficiency of their use and reduce the risks associated with their physical wear.

Risk management in the sale of fixed assets, ensuring proper valuation of assets before sale, in order to avoid significant losses due to low demand or limited liquidity in the market.

II. Text aspect. In connection with the above financial aspects, it is also important to take into account a number of textual aspects that may affect the valuation of fixed assets and the risks associated with them. Here are some possible errors and consequences:

1. Errors in the valuation of fixed assets may arise as a result of incorrect selection of the depreciation method or lack of actualization of value due to changes in the market or obsolescence of assets. Such errors can lead to distortion of reporting and incorrect analysis of the financial condition of the enterprise.
2. Possible impairment of assets due to changes in market conditions or the need for a quick sale. If an enterprise is forced to quickly realize its fixed assets to cover liabilities, this can lead to significant losses, since asset prices may fall due to limited demand.
3. The mismatch of fixed assets to the strategic goals of the enterprise can lead to a loss of competitiveness and a decrease in the efficiency of the enterprise as a whole. It is important to ensure that assets are modern and meet changing business needs.
4. Lack of modernization of fixed assets can lead to a decrease in their efficiency and increase in maintenance costs. Modern digital technologies and technical innovations can significantly increase the productivity of assets, which directly affects the economic security of the enterprise.

The creation of an analytical framework for managing the financial and economic security of agricultural enterprises is an important stage in ensuring the stability and development of the enterprise in a changing market environment, high competition and specific challenges of the agricultural sector (Fig. 3.1.2).

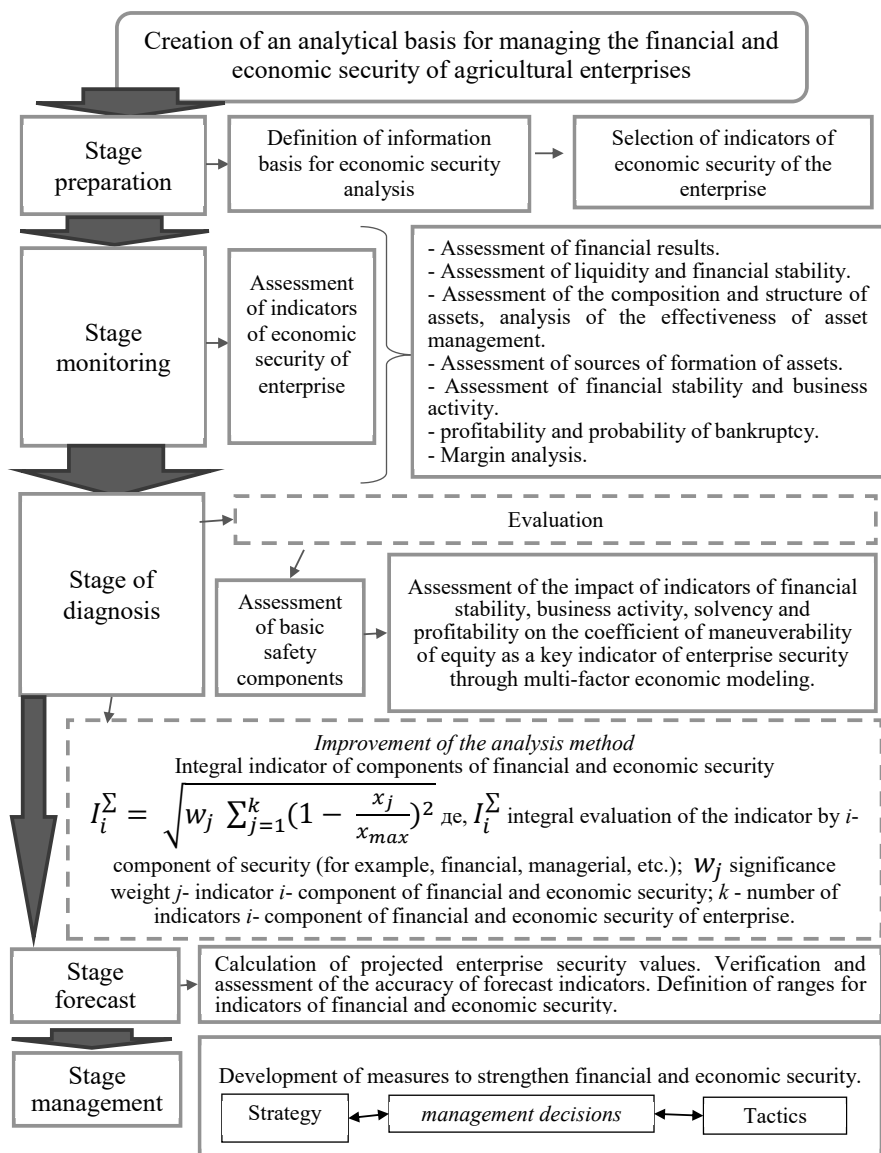


Fig. 3.1.2. Algorithm for creating an analytical framework for managing the financial and economic security of agricultural enterprises

The first step is to collect relevant information that will help form the analytical basis. The next step is to assess the financial and economic activities of the enterprise in terms of its sustainability, profitability and efficiency. Separately, it is necessary to study the risks that an agrarian enterprise may face. It is important to develop indicators that allow to identify and assess the level of financial and economic security of the enterprise. To create an analytical basis, it is necessary to use various forecasting and modeling methods to predict future changes in the financial and economic state of the enterprise. Finally, it is necessary to create a management system based on the collected and analyzed data, namely the integration of the accounting system (ensuring the effective collection and processing of information from all departments), the use of software tools for analysis (the introduction of modern IT solutions to automate the processes of analysis and management decision-making), monitoring and adjustment of decisions (based on the results of analytical research, the current strategy of the enterprise is adjusted).

Thus, the creation of an analytical basis for managing the financial and economic security of agricultural enterprises allows not only to effectively assess the current state of the enterprise, but also to predict possible threats, to respond quickly to changes and ensure financial stability, and as a result, financial and economic security.

The formation of a separate strategy for ensuring the financial and economic security of an agricultural enterprise is critical for stable and sustainable business development. The main purpose of such a strategy is to minimize financial, production and market risks, ensure financial stability and protect the agricultural enterprise from unpredictable threats.

As noted by S.I. Vasylishyn, an agrarian enterprise faces numerous financial and economic risks and, as a result, a separate strategy of financial and economic security allows to systematize approaches to managing these risks, create reserves to cover possible losses and preserve the liquidity of the enterprise (Vasylishyn, 2020).

Along with this, we note that the agricultural sector is often exposed to external shocks (climatic changes, natural disasters, changes in market conditions). Accordingly, the strategy of financial and economic security allows you to conduct a systematic analysis of potential threats and determine the most effective measures to minimize or neutralize them. This may include providing insurance, creating financial reserves or diversifying sources of income. The agricultural sector is usually seasonal. Therefore, to ensure the stability and profitability of the enterprise, it is important to properly plan financial flows, especially taking into account seasonal fluctuations in costs and income. It is the strategy of financial and economic security that allows you to create clear plans to cover costs and ensure profitability throughout the year.

We agree with Shtangret A.M. and Steciv L.P. that the financial and economic security strategy involves the development of measures aimed at maintaining an optimal capital structure, controlling cash flows, managing debts and attracting financing if necessary. This provides the enterprise with financial stability even in case of changes in the market or negative economic conditions (Shtangret, Steciv, 2017).

The strategy of financial and economic security helps to improve the system of accounting and analytical support. For example, the use of modern technologies, such as

automation, makes it possible to accurately monitor financial results, optimize costs and timely adjust financial plans.

As noted by S.I. Vasylyshyn, there may be various state support programs in the agricultural sector (subsidies, subsidies, preferential lending, etc.), it is precisely the pre-developed strategy of financial and economic security that allows adapting to changes in legislation, effectively using state resources and avoiding fines for violation of regulatory requirements (Vasylyshyn, 2020). In conditions of rapid changes (climatic changes, new technologies, political and economic changes), an agricultural enterprise should be able to adapt to new conditions (Vasilieva, 2018). The strategy of financial and economic security helps to form a flexible adaptation mechanism that allows you to quickly respond to changes and maintain financial stability.

Thus, the formation of a strategy for ensuring financial and economic security for an agrarian enterprise is an important element that allows increasing the enterprise's resistance to internal and external risks, ensuring financial stability, reducing costs and optimizing the use of resources. This allows the company to remain competitive, achieve sustainable development and ensure profitability for the long term.

The development and implementation of a strategy for the financial and economic security of an agricultural enterprise on the basis of accounting and analytical support is a comprehensive process that includes several mandatory stages, where special attention is paid to creating a reliable information base for making sound management decisions.

The first stage is the analysis of the existing financial and economic situation of the enterprise. The goal is to identify the strengths and weaknesses of the enterprise, as well as internal and external threats to financial and economic security. At this stage, it is necessary to conduct a comprehensive analysis of the financial condition of an agrarian enterprise, study the main economic and financial indicators, and also identify factors that may threaten its financial and economic security, namely: analysis of financial statements, assessment of liquidity, solvency, etc., analysis of the effectiveness of the use of resources such as land, equipment, labor resources, assessment of risks that are inherent in agrarian enterprises (climatic, political, market, etc.). Use of modern technologies for detailed analysis of costs for each stage of the production process, identification of inefficient costs, optimization of purchases and management of inventories, monitoring of prices and market trends, use of accounting and analytical data for forecasting demand.

The role of accounting and analytical support at this stage is the use of data from accounting systems (for example, BAS Accounting) to analyze key financial indicators, create analytical reports that help identify inefficiencies and evaluate financial flows.

The next stage is the identification of risks that may affect the financial and economic security of the enterprise. For example, market risks (fluctuations in prices for agricultural products (cereals, vegetables, fruits), instability of demand), climatic and production risks (negative climatic conditions (drought, floods), failures in the operation of agricultural machinery, repair costs), financial risks (high interest rates on loans, changes in exchange rates (if the company works with imported suppliers), risks of budget defaults or cost overruns due to inefficient planning), regulatory risks (changes in tax and agrarian

legislation, loss of state subsidies or support) (Zamlynskyj, Voloshina, Stepanenko, 2024).

The role of accounting and analytical support at this stage is the operational collection and processing of data on costs, income, financial results and production volumes, analysis of seasonal changes in costs and income to predict possible cash gaps, the use of data to assess risks based on historical trends.

Next, you need to define the objectives of the strategy of financial and economic security. The goal is to create clear and achievable goals to ensure the financial and economic stability of the enterprise, namely: ensuring financial stability (increasing liquidity by optimizing working capital, increasing reserves to cover unpredictable costs); cost optimization (using information technologies to automate production accounting and identify inefficient costs, reducing the cost of purchasing and storing materials through centralized inventory management); risk management (formation of reserves to combat seasonal or economic risks, introduction of agricultural insurance).

The role of accounting and analytical support at this stage is the clear formation of goals based on financial and analytical reports, the use of accounting and analytical support data to establish realistic financial and production benchmarks.

The fourth stage is the development of specific measures for the implementation of the strategy of financial and economic security. The goal is to introduce practical measures aimed at achieving strategic goals, namely:

- introduction of modern accounting and analysis tools (effective use of the functionality of the accounting program for automated accounting of costs and income, creation of integrated reports that allow you to track financial and production indicators in real time) (Vasylishyn, 2020);

- optimization of financing and financial flows (revision of the capital structure, formation of reserve funds for financing unpredictable expenses, effective cash management, ensuring solvency and liquidity) (Grabchuk, Lyaxovych, Vakun, 2021);

- Improving the market situation (development of a marketing and sales strategy, including the use of accounting and analytical data to predict customer needs, expanding distribution channels through digital platforms or direct sales);

- Diversification of activities (expanding the range of products or entering new markets to reduce dependence on one segment);

- risk management (development of plans to respond to various risk situations (insurance, hedging, inventory creation, etc.).

At the fourth stage, when specific measures are developed for the implementation of the financial and economic security strategy, the role of accounting and analytical support is to provide automated monitoring and control over the implementation of financial and production measures, as well as to provide accurate data for managerial decision-making. The accounting and analytical support system helps in determining priorities for reducing costs, optimizing cash flows, managing risks and ensuring financial stability, which allows you to adjust the strategy in real time to achieve your goals.

Implementation of the financial and economic security strategy requires active application of the developed measures in daily activities to achieve stability, minimize

risks and ensure long-term financial stability. For the effective implementation of the strategy of financial and economic security of the agrarian enterprise, it is necessary to actively integrate the measures of the strategy into daily activities through accounting and analytical support. The system of accounting and analytical support automates and optimizes key financial and production processes, providing control over costs, cash flows, risks and liquidity. This allows you to maintain stability, respond quickly to changes and ensure a stable financial position of the enterprise in the long term.

The last stage is the constant monitoring and evaluation of the results of the implementation of the strategy. The goal is to assess the effectiveness of the implemented strategy based on the achievement of key indicators, namely:

- regular monitoring of financial and economic indicators;
- assessment of the success of risk management and the ability of the enterprise to withstand financial threats;
- making adjustments to the strategy if necessary, in particular, when the economic situation changes or new risks appear.

At the stage of constant monitoring and evaluation of the results of the implementation of the financial and economic security strategy, the role of the accounting and analytical support system is to automatically collect and analyze data, which allows you to quickly track the implementation of strategic goals, identify deviations from planned indicators and take corrective measures. The accounting and analytical support system provides accurate financial reports to help assess the effectiveness of the implemented measures, providing a basis for making informed management decisions.

Implementation of the strategy of financial and economic security of the agrarian enterprise on the basis of accounting and analytical support allows you to effectively manage the risks and resources of the enterprise. Careful conduct of all stages, from the analysis of the external environment to the implementation of the strategy, makes it possible to ensure the stability of the enterprise to external and internal threats, and also contributes to the achievement of strategic goals for the development of agricultural business.

Thus, the development of a financial and economic security strategy based on accounting and analytical support is a key point in increasing the competitiveness of the enterprise. The use of automated accounting systems, such as BAS Accounting, allows you to exercise operational control, identify risks in a timely manner and respond effectively to changes, which gives the enterprise advantages in the market.

The main direction of improving the system of accounting and analytical support is the introduction of modern information technologies that allow automating accounting processes, increasing the accuracy and efficiency of obtaining analytical information. In addition, it is necessary to expand the range of analyzed indicators to include not only financial, but also other important aspects of the enterprise, such as production, marketing and environmental. An important aspect is also the development of special models for assessing financial and economic security, which will more accurately determine the level of protection of the enterprise from various types of risks. It is the use of economic and mathematical modeling in the study of systems of accounting and analytical support for the management of financial and economic security of agrarian enterprises that will make it possible to move from qualitative analysis to quantitative assessment of risks and the

effectiveness of management decisions.

Traditional methods of analysis, while providing valuable information, often have limited ability to predict and optimize. The introduction of economic and mathematical modeling in the accounting and analytical system of an agrarian enterprise involves the development of special models that reflect the features of the enterprise's activities and allow assessing its financial condition, production efficiency, risks and other important indicators. Such models can be built on the basis of regression analysis, probability theory, mathematical statistics and other mathematical methods. Table 3.1.4 identifies the main directions of application of economic and mathematical modeling in improving the system of formation of accounting and analytical management of financial and economic security of enterprise.

Table 3.1.4

Directions of application of economic and mathematical modeling
in the system of formation of accounting and analytical support

| Direction | Characteristics |
|--|--|
| Assessment of the level of financial and economic security | <ul style="list-style-type: none"> ➤ The creation of safety indices using multi-factor analysis will ensure the development of an integral indicator that will reflect the overall level of financial and economic security of the enterprise; ➤ The use of time series methods will predict the dynamics of key financial indicators; ➤ Regression analysis will help to establish which factors most significantly affect the level of financial and economic security. |
| Optimization of management decisions | <ul style="list-style-type: none"> ➤ Linear programming methods can determine the optimal ratio between own and borrowed capital; ➤ Linear programming models will help determine the optimal volume of production of various types of products, taking into account resource constraints; ➤ Portfolio theory models will form an investment portfolio that will provide maximum profitability with minimal risk. |
| Development of early warning systems | <ul style="list-style-type: none"> ➤ Using cluster analysis Using linear programming, you can determine the optimal ratio between own and borrowed capital; ➤ Neural networks can be used to create models that predict the likelihood of a crisis. |
| Modeling the influence of external factors | <ul style="list-style-type: none"> ➤ The use of simulation modeling will allow to investigate the impact of various scenarios of the development of the external environment on the financial condition of the enterprise. |
| Evaluate the effectiveness of safety measures | <ul style="list-style-type: none"> ➤ Econometric methods will provide an opportunity to assess the effectiveness of various measures aimed at improving the level of financial and economic security. |

Therefore, the use of economic and mathematical modeling to calculate an integrated indicator of financial and economic security is an innovative approach that allows you to move from qualitative analysis to quantitative risk assessment. The developed model allows not only to assess the current state of the enterprise, but also to predict its development under various scenarios. This makes it possible to take preventive measures in a timely manner to avoid negative consequences and optimize the development strategy of the agrarian enterprise.

3.2. FORMATION OF FINANCIAL RESULT AND ITS IMPACT ON MANAGEMENT INCOME OF AN ENTERPRISE AS AN ELEMENT OF ECONOMIC SECURITY

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The financial result is one of the key indicators that reflects the efficiency of the enterprise's economic activity over a period. It is a reflection of the total outcome of all financial and economic transactions and shows whether the enterprise has reached profit or loss. The formation of a financial result is a central component of financial statements and plays a crucial role in making management, investment, credit and tax decisions.

The financial result is the difference between the income of the enterprise from the main and other activities and the costs associated with the receipt of these income. In a simplified form, the formula can be given as follows:

$$\text{Financial result} = \text{Income} - \text{Expenses} \quad (3.2.1)$$

If the difference is positive, the company earns a profit, if negative, the loss is fixed. In real economic conditions, the financial result is formed based on many elements, taking into account various costs (production, administrative, marketing, financial, other operating) and income (from sales of products, investment, financial activity, etc.). The financial result not only reflects the history of economic activity of the enterprise, but also serves as a guide for further planning, distribution of profits, assessment of investment attractiveness and creditworthiness.

Depending on the sources of formation and the accounting stage, there are several types of financial result. Gross financial result is the difference between the net income from the sale of products (goods, works, services) and the cost of sales. It is a primary indicator of profitability that shows how effectively the enterprise manages its production costs. Operational financial result is the difference between gross profit and operating expenses. Operating expenses include sales costs, administrative costs, product development costs, enterprise maintenance costs.

Financial result from investment activity - income or loss from transactions with financial instruments, sale of fixed assets, intangible assets, long -term financial investments.

The financial result from financial activity is the effect of attracting and using borrowed capital, payment of dividends, changes in the structure of equity. On the basis of these components, a net financial result is formed - the final amount of profit or loss after taxation.

There are two main approaches to determining the financial result. The method of comparing income and expenses - involves determining the result as the difference between the total income of the enterprise and its expenses for the reporting period. This is a classic approach that is used in accounting and financial statements. The method of net assets - is to determine the financial result as a change in the value of the enterprise's equity for a certain period (minus external investments and payments to shareholders). This approach is more characteristic of analytics and evaluation of the overall financial condition of the enterprise.

In accounting, the financial result is formed on the basis of accounting on income and expenses. According to national accounting standards (standards) (P (C) BO) or International Financial Reporting Standards (IFRSs), the financial result is determined in the financial results (report on total income).

The main articles that form a financial result are: Income from the sale of products (goods, works, services); Other operating income; Financial income; Other income; Cost of sale; Administrative expenses; Sales costs; Financial expenses; Other expenses; Income tax. The difference between total income and expenses is the profit (or loss) before tax, and after calculating the income tax - a net financial result.

The financial result performs a number of important functions in the financial and economic activity of the enterprise:

- Efficiency assessment - it is the main criterion for the profitability of the enterprise, an indicator of its viability;
- Formation of tax base - net income is used to calculate income tax, and therefore has a direct impact on the tax liability of the enterprise;
- Planning and strategy - the analysis of financial results allows the enterprise to form development strategies, to determine the most profitable areas of activity;
- Profit distribution - it is the financial result that determines the possibilities for paying dividends, investing in development, formation of reserves;
- Investment attractiveness - a profitable enterprise with a high financial result is more confidence by investors and creditors.
- The formation of the financial result is influenced by both internal and external factors. Internal belong to: management efficiency; cost structure; the level of prices for products; labor productivity; Production technologies.
- External factors include: market conditions; exchange rate; changes in tax legislation; inflation; the political situation in the country.

In the practice of determining a financial result, there may be problems related to inaccuracy of income and expenses, the use of different depreciation methods, complexity of delimitation of current and capital expenditures, influence of inflation and fluctuations in the exchange rate, differences between national and international accounting standards.

These aspects require careful analysis and often adjust the indicators to make the right management decisions.

Therefore, the financial result is a key indicator of the financial activity of the enterprise, which generalizes the impact of all processes and decisions taken within the operational, investment and financial activities. Its analysis allows you to evaluate management efficiency, financial stability, and prospects for enterprise development. In today's context, determining the financial result requires not only the accuracy of credentials, but also the use of financial analysis, forecasting and strategic planning tools.

In terms of financial result assessment, it is necessary to consider the concept of net profit and financial result before taxation. Final Profit and Financial Result to Taxation: The Essence and Significance in the Financial Reporting of the Enterprise

In today's economy, one of the most important indicators of the enterprise is its financial result. It is this indicator that allows you to evaluate the effectiveness of management decisions, business profitability and determine the development strategy. Among the various forms of financial indicators, a special place is occupied by the financial result before tax and the final profit (or net profit).

The final profit is the net financial result of the enterprise's activity for a certain period after deduction of all expenses, including income tax. It is the final profit that reflects the real income of the enterprise, which can be used to pay dividends, formation of reserves, reinvestment in business development or other goals. This indicator is a key criterion for the financial efficiency of the enterprise.

The financial result before tax is the difference between all the income and expenses of the enterprise to take into account tax liabilities. It shows how much profit (or loss) the enterprise has earned for the reporting period before paying the income tax. This indicator is the basis for calculating the amount of tax and allows to evaluate the efficiency of economic activity without the influence of fiscal factors.

The financial result of the enterprise is a key indicator that reflects the effectiveness of its economic activity. In accounting and financial statements, two concepts are of particular importance: financial result before taxation and final profit (net profit). Understanding the essence of these indicators, their interconnection and differences is necessary for the proper accounting, reporting and making management decisions.

The financial result before tax is the difference between all the income and expenses of the enterprise for the reporting period before the tax liabilities are taken into account. It shows how much profit (or loss) the enterprise has earned for the reporting period before paying the income tax.

Formation of financial result before taxation is carried out by algebraic summation – profit (loss) from operating activities: the main activity of the enterprise related to the production and sale of products, goods or services. financial income and expenses: investment income, interest on deposits, debt service costs, etc. Other income and

expenses: income from the sale of non-current assets, penalties, exchange differences, etc. In accounting, the financial result before tax is reflected in account 79 "Financial results". The credit of this account reflects income, on debit - expenses.

The final profit, or net profit, is the financial result of the enterprise after deduction of all expenses, including income tax. It reflects the real income of the enterprise, which can be used to pay dividends, formation of reserves, reinvestment in business development or other goals. The final profit is determined by the formula:

$$\text{Final profit} = \text{Financial result before tax} - \text{Income tax} \quad (3.2.2)$$

The financial result before tax is the basis for calculating income tax. It allows you to estimate the profitability of the enterprise to take into account tax liabilities and is an important indicator for internal analysis and planning. The final profit reflects the real income of the enterprise after paying all taxes. It is a key indicator for shareholders, investors and other stakeholders, as it determines the opportunities for profit distribution, investing in development and ensuring financial stability.

In the financial statements, the final profit is reflected in the financial results (form № 2) in the appropriate line. Comparison of financial result before taxation and final profit is presented in Table 3.2.1.

Table 3.2.1

Comparison of financial result before taxation and final profit

| Criterion | Financial Result before Taxation | Final Profit (Net Profit) |
|---|--|---|
| Definition | The difference between income and expenses to pay income tax | The difference between the financial result before tax and income tax |
| Includes | All income and expenses of the enterprise | All income and expenses including income tax |
| Using | Base to calculate income tax | The performance indicator of an enterprise activity |
| The Performance Indicator of an Enterprise Activity | Report in the report on financial results (Form No. 2) | Report on Financial Results (Form No. 2) |

The financial result before tax is the difference between the total income of the enterprise and its expenses for the reporting period before the income tax is accrued. It is this indicator that captures the intermediate summary of the financial activity of the enterprise and is the basis for calculating tax liabilities to the state.

The income and expenses that are taken into account in determining this indicator cover all areas of activity of the enterprise:

- Operational activity (production, sale of products or services);
- Financial activity (attraction of loans, investments, payment of dividends);
- Investment activity (purchase and sale of assets, securities, real estate).

- If the amount of income exceeds expenses, the enterprise receives profit before tax; If expenses are higher than income, the loss before tax is fixed.

The final profit (net profit) is a real profit that remains at the disposal of the enterprise after deduction of all expenses, including income tax. It is this value is the main thing for business owners, investors and creditors, as it shows the economic efficiency of the enterprise after fulfilling all the financial obligations to the state.

The final profit is important for further distribution, because it is used for payment of dividends to owners, formation of reserve funds, reinvestment in production development, financing of social programs of the enterprise, creating stabilization savings.

The final profit performs important functions in the financial management of the enterprise. This is an indicator that underlies decision making about profit distribution, increasing investment attractiveness, determining the level of dividend payments, formation of long-term development strategy, assessment of business process efficiency.

A profitable high-profit enterprise has a greater chance of attracting additional investments, obtaining banking funding on favorable terms and ensuring sustainable development.

Both the financial result before tax and the final profit depend on many factors, including: - volumes of sales of products; - cost structure; - level of operating and administrative expenses; - stability of the exchange rate; - tax legislation; - macroeconomic situation. Timely analysis of these factors allows the enterprise to plan profit and reduce tax risks.

The financial result and final profit are the main elements of financial statements that reflect the overall state of the enterprise and its profitability. A proper understanding of the differences between these concepts allows you to effectively plan economic activity, to fulfill tax liabilities in a timely manner, and to ensure stable development of the enterprise. Summing up, one can say - the financial result before tax shows the potential profitability of the enterprise to influence fiscal policy, the final profit is a real income that can be used by the enterprise at its own discretion.

Profit is the main source of enterprise development, which provides funding not only current activities but also for future investments. However, enterprise profit management is not limited to the achievement of high financial results. An important component of management decisions is the creation and maintenance of an effective financial and economic security system, which ensures the stability and stability of the enterprise in the conditions of external and internal risks. A stable level of profitability is one of the main factors that ensure a high level of financial and economic security of the enterprise, because it allows to reduce dependence on fluctuations on the market, to increase the ability to adapt to changes, and to ensure the reliability of financial flows.

Profit is a key financial indicator that reflects the result of the business activity of the enterprise. It is defined as the difference between total income and total expenses over a

period. Profit is the main purpose of the functioning of any commercial entity, because its presence allows the enterprise not only to survive in the market, but also to develop, expand its activities, introduce innovations and ensure competitiveness. Profit performs a number of important functions in the activity of a particular enterprise. In this context, it is advisable to evaluate the opinions of equal authors and scientists.

The functionality of profit includes a number of functions, including a comprehensive function in which the profit is motivated by management and staff to more efficient use of resources, reducing costs and increasing productivity. The function of profit in the economic security of the enterprise is written - a valuation function - serves as the main criterion for the efficiency of management, production and financial decisions. Investment function - provides an enterprise with its own financial resources to finance modernization, expand production or diversification. Social function - profit creation allows to provide stable wages, social guarantees and staff development. Therefore, enterprise profit management is a systematic process of planning, organization, analysis and control over the formation, distribution and use of profit. Effective profit management is the key to achieving strategic goals and financial stability of the enterprise.

The essence of profit management is to organize an effective process of planning, analysis, control and regulation of profit as the main source of financial development of the enterprise. Profit performs several important functions in the system of economic relations:

1. Efficiency of activity - profit shows the end result of the enterprise, allowing to evaluate the feasibility of using resources.
2. Stimulating function - profit motivates to improve production efficiency, innovation, cost optimization.
3. The source of development funding - accumulated profit can be aimed at updating fixed assets, expanding production, marketing or other investment goals.
4. Social function - profit allows to provide remuneration, social guarantees of employees, pay taxes and other obligations to the state.

Thus, profit management is a system of measures aimed at ensuring its increase by reducing costs, increasing the volume of sales, optimization of tax burden and rational use of financial resources.

Profit management covers a complex of interrelated stages that allow the enterprise to achieve the set goals in the field of profitability. The forecast of future financial results is formed, taking into account the market situation, production capacity, pricing policy, production costs, sales volumes and other factors. Planning enables the company to identify targets for profit, to develop an optimal strategy to achieve them. Profit management - at this stage, responsible persons and units are established for achieving the target indicators of profit, conditions for accounting, analyzing and controlling the financial result are created.

Profit management - it includes constant monitoring of the income and expenses of the enterprise, prompt detection of deviations from the targets, as well as rapid decision making to eliminate negative trends.

Profit analysis - provides the study of the actual indicators of profitability of the enterprise, identification of factors that influenced the deviation from the planned results, identification of reserves of growth of profit.

The distribution and use of profit - a system of priorities in the distribution of profit between reinvestment in business development, dividend payment, reserves, taxes and other purposes is formed.

Effective profit management is one of the main factors of stable functioning of the enterprise and ensuring its financial and economic security. This is especially important for enterprises that are engaged in the sale of electrical products, which are ours, and where competition is high and the external environment is constantly changing. The profit of the enterprise depends on a number of internal and external factors, so managers should constantly improve methods of forecasting, cost control and income optimization.

Given the specifics of the industry where technological innovations and market trends can quickly change the situation, the use of effective financial instruments is necessary to ensure sustainable development and competitiveness. It is important to use not only basic financial methods, but also modern tools that allow you to predict financial results, control costs and optimize resource use to increase the level of profit management efficiency. The total package of recommendations for optimization of profits and improving the level of financial security has 8 components, including budgeting and profit planning, analysis of profitability automation.

Profit control - provides compliance with the chosen strategy for profit distribution, verification of actual use of funds and evaluation of the efficiency of management decisions. The assessment of the level of profit and financial and economic security of the firm is presented in the Table 3.2.2.

Effective profit management is one of the key aspects of ensuring the financial and economic security of the enterprise engaged in the sale of electrical products. In order to achieve stable and predicted profitability, it is necessary not only to increase income, but also to carefully control costs and to optimize all financial processes. In this context, improving the control system is an important element that helps maintain the stability of the enterprise's finances in a changing market environment.

The economic security of the enterprise is one of the key components of its stable functioning, development and competitiveness in a dynamic and often unstable market environment. In today's economic environment, economic security is as a strategic priority that provides protection against threats, adaptation to changes and sustainable growth of the enterprise.

Table. 3.2.2

Assessment of profit management and financial and economic security

| Assessment criteria | Rating |
|---------------------------------|--|
| Profit management | Satisfactory level, basic financial management tools are used but requires improvement |
| Financial and economic security | Moderately stable, positive profit and solvency, but the risk of reducing liquidity due to high concentration of inventory. |
| Strengths | <ol style="list-style-type: none"> 1.Developed sales channels 2. Diversified assortment 3.The stable circle of customers 4.Compaptation with reliable suppliers 5. Experience in the sphere of trade in electric goods |
| Recommendations | <ol style="list-style-type: none"> 1. Using economic and mathematical methods to forecast profit 2. Implementation of an automated management accounting system 3. Formation of domestic reserve funds 4. Monitoring of financial indicators |

Economic safety of the enterprise means the state of the economic system, in which it is able to function effectively, develop, maintaining resistance to internal and external threats, minimizing risks and ensuring the achievement of planned economic goals. It is a multifaceted category that covers all aspects of the enterprise: financial, production, personnel, resource, innovative, information and legal.

Economic security is not only a state of protection, but also an active process of predicting, identifying, neutralizing and overcoming threats, as well as the formation of such management mechanism that will allow the enterprise not only to survive in a competitive environment, but also to strengthen its position in the market.

The main features of economic security of the enterprise:

- Complexity. Economic security covers all areas of activity of the enterprise. It includes not only financial sustainability, but also the efficiency of resource management, intellectual property protection, reputation, market positions, etc.

- Dynamic. Threats and risks are constantly changing under the influence of economic, political, social and technological factors, so the economic security system should be flexible and adaptive.

- Preventivity. One of the key principles for ensuring economic security is to expetent threats and risks and their timely neutralization.

- Stability. Economic safety implies the ability of the enterprise to withstand destabilizing influences and to restore the normal mode of operation even in difficult conditions.

- Integration into strategic management. Safety should be an integral part of the long-term enterprise strategy, and not be considered as a single or reactive action.

The main components of the economic security of the enterprise

The economic security of the enterprise includes a number of interrelated elements:

- Financial security - characterizes the ability of an enterprise to maintain solvency, liquidity, financial stability and minimize financial risks.
- Production safety - related to the efficiency and reliability of production processes, ensuring stable supply of resources, compliance with technological discipline.
- Personnel safety - concerns the quality of staff, its competence, loyalty, stability of labor relations and protection against leakage of critically important information.
- Technical and technological safety-provides competitiveness of products through modern technologies, innovative solutions, technical modernization.
- Legal security - provides for the observance of legislation, protection of property rights.

Sources of threats to economic security - understanding the essence of economic security is impossible without awareness of the potential threats that an enterprise may face. Among them can be distinguished:

External threats: economic instability in the country and the world, competition, changes in legislation, political instability, natural disasters, man -made disasters.

Internal threats: inefficient management system, low level of financial discipline, personnel problems, internal fraud, morally and physically outdated fixed assets, lack of innovative development.

A successful enterprise not only takes into account the risks, but also forms a system that allows you to identify threats and respond promptly mely response to changes in the legal field.

- Information security - aimed at protecting the information flows of the enterprise, preventing losses or distorting critically important information.
- Environmental safety - allows the enterprise to comply with environmental standards, reduce the costs associated with environmental risks.

The key mechanisms for ensuring the economic security of the enterprise include:

- Monitoring and audit - constant monitoring of the main indicators of the enterprise and identifying deviations from the planned goals.
- Risk analysis is the identification, assessment and modeling of potential threats in order to prevent them or minimize negative consequences.
- Financial planning and budgeting - development of effective financial strategies, creation of reserve funds, control over the implementation of financial plans.
- Strategic management is the development of flexible business strategies that allow you to quickly adapt to changes in the market environment.

The economic security system (CEB) is a complex of organizational, management, technical and legal measures to protect the enterprise from external and internal threats.

Economic security allows the company to achieve the following results - stable development, reducing the level of risks, increase of competitiveness, preservation of property and capital, strengthening of confidence by investors, partners, customers, maintaining a positive business reputation. Sustainable economic security creates the conditions for the realization of long-term goals of the enterprise and allows you to prepare effective anti-crisis scenarios, ensuring its viability in all economic conditions.

The economic security of the enterprise is the basis of its stability, competitiveness and development. It implies an effective system of protection against risks and threats that can ensure the preservation of resources, adaptation to changes in the market environment and achieving strategic goals. A successful model of economic security is the key to the long-term functioning of the enterprise and the growth of its market value.

In today's economic environment, the financial component of the economic security of the enterprise plays a key role in shaping its profitability and stability of functioning. It is financial security that is the foundation on which the enterprise's ability to financing, investment development, market expansion and protection against external and internal threats is based. Profit, in turn, is not only an economic indicator of efficiency, but also the final criterion of financial security.

The financial component of economic security is a state of protection of the enterprise from financial threats and risks, which ensures the stability of its financial and economic activity, achievement of strategic goals and increasing the cost of business. Financial security covers several key aspects - solvency and liquidity, balance of financial flows, optimal capital structure, effective cost management, protection of financial assets from external and internal threats, the ability to attract additional resources as needed. The stable financial condition of the enterprise provides it not only to maintain competitiveness, but also to generate profit in the short and long term.

From an economic point of view, the final profit of the enterprise is the difference between income and expenses. At the same time, a high level of financial security directly affects both components: Formation of income - a financially sustainable enterprise has more opportunities to attract profitable investments, expand production, get into new markets, develop competitive products and maintain optimal pricing policy. This, in turn, provides an increase in sales and income. Financial security involves the rational use of resources, cost optimization, prevention of unreasonable losses, fraud, inefficient financial transactions, which minimizes costs and increase profit.

The relationship of financial security with the profit of the enterprise is manifested through several main mechanisms:

1) Maintain liquidity and solvency - if the company has liquidity problems, it can lose suppliers, partners, markets, accumulate fines and penalties for debts. This directly reduces profits or results in loss. High financial security allows you to avoid such losses.

2) Optimization of capital structure - the correct balance between your own and raised funds allows to reduce the cost of financing, avoid unnecessary financial liabilities and ensure stable financing of operating activities, which has a positive effect on profit.

3) Financial Risk Protection - high financial security enterprises have a well - established financial monitoring system, audit and risk management. This allows you to identify threats in advance (for example, the depreciation of currency, changes in tax legislation, unscrupulous counterparties) and minimize potential losses, thereby protecting profits.

4) Rational use of financial resources - effective management of working capital allows to reduce the financial costs associated with loans, storage of resources, penalties for late obligations, etc. Saved funds directly affect the growth of final profit.

5) Investment activity and innovative development - businesses with strong financial security are able to invest in new projects, technologies, automation, which in the long run leads to increased productivity, reduction of costs and increase in profit.

6) The reputation and trust of investors - financial stability is one of the main factors of trust by banks, investors and partners. Access to cheaper sources of financing, partnership projects or joint investment increases opportunities to expand business and increase profit.

The financial component of economic security is closely linked to strategic planning. Profit is not a random result, but a consequence of a well -organized financial policy. Enterprises that integrate financial security into strategic management usually - create financial reserves to cover unforeseen costs, conduct regular audit of financial flows, invested in systems of analytics and risk forecasting, diversification of sources of income, control customers and suppliers' debt. They adhere to financial disciplines at all levels of management. These actions reduce the likelihood of financial losses and ensure a steady increase in profit.

The profit of the enterprise is not only a financial result of its work, but also reflecting how effective it is protected from financial threats. If an enterprise generates profit for a long time, it indicates a stable and reliable financial policy, the presence of anti -crisis response mechanisms and adaptation to changes in the environment. Otherwise, systematic losses, lack of working capital, increasing receivables, inability to attract funding or loss of clients - indicate serious financial security problems.

The financial component of the economic security of the enterprise has a direct and very close connection with the final profit. A stable, protected financial condition allows the enterprise to effectively dispose of resources, timely identify and eliminate risks, avoid financial losses and ensure an increase in income. That is why financial security is a prerequisite for profit generation and one of the key factors of long -term success of the enterprise. The economic security of the enterprise without a reliable financial basis is

impossible. Only with a sustainable financial situation is it possible to increase profit, ensure stability and achieve strategic goals.

In the structure of economic security of the enterprise an important place belongs to the production component. It directly affects the stability of operating activities, product quality, competitiveness and ultimately - the financial result of the enterprise. The link between the production component of economic security and the final profit is direct and systemic, since production creates the main part of the value added.

The production component of economic security is a set of conditions, resources, organizational decisions and technical means that provide a stable, continuous, efficient and qualitative functioning of the production process at the enterprise, even under the conditions of external or internal threats.

This component covers - availability and quality of fixed assets, stability of supply of raw materials, technological discipline, efficiency of use of production resources, compliance with standards and standards, reduction of losses from downtime, breakdowns, marriage, personnel potential of production. The higher the level of production organization and risk protection, the more projected and sustained the profit of the enterprise.

The final profit of the enterprise is formed at the expense of profitable sales of products, goods or services that are created within the production process. Production safety directly affects this process in several directions:

1. The continuity of production - ensuring trouble -free equipment, clear logistics for the supply of raw materials and components, compliance with the planned terms of execution of orders allows to avoid downtime. Simple lead to a decrease in output and loss of part of the planned profit.

2. Minimization of production losses - inadequate technical condition of equipment, low level of staff qualification, lack of a clear organization of the production process lead to a marriage, overpopulation of materials, additional costs for repair or processing of products. Production safety prevents these losses, and therefore contributes to the increase in profit.

3. Product quality of product - high -quality products have a higher market price and allows the enterprise to avoid fines, promotions and returns. High quality products are a direct consequence of a well -established and protected production process, which reduces the cost of eliminating deficiencies and increases profitability.

4. The flexibility of production - modern markets require rapid adaptation of enterprises to changes in demand, orders and production volumes. Production safety involves the presence of capacity reserves, raw materials, trained personnel and technical solutions that allow you to respond quickly to changes, providing a stable level of income and profit.

5. Rational use of resources - production safety provides control over the cost of materials, energy, labor and time resources. The more efficient resources are spent, the lower the cost of production and the higher the final profit.

6.Reduced repairs and accident costs - preventive equipment care, technology modernization, process automation and discipline increase the number of breakdowns, accidents, and emergency situations that can lead to significant financial losses. The stable state of production guarantees profit.

7. Personnel safety and compliance with labor protection standards - accidents, accidents, penalties for violation of safety requirements are not only a threat to people's lives, but also significant financial losses for the enterprise. Occupational safety -oriented production safety system allows you to minimize these risks and maintain business profitability.

An enterprise can only increase profit when it is able to provide stable output, its high quality, timeliness of fulfillment of obligations to customers, optimal production costs. Each of these factors depends directly on the level of production security organization. Moreover, a strategic approach to industrial security allows the company to reduce the risks related to -physical wear of the equipment, dependence on individual suppliers, change of technological standards, a shortage of skilled personnel. Reducing these risks ensures the stability of production cycles, reduction of losses and - as a consequence - an increase in profitability.

It should be noted that the production component of economic security directly affects profit through investments in the renewal of the technical base. Implementation of the latest technologies, process automation, energy saving allow - reduce the cost of a unit of production, increase production volumes, expand the range, improve quality. These factors directly form the competitive advantages of the enterprise and allow you to generate consistently high profits.

The production component of economic security has a direct and deep connection with the final profit of the enterprise. The stability, efficiency and security of production depend on output, product quality, cost levels and competitiveness. That is why enterprises that are systematically investing in improving production security are achieving more stable financial results and steady profit. Provision of production security is not a short -term task, but an important part of the overall economic security strategy of the enterprise, which allows you to successfully work in market risks, instability and competition.

In the structure of economic security of the enterprise, an important place is occupied by a personnel component. It is the staff that is the driving force of all business processes- from strategic planning to direct production, sale and customer service. The efficiency of staff work directly affects the financial results of the enterprise, and its professionalism, loyalty and stability - the stability of the economic system of the enterprise as a whole.

The personnel component of economic security is a state of providing the enterprise with qualified, motivated, stable staff capable of effectively performing tasks, even in the event of internal or external challenges and threats.

It includes the following key elements - availability of professionally trained personnel, motivation of employees to achieve the goals of the enterprise, protection against the leakage of intellectual resources, stability of personnel, corporate culture that promotes teamwork, protection against internal fraud, conflicts and sabotage. Effective system of selection, training and adaptation of personnel. The higher the level of personnel safety of the enterprise, the more stable its position in the market, the more efficient the economic activity and the higher profitability is carried out.

The final profit of any company is the result of effective interaction of human capital with other resources: financial, material and information. Personnel safety provides such interaction by reducing the risk of personnel failures.

1. Labor productivity - competent, qualified and motivated employees are able to provide high performance, quality and speed of tasks, which allows the enterprise to fulfill orders in a timely manner, satisfy customers and increase sales, and therefore profit.

2. Reduced the costs of error and shortage - insufficiently prepared personnel make mistakes that make additional costs for defects, re -production, return of products or compensation to customers. Personnel safety involves the professionalism of workers that minimizes these losses and protects profits.

3. The stability of business processes - frequent turnover of staff leads to a violation of the stability of production and management processes, loss of experience and competencies, increasing the costs of training of new workers. Low staff turnover and high personnel stability ensure the continuity of business processes, which contributes to stable profit.

4. Innovation and development - qualified personnel not only perform routine tasks, but also generate ideas to improve processes, create new products, improve efficiency. This allows the company to reduce costs, improve the quality of products and remain competitive, which directly affects profit.

5. Staff loyalty - the personnel loyal to the enterprise are less prone to unauthorized leakage of confidential information, industrial espionage, fraud or sabotage. High personnel safety involves such systems of motivation and control that prevent these risks, protecting the reputation and financial condition of the enterprise.

6. Flexibility in crisis situations - qualified and cohesive personnel can effectively adapt to changes in the market environment, redistribute resources, switch to new technologies or markets. The flexibility of staff allows the enterprise not to lose competitive advantages and profitability, even in difficult economic conditions.

7. Internal control and discipline - the presence of a high culture of corporate responsibility and discipline among employees helps to reduce financial losses due to

negligence, dishonest attitude to work, theft, fraud or violation of work duties. Effective internal control contributes to the protection of the property of the enterprise and the preservation of profit.

Personnel safety costs cannot be considered as normal administrative expenses. It is a long-term investment in business sustainability and profitability.

Businesses that are actively developing personnel policy usually benefit from increasing the effectiveness of management decisions, reducing the cost of adaptation of new workers, reducing the level of production losses due to staff errors, improving the image in the market, greater trust of partners and customers. All these factors are directly reflected in the financial result.

The modern market is a space of high competition, where the speed of response to changes, the ability to generate new solutions and maintain constant development become the key to not only survival, but also profitability. It is human capital that is the bearer of knowledge, skills and creativity that ensure the flexibility and competitive advantages of the company.

High level of personnel safety reduces the likelihood of situations where through the outflow of experts, critical processes for profitability stop, errors or sabotage of personnel lead to financial losses, the quality of the product is reduced and the company loses the market. Therefore, having a stable, motivated, qualified team is a prerequisite for long-term profit growth.

The personnel component of economic security has a direct and deep connection with the final profit of the enterprise. It is the staff that is a key factor that determines the productivity, quality, innovation and competitiveness of the company. High level of personnel safety provides a reduction in the risk of losses, stability of production and management processes, protection against internal threats and promotes profitability. Investing in human capital, the development of motivational policy, providing social guarantees and training of employees is a prerequisite for the economic security of the enterprise and its long-term financial success.

In today's management, the technical and technological component of the enterprise's security plays a key role in ensuring stability, competitiveness and profitability of business. The level of technical equipment, innovation of production processes, automation, introduction of modern information systems and control depends not only on the efficiency of economic activity, but also the ability of the enterprise to withstand internal and external threats.

The technical and technological component of the enterprise is a set of measures, technical means, methods of organization of production processes and control systems, which are aimed at ensuring a stable, trouble-free, efficient and safe operation of all elements of the enterprise. It covers engineering resources, automation, maintenance, introduction of new technologies and monitoring the technical condition of the equipment.

The key tasks of this component are: ensuring the continuity of technological processes, improving the efficiency of resource use, prevention of man-made accidents and breakdowns, maintaining high quality products or services, reducing the risks of downtime and unauthorized interventions, increasing the adaptability of the enterprise to market changes.

The main elements of technical and technological safety include. Technical tools - machines, mechanisms, devices, computer equipment, automated control systems, network and other equipment that provides production activities. Technological processes - methods, sequence and rules of work, use of innovative approaches, software and integration of automated solutions. Maintenance systems-regular maintenance of equipment, malfunction, introduction of technical monitoring systems (SCADA, ERP, Mes systems). Automation and robotization systems - minimization of the human factor, introduction of intellectual production management systems. Relationship of technical and technological component of safety and profit management. The technical and technological component directly affects the key financial and economic indicators of the enterprise. First of all, its level determines the cost of production, quality of final products, productivity, cost level, output and competitiveness. Accordingly, all these factors are the main determinants of the formation of profit of the enterprise.

1. Reduced costs by optimizing technology - modern technological solutions allow to reduce the cost of a unit of production by automation, energy efficiency and minimization of the amount of waste. For example, modernization of production lines using energy-saving equipment reduces consumption of resources, which reduces the cost of production and increases marginal income.

2. The stability of the production cycle and the avoidance of downtime - the technical condition monitoring system allows for a timely detection of malfunctions and prevent accidents. This guarantees production stability, reduces the number of stops, and therefore reduces the loss of profit due to simple. Every minute of production stop can turn into significant financial losses, especially in large industrial enterprises.

3. Improving product quality - modern technical means allow you to introduce quality control systems at all stages of production. This significantly reduces the amount of defective products, increases the reputation of the enterprise, strengthens its position in the market and promotes profit by increasing the volume of sales and reducing the cost of advertising.

4. Flexibility and adaptability to market changes - technological modernization allows you to quickly adapt production processes to new requirements of the market or customer, start new products, change the scale of production without significant financial losses. This directly affects the ability of the enterprise to respond to market challenges, preserving or even increasing profitability.

5. Information security and data management - modern technologies provide reliable protection of industrial information, preventing loss or theft of commercial secrets, technological instructions, drawings, software. Data security is the basis of stable process and financial flow management, and recovery costs after information attacks can be significant and directly affect the profit.

Technical and Technological Safety as an Element of Strategic Management. In the long run, the technical and technological component of security affects the strategy of enterprise development. High level of technical safety allows: expand production capacity without a significant increase in risks; enter new markets; to increase the efficiency of personnel management through automation of routine operations; attract investments due to high security standards; reduce insurance costs and liabilities to counterparties.

Thus, the effective management of the technical and technological component of the enterprise not only protects it from the risks associated with the failure of technology or outdated technologies, but also creates additional opportunities to increase profitability.

The technical and technological component of the enterprise is an important strategic resource to ensure stable business functioning. It not only guarantees the physical safety of production processes and resources, but also is the basis for building a competitive profit management model.

Modern enterprises that are actively investing in technical security, automation and innovative technologies are able not only to minimize risks, but also to ensure a steady increase in profit due to: reducing operating expenses, improving product quality, ensuring production stability, reducing losses due to accident or failure, Increasing trust from clients and partners.

Therefore, the technical and technological security of the enterprise is not just a set of engineering measures, but a full element of the profit management system, without which it is impossible to ensure the economic sustainability and dynamic development of the enterprise in the conditions of market competition.

Enterprise security is a set of measures aimed at protecting resources, processes, staff and financial interests from potential threats. One of the key subsystems is the power component of security that provides the protection of the enterprise from physical threats: illegal penetration, theft, vandalism, sabotage, conflict situations, terrorist acts and other illegal actions. The security component of safety is a system of organizational, technical and personnel measures that provides physical protection of objects of the enterprise, personnel, tangible and intangible assets from real or potential force threats. It is the guarantor of the stability of the enterprise, preventing sudden losses that can have a direct impact on financial results, in particular on profit.

The security component of security covers the set of units, tools and strategies that provide physical protection of the enterprise:

1. Security units - the most obvious and basic element is the security service that can be internal (full -time enterprise security guards) or external (contractor security companies). The task of the guards is to ensure order in the territory, control access to objects, prevention of offenses.

Technical safety systems - CCTV systems (CCTV), signaling complexes, access control systems (SKD), perimeter security, intellectual threat detection systems, physical infrastructure, fences, barriers, locks, checkpoints and checkpoints, special fortified storage facilities for values, anti -vandal structures.

Personnel training and training - conducting exercises on algorithms of action during threats, emergencies, conflicts, attempts. The security component of security is a direct tool for the protection of property and financial resources of the enterprise. Physical safety violations can lead to the loss of equipment, raw materials, goods, destruction of documentation, damage to infrastructure, loss of reputation and, as a consequence, to significant financial losses. Stable operation of the power safety system helps to prevent these risks and ensures the predictability of production and economic processes.

The impact of the force component on key indicators of enterprise profitability:

1. Prevention of direct material loss - reliable protection of the enterprise reduces the risk of theft, damage to products or equipment, which allows to save assets and avoid unnecessary costs for recovery.

2. Continuity of the production process - the lack of incidents related to physical intervention in production avoids stops that lead to a decrease in production and, accordingly, income.

3. Personnel protection - safe working conditions ensure stable staff, reduce accidents, increase labor motivation and reduce compensation and insurance costs.

4. Protection of reputation and confidence of counterparties - robbery incidents, access to objects or internal threats, have a negative impact on the reputation of the company, which can lead to the loss of customers and partners. The power component minimizes these risks.

5. Saving funds to eliminate the consequences of incidents - investment in power safety is always cheaper than recovery after catastrophes, theft or vandalism. An enterprise with a well -built physical protection system significantly reduces the cost of repairs, the purchase of new assets and litigation.

Formation of a power component of safety is not only the protection of physical objects, but also strategic risk management. By ensuring the stability and predictability of operating activities, strength security forms the conditions for the constant profit of the enterprise.

Management approach to the construction of power safety includes - risk and threat assessment, optimization of the structure of security units, introduction of a multi -level

protection system, automation of video surveillance and alarm systems, personnel training correct behavior in critical situations.

This reduces the likelihood of unforeseen costs, save assets, avoid disruptions in the supply of products and reduce the insurance burden. All these factors directly affect the financial result of the enterprise.

Modern markets are especially sensitive to the safety of companies. An enterprise that has stable power safety demonstrates reliability and professional approach to risk management. It forms trust from the outside - banks and credit institutions, insurers, strategic investors, customers and suppliers. Trust in the enterprise as a safe partner opens new financial capabilities, which indirectly or directly contributes to the increase in profit.

The power component of the enterprise's security is an important part of the risk management system and business stability. Her tasks are not limited to physical protection of resources - a strategic tool for preventing losses that allows you to provide - sustainability of production, protection of tangible and intangible assets, staff safety, reducing the cost of eliminating the consequences of incidents, increasing confidence by clients, partners, investors.

Thus, strength safety directly affects the conservation and increase of profitability of the enterprise. Successful business is impossible without a systematic approach to protection against physical threats, since even a one -time incident can lead to loss of reputation, material loss and reduction of trust, which in the long run threatens to reduce financial indicators. Therefore, the effective management of the power component of safety is not the cost, but investments in the stable profit of the enterprise.

Summarizing in general terms, the influence of each of the components of economic security on the final profit of the enterprise should state the following. In particular the economic security of the enterprise is not just a formal category, but a real range of measures aimed at ensuring stable functioning, protecting resources and achieving strategic goals. It plays a key role in ensuring long-term financial stability, competitiveness and profitability of any enterprise, regardless of its field of activity.

Given the versatility of the concept of economic security, it includes several main interrelated components, each of which has its own specific, but at the same time closely intertwined with other influences on the financial results of the enterprise, in particular on the final profit. Consider the impact of each component in detail.

1. Financial component - financial security is the basis of stable functioning of the enterprise, since it guarantees the solvency, liquidity and stability of financial flows. Its task is to protect against financial threats, reduce dependence on external financing, avoid cash gaps, optimize the structure of assets and liabilities. High level of financial security allows the enterprise - to fulfill financial obligations in a timely manner, maintain a stable capital turnover, avoid penalties for breach of contracts, effectively attract investment for development. All this creates prerequisites for profit growth due to the stability of

operating processes, reducing the costs of loans, penalties and penalties, increasing confidence by counterparties and financial institutions.

2. The production component provides the enterprise with a material base for the creation of goods and the provision of services. The level of organization of the production process, the efficiency of use of production capacity, optimization of inventories of raw materials, energy and materials, technical condition of equipment and organization of labor directly affect the cost of production, and therefore profit. High simple, equipment breakdown or technological backwardness reduce productivity, increase costs and reduce profitability.

3. The investment component plays a strategic role as it ensures business expansion, modernization of the production base, development of new markets and introduction of innovative technologies. Weighted investment policy allows to increase the competitiveness of products, optimize costs, increase income and long-term increase of profitability.

4. The innovative component is responsible for the ability of the enterprise to introduce new technologies, management methods, marketing strategies and develop new products. Innovative activity is the key to improving labor productivity, reducing costs, improving the quality of goods and services, which ultimately has a positive effect on profits.

5. The personnel component of economic security focuses on the competence, qualification, motivation of staff and its loyalty to the enterprise. A professional, initiative and cohesive team is able not only to maintain stable operating activities, but also to actively promote innovative development, cost optimization, and increase labor productivity - and therefore increase profit. The legal component provides for compliance with legislative requirements, the conclusion of legally literate contracts, the protection of the rights of the enterprise from the wrongful actions of counterparties, competitors and state bodies. Legal security reduces the risks of legal costs, penalties, confiscation or other economic losses, maintaining the financial resources of the enterprise and ensuring the stability of its profitability.

6. The information component is important because modern business is increasingly dependent on the accuracy, relevance and completeness of information for making effective management decisions. Protection of commercial information, analysis of market trends, information transparency and reliability of data reduce the likelihood of financial errors and reduce the risks of loss of competitive advantages, which allows to save and increase profit.

7. The technical and technological component is related to the technical condition of production capacity and the degree of compliance with modern requirements. The use of morally and physically worn equipment is a threat to reducing the quality of products, increasing the amount of marriage, downtime and costs, which has a negative impact on

profitability. On the contrary, modern technologies allow you to reduce costs, automate processes, improve quality and, as a consequence, increase income.

8. The environmental component of economic security determines the level of compliance with environmental standards and standards. Violation of environmental legislation can lead to penalties, lawsuits, reputation losses and additional costs, which directly reduces the profitability of the enterprise. At the same time, compliance with environmental requirements increases the confidence of consumers, avoids the cost of eliminating the effects of harmful effects and contributes to sustainable development.

Commercial secrecy security is another important element of economic security. Protection of internal information, knowledge, patents, technical documentation, client bases and marketing strategies avoids economic losses in the event of information leakage, unfair competition or corporate blackmail. The loss of strategic information is able to reduce profitability, while effective intellectual property protection increases the cost of business and retains competitiveness.

Therefore, analyzing the components of the economic security of the enterprise, we can conclude that each element is closely related to the formation and protection of profit as the main financial result of the enterprise. On the one hand, proper attention to each component contributes to the stability of business, reduction of risks, cost optimization and maximizing income. On the other hand, ignoring any aspect of safety can lead to significant economic losses, reduction of profitability or even loss of business.

Thus, ensuring a high level of economic security should be an integral part of the strategic and operational management of the enterprise. The systematic approach to the analysis, monitoring and management of economic security components allows for time to identify and neutralize threats, to expand the potential of the enterprise to increase profits, to maintain stable economic activity even in times of crisis and high competition.

In today's conditions of unstable market environment and dynamic changes in macroeconomic factors, economic security is extremely relevant. Enterprises that actively invest in the development of economic security components form a stable foundation for their growth, provide long-term financial stability, reduce the risks of external and internal losses and create prerequisites for increasing profitability.

Therefore, economic security is not only a shield from threats, but also a powerful tool for achieving financial goals, implementing strategic plans and creating a stable competitive advantage in the market. It provides the enterprise with the ability to adapt flexibly to changes in the environment, effectively manage resources, minimize risks and respond in a timely manner to challenges that can affect the economic performance of the activity. A high level of economic security allows to function stable even in the face of market instability, political turbulence or harsh competition, as well as lays a solid foundation for sustainable development of the enterprise.

3.3. OPTIMIZATION OF THE INFORMATION SUPPORT SYSTEM FOR THE FINANCIAL AND ECONOMIC SECURITY OF THE ENTERPRISE

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In the conditions of dynamic development of a market economy and an increase in competition, ensuring the economic security of the enterprise is the basis of its stable functioning and further development. An important tool for achieving such security is an effective information support system, which includes the processes of collecting, processing, storing, analyzing and transmitting information for management decisions.

Modern information support can be considered as a set of methods, tools, resources and technologies that are aimed at meeting the needs of enterprise management. Such a system should cover the full range of management processes - from operational to strategic level, providing access to the necessary, reliable and timely information for risk analysis, planning, control and evaluation of activity efficiency.

In general, information support can be described as an integrated system that includes information resources (internal and external), technological infrastructure (software, computing systems), methodological basis (analytical approaches, models, data processing methods), as well as a regulatory framework. All of these components should interact within the single logic of management, focused on achieving the stability and competitiveness of the enterprise.

Information in this system is not only a passive source of data, but also an active management tool. It allows you to identify threats, identify weaknesses in internal business processes, evaluate the effectiveness of implemented strategies, as well as adapt the activity of the enterprise to external changes-changes in legislation, market trends, competitors' behavior, etc. Accordingly, information support is not only a technical or procedural element, but also a strategic platform.

The information support of the management activity of the enterprise is based on the use of a wide range of sources of information, which are conditionally divided into internal and external. This division is fundamentally important because each category of sources performs its function in the process of forming a complex information base necessary for effective management, strategic planning and decision -making.

Internal sources of information include data that is formed directly within the enterprise in the course of its operational, financial and management activities. First of all, it is an account that is generated in the process of accounting, financial and management accounting. Accounting documents (primary, registers, magazines), financial statements (balance sheet, financial results, cash flow, equity report) reflect the real state of assets, liabilities, income and expenses of the enterprise. Management accounting provides detailed information on internal costs, productivity of units, efficiency of use of resources. In addition, internal sources include the reports of structural

units, service notes, protocols of meetings, which cover operating indicators, the progress of plans, achievement of goals, problems in the organization of production or sales of products. Internal normative documents - accounting policies, regulations, instructions, orders, regulations that form the organizational structure and management culture of the enterprise also play a significant role. Internal sources are characterized by a high degree of detail, regularity and accessibility for internal users. They are indispensable for internal audit, prompt analysis, budget planning, control over the achievement of key performance.

External sources of information, in turn, are formed outside the enterprise and reflect the external environment of its functioning. They cover a wide range of sources: from legislative acts and regulatory documents to economic analytics and market information. In addition, publications in economic and business press, professional analytical reports, markets review, consulting companies research play an important role. Such sources allow to monitor trends in the industry, the actions of competitors, changes in consumer behavior, and to predict changes in demand and prices. External sources include legislative documents - laws, regulations, orders, methodological recommendations that regulate tax, financial, labor policy. They are the basis for building a system of conformity and compliance with legal norms in the activity of the enterprise.

The combination of information from internal and external sources allows you to get a comprehensive picture of the state of the enterprise and its environment, which provides a deep understanding of both internal processes and the impact of external factors, which contributes to the adoption of sound, strategically balanced decisions, increases the flexibility of the enterprise to changes and its ability to adapt.

To date, there is no single established definition of information support system in the scientific environment. However, despite the diversity of interpretations, it can be argued that the effective functioning of this system is based on the availability of certain components, which include: information resources, technological infrastructure, methodology of analysis and regulatory framework. The main purpose of such a system is to ensure a timely, reliable and current information flow necessary for identifying risks, assessing the financial and economic condition of the enterprise and making rational management decisions. At the same time, this system performs an important function in maintaining the financial and economic security of the enterprise, facilitating rapid adaptation to internal and external threats.

Accounting information plays a separate role in the information support system. It is formed in the process of financial, accounting and management accounting, covering data on assets, liabilities, income, expenses, profit, use of resources, budget execution. Such information is the basis for the preparation of financial statements, internal analysis and forecasting. This can not only evaluate the current state, but also model future scenarios, identify risks and form mechanisms of neutralization.

The system of information support of the enterprise is an important component of modern management, which provides access to current, complete and reliable information for making sound management decisions. The effectiveness of its functioning depends

directly on compliance with a number of key requirements that determine the quality of information processes and their compliance with users.

One of the main requirements for the information system is the relevance of information. Data should reflect the real state of affairs at the time of their use so that management decisions are based on the most recent information. Obsolete or unspecified data can lead to a false assessment of the situation and wrong actions. Therefore, the system must ensure constant updating of information according to current changes in the internal and external environment.

The second important requirement is authenticity. All information that is processed and provided by the system must be tested, accurate and free from errors. The high accuracy of the data guarantees the minimization of the risks of improper interpretation of the situation. This is especially important in the financial, legal, management and security fields.

Equally significant is promptness. The information should be available at the moment when it is required to make decisions. Data delays can lead to loss of opportunities, delaying processes or critical situations. Automated information collection and processing tools integrated with other systems are used to achieve efficiency.

The security of information is another fundamental requirement. All data must be securely protected from unauthorized access, loss or damage. This is achieved through the use of modern information security tools: encryption, authorization systems, backup, access audits. Particular attention should be paid to customer personal data and the confidential information of the enterprise. The adaptability of the system lies in its ability to quickly and effectively respond to changes in the external environment, internal structure of the enterprise, changes in legislation, business goals or management methods. The system should be flexible, scaled, with the possibility of modernizing functionality without loss of stability.

The completeness of the information means that the data should contain all the necessary elements for full analysis. Partial or fragmentary information can lead to false conclusions. Fullness is ensured by the coverage of all-important aspects of the enterprise, taking into account internal and external sources.

Availability implies that the data should be accessible to all users who have the appropriate authority. This ensures uninterrupted work of staff, reduces the risk of delay in decision -making and increases the efficiency of interaction between units.

Finally, the economy of the information support system lies in the expediency of its implementation, support and updating. The expenditures associated with the system should be reasonable and should not exceed the value it provides to the enterprise; the cost-benefit ratio should be well substantiated.

The requirements for the effective functioning of the information support system at enterprises are shown in Table 3.3.1. Thus, information support is not only a means of supporting management activities, but also the basis for ensuring the financial and economic security of the enterprise. In the face of constant change of the business environment, it allows managers to adapt strategies, make sound decisions, respond

promptly to potential threats and use available resources as efficiently as possible, at the same time there is an urgent issue of constant improvement of information support system, which involves updating technical means, improvement of information processing, development of information.

Table 3.3.1

Requirements for the functioning of the enterprise information support system

| Requirement | Description |
|--------------------|---|
| Relevance | Information must correspond to the current conditions of the enterprise's operations. |
| Reliability | Information must be verified and reflect the actual state of affairs. |
| Timeliness | Information must be available in time to enable quick decision-making. |
| Security | Information must be protected from unauthorized access. |
| Adaptability | The information system must easily adapt to any changes in both internal and external environments. |
| Completeness | Information must be presented in full to allow for comprehensive analysis. |
| Accessibility | Information must be constantly available to users who are authorized to access it. |
| Cost-effectiveness | The cost of operating the system must be justified and not exceed the benefits it provides |

In today's business environment, enterprises are faced with numerous risks and uncertainty, which can adversely affect their financial and economic security. Usually, risk is considered as the likelihood of events that can have negative consequences for the enterprise, especially in the context of its financial and economic stability. It is known that decision-making in uncertainty is always accompanied by risks that can manifest in both the internal and external environment of the organization. Among the main sources of uncertainty are the rapid development of technologies, lack of awareness of market participants, unpredictability of consumer behavior, variability of economic, political and military conditions, as well as internal instability in management processes. Thus, risks are the natural part of the functioning of each enterprise that arises both as a result of external circumstances (economic, political, military, technological changes), and due to internal shortcomings (management mistakes, inefficient work organization, poor planning).

External risks, as a rule, occur due to unpredictable changes in the environment, while internal - due to decisions and actions within the organization. Both types of risks are interrelated, and poor internal factors can reduce the company's ability to adapt to external changes.

In a separate category, you should bring information about information security. They not only threaten the loss or damage of data, but also restriction as a quality,

accessibility, efficiency and accuracy of information. The causes of such risks may be outdated or poor IT systems, low process automation, data processing errors, or insufficient qualification of employees.

In order to effectively reduce the impact of information risks, reliable information support is required, which contributes to the timely receipt, processing and use of data. Its role is to form the basis for making rational management decisions that protect the interests of the enterprise in the face of uncertainty. Allows you to identify risks in a timely manner, analyze their impact and develop measures for minimizing them. Creating and maintaining an effective information support system allows the enterprise not only to respond to threats in a timely manner, but also to predict possible economic difficulties in the future, which is important for ensuring the sustainability of business in a variable market environment. Collecting information is the first and most important step in the risk management process. It includes both the use of internal data sources and the involvement of external information resources that allow the enterprise to obtain a full idea of the market status, legislative changes, financial indicators and other factors that may affect its activities.

Internal data sources include accounting data as the main source of information about the financial condition of the enterprise. Accounting data provides accurate information about income, expenses, assets, liabilities, cash flow, which allows to identify potential financial problems, such as reducing liquidity or increasing debt. Internal sources also include management accounting data, that is, reports that make up for internal management and allow you to control the key indicators of enterprise efficiency, such as profitability, cost efficiency, production and sales. Internal sources of information also include an internal audit that is an effective tool for obtaining reliable data. Internal audit provides additional inspection of financial and operating processes, helps to identify deficiencies in the internal control system, in particular on cash flow management, accounting of assets and liabilities, and allows to check the compliance of the enterprise with the requirements of the current legislation.

External data sources include information about market trends, consumer behavior, competition and changes in demand that are necessary to predict possible changes in the financial indicators of the enterprise. This may include an analysis of market trends, demand for products, competitors' analysis and raw materials and materials monitoring. Also, external sources of data include changes in tax, labor, and other types of legislation can significantly affect the financial stability of the enterprise. In particular, changes in tax legislation or rules for regulation of prices may change the costs of the enterprise and its tax liabilities.

Therefore, information security risk management has two important components. The first is to ensure high quality data - their reliability, relevance and integrity. The second component is related to the presence of threats arising from the limited or imperfection of information systems, outdated data processing technologies, as well as insufficient level of professional training of staff. All this can significantly complicate the effective management of information processes in the enterprise. To minimize such risks, the company requires a modern information support system that will provide timely access

to the necessary data, their qualitative analysis and further use to form effective management decisions.

One of the important aspects of such information support system is its integration into the enterprise risk management system, which involves the creation of information infrastructure, which allows you to quickly identify and analyze risks, to form appropriate response and control strategies. In particular, it is important to introduce information and analytical systems that provide automated monitoring of financial indicators, forecasting possible negative scenarios and evaluation of the effectiveness of the decisions made.

Information support also plays an important role in ensuring transparency and accountability of management processes. The availability of reliable information allows the management of the enterprise to detect deviations from the planned indicators in a timely manner, analyze the causes of such deviations and take the necessary measures to eliminate them. In addition, it helps to increase confidence by investors, partners and other stakeholders. The management of the financial and economic security of the enterprise provides a systematic approach to identifying, analyzing and minimizing potential threats. Information support in this context acts as a tool that allows you to identify the risks in the early stages, to evaluate their impact on the activity of the enterprise and to develop effective response strategies. This includes the use of various methods of analysis, such as SWOT analysis, PEST analysis, script analysis, etc.

An important component of information support is accounting information that is formed in the process of accounting, financial and management accounting. This information contains detailed data on business operations, financial status, results of activity and use of enterprise resources. On this basis, financial reports are formed, which serve as a source of information for analyzing and making management decisions.

In addition, information support includes a legal framework that regulates the activity of the enterprise and determines the requirements for reporting, accounting and control. Knowledge and compliance with regulatory requirements is a prerequisite for ensuring financial and economic security and avoiding legal risks.

Effective information support for the management of the risk of financial and economic security of the enterprise also provides for constant monitoring of the environment, which includes the analysis of macroeconomic trends, changes in legislation, behavior of competitors and consumers. Such data allow the company to adapt its strategy to variable conditions and reduce the impact of external risks.

Financial and economic security risk management also requires effective communication between different units of the enterprise, which will facilitate the creation of a single information space where all stakeholders have access to up-to-date and reliable information. This allows to ensure consistency of actions, rapid response to changes and effective decision making. Effective information security management is possible only if purposeful management mechanisms that not only prevent threats, but also reduce their potential influence, contributing to the stability of the financial and economic security of the enterprise.

The mechanisms for managing information risks in the system of financial and economic security of the enterprise cover a set of organizational, technical and management measures aimed at protecting information resources, preventing data leakage, reducing the impact of external and internal threats, as well as ensuring the integrity, confidentiality and availability of data. In today's context, when the information has become a strategic asset of the enterprise, effective information risk management is an integral part of ensuring its financial and economic stability.

The first important step in shaping the information risk management system is to develop information security policy. It aims to establish clear rules and procedures governing the procedure for working with information resources. This policy defines the level of access to data, the responsibility of employees for the processing and storage of information, requirements for the use of technical means of protection, as well as sanctions for violation of the established rules. This policy creates a single standard of conduct for all employees of the enterprise, forming a responsible attitude to processing and preserving information.

Automation of information processes is an important condition for reducing risks. The introduction of modern software solutions and information systems can increase the accuracy of data processing, reduce the impact of the human factor, as well as accelerate the exchange of information between units. Automated accounting, finance, logistics or staff management systems provide centralized access to current information, which allows you to respond promptly to threats and make effective management decisions.

One of the most important technical risk management mechanisms is regular backup. This process involves the creation of copies of critically important information for the purpose of recovery in the event of damage, loss or cyberattack. Backups should be stored on protected media or in restricted cloud services. It is also important to test the recovery system periodically to check its efficiency. Systematic monitoring and auditing of the enterprise information infrastructure contribute to the timely detection of vulnerabilities that can be used by intruders or lead to technical failures. Conducting internal audits allows you to evaluate the state of information security policy, the effectiveness of protective measures, compliance with the regulations of work with information. Monitoring includes both access control and the detection of suspicious activity in the system.

Another critical element is the control of access to information resources. It envisages the introduction of user authentication systems, differentiation of access rights to certain categories of information, depending on employees' job responsibilities, use of multi-level protection for sensitive data. This reduces the risk of unauthorized access and leakage of confidential information. In order to counteract external and internal threats, effective means of technical protection of information. These include antiviral programs, invasion detection systems, files, data encryption, multifactorial authentication technology and more. These tools provide the basic security of the enterprise information systems, preventing most common cyber threats.

However, even state-of-the-art technologies cannot guarantee full safety without the proper level of staff awareness. That is why an important mechanism for managing

information risks is the training and advanced training of employees. Regular trainings and seminars on the rules of working with information, the basics of cybergiene, the detection of phishing attacks, as well as the prevention of data leakage as a result of careless actions - all this forms a culture of information security in the team and reduces the risks associated with the human factor. The mechanisms of information risks management in the financial and economic security system are Fig. 3.3.1.

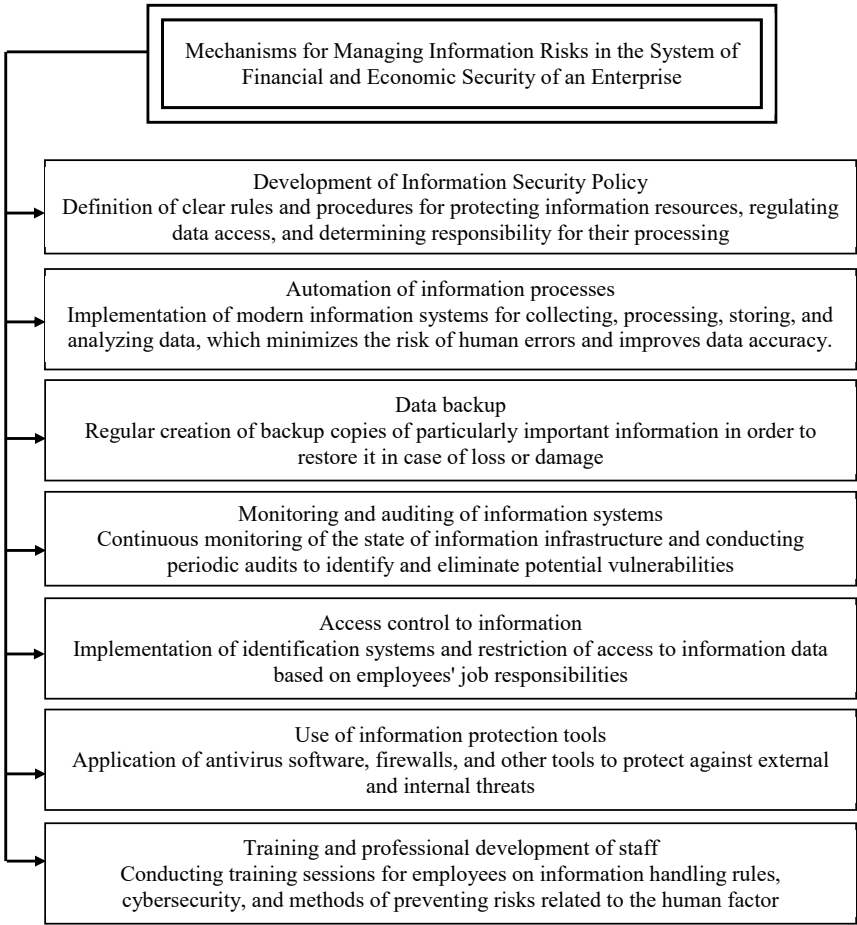


Fig. 3.3.1. Mechanisms for Managing Information Risks in the System of Financial and Economic Security of an Enterprise

Therefore, in order to reduce information risks, it is advisable to introduce a complex mechanism aimed at the timely identification and minimization of potential threats associated with inaccuracy, loss or unauthorized access to information.

Information security risk management is an integral part of general risk management at the enterprise, and it includes two main areas: the first is the provision of high-quality information, and the second is the presence of potential threats that may occur due to shortcomings in information systems, technologies or human factor. The last aspect is especially important for successful information security risk management.

Information security threats can be classified in several directions. First, these are threats associated with technological vulnerability. For example, outdated systems that are no longer supported by suppliers or have known vulnerability can be the object of attacks by malefactors. Such threats can be caused by the use of imperfect software solutions, non-existent operating systems, or even incorrect network settings.

Secondly, the human factor is an important source of threats. The inability or negligent approach of the staff to the performance of safety procedures can lead to leakage or loss of data. These can be intentional actions (fraud, confidential information), and unintentional errors, such as accidental deletion of important files or errors in the security system settings.

Third, external threats, including cybercrime, are a significant problem for businesses. Hacker attacks, harmful software (viruses, Trojans), phishing, and vulnerability in communication networks can be a cause of serious violations in the organization's information security.

Finally, legal threats appear. Failure to comply with the legal requirements concerning information protection can lead to penalties, sanctions or even losses of a license for activity. Changes in legislation, both at national and international levels, require enterprises to monitor and adapt their information systems.

The reliable functioning of the enterprise information system, as well as ensuring its financial and economic security, depends directly on the clear organization of information support, which is based on proper legal regulation. The effectiveness of this process requires a comprehensive analysis of normative legal acts that set requirements for procedures for collecting, processing, storage and use of information within business activities.

The legislative framework of Ukraine in this area is represented by a wide range of regulatory sources. The basis is documents such as the Constitution of Ukraine, the Civil Code of Ukraine, sectoral laws and by-laws, as well as standards that regulate the activities of enterprises. The following laws play a special role: "On information", "On protection of information in information and telecommunication systems", "On accounting and financial reporting in Ukraine", as well as the Tax Code of Ukraine. All these acts form a legal framework within which the information support system of the enterprise operates. Each of the above documents performs a specific function. The Law on Information regulates information relations, defines the rights and obligations of information entities, and establishes the principles of access to data. The Law on

Protection of Information in Information and Telecommunication Systems defines the order of information protection in automated systems, in particular, technical and organizational measures aimed at preventing leakage or distorting data. The Civil Code regulates the ownership of information, as well as the terms of its transfer and responsibility for violation of these rights.

The Law on Accounting and Financial Reporting establishes the procedure for accounting and preparation of financial statements, which is the basis of information support of the economic security of the enterprise. Its provisions determine what data should be recorded, how they should be stored, and in what form - to be transferred to external users, including public authorities.

At the level of the enterprise itself, legal regulation of information processes is implemented through local regulations. In particular, the provisions on accounting policy, which outlines the rules of accounting, formation of primary documentation, and establishes the order of interaction between structural units. This document is an instrument of internal regulation that ensures legal certainty in the functioning of the accounting system.

In order to improve the efficiency of management processes and optimal use of information resources, it is also advisable to develop provisions on information security of the enterprise. This document must state the basic data protection measures, the procedure and conditions of access to information, the requirements for maintaining the confidentiality and integrity of electronic documents. In addition, an electronic communication instruction should be approved, which will set the rules for exchange of electronic information both within the enterprise and with external counterparties.

The development and implementation of such documents will allow to adapt the mechanisms of information interaction to the specific activity of the enterprise, taking into account the requirements of the current legislation and corporate culture. Internal regulations help to increase the level of information security, reduce the likelihood of legal risks and allow you to effectively manage the processes of processing and use of information.

Effective management of an enterprise is an important element at all stages of management and depends on various factors. Without the formation of a proper state of information support, the enterprise management process becomes extremely vulnerable and ineffective. Therefore, information support (for the ease of perception we continue to apply reduction with) plays a significant role in ensuring the economic security of the enterprise and acts as a special object in the activities of management personnel.

The management uses different sources of information, but credentials are of great importance that reflect the facts of the operations performed, as well as the regulatory and planned documentation of the process of activity and management of the enterprise. That is, accounting information is a key element in the process of managing an enterprise before making strategic decisions at different stages of the production process. The formation of information support can be influenced by the following factors: quality, completeness and reliability of sources of information, order and form of transmission-withdrawal

information, not properly schedule of document management, non-competence of management personnel, other. All these factors can have both positive and negative consequences on the quality of information on the basis of which, as a rule, make important management decisions. Scientists in their studies put forward different visions regarding the concept of "information support". In the general sense, it is one of the directions of the management process, which is based on the development of different methods of working with information, as well as the organization of an effective system of use, control, storage of information and its exchange between users.

The use of modern technologies and automation of accounting processes allows you to quickly compile documents, provides accuracy of processing, the ability to use them in real time and integration with other software. At the same time, there is an increase in the amount of assembly and use of electronic documents, which leads to the accumulation of large amounts of information and creates an additional danger of data loss. This encourages the creation of new conditions for securing the IB of the enterprise. Therefore, the development of an effective plan for securing an IB enterprise is the best protection against possible threats and maintaining business reputation to the enterprise.

The following practices will help improve the effectiveness of the information security plan:

- 1) Creating a backup of sensitive (confidential) information and a copy of the accounting base in the cloud environment. Backup allows you to store important information in the event of failures in the main system, cyberattack or accidental deletion. Cloud storage facilities, such as Google Drive, Dropbox, Microsoft OneDrive, provide not only remote access to information but also automatically backup updates. It is recommended to adjust regular copying of the accounting base (for example, once a day) and divide the archives by access level.

- 2) encryption of information sources stored in the cloud. For sensitive information stored in the cloud, certified encryption algorithms should be used, and it is important to use data encryption not only in storage, but also when transmitting information. This significantly complicates unauthorized access even in the case of a cloud platform.

- 3) identify persons who may have access to confidential and accounting information, that is, each employee should only have access to the information that is required to perform its functions. The IT-system administrator must create roles (for example, an accountant, head of the department, analyst) for which different levels of access are established. Keeping access logs allows you to control who, when and what data had access.

- 4) the use of corporate mail to exchange information and work with documents together. Corporate email (for example, based on Microsoft Outlook or Gmail for Business) provides centralized control over all electronic correspondence of employees. It allows you to limit the use of personal accounts for exchange of service information, protecting it from leakage. Integration with corporate clouds (SharePoint, Google Drive) allows you to work with documents at the same time several users, maintaining control of versions and logging of change.

5) use of double authentication confirmation of person. Two -factor authentication adds an additional level of protection at the entrance to the systems. After entering the password, the user must enter another code that is sent to a mobile phone or generated by a special application (such as Google Authenticator, Microsoft Authenticator). This significantly complicates unauthorized input even if the password has been compromised.

The use of Skype, Zoom, Google Meet platforms for communication during management that will organize virtual meetings, discussions, presentations and trainings, regardless of the geographical location of participants. However, their use requires certain safety rules:

- setting passwords at the conference;
- control of participants of the meeting;
- shutdown of automatic storage of records without permission;
- Use of corporate accounts instead of personal.

We consider it necessary, a separate point to highlight the importance of changing the requirements for employees of the enterprise, especially for employees of accounting, while working with information and using modern technical means of its processing. Training and advanced training of staff on the rules of work with information, cybersecurity and methods of preventing the risks associated with the human factor is an important area in ensuring the information and financial and economic security of the enterprise. The human factor is often the weakest link in the protection system, since even reliable technical solutions cannot protect information resources in case of careless or unconscious violation of the established rules by the employee. That is why systematic training of employees and the formation of a culture of safe behavior with information in them are critical tasks. Employees should understand that information is a strategic resource of an enterprise that needs protection at all stages of the life cycle - from creation and storage to transmission and destruction. They need to give a clear idea of the rules of work with confidential, financial, personal and official information, including restrictions on its distribution, access protection requirements, e -mail rules, storage of documents on physical and digital media.

It is important to systematically the learning process. The information environment is constantly changing, new risks and vulnerability appear, so education should not be a one -time event. Regular trainings, updated online courses, internal newsletters, briefings during hiring and when changing responsibilities should be introduced.

In the process of enterprise management, the main objects of information support are:

- Legislative base of accounting;
- accounting policy provisions;
- primary documents;
- synthetic and analytical accounting data;
- indicators of financial and management reporting.

These objects can be used when forming an effective information support system for enterprise management.

Management decisions are made on the basis of a large number of information sources. Given the importance of accounting information, to improve its quality, there is a need to systematize and gradual formation of account management actions:

The first step is to analyze the previous activity of the enterprise, to evaluate risks and to identify security needs. This stage conducts a thorough study of available processing of accounting information, systems used, documentary flows, level of staff training, as well as, inventory of accounting systems, checks are checked. In parallel, potential risks are calculated: threats of information leakage, accounting errors, technical failures, etc. This makes it possible to formulate an objective picture of the current state of information security.

The second stage is the development of an information security program and defining its strategic goals. Based on the results of the analysis, a program of action is formulated, which should include clearly defined goals: minimizing the risks of data loss, ensuring compliance with legislation, improving the availability of data for authorized users, increasing cyber defense, etc. Particular attention is paid not only to the technical aspects, but also to the organizational - the role of staff, the system of motivation to observe safety policies, the internal culture of information protection.

In the third stage, specific measures and information security policies of the enterprise are developed. This stage provides for the preparation of the list of purposeful measures, which may include: creation of backup databases, encryption of databases, introduction of electronic signatures, installation of modern antivirus and firewall systems, creation of systems of monitoring of user actions. In addition, internal information security policy is developed - a regulatory document that describes access rights, rules for the use of information systems, the order of response to incidents, and the responsibility of employees for violation of the established standards.

In the final fourth stage, the effectiveness of the implemented program and organizational support of staff are evaluated. After implementing the program, it is necessary to monitor its efficiency, including auditing information processes, analysis of security incidents, assessment of protection of protection systems, as well as collecting feedback from users. It is important not only to identify technical disadvantages, but also to evaluate how well the staff adhere to the politician and whether additional training needs. For this purpose, seminars, trainings, instruction and practical simulations are organized, which allow to maintain a high level of awareness among employees and increase their readiness for action in crisis situations.

Information is an important resource for managerial decision-making and allows you to respond in a timely manner to changes in both the external and internal environment, so an important issue is the optimization of the information support system of financial and economic security. Optimization not only improves the effectiveness of existing practices, but also ensure continuous improvement of the system at all levels of management. It includes viewing existing tools and procedures, integration of the latest technologies to increase the protection of accounting information, as well as adaptation to changes in the legislative environment and foreign economic conditions.

Today, there are a large number of effective risk assessment tools that play a key role in shaping the information support system for the enterprise's financial and economic security. It is through information support that the collection, processing, analysis and submission of relevant data needed to make sound management decisions on identification and minimization of risks. Qualitative, reliable and operational information creates the basis for the use of modern risk assessment tools, providing a systematic approach to the management of threats and strengthening the economic stability of the enterprise.

One of the effective tools of information modeling tools is SWOT analysis that reveals the strengths and weaknesses of the enterprise, as well as opportunities and threats from the environment. As part of information support, this method is based on a wide range of internal and external data, which allow not only to see potential risks, but also to establish relationships between the internal resources of the enterprise and the conditions of its functioning on the market. For example, a weak place may be a low level of digital security found in the process of internal reports analysis, while the threat is the activation of cyberattacks in the industry, confirmed by analytical reviews and sectoral reports.

Another effective method is PEST analysis that evaluates the impact of political, economic, social and technological factors on the activity of the enterprise. Within the framework of information support, such analysis is based on the collection of data from official sources, analytical publications, legislative acts and forecasts of economic development. This allows you to identify the risks associated with changes in tax regulation, macroeconomic instability, or technological innovations that can both threaten and open new opportunities for the enterprise. For example, information on changes in the legislation on the protection of personal data may be the basis for reviewing the security policies at the enterprise.

A special role in the information support system is played by the analysis of financial indicators, in particular liquidity, profitability, solvency and business activity. This analysis is based on accounting and reporting information, which is one of the main components of information support. Financial analysis can not only evaluate the current state of the enterprise, but also identify potential points of financial vulnerability. For example, reducing the current liquidity ratio may indicate future difficulties in fulfilling financial obligations, which requires immediate intervention and development of anti - crisis measures.

Information support is also necessary to fully evaluate the financial and economic security of the enterprise. Risk assessment methods are based on a deep analysis of both internal and external data and allow you to identify threats in a timely manner and minimize them. For example, a script analysis is a tool that allows you to predict changes in the financial condition of the enterprise depending on different economic conditions. Reliable information support allows you to model several variants of events, taking into account macroeconomic, sectoral and internal factors.

Monte Carlo's statistical method - uses random values to forecast financial results. It requires a large amount of accurate data from accounting, financial and analytical sources, and allows you to assess the likelihood of risks in various scenarios.

Credit analysis - provides an assessment of the solvency of the enterprise, which uses financial statements, liquidity ratios, profitability and capital structure. An important element is the forecasting of cash flows, which is possible only if you fully and accurately account.

The method of monitoring financial and economic threats is based on the systematic collection of information on changes in the external environment (economy, legislation, market) and internal environment (indicators of activity, financial results). This allows you to respond timely to potential threats and adapt a strategy.

An effective tool for assessing the risk of insolvency and bankruptcy forecasting is the method of multifactorial discriminant analysis, which allows to take into account the impact of different financial indicators and their relationship, combining them into a single integral indicator that allows to determine the degree of influence of each of them on the probability of bankruptcy. One of the most famous models of this method is Altman Z-Score, based on five financial ratios: liquidity, accumulated profit, asset profitability, market value of equity to liabilities and assets. The results of this analysis allow you to classify enterprises by bankruptcy risk. The Springate S-Score Model, developed on the basis of the Altman model, includes four indicators: working capital for assets, payments to taxes and interest on assets, tax profit in short-term liabilities and assets. It allows to determine the threat of financial instability. Another common model is the Taffler model, which includes tax payments on short-term liabilities, ratio of current assets to liabilities, short-term liabilities to total assets and assets. It was specially adapted for British enterprises and has proven itself well in unstable markets. It is worth noting the forest model, which, like the previous ones, is based on a combination of financial ratios, but focuses on the assessment of the enterprise's ability to generate cash flow to cover liabilities and the efficiency of assets. All of these models are an important part of the information support system of the enterprise's financial and economic security, as they allow to draw reasonable conclusions about risks and to take precautionary measures in a timely manner.

In today's context, the digitalization of business processes has become a prerequisite for ensuring the effective financial and economic security of enterprises. The use of information technologies and automated security management solutions allows you to optimize the processes of collection, processing and analysis of financial data, which significantly improves decision-making and reduces the risks associated with insufficient information and human factor.

One of the main tools for ensuring the integrity of the financial and economic security of the enterprise is the introduction of ERP systems (Enterprise Resource Planning). These systems allow to process all financial and operational data of enterprises centrally, which significantly increases the efficiency of financial, accounting and control management. ERP systems, such as SAP, Oracle, 1C or Microsoft Dynamics, provide businesses to manage all aspects of their activities, including finances, purchases, supply, sales, production and human resources. With this centralized approach, businesses can reduce the likelihood of errors in accounts, increase transparency of transactions, and reduce the

risks of unauthorized access to critical information. ERP systems automatically integrate data from different departments, which allows for a timely detection of deviations in financial indicators, misconduct or inefficient use of resources. In addition, ERP systems provide compliance with the legislation through the automatic updating of the regulatory framework, which allows businesses to be sure of the relevance of their accounting and financial data, which is an important element in ensuring financial and economic security.

Another important element of modern information support system is the use of Big Data - large ranges of data that allow you to carry out an in-depth analysis of the economic and financial processes of the enterprise. Large data processing technologies provide real-time monitoring, which helps to identify potential threats in a timely manner and adjust the enterprise strategy to minimize risks. Thanks to Big Data, businesses can analyze data not only about their own financial indicators, but also about the market situation, the behavior of competitors, changes in legislation and other factors that directly affect the business environment. This allows you to respond to existing threats and predict possible economic crisis and adapt a strategy to change.

As a result of the introduction of Big Data, businesses can make a more accurate forecast of income, expenses, as well as to predict possible changes in the cost of resources and goods, which allows to make more sound management decisions on financial security.

It is important to use Business Intelligence (BI) to effectively manage financial and economic security. Platforms, such as Power Bi, Tableau, Qlik, allow you to visualize key financial and security indicators in a convenient and intuitive format. Thanks to these tools, the management of the enterprise can quickly receive the necessary information and make effective decisions to ensure financial security. Bi systems use a variety of data analysis methods, including forecasting, trend analysis and comparative estimates, which allows to monitor the current state of the enterprise's finances and to predict their development in the future, which allows to identify potential problems or threats to financial and economic safety, such as reduction of liquidity, deterioration of solidity or increase in credit.

GRC systems (Governance, Risk Management, and Compliance) is an important tool for integrating risk-oriented approach into the operating activity of the enterprise. These systems allow the management of the enterprise to receive all the necessary information for effective management of corporate risks, compliance with regulatory requirements and ensuring proper internal management policy. GRC systems help businesses monitoring real-time risks, automatically evaluate the level of compliance with politicians and standards, as well as identify violations in a timely manner and organize control measures. They also allow you to integrate all stages of risk management from identification to respond to them, which provides more efficient activity of the enterprise and reduces financial threats.

In real time, the use of artificial intelligence (AI) and machine learning (ML) is very urgent, which opens up new opportunities for forecasting and identification of financial risks. With these technologies, businesses can automatically analyze large amounts of data, identify anomalies and develop forecasts to increase financial security. Artificial

intelligence allows you to identify hidden patterns in market behavior, to predict changes in the value of assets, costs and income based on historical data and current economic trends. This allows companies not only to respond to real-time changes, but also to predict possible crisis situations before their occurrence.

Recently, special attention has been paid to cybersecurity of enterprises, since the leaks of financial information or attacks on accounting systems can seriously threaten the financial and economic security of the company. The introduction of modern antiviral systems, fireworks, data encryption and multifactorial authentication of users are necessary measures to prevent unauthorized access to important financial information.

Regular updating of software and security tools, as well as monitoring of real-time systems allow you to respond in a timely manner to potential cyber threats. Consideration of such factors in the information support system allows to reduce the risks of data leakage and to ensure high reliability of financial and economic security of the enterprise.

In the process of economic activity of the enterprise, various approaches to the collection, processing, generalization and storage of information are actively used. At each stage of information, there is a risk of threats that can seriously affect its integrity, confidentiality and accessibility. Loss control over information flows can lead to significant financial losses and reducing management efficiency.

Formation of an effective information security system involves solving a set of tasks related to the security of both structured and unstructured information. Structured (formalized) information is usually understood to be the data presented in the form of documents or in the form transmitted through technical means of communication. Protection of such information is possible through the use of information theory methods that allow you to calculate the level of security of individual objects. In cases where theoretical approaches do not allow to ensure accuracy of evaluation, expert methods are used. Practice testifies to the widespread use of methods based on informal systemic theory. The comprehensive application of different approaches, including the theory of random processes, evolutionary modeling, graph theory, etc., allows you to effectively model the information security system, taking into account its complexity and dynamism.

Information risks should be evaluated as a product of the probability of an incident on the potential financial loss that may cause information security. Regardless of the form of existence, the information should be properly protected, so it is necessary to constantly monitor potential threats and vulnerabilities.

The risk assessment procedure in information security is a systematic analysis of all information resources that can be exposed to threats. As a result of this analysis, it becomes possible to determine the prevention of preventive measures that reduce the likelihood of threats and minimize their negative consequences for the enterprise.

A typical sequence of information security assessment includes the following steps: identification of information assets and determination of their value; assessing the likelihood of potential threats; identification of vulnerable places in the information support system; calculation of probability of specific threats; determining the integral risk level, taking into account the likelihood, vulnerability and potential losses.

Potential threats are evaluated by an expert approach, which involves taking into account the set of threats, their relationships and appropriate characteristics. At the same time, for each specific threat, an individual protection means that allows you to increase the efficiency of response to it. The following main indicators are used in the analysis process:

t_i – a set of threats;

ω_{t_i} – the frequency of occurrence of possible threats;

p_{t_i} – the probability of a threat.

The calculation is carried out in several stages. Let's calculate possible losses from the occurrence of individual threats:

$$R_{t_i} = \sum_{k=1}^{kl} \omega_{t_i} p_{t_i} d_{t_i} c(a_k) \quad (3.3.1);$$

where, kl – the number of information sources aimed at threat

t_i , $i = 1, 2, 3, \dots, n$;

A_{t_i} – sources of information or assets targeted by the threat t_i ;

$c(a_k)$ – cost of information sources, $a_k \in A_{t_i}$.

The coefficient of information influence $d_{ti} \in [0; 1]$ can act as a key criterion in determining the sources of information or assets that are most prone to destructive influence of a certain threat. This indicator reflects the overall level of potential damage or negative impact that can be caused by a specific information object or asset.

Consider the possibility of calculating likely losses that can be caused by a consistent act of threats with a certain time interval between their occurrence. Such losses can be expressed mathematically in the form of the expected value of $M(t_a, t_\beta)$:

$$R_{M(t_a, t_\beta)} = R_{t_a} + \sum_{i=1}^m \sum_{j=1}^r p(t_i, t_j) R_{t_j}, \quad (3.3.2);$$

where m , r – the number of "mother" threats occurring at a specified interval $M(t_a, t_\beta)$;

Let's $t_i \in (t_a, t_\beta)$ calculate the possible costs of providing protection against the onset of threats in the interval $M(t_a, t_\beta)$:

$$F_{M(t_a, t_\beta)} = \sum_{i=1}^n F_{t_i}, \quad (3.3.3);$$

where, F_{t_i} – costs incurred to ensure protection against the threat t_i .

In the next stage of the analysis, the values of the estimated risk costs with the actual costs incurred to ensuring information security are compared. This allows you to make a reasonable decision on the nature and level of acceptability of a particular risk. In cases where the risk value of $R_{t_i} = F_{t_i}$ is equal to or less than a certain financial threshold $R_{t_i} \leq F_{t_i}$, such a risk is considered insignificant and may be left without additional response. At the same time, if it is observed that $R_{t_i} \geq F_{t_i}$, this indicates the need to revise approaches to protection: analysis of the effectiveness of already implemented measures and optimization of safety costs.

In case of significant potential threats, it is advisable to use strategies such as risks or insurance diversification, which allows to reduce the financial burden on the enterprise in the event of negative scenarios.

The method of expert assessment of risks concerning information security is appropriate and effective in the practice of economic activity of economic entities. Despite the presence of a formally organized system of protection of information resources, businesses need to constantly improve this system, striving for maximum reliability and efficiency. The comprehensive application of different methods of risk analysis allows not only to increase the level of information security, but also to make sound management decisions, to identify vulnerable places in the functioning of the enterprise, as well as to minimize potential losses that may arise in the system of information support for economic security management in a timely manner. The prerequisite for effective management of a modern enterprise is to improve the mechanisms of information support of management processes, because the information is the basis for decision -making. The main part of all information about economic activity is credentials that must be collected, processed and analyzed in a timely manner.

To optimize the information collection process, the structure of the information collection process is offered, which covers three main stages:

1. The initial stage - the formation of primary information occurs directly in production, warehouses, as well as in the cash desk of the enterprise. Primary data is collected on the basis of accounting documents, reflecting the receipts and expenses of funds, transactions with bank accounts, movement of materials, products produced, accounting of labor, etc.

2. Analytical stage - information is formed in the auxiliary units of the enterprise. At this stage, analytical information on regulated transactions, counterparties' debts, the movement of fixed assets and material resources are collected, which allows you to form a complete economic picture.

3. The final stage - data processing and generalization is carried out in the accounting service of the enterprise. Here, information from the previous stages is consolidated, grouped and reflected in the accounting registers, which allows to carry out a full analysis of financial and economic activity.

Consistent implementation of these stages allows to improve the quality of management information, to identify risks in a timely manner and to ensure rational decisions. Formation of effective accounting information support system in the context of economic security provides: creation of a single source of reliable information; ensuring communication between all accounting facilities; unification of forms of information presentation; use of common economic indicators in different accounting processes.

As a result of the introduction of a unified information support system, the following goals are achieved: completeness, accuracy and reliability of accounting information; prompt access to data; objective display of economic processes; increasing the overall quality of management decisions at all levels. Therefore, optimization of risk assessment methods with improving the information infrastructure of the enterprise generates a solid basis for ensuring stable financial and economic security and effective management.

3.4. PERSONNEL SELECTION IN THE CONTEXT OF ENSURING FINANCIAL AND ECONOMIC SECURITY OF THE ENTERPRISE

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In today's context of rapid development of digital technologies and increased competitive pressure on the market of special weight, effective management of the personnel potential of the enterprise is gaining. The selection of staff is no longer limited to traditional methods, because the latest technologies-such as artificial intelligence, machine learning, HR analytics and digital platforms-allow you to carry out a deeper and more accurate analysis of candidates. This significantly reduces the risks of hiring unscrupulous or inappropriate persons, which directly affects the financial and economic security of the enterprise. The increasing number of internal threats, leaks of information and economic crimes require new approaches to the formation of a reliable and loyal team. Therefore, the integration of modern HR technologies into the enterprise security system is not only an appropriate but also a strategically necessary condition for its stable development and competitiveness.

In view of the relevance, it is advisable to analyze modern approaches to the selection of personnel, which ensure stable work of the enterprise and minimize management risks (Bila, 2022). In this context, the first importance of the selection and hiring of personnel, which has been transformed under the influence of digital innovations and have become an integral part of the corporate security system, is of paramount importance.

Let's take a closer look at the basic modern tools, methods and platforms used in enterprises for effective employee hiring.

The company HR (the term comes from the English "Human Resource"- "Human Resources") is engaged in the selection of staff, taking into account the long-term prospects of organization development. Sometimes companies resort to the help of headfuners (Head Hunter), which is literally translated as a "head hunter". This is how professional personnel agents who "lure" already working employees from one company to another at its order are called today, offering the best working conditions.

Successful business requires that workers are not only talented in their areas, but are able to work effectively as a team. The search for qualified staff is the first thing to do the head of the new organization. The selection of employees is also relevant for an already current firm, if suddenly stagnation in work or the prospects for expanding the field of activity. Personnel selection is a purposeful process of involving candidates who have the necessary qualities, skills and competencies to meet both current and strategic needs of the organization. In other words, it is a systematic search, evaluation (testing) and hiring persons who are not only able to perform their functions effectively but also motivated to work, share the values of the company and are ready to integrate into its corporate culture.

Such candidates claiming a vacant position are called applicants. In order to effectively select staff, enterprises use a position card (job description) - an official document that defines functional responsibilities, the employee's rights and the nature of his interaction with other team members. In the process of searching companies, they often turn to personnel agencies - professional intermediary structures that help to find the necessary specialists, selecting candidates in accordance with the requirements of the employer.

Quality selection of employees: increases the profit of the company; increases productivity; allows the company to develop.

An unprofessional approach to employee hiring threatens to break the timing of the work, the reduction of company income, and business process failures. In the end, you will have to return to the starting point search and spend money and time to select new employees. Systemic errors in the selection process - I have observed it in practice - significantly increase the costs of the company.

As for the types of sources of staff recruitment, they remain: external and internal. In the first case, the frames are selected from the employees of the company itself, in the second - at the expense of external resources. It is clear that internal sources are always limited, and it is impossible to solve with their help personnel problems.

The most common sources of employee hiring are external. They can be divided into 2 subspecies: budget and expensive. Inexpensive sources are, for example, public employment services, contacts with universities and colleges. Expensive sources are professional personnel agencies, media publications. There are also free staff sources - Internet sites that publish vacancies and summary applicants, such as Headhunter, Job, Superjob.

Types of external sources of staff selection:

1. On the recommendation. Involvement of candidates on the recommendations of relatives, friends and acquaintances of the company. The oldest method is quite effective and more suitable for small organizations. Statistics show that in organizations where the number does not exceed 50-60 people, 40% of new employees come to service through dating. This approach has a significant drawback - there is a risk of taking an unqualified specialist.

2. Direct work with potential staff. Working with "independent" candidates - people who are engaged in search of work without contacting special services. Such candidates call themselves to the company, send their resumes and are interested in vacancies. This is usually due to the leading position of the firm in the market. Even if the organization does not need such a specialist at the moment, it should be saved to use if necessary.

3. Advertising in the media. This is the most common way to attract applicants. Ads are given in newspapers, online portals, on television, after which the candidates themselves call or come to the company. There are specialized publications and sites focused on a wide range of professions or individual industries. The use of online resources and publications is the most efficient and popular candidate attraction tool, but in order for the announcement exactly the target, the requirements for applicants and their future job functions should be set out as accurately as possible.

4. Contacts with universities. Many large -scale corporations are focused on attracting graduates of educational institutions that do not have full practice. To this end, employers are conducting measures in profile universities or participating in vacancies fairs. Since professional skills without work experience are difficult to evaluate without work experience, personal characteristics, planning and analysis skills are evaluated.

5. Labor exchanges, state employment centers. The developed state is always interested in raising the level of employment of citizens. To this end, special services are created that have their own databases and work with large companies. The method has a significant disadvantage: not all seekers go to state structures for the unemployed.

6. Personnel agencies. Over the last decades, recruiting has become an actively developing industry. Personnel companies have constantly updated databases and independently search the candidates in accordance with the tasks of the customers. For their work, the firm takes a solid reward - sometimes up to 50% of the annual salary of their employee. There are companies that specialize in the mass selection of staff or, conversely, engage in the "exclusive search" of the selection of executives.

Given the importance of quality recruitment for the efficient functioning of the enterprise, it is relevant to analyze the specific methods used in the modern practice of finding employees. Today, companies have a wide range of tools that allow you to find candidates of the relevant profile promptly and effectively. Key staff search technologies are recruiting, Executive Search, Headhunting, Screening and Preclining, each with its own characteristics, advantages and scopes.

Recruiting is called the method of selecting employees of common professions. Usually these are experts of the so -called "linear level" trading agents, ordinary managers, performers, secretaries. The recruiting itself is to draw up a competent job description and place this description where potential contenders or staff search sites will see it. The emphasis in this case is on people who are in the direct process of finding a job.

Executive Search. Selection of management staff - heads of departments, directors of companies, heads of regional units. This includes the search for rare and unique specialists. Unlike the exclusive search recruiting, active actions from the interested company. Usually, specialized personnel agencies are engaged in this type of recruitment (D'iakiv, 2021).

Headhunting. Literally - "Hunting for Heads". The method of finding or lifting a particular specialist (recognized master in his area) from one firm to another. The technique is based on the prerequisite that higher -level workers do not seek work on their own and sometimes do not even think about changing one. The task of "hunters" - an employee of a personnel agency - to interest the candidate with more favorable conditions or prospects of development from a competing organization.

Screening. Fast selection of candidates on formal grounds. Psychological characteristics, motivation, quality of personality in screening are not taken into account: the main criterion of such search for employees is speed. The timing of screening is several days. The technique is used in the set of secretaries, managers, sales consultants.

Preliminaring. Involvement of candidates for the post of production practice of

young professionals (graduates of profile universities). The choice of a future employee involves the compliance of the applicants with certain psychological and personal qualities. The preliminary way is aimed at the long-term business plan of the company: it is the most promising way to create a strong and productive labor community. Understanding key staff search technologies allows you to put them more effectively in practice depending on the needs and strategy of the enterprise. However, it is equally important to have a clear idea of the process of selection of personnel, which consists of consistent steps - from identifying the need for specialists to final hiring.

That is why it is advisable to consider the process and basic stages of searching for employees of the company that form a structured hiring system and provide a quality result.

The process and stages of searching for employees of the company consist of several stages that you need to go through candidates for a position. At each stage, part of the applicants are eliminated or they give up the job themselves, taking advantage of other proposals or for other reasons.

Starting the search for employees without determining who you want to find is the right way to condemn the selection of staff for failure. A detailed portrait of an ideal candidate for each vacancy is the foundation on which the further success of staff selection technology is based.

Involvement of the relevant vacancies is the formulation of the vacancy. The main task of the announcement is to create the maximum response to a vacancy from candidates.

A good ad is compared to the filter: it attracts the attention of candidates who meet your requirements and is not interested in inappropriate candidates. As a rule, productive people who can bring companies to the greatest benefit it is almost impossible to interest the template ad. Therefore, when teaching our staff technology, we look separately how to make vacancies that will attract the attention of specialists.

The next begins the selection stage. The typical stages can be called:

-Previous conversation. The conversation is conducted by different methods. For some positions, it is advisable that the candidate personally appears to the potential place of work, in other cases, it is enough conversation on the phone with a representative of the personnel service. The main purpose of the previous conversation is to evaluate the level of preparation of the applicant, his communication skills, basic personal qualities. But here it should be remembered that only at the level of visual communication can you get the most accurate idea of the personality of the applicant.

-Interview. An extended interview is carried out directly by a personnel worker. In the course of the conversation, it is important to get detailed information about the candidate and give him the opportunity to learn more about his future official duties and corporate culture of the environment where he or she has to work.

Note that at this stage it is very important to prevent one mistake. It is impossible to attach the importance of personal sympathy for the candidate for the post. A person can like you outside, his behavior and manners are close to you, and you have found common

interests in life. Under the influence of emotions and feelings, you are undoubtedly that the best candidate is simply not found and he is no one, the best images will "fit" into the team. It is necessary to carry out full testing of a potential employee and if he does not meet the established requirements with important technical moments, then boldly refuse him in employment.

After passing the main stages of search and selection of staff, an interview becomes a key point in deciding on the candidate. It is at this stage that the employer is able not only to check the professional qualities of the applicant, but also to evaluate his motivation, communication skills and corporate culture. There are several types of interviews, each of which has its own goals, format and specificity depending on the position and stage of selection.

There are several types of interviews:

- biographical, during which the past experience of the applicant and various aspects of his professional qualities;
- situational: the applicant proposes to solve practical situations in order to clarify his analytical abilities and other qualities;
- structured - the conversation is conducted on a pre -compiled list of points;
- stress - is carried out in order to check the stress resistance of the applicant and his ability to adequately behave in provocative and non -standard situations.

-Professional testing to obtain information about professional skills and abilities of the future employee. The results of the tests will allow to evaluate the current and potential of the candidate, to form an opinion on the style of his work. It is important to ensure that professional testing issues are relevant and comply with the legislation.

-Checking the track list. For a more complete idea of the employee, you should talk to colleagues at the previous place of work. Many people have a bad "professional history", although the reason for the release in the employment is "for their own".

Therefore, if possible, it will be good to negotiate with the direct manager of the applicant, to find out the reasons for the dismissal of the employee from the previous place of work, this will improve the quality of recruitment. It will not be superfluous to get acquainted with the recommendations, characteristics, promotions and other points of the track record.

-A decision. According to the results of the comparison of candidates, the one who best meets professional requirements is determined and fits into the team. When the decision to enroll in the staff is made, the candidate is informed orally or in writing. The applicant should be familiar with the nature of the future activity, informed of the mode of work, vacations, weekends, rules of payroll and bonuses.

-Filling the application form. Candidates who have successfully overcome the first and second level fill in the application, the questionnaire and sign the employment contract. The number of points of the questionnaire should be minimal: important information that finds out the performance of the applicant and its basic qualities. Information is provided concerned with the past work, professional skills, the composition

of the candidate's thinking.

The following is an official entry. Usually, this term refers to the first working day of a new employee, during which he is directly acquainted with the order and rules of work and begins his duties.

In order for the newly accepted workers to start benefit from the very beginning of their work in the company, they must be properly adapted. It is possible to expect effective work from a new employee only if he is immediately introduced to the company, its goals and features of work. Managers who miss this stage in the selection and adaptation of staff may lose the found productive workers before the end of the probationary period.

A simplified approach to employment usually involves the placement of a vacancy, the selection of candidates from resumes, interviewing, work invitation. According to Fig. 3.4.1, a thoughtful and more effective approach should include: formation of a portrait of a candidate, drawing up an effective announcement, placement of advertising on popular resources, rapid processing of reviews for vacancy, selection of relevant candidates, interviewing, identifying the degree of productivity, assessing personal qualities, determining the level of motivation (Feshchenko, 2021).

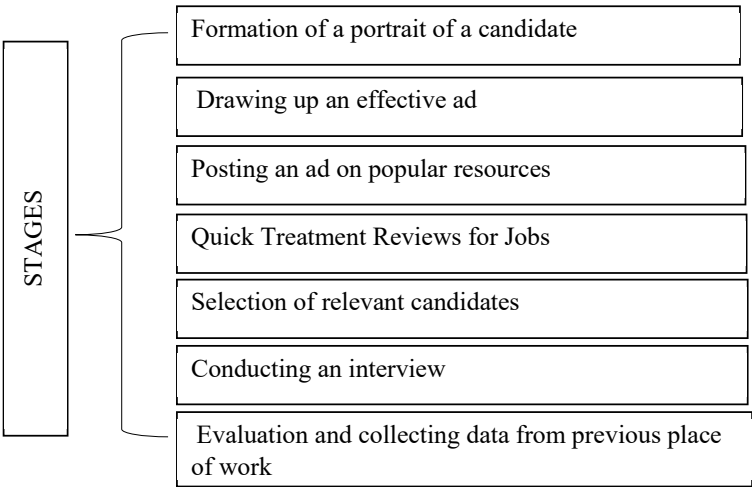


Fig. 3.4.1. Stages of search and selection of candidate

Non -traditional staff selection technologies are increasingly being used to improve the efficiency of the staff selection process, especially for key or creative positions. In today's context of rapid competition for talented specialists of traditional approaches is not enough, so employers turn to innovative, creative and even non -standard methods. Such approaches not only allow you to draw attention to the company, but also allow you to better evaluate the non -obvious qualities of candidates - flexibility of thinking,

adaptability, leadership potential, emotional intelligence.

Non-traditional techniques become especially relevant in the dynamic environment, where success often depends on the ability to quickly respond to changes and think outside.

1. Gamification (Gamification) - involves the use of a game mechanic in the process of staff selection: testing, quests, competitions, balloons, awards and more. This allows you to make the process of selection not only interesting, but also effective in terms of detection of non-standard thinking, stress resistance, ability to team work. For example, Google is known to use non-standard logical tasks in the form of online heads that anyone can solve. Successful passing opens access to the next stages of recruitment. Advantages are: identifying hidden talents; minimizing falsification in motivation; Formation of a positive image of the employer.

2. Hackathon and case-championships are a format of intensive teamwork for a real time. In the course of such an event, HR analytics and executives can evaluate teamwork, leadership, speed of thinking and creativity. For example, SoftServe conducts annual hackathons where participants create IT products in real time. The best teams receive employment proposals. Advantages are: natural evaluation of Soft Skills; real test of professional skills; The opportunity to see the candidate's thinking style immediately.

3. Social Media Recruiting - the use of platforms such as LinkedIn, Facebook, Instagram, Tiktok, for active search, vacancies and interaction with potential candidates. Employers create content that tells the culture of the company and attracts subscribers. For example, the Ukrainian creative agency Banda posted on Instagram a story with an atypical announcement of searching a copywriter, where it was necessary not only to send a resume, but to tell a story about itself in advertising format. Advantages are: achievement of a wide audience; rapid feedback; Ability to evaluate the candidate's personal brand.

4. Videoresume and video interview - the candidate sends a short video that tells about his experience, skills, motivation and other important aspects. It helps to better evaluate non-verbal, language, confidence and creativity. For example, IKEA in its HR campaign has asked candidates to record a video in which they tell you how their experience will help to improve interaction with customers. Advantages are: assessment of communication skills; rapid detection of corporate culture compliance; saving time for primary interviews.

5. Employee Referral 2.0 - Motivation of employees to recommend friends and acquaintances for open vacancies. Bonuses or gifts for successful recommendations are often provided. For example, Grammarly uses an internal program of recommendations with a transparent reward system. Employees receive bonuses if the recommended candidate hires and he / she passes the probationary period. Advantages are: rapid vacancy closure, higher probability of compatibility with a candidate with the team; reducing external search costs.

6. For example, the EPAM IT company conducts a series of meetings with young specialists, where not only tells itself, but also conducts testing skills in the form of practical tasks. Advantages are: reduction of stress for the candidate; building trust in the employer brand; Ability to observe immediately for real-life behavior.

7. Mystery Candidate is a method of checking the atmosphere in the company or evaluating the process of adaptation of employees through integration "undercover". It is also sometimes used for secret monitoring of staff work. For example, the company's HR director enters the department as a "new trainee" to personally check how newcomers are adapting and whether job descriptions are followed. Advantages are: identifying hidden problems in the team; audit of the corporate atmosphere; Honest assessment of the real work environment.

Non-traditional ways of recruiting staff are increasingly integrating into the modern practice of human resources management, responding to dynamic changes in the labor market and increasing requirements for candidates. They allow employers not only to increase the efficiency of hiring, but also to identify the non-standard, flexible and creative abilities of candidates, which are often left out of traditional approaches. Methods based on gamifications, hackathons, social networks, video reserves and internal recommendations, create new opportunities for forming a strong team that shares the values of the company and is capable of rapid adaptation. Non-traditional recruiting also has a positive effect on the image of the employer, increases the loyalty of staff and promotes long-term economic stability of the enterprise. Therefore, the introduction of such approaches is not only relevant, but also strategically appropriate in the context of ensuring the financial and economic security of modern organizations.

In today's competitive market, the success of the company depends not only on external strategies, but also on effective management of internal resources. One of the key factors that determines the loyalty, involvement and productivity of employees is internal staff marketing. It is he who acts as a bridge between the corporate strategy and the motivation of employees (Karpova, 2020).

Internal staff marketing, also known as internal branding or workplace marketing, is a strategic approach to management and communication with employees in the organization. It is focused on attracting, preserving and motivating staff, creating a positive work environment and promoting the satisfaction and involvement of employees in the company's goals and values. The main purpose of internal staff marketing is that employees understand, support and identify with the mission, goals and values of the organization. This is achieved through effective communication, involving employees in decision-making, developing their professional skills, creating educational programs and promoting corporate culture. Internal staff marketing may include the following items:

1. Communication: regular meetings, company news, electronic newsletters, domestic journals, web portals and social media to communicate with employees.
2. Involvement: Creating opportunities for employees to participate in decision making, make their proposals, participate in projects and team tasks.
3. Development: providing employees with opportunities for professional growth, trainings, seminars, mentoring programs and workplace.
4. Recognition: celebration of employees, awards, praise and thanks for success and contribution to the development of the company.
5. Corporate culture: support and dissemination of values, setting clear standards of

behavior, creating a pleasant and open work environment.

6. Rethensn (staff preservation): support for employees, creation of conditions for satisfaction and development, which helps to preserve talented employees in the company.

Effective internal staff marketing helps to increase the devotion and motivation of employees, increases the level of satisfaction in the workplace, improves communication in the organization and helps to achieve business goals.

Internal staff marketing helps to maintain the internal development of the company, reduces staffing and provides greater devotion and productivity of staff. By using these approaches, the company can improve the quality of its services or products, as well as increase customer satisfaction and strengthen its competitive position on the market.

The peculiarity of internal marketing is too high sensitivity to HR trends. The peculiarity of doing business 2025 retains unchanged HR tracts: personalization-about the ability of HRs to take into account the personal needs, capabilities and desires of people in the workplace; speed - to solve the problems of staff as quickly as possible; technologies of automation and increase in productivity; significance of work and social responsibility of business; Positive experience of the employee.

At the same time, you can distinguish the progression of anti-trends: Antiulork and QQ or Quiet Quitting. The essence of "Antiurak-movement" in the desire to reduce the importance of working in human life, so that the work ceases to come to the fore and take away all the time and strength. Quiet Quitting (from the "quiet release") - provides for the fulfillment of their working duties during working hours without additional efforts, detecting enthusiasm or initiative.

But the crisis 2022-2023 caused the emergence of new and restoration of old HR policy. Due to a full-scale war, Ukrainian businesses are forced to be more resourceful in their approaches, including in the HR segment. After all, you need to use resources for full to continue to work, support employees and fight the enemy. Therefore, it is possible that, thanks to the war, international HR trends will take root faster and easier in Ukraine than in other countries. Among the progressive ones, we see:

1. Among the brand new is the expectation of security and funding guarantees. The standard of expectations became weekly wages, free lunches, "anxious suitcases" from employers. The need for safety guarantees has intensified.

2. Renewal of the relevance of trade union organizations, their adaptation to the requirements of time.

3. Drawing attention to specialists whose work is impossible online or remotely.

4. Finding solving problems of burnout, fatigue and improving the productivity of employees.

5. Increasing the use of virtual reality technologies for interviews, meetings, effective remote communications.

6. Transition from a regular employee hiring to a talent search, to finding a specialty but competencies that will close the specific need of the company.

7. Increasing the impact of Agile methodology on HR processes (planning and management methods of projects and processes that allow you to provide high business adaptability).

8. The trend of recruiting staff and the company as a whole to the Eco-Frendley

movement.

In parallel with safety trends and trends of the crisis, influential in 2025 is the development of technologies.

1. Changing requirements for competencies and behaviors and the HR behavior itself, increasing their responsibility for staff, training and achieving strategic goals, increasing HR ethics requirements.

2. Demand for the use of new technologies in HR processes, such as artificial intelligence or Machine Learning.

3. Automation of HR and recruiting processes, gradual transition to effective HRM systems, with a decrease in the number of manual work and mistakes of people. Automation of document verification, summary and interviews of candidates.

4. The growing use of chatbots and virtual assistants in HR

5. Increasing the use of augmented reality and virtual reality technologies in learning and development programs

6. Data Analytics & Metrics to predict HR trends and company needs.

7. The progression of the hybrid and remote mode of operation due to technological changes and expansion of communication channels.

8. Introducing DEI Principles - Creating Inclusive Work space where everyone will feel comfortable, where they will respect personal borders and will encourage career development

9. Increasing the practices of building cards of career growth.

10. Development of new leadership models that emphasize empathy, emotional intelligence and ability to adapt.

11. Building an employer brand in a competitive labor market.

Internal staff marketing, based on key and recent trends, can be supported by various technological tools and platforms to improve communication, cooperation and employees. Here is an example of some technologies that can be used to maintain internal staff marketing:

1. Intranet: Internal Internet portal or corporate site where employees can find information about the company, news, documentation, work resources and more. The intranet may also include blogs and forums to discuss and exchange ideas.

2. E-mail and notification: Using the email to mailing internal news, ads and updates. Notifications and messages are also possible to remind you of important events and tasks.

3. Internal social networks: creation of corporate social networks where employees can communicate, exchange ideas, create communities and recognize each other's achievements.

4. Remote work tools: platforms for video conferencing, working together and sharing documents that facilitate the relationship between employees working with remote location.

5. Knowledge management systems: knowledge storage and exchange systems in the company, including databases, internal wiki, documentation and educational materials.

6. Analytics and reports: Use of analytical tools to track cooperation activity and internal marketing efficiency. This helps to evaluate what initiatives work and where there is space for improvements.

7. Employee Relationship Management Systems (HRM): Modern HRM systems, such as HRIS (SAP, Workday, Oracle) and HR platforms, help to automate many aspects of personnel management, including personnel documents, pay, certification, training and development.

8. Mobile applications: Creating mobile applications that allow employees to access corporate information, communicate and receive updates from anywhere.

9. Evaluation and feedback: Use online systems for conducting employee satisfaction application, survey and feedback system to identify staff needs and opinions.

10. Educational platforms: access to online courses and educational materials that help employees develop their skills and competencies.

The use of these technologies helps to improve cooperation, communication and attracting employees, which is important for maintaining internal staff marketing and improving the productivity and satisfaction of staff. Increasing the productivity and satisfaction of staff is achieved by drawing care cards and bringing them to employees.

Career growth map, also known as a career map or career path, is a tool for planning and developing a career of an employee. This card helps the employee identify her short-term and long-term career goals, determine how to achieve these goals, and identify the necessary skills and resources.

Here are some steps that can be included in the career card of growth:

1. Evaluation of the current state: Consider your current workplace, skills, experience and achievement. Determine where you are on your current career path.

2. Definition of career goals: Set specific, measured and achievable career goals that you are interested in. These goals can be related to raising the position, gaining new skills, changing the industry, etc.

3. Development of skills and competencies: Identify what skills and competencies you need to achieve your goals. Plan training, trainings and other development opportunities.

4. Defining steps on the way to reach goals: Develop a plan of steps you will need to take to get closer to your career purposes. This may include specific steps, such as a certain education, changing work responsibilities, gaining promotion, and more.

5. Definition of resources: Consider what resources you may need to achieve your goals. These can be financial resources, mentories, management support or other resources.

6. Monitoring and evaluation: Constantly track your progress and evaluate whether you reach your goals. If necessary, adjust your career plan.

7. Further development and adaptation: Career goals can change over time, so be prepared to adapt your career card if your goals or circumstances change.

A career growth map helps you structure your plan to achieve career success and ensures clarity and direction in your professional development. It is important to remember that it is a document that you can regularly view and update to meet your current and future targets.

In general, internal staff marketing can be supported by tools and strategies that help attract, motivate and store employees. The main tools of internal staff marketing remain:

1. Internal communications: intro -communication: internal newsletters, emails, internal social networks, etc. that disseminate information and news through the company; Real-time communication: Meeting or video conferencing tools to keep in touch between different departments and management levels.

2. Special programs and initiatives: motivational programs: include bonuses, gifts, travel, etc. to stimulate the high result and dedication of employees; Skill development programs: providing employees with opportunities for training and advanced training.

3. Internal branding: Corporate Cultural Code: A document that defines the values, mission and goals of the company and important norms of behavior; Internal Company: Creating a special Internet page or portal for employees where you can learn more about the company, available resources, career information, etc.

4. Recognition and awards: recognition systems: implementation of a system where employees can recognize and reward each other for achievements and contributions; Awards ceremonies: organization of regular awards ceremonies and recognition of outstanding achievements of employees.

5. Measures and Communities: Command Construction Measures: Organization of thematic measures that contribute to teams of teams and increase morality; Corporate social networks: establishing an internal online community for the exchange of ideas and experience between employees.

6. Questionnaires and feedback: satisfaction questionnaires: regular questionnaires among employees to assess their situation and opinions on company policy and working conditions; Meetings with management: providing opportunities to communicate employees with the top management of the company.

7. Provision of comfort in the workplace: opportunities for entertainment and rest: recreation areas, fitness centers, kitchen, etc.; Working conditions: providing comfortable conditions in the workplace, including technical and organizational support. These tools can be combined and adapted depending on the needs and specifics of your company. They will help improve the cooperation, motivation and dedication of your staff, which in turn will have a positive impact.

Therefore, internal staff marketing is the foundation of forming a positive image of the employer and creating an attractive internal environment for employees. However, the effective work of staff begins before its appearance in the organization - with a properly constructed process of selection and hiring. That is why the next step is to logically consider the technologies of selection and hiring staff that provide quality staffing in accordance with the strategic needs of the enterprise.

In the modern business environment, especially in the conditions of instability and rapid transformation of the market, companies are increasingly resorting to flexible models of personnel management. One of the most common forms is the loan staff (or staff leasing), which involve the involvement of employees through specialized agencies without formal employment in the organization itself.

In Ukraine, this practice has gained particular popularity in the fields of logistics, retail, seasonal production and service - in particular, in the companies of "Nova Poshta",

"Fozzy Groups", agricultural holdings during the harvest.

Unlike traditional staff selection, borrowing allows you to quickly close vacancies without long-term staffing procedures. For example, in Germany or Poland, such a model is strictly regulated by labor law, while in Ukraine the legal framework is still under formation, which creates both opportunities and risks for both parties - both employers and employees (Shumska, 2022).

Next, let's look at the essence of loan staff, their advantages, disadvantages, implementation mechanisms and prospects for use in the Ukrainian context. Depending on the goals of the company, the nature of the tasks performed and the level of responsibility of third parties, the loan-technology personnel can be implemented in various forms. The most common among them are outsourcing, staff leasing and outstaffing - each with its own characteristics, advantages and scopes.

Outsourcing (from the use of external source / resource) is the transmission of certain types or functions of entrepreneurial activity by another organization (outsourcer), which operates in the required area, on the basis of the contract. The advantage of outsourcing is the use of already accumulated highly professional experience, which is supplemented with the necessary equipment, technologies and tools. The specialization of the outsourcer organization allows to ensure reliable and qualitative performance of the functions transferred to the outsourcing in case of maintaining competitive prices for their services, since the outsourcer constantly invests in the advanced training of staff and providing it with modern equipment, in advanced technology. This allows such an organization to focus on maintaining its competitive advantage in the market where it works. The concept of outsourcing describes different forms of cooperation that can be described by the following terms:

The essence of human resources outsourcing (HR) is to set up those who do not make decisions ("non-basic" executors). Such categories include lower-level administrative staff, service personnel, and some categories of working professions.

Outsourcing of human resources (HR) can be of two types: outsourcing businesses and HR-outsourcing. Business Outsourcing Outsourcing-the organization's organization transfers a separate direction of work, the personnel administration or the process of wage accruing to the external provider. HR-Outsources-transfer to the external management of most of the personnel work: hiring employees; calculation and payment of wages, bonuses and bonuses; development of job descriptions; staff training, etc. It consists in the effective redistribution of labor flows and proposals of favorable decisions of human resources management.

In the scientific literature, the following types of personnel outsourcing services are distinguished: outsourcing staff selection; outsourcing personnel certification and personnel audit; outsourcing in the training system, advanced training and professional retraining; Outsourcing HR administration; outstaffing; staff leasing; outputs and more.

The advantages of outsourcing are: limitation of staffing, saving money for remuneration, creating and maintaining a workplace, continuous work (organization - outsourcer works constantly), flexibility in managing human resources, the ability to

transfer responsibility for performing certain functions. The disadvantages of outsourcing are: lack of a clear legislative framework, the possibility of loss of control of a certain process, the possibility of disclosure of confidential information, risk of losses in the event of involvement of unfair outsources and unexpected termination of services, complexity in the field of employees' motivation and others.

Therefore, outsourcing is the transmission of certain business functions or processes of a third-party organization that specializes in the performance of this type of activity. It is not just about hiring staff, but delegating a whole turnkey function. Many Ukrainian companies, including IT, logistics and maintenance, are actively using outsourcing. For example, ROZETKA is part of logistics processes - in particular delivery to remote regions - reports to third parties engaged in transportation. This reduces the cost of maintaining a large park of cars and drivers, as well as avoiding seasonal overload. In the IT outsourcing companies such as SoftServe, N-IX, EPAM executes orders for foreign customers, fully providing the project with their own specialists, managers and infrastructure-the client only gets the result.

Personnel lease leasing, or temporary lease staff, is a management technology that allows you to provide business process with the necessary human resources using a third-party organization. Staffing is a practice in which the company hires an external supplier (lessor) who provides the necessary workers or specialists to perform certain tasks or projects. The main prerequisite for the emergence and use of staff leasing is the inconsistency of the employees available in the organization. This can be solved by developing programs to change the qualitative and quantitative characteristics of staff in the organization. If, however, the need for a certain amount of work is one-time or seasonal, or the competence of employees does not meet the necessary, and additional training will require a lot of financial resources, then the organization can attract the necessary employees on leasing conditions. Leasing relations in the field of personnel management are referred in the following cases:

1. The need to involve highly qualified specialists whose need is not permanent, and the scope of their activities is accounting, audit, law and other fields of knowledge where there are specialized organizations providing such services.

2. The need to attract a highly qualified specialist whose similar services are not provided on the market by organizations. In this case, you can seek the help of competing organizations and rent such a qualified specialist.

3. The need for temporary involvement of specialists during the vacation period, provided that these specialists in the organization can be replaced by any of the staff.

4. The desire to minimize tax expenditures under the calculation of the payroll fund and simplify the scheme of relationships between the organization and the specialists they are involved.

5. Foreign organizations who want to open representation in Ukraine quickly or domestic organizations that create regional branches can apply to personnel leasing, leasing all the necessary composition of employees.

- Types of staff leasing:

- Staff Leasing - Long -term staff rental (long -term leasing). The employer organization pays only the services of the recruiting agency without linking himself with the employee of legal obligations. The specialist is listed in the staff of the Lizing Organization.

- Temporary staffing- selection of staff for the short period (mostly rule up to 3 months)- short-term leasing. Most often, this service is required during marketing research or small projects. The selection is made by the recruiting agency, and it is responsible for the employee.

- Outsourcing - the purchase of not the work of a certain specialist, but the service that the organization is needed at the moment.

Staffing can be performed by different methods:

1. Direct leasing: in this case, the company enters into a contract with the service provider (lessor), which provides the necessary specialists or labor to perform certain tasks or functions; The lessor assumes responsibility for the hired personnel, his training, teaching and management; The client company is able to concentrate on its main business processes, and the lessor provides workforce.

2. Tempoury Staffing leasing: this method involves the hiring of temporary workers or specialists through the employment or lessor; Temporary workers are provided for a short time, usually to complete a specific task or to fill in vacancies during periods of peak work; This method can be useful when temporary labor is required without long -term liabilities.

3. Project outsourcing: In this case, the lessor provides a set of services to perform a specific project or task from starting to completion; The lessor forms a team of specialists responsible for all stages of the project, including analysis, development, testing and implementation.

Executive Leasing Leasing: This Human Leasing Method is used to rent highly skilled management personnel for a temporary period or to complete a specific task; The lessor provides the company with qualified executives with the necessary experience and competencies to solve specific tasks.

Labor Leasing: This method involves providing a company to a number of routine or physical tasks; The lessor can provide labor for the assembly of goods, processing of data, customer service, etc.

WorkForce Planning Planning: This method is used to plan and optimize the combination of their own employees and leasing staff to ensure best productivity and efficiency.

Methods for leasing staff may vary depending on the needs of the company and the type of tasks to be accomplished. It is important to choose the approach that best meets the specific requirements and business goals of your company. The advantages of leasing staff are to organize the lessee: obtaining qualified staff in the right amount and in a short time, which increases the efficiency of work; responsibility of the agency for its employees (adopted under the leasing system); The organization adheres to its staffing limit, while maintaining or increasing the human resources of the organization; The

organization reduces the time and effort of its employees for personnel management, accounting and tax accounting, providing operating expenses, organization of social security; The organization retains the direct management of the work of employees adopted under the leasing system; The organization is able to stop employment at any time; reducing the cost of compensatory packages (for temporary workers they are either not provided at all or minimal); lack of downtime; If a temporary employee is ill or went on leave, then the agency is obliged to provide a replacement for this period; the ability to invite the employee who liked to the staff of the organization, while avoiding the cost of selecting staff; allows the organization to respond flexibly to seasonal and any other changes in production; The organization is guaranteed the full observance of the current norms of labor and tax legislation of Ukraine. Among the benefits of leasing relationships for workers are:

1) employees keep continuous work experience (the employee is in a permanent staff of the leasing organization);

2) the ability to acquire the necessary experience of performing different tasks and work in different working conditions;

3) the possibility of establishing business contacts with many organizations;

4) the employee does not need to look for work, the agency offers various vacancies;

5) it is possible to develop an individual work schedule;

6) subject to a labor dispute or conflict, everything is set by a leasing organization.

There are also negative moments, shortcomings related to staff leasing.

For the organization - the customer may be the risk of loss of confidential information; inconsistency of the organizational culture of the organization-customer in the event of the wrong choice of the provider of leasing services; The problem of distribution of responsibility between the customer and the provider of leasing services in the field of health care, safety, staff training. For the provider agency, it is negative that, after the expiration of the contract, the agency may not receive an order for specialists of a certain qualification for some time, but it must keep employees in its state with whom indefinite employment contracts are concluded, or dismiss such employees.

Therefore, staff leasing (sometimes called "employees' rent") is a temporary provision of employees by one company to another, with the employee legally remaining in the agency and works for the benefit of another organization. During seasonal work, especially in the agricultural sector, large agricultural holdings such as MHP (Mironovsky Bakery) or Kernel attract workers through staffing agencies. Thousands of workers work on harvesting, sorting and processing products - however, officially employed in agencies, not in the company itself. This allows the employer to rapidly scale the workforce at the time of peak loads, without breaking the labor legislation to reduce the state after the end of the season.

Outstaffing (or outstaffing) is an approach to personnel management in which certain functions or tasks that were previously performed internally within the company are transferred to external suppliers or outsourcing companies. Outstaffing may include elements such as outsourcing, staff leasing or temporary workforce. It is important to

distinguish this term from outsourcing, since outsourcing includes the transfer of not only staff but also functional responsibilities.

The main features of outstaffing include:

1. Choosing other labor suppliers: a company can choose external companies or labor suppliers to provide the necessary staff, such as programmers, analysts, data processing specialists and more.

2. Personnel optimization: outstaffing allows companies to focus on their basic competencies and transmit non -training or routine tasks of outsourcing partners.

3. Reduction of costs: Companies can effectively manage costs by adopting staff and functions from external sources. This can reduce salaries, insurance, pension contributions and other expenses related to the maintenance of internal staff.

4. Increased flexibility: outstaffing allows companies to adapt quickly to the variable needs of the business, increasing or decreasing the volume of labor as needed.

5. Reduction of the administrative barrier: the transfer of certain functions or tasks to external execution simplifies administrative personnel management and reduces internal responsibilities.

6. Risk Reduction: Companies can reduce the risks associated with dismissal, hiring and managing their own personnel as some of the responsibilities are transferred to external suppliers.

It is important to keep in mind that outstaffing can be useful for business in certain situations, but also requires proper management and control to ensure the quality and efficiency of work. It is also important to consider which features or tasks are best for outstaffing and whether they are in line with your company's strategy. Outstaffing (or outsourcing) can have numerous benefits for companies that use this management method:

1. Fund saving: outstaffing allows companies to reduce the cost of salaries, insurance, vacations and other overhead costs associated with their own staff. You can only pay for the external supplier for actually done work.

2. Expertise and access to the best talents: outsourcing companies usually specialize in certain industries and have access to highly qualified specialists and experts who may be unattainable to the company's internal staff.

3. Flexibility and speed: outstaffing allows companies to respond quickly to changes in business needs. You can increase or decrease the volume of work depending on seasonality or projects.

4. Specialized resources: Ability to use outsourcing for specialized tasks or projects that require special expertise or equipment that you do not have internal resources.

5. Focusing on the main tasks: outstaffing allows the company to focus on its basic competencies and strategic tasks, translating non -training functions into external suppliers.

6. Risk and responsibility: outsourcing may reduce the risks associated with the dismissal and hiring of staff, as well as responsibility for compliance with labor and tax legislation.

7. Business scaling: Outsourcing allows companies to easily scales their business, including extension to new markets or launching new products.

8. Savings of time: reduction of time needed to search and hire new staff because

outsourcing companies can give you access to finished resources.

9. Productivity Improvement: Outsourcing suppliers usually work to improve processes and use advanced technologies that can improve work productivity.

10. Global access: outstaffing allows access to the global market and international talents, which can be useful for expanding international business.

In addition to these advantages, outstaffing also includes a number of problematic points. The most common outstaffing problems include:

1. Control and quality of work: Lack of direct control over outsourcing personnel can lead to issues regarding the quality and productivity of workers. It is important to enter into contracts with sufficient detail and provide clear requirements for tasks.

2. Confidentiality and data safety: In the case of transmission of confidential information from outsourcing personnel there is a risk of breaking data security and confidentiality. Data control mechanisms must be installed.

3. Synchronization and coordination: In the case of outstaffing, it is difficult to ensure effective coordination and cooperation between internal and external staff. This can lead to underestimation and delays in tasks.

4. Changes in the outsourced staff: If the outsourcing supplier changes his staff or structure, it can affect the stability and quality of services.

5. Supplier dependence: Using outsourcing can be dependent on a particular supplier that becomes risky if the supplier is too limited or is unstable.

6. Cultural differences: If the outsourced staff is based in another country, this can cause problems with cultural differences, language barriers and ways of working.

7. Issues in ethics and responsibility: in some cases, companies may face ethical issues, especially if outsourcing staff works on low payment or in poor working conditions.

8. Other legal issues: outsourcing may require different legal issues, such as intellectual property, responsibility for mistakes, as well as compliance with the laws and rules of labor and taxation (Zadorozhna, 2023).

For successful implementation of outstaffing, it is important to think about these problems and develop strategies for solving them. Control, communication and clear contracts can help reduce risks and ensure the effective use of outsourcing personnel.

So, outstaffing is the withdrawal of employees for the staff while maintaining their work in the same organization. The employee is formally designed through the intermediary, but continues to perform the task in the customer company. Most commonly used to optimize taxes or simplify administrative accounting. In international companies such as Coca-Cola HBC Ukraine or Metro Cash & Carry, outstaffing is often used to attract trading representatives, merchandisers, logists. This allows companies to avoid inflating the official state and simplifying personnel documentation by focusing on the main business. Also, during the martial law, outstaffing became popular with IT companies who want to hire specialists from different regions without the physical presence of offices, providing flexible administration of contracts through outstaffing agencies.

Thus, borrowing staff-technology is an important component of a modern personnel

management system that allows businesses to adapt to changes in the internal and external environment. In the context of the Ukrainian labor market, which is significantly influenced by economic, political and social factors, the use of flexible forms such as outsourcing, staff leasing and outstaffing has become not simply appropriate, but a strategically important solution for many companies.

Outsourcing allows businesses to focus on their key activities, passing on to the auxiliary functions to external contractors. Staff leasing provides prompt solution to personnel needs, especially in seasonal or short-term loads. Outstaffing, in turn, helps to optimize the cost of keeping staff and simplifies personnel administration, which is especially relevant for companies with branched structure or high staffing.

It is worth noting that although in Ukrainian practice these technologies are already successfully applied in various fields-from the agrarian sector to IT and trade-they still do not have sufficient legal regulation. This creates some risks for both employers and employees, including social guarantees, transparency of employment and the responsibilities of the parties.

At the same time, with the conditions of improvement of the legal framework and the introduction of transparency standards, loan-technology staff has considerable potential for development. They can become an effective tool for shaping a flexible, mobile and competitive model of employment in Ukraine that can respond to time challenges and maintain dynamic business growth.

Therefore, the introduction and competent use of such technologies should be accompanied not only by economic expediency, but also by social responsibility, which will ensure the balance of interests between the employer, the employee and the state.

The analysis of modern technologies for the selection of staff shows that today enterprises are increasingly turning to innovative approaches that combine digital tools (artificial intelligence, automated recruitment systems, large data analytics) with psychometric methods, risk assessment, biographical and financial data. Such methods can significantly increase the accuracy of selection, reduce the likelihood of human factor and identify potential threats in a timely manner.

Particularly important is the introduction of a comprehensive approach, when the selection of personnel is considered not as an isolated function of the HR department, but as part of the overall security system of the enterprise. Cooperation between the Human Resources, Security Service, lawyers and topless provides a multilevel check of candidates, as well as the formation of a reliable personnel reserve. This approach contributes to long-term business stability, reputation and financial stability.

Thus, modern staff selection technologies are not only a tool for closing vacancies, but a powerful mechanism for forming organizational stability and protection against internal threats. In the future, enterprises should focus on the constant updating of methods, advanced training of HR specialists and integration of technologies into a wider context of corporate risk management. Only in the context of the combination of innovation, strategic thinking and ethical responsibility can the selection of staff form the basis not only of effective functioning, but also financial and economic security of the enterprise in the long run.

3.5. THE ESSENCE AND ORGANIZATION OF THE ECONOMIC SECURITY SYSTEM OF AN ENTERPRISE

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The modern operating conditions of Ukrainian enterprises are closely related to risks caused both by the external environment of their activities and by problems arising within the enterprise itself. All these risks affect the security of business operations, which is why every enterprise manager must constantly ensure the stability of their business's existence.

The challenges faced by businesses today are further complicated by the fact that Ukrainian enterprises operate under wartime conditions, and in addition to the usual risks of entrepreneurial activity, they are also exposed to wartime risks.

Business entities continuously operate under conditions of external environmental instability and competition, where the manager plays a crucial role in managing the business entity and overcoming the stream of problems the enterprise faces on a daily basis. Global business statistics indicate that within the first five years, 80% of all newly established enterprises cease to exist. This fact confirms that achieving effective strategic management is a very challenging task.

The strength of an enterprise, which is an open dynamic system, is based on three elements: profit, development, and security.

Under current conditions, the economic security of an enterprise gains particular importance as a factor in improving its economic condition and achieving business goals.

The term "security" is comprehensive in nature, as it is used in various sciences. In economic theory, several types of security are distinguished based on their content.

However, economic security occupies a special place among the various types of security. This is due to the fact that all types of security, in one way or another, cannot be adequately realized without economic support.

Economic security can be considered in relation to different categories of security objects: producers, consumers, and the state.

Since ancient times, one of the reasons people united into societies was the pursuit of safety. Thus, in Maslow's hierarchy of needs, the need for safety is considered one of the basic human needs. The scope of this need has continuously expanded — from personal safety to the level of society and the state.

O. Skoruk offers the following definition of security: "Security is a state of protection of the vital interests of an individual, society, or organization from potential and actual threats, or the absence of such threats" (Skoruk, 2021).

The general concept of "security" began to be used in relation to business activities relatively recently, mainly due to the rapid development of economic relations and the expansion of cooperation between enterprises of various ownership types and fields of

activity. O. Skoruk also emphasizes: “Security is the state of an object that allows it to prevent internal and external threats and helps neutralize them to ensure effective existence” (Skoruk, 2021).

Given that business entities operate in an economic environment that includes not only economic relations with various partners but also legal, financial, and other surroundings, the term “economic security” is more commonly used to define the safe existence of an enterprise. Bosa I. states that: “The term ‘economic security’ was first used almost ninety years ago by F. Roosevelt. It was officially established in 1985.” This official recognition occurred when “...at the 40th session of the UN General Assembly, the resolution ‘International Economic Security’ was adopted” (Bosa, 2022).

Currently, almost all scientists emphasize the multifaceted nature of the concept of economic security and the different approaches to defining its essence. The term “security,” according to its etymology, means “absence of danger,” i.e., security is a state of protection of the vital interests of business entities from internal and external threats. Vital interests refer to a set of needs, the satisfaction of which ensures “the existence and potential for progressive development of the individual, society, and the state” (Muntiyan, 2010).

From this, it follows that security is a state in which existence and the potential for progressive development are ensured. Based on a comprehensive analysis of scientific literature (both domestic and foreign), the following approaches to defining the essence of an enterprise’s economic security have been identified: a state of protection against threats; a state of efficient resource use; the ability to function stably; the presence of competitive advantages and the ability to achieve goals (see Fig. 3.5.1).

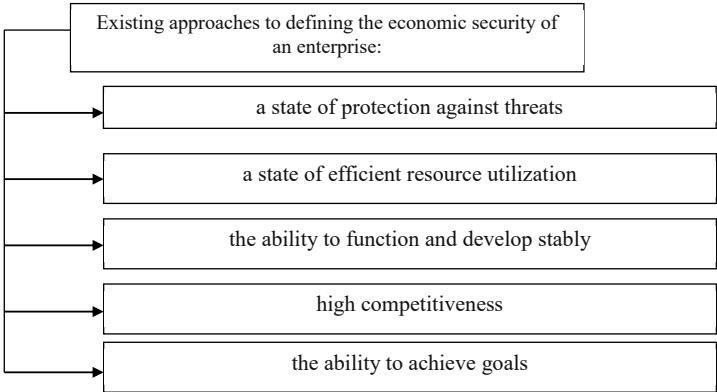


Fig. 3.5.1. Approaches to defining the essence of the concept “economic security of an enterprise”

The first approach to defining the essence of economic security of an enterprise is based on the concept of protection against threats. Bosa I. notes in her work that Olejnikov

Ye.O. considers economic security of an enterprise “as a state of the most effective use of resources to overcome threats and ensure stable operation of the enterprise now and in the future” (Bosa, 2022).

According to Kamlyk M.I., “Economic security means the preservation of structural integrity and the ability to generate prosperity, as well as the interests of a politico-economic subject in the context of various external risks and threats faced in the international economic system” (Kamlyk, 2014). The author emphasizes the need for protection against external threats; however, internal threats – which also significantly affect the activity of the entity – are left unaddressed.

The second approach, which views economic security of an enterprise as a state of efficient resource utilization, is closely related to the first approach. These approaches are often used together when defining economic security. Krupka Ya. defined economic security of an enterprise as “...a state of the most efficient use of resources to overcome threats and ensure stable operation of the enterprise now and in the future” (Krupka, 2010).

According to the third approach, economic security of an enterprise is defined from the perspective of the ability to function and develop stably. Pasinovych I. and Hutak V. cite definitions from various authors who consider security a state characterized by enterprise development. It ensures proper conditions for economic stability throughout every cycle of production, exchange, distribution, and consumption (Pasinovych, Hutak, 2023).

According to the next approach, economic security is defined as high competitiveness and the presence of competitive advantages. I.P. Moiseenko and O.M. Marchenko believe that economic security is “a system that ensures competitive advantages of the enterprise through efficient use of resources (material, labor, financial, investment), based on comprehensive information formed in an integrated accounting-information system” (Moiseenko, Marchenko, 2011).

One of those who views economic security from the fifth position – goal achievement – is O.V. Orlyk. According to his definition: “Economic security of a given system should be understood as a set of properties of the state of its production subsystem that ensures the possibility of achieving the goals of the entire system” (Orlyk, 2014).

While the first approach assumes that an enterprise is economically secure if it is protected from threats, the fifth approach makes ensuring economic security a more complex task—endowing the enterprise with qualities that allow it to achieve its goals.

Thus, it becomes clear that in disclosing the essence of the concept of “economic security of the enterprise,” different scholars emphasize one or another of the mentioned approaches. However, in our opinion, all of them are important in the process of forming business security.

It is also worth noting that many authors follow a mixed approach in their definitions of economic security, stating that it includes three important elements: economic independence, stability, development,

Economic independence implies control over one’s own resources and the ability to meet obligations on time. It is necessary to reach a level of production that ensures the enterprise’s competitiveness in the market.

Stability refers to operational consistency and a financial condition in which the enterprise can meet all its obligations to employees, other organizations, and the state under normal conditions, thanks to adequate income and balanced expenditures. The enterprise's contribution to a promising future lies in increasing its positive impact on society, and this can only be achieved if it attains stability. If the risk of reduced financial stability is not neutralized in time, the enterprise loses its ability to generate necessary profits and maintain steady growth in the future. Stability acts as the main source of development potential for the enterprise.

Development involves improving the enterprise's performance indicators. If an entity fails to develop or achieve operational efficiency, it reduces its ability to adapt to both external and internal conditions, and thus its ability to survive.

In turn, analysis of the various approaches to defining the essence of "economic security of the enterprise" allows us to add two more elements to those already mentioned: protection and economic advantage. This leads to the following definition of economic security (see Fig. 3.5.2).

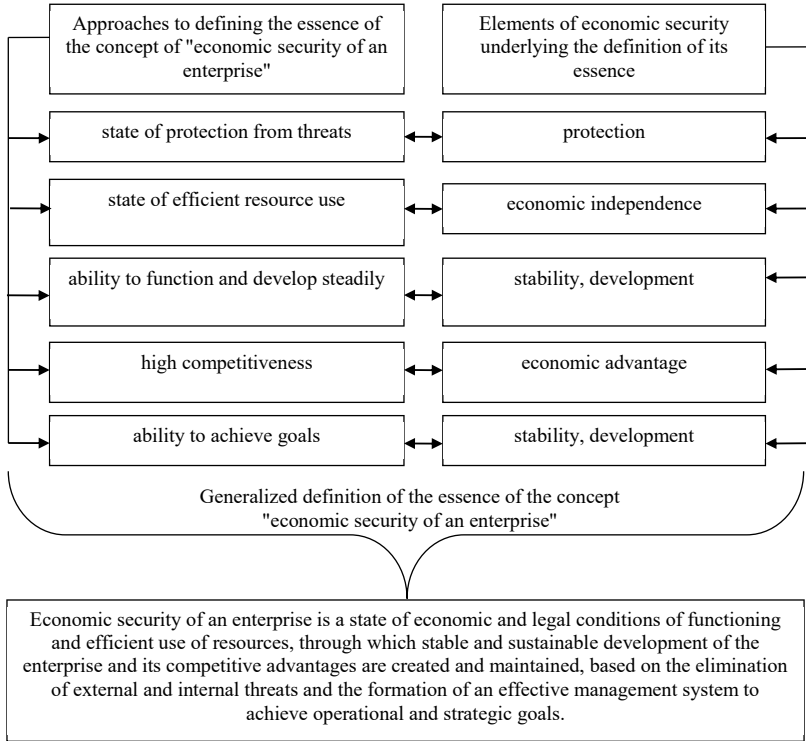


Fig. 3.5.2. Generalized definition of the essence of the concept "economic security of an enterprise"

Thus, economic security of an enterprise implies sustainable development through the use of all types of resources and entrepreneurial capabilities that ensure their most efficient use to prevent threats, support stable operation, and enable dynamic scientific-technological and social development. This contributes to solving the main task faced by any enterprise: protecting its interests and achieving business goals.

However, regardless of which approach we consider, most agree that "economic security" is a certain state of protection of a business entity, whereas ensuring economic security is a continuous process that requires constant attention and improvement.

From this perspective, one of the main tasks of modern business is to ensure safe and stable existence, which is not possible without a comprehensive and systematic approach to this process. This has led to the emergence of the concept of an "economic security system."

The systemic approach is based on the principle of the integrity of the object of study, meaning the analysis of its properties as a single whole. This is because only a system possesses qualities that none of its individual parts have on their own. This approach is founded on the idea that the interaction between components of a unified whole produces a synergistic effect.

In other words, the interconnection of the system's components ensures a combined effect greater than the sum of the individual effects of those components if they were to act independently. A similar interpretation of the essence of the synergetic relationship is also observed among scientists working in the fields of cybernetics and general systems theory. Thus, any system is formed based on the interconnection of its components. The creation of a system occurs through the transformation of the structure of relationships between components, as well as the development of those components.

Based on the above, we can state that in a market environment, every business entity needs its own economic security system. However, the economic security system of each enterprise will be completely individual, as it depends on many factors and the specific conditions under which the business operates at a given time. These conditions include: the type of activity, financial and material-technical resources, the legal framework within which the enterprise operates, the availability of human resources, the existence of a security service within the enterprise, the awareness of each employee about their responsibilities in the field of security, and other influencing factors.

All these elements, when interconnected, form a system and must operate as a unified whole. If any of these components is in poor condition, its negative impact will affect the entire system. Therefore, only a comprehensive approach to the concept of an economic security system and its development within the enterprise can lead to the desired outcome. Applying such an approach when developing the strategy for organizing an economic security system will help optimize the enterprise's economic activities, increase productivity, and ensure the availability of necessary resources.

In order to implement a comprehensive approach to building an economic security system, we believe it is first necessary to define its main characteristics: individuality, autonomy, Complexity, activity and efficiency.

In our opinion, if the enterprise’s economic security system possesses the characteristics presented in the figure, the costs of its operation will be justified, and the business entity will be maximally protected from negative influences of both the external and internal environment. In other words, by having these characteristics, the economic security system will be capable of fulfilling its main tasks (see Fig. 3.5.3).

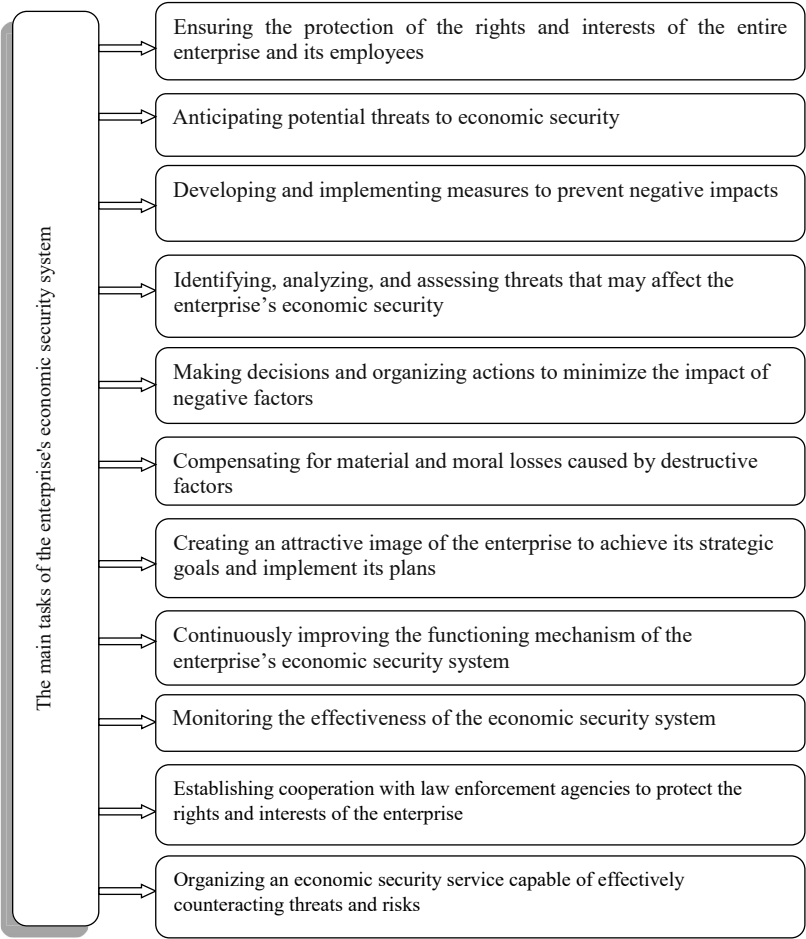


Fig. 3.5.3 Summary of the key tasks of the enterprise’s economic security system

Thus, the enterprise’s economic security system can be considered an organized, comprehensive set of measures, tools, and methods aimed at protecting the economic

interests of a business entity from potential threats—both external and internal—while ensuring the stability and efficiency of its operations.

Having defined the economic essence of economic security and identified its main characteristics, we can affirm that economic security can be maintained at an appropriate level only if it is properly organized. Most scholars propose viewing the organization of an enterprise's economic security system as a set of diverse measures targeting various aspects of the company's operations, aimed at protecting its interests from the negative impacts of the internal and external environment.

In turn, the organization of an economic security system is the result of internal and external factors influencing the functioning and development of the enterprise, reflecting a complex system of various economic relations. Therefore, the organization of the economic security system is a multilevel and complex process aimed at maintaining the stability and growth of the enterprise even under challenging conditions, and this process must be given special attention by the entrepreneur.

In general, the very term “organization”, as an action, implies a set of certain activities and the formation of a mechanism that would ensure the proper functioning of the enterprise's economic security system.

To build such an effective mechanism within the enterprise, it is first necessary to identify the elements of the economic security system that must be taken into account.

According to Kuzenko T. B. and Sablina N. V., the main elements include: “...objects, subjects, principles, functions, goals and objectives, strategy, economic security provision mechanism, and functioning modes” (Kuzenko, Sablina, 2020).

We do not fully agree with this opinion, as we believe that the developed functioning mechanism of the economic security system of an enterprise is already the result of its organization, rather than a separate element.

Based on this, we note that the economic security system of a company should be built in accordance with its security policy and strategy. Security policy refers to a system of views, measures, decisions, and actions in the field of security, creating the conditions and environment favorable for achieving the organization's goals. The security strategy can be defined as the direction aimed at achieving a high level of protection of the enterprise during its stable operation and the realization of its set goals. Therefore, the key components in the organization of the economic security system of business entities are its object, subject, and scope.

Based on this, let us consider the main elements of the economic security system that should be the focus when organizing the economic security system of an enterprise.

Thus, the objects of the economic security system include all aspects and areas of the enterprise's activities that need protection.

The selection of the objects that deserve the most attention within the economic security system depends on the specific characteristics of the enterprise and the amount of funds it can allocate to organize the protection of the identified objects.

The subjects of economic security are all departments, employees, and services involved in ensuring it.

O. Skoruk proposes to distinguish two groups of subjects within the economic security system: internal and external (see Fig. 3.5.4).

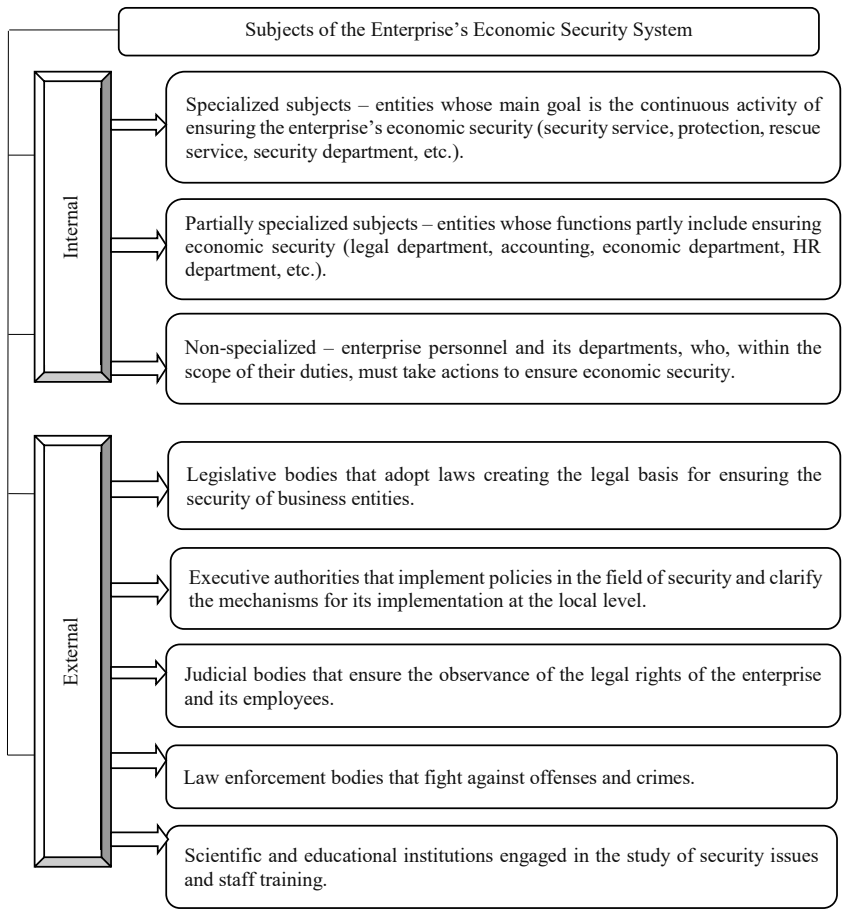


Fig. 3.5.4. Subjects of the enterprise's economic security system (Skoruk, 2021).

As shown in Fig. 3.5.4, the author includes not only individuals and structures directly responsible for ensuring economic security within the enterprise and subordinated to its management, but also external subjects. These external subjects include organizations and institutions that operate autonomously and are not subordinate to the enterprise's management, yet their activities have a significant impact on the enterprise's economic security. We agree with the opinion of O. Skoruk that the influence of these

subjects should be considered when building the mechanism for organizing the enterprise's economic security system.

In our view, a separate component of the economic security system—without which its proper organization is impossible—is the means the enterprise can use to ensure economic security. These will be presented in Fig. 3.5.5.

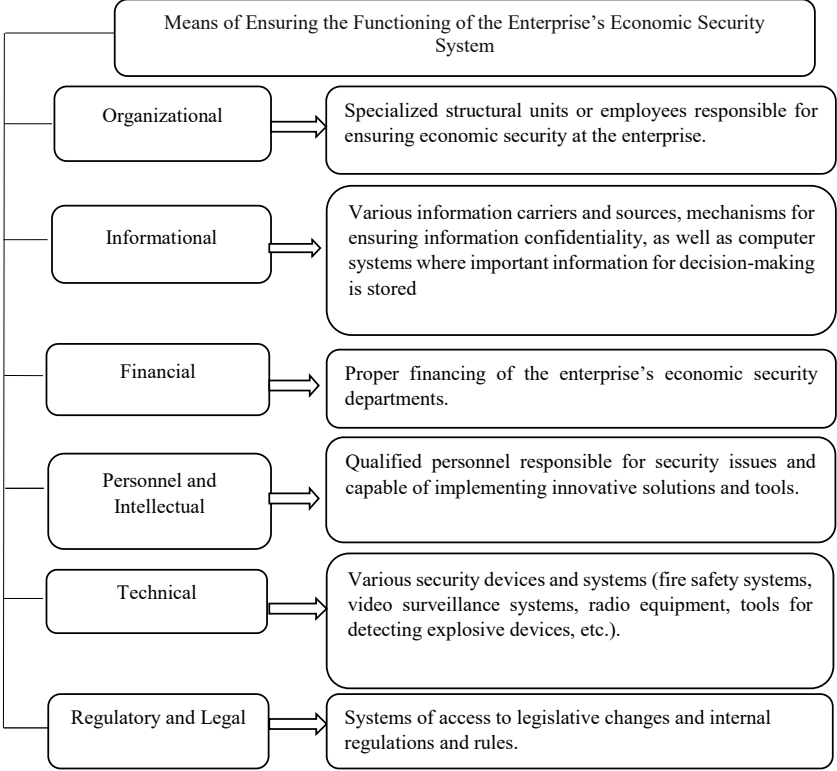


Fig. 3.5.5. Means of ensuring the functioning of the enterprise's economic security system

When organizing the economic security system, it is advisable to address the issue of obtaining the means from each group presented in the figure. Only under such conditions will the activities of the internal economic security subjects be effective.

An important element in ensuring the enterprise's economic security system is also the choice of methods for implementing this process. In our opinion, these methods can be conditionally divided into similar categories, in particular:

- Technical – the use of surveillance, control, and identification tools to ensure protection;

- Informational – establishing accounting and analytical support for the economic security system of the enterprise, compiling employee profiles, preparing confidential analytical materials, and other documents for situation analysis;

- Financial – incentivizing employees who achieve results in ensuring economic security through material rewards;

- Regulatory and legal – providing legal protection of the enterprise's legitimate interests and supporting the activities of law enforcement bodies;

- Personnel – selecting and training qualified personnel responsible for economic security;

- Intellectual – protecting intellectual property, for example, through patenting and the implementation of innovative developments.

Only the correct combination of these elements of the economic security system, in our view, can ensure its effective operation within the enterprise and enable it to perform its functions.

It should be noted that the main provisions for organizing the security service are recorded in the fundamental legal, regulatory, and organizational documents of the enterprise, which are based on legislative acts. Thus, the organization of an enterprise's economic security system implies the need to develop a specific algorithm for such organization and to formalize the defined provisions in the enterprise's internal administrative documents.

The organization of the economic security system of an enterprise is a complex process of creating, structuring, and implementing a set of measures, mechanisms, policies, and tools aimed at protecting the enterprise from various dangers and threats, as well as ensuring its sustainable functioning and development. It involves identifying the main elements of the system, which include objects, subjects, principles, means, and methods, with the selection and implementation of these elements depending on the tasks facing the enterprise's economic security service.

Today, the conditions for the existence of Ukrainian businesses are such that only a small number of enterprises allocate a unit dedicated to the economic security system. Most often, these issues are addressed by managers, analysts, and corporate security. The underdevelopment of the economic security system in enterprises is primarily due to the lack of financial resources to ensure its functioning and the short-sightedness of managers. In the absence of such a system and services from the economic security department, there is a risk of resource loss or takeover by raiders. To ensure the proper organization of the economic security system of an enterprise, it is, in our opinion, necessary to first define the basic principles of economic security on which it should be based.

Today, there are several approaches to formulating the principles of an enterprise's economic security. Most authors suggest adhering to the following principles of economic security: legality; systematic and comprehensive; completeness of coverage by levels of financial and economic activities; completeness of coverage by time of financial and economic activities; and economic feasibility. Having examined the literature sources and analyzed various approaches to defining the principles of economic security, we support the opinion of D. S. Kovalov, who, based on the content of the aforementioned elements of the economic security system of a functioning institution and highlighting the requirements for the organization of the economic security system, systematizes its principles into six blocks:

target, structural, functional, process, operational, and systemic principles. The target principles include coverage, specificity, flexibility, scalability, and compatibility.

Structural principles involve the principle of simultaneous "four roles," the combination of centralization and decentralization, hierarchy, prioritizing the object over the subject, coordination, unity, minimal structural complexity, and personal responsibility.

Functional principles include autonomy, updating, concentration, multifunctionality, and neutralization.

Process principles involve the combination of preventive and reactive measures, the combination of publicity and confidentiality, legitimacy (legality), economic feasibility, and equivalency.

Operational principles include proportionality, linearity, uniformity, parallelism, continuity, and specialization.

Systemic principles include goal orientation, integrity, openness, connection, and adaptation.

We believe that this list of principles for the economic security of an enterprise, and thus its organization as a system, is the most comprehensive and can serve as a solid foundation for building the economic security system of any business entity.

In addition to the principles of organizing the economic security system of an enterprise, its functional components are also of great importance.

Thus, the main functional areas of the economic security system of an enterprise are: protection of trade secrets and confidential information; computer security; internal security; security of buildings and structures; physical security; provision of communication; security of economic and contractual activities; security of transportation of goods and people; security of advertising, cultural, mass events, business meetings, and negotiations; fire safety; environmental security; radiation and chemical safety; competitive intelligence; information and analytical work; social-psychological and preventive work among staff and training on economic security issues; expertise of the security system mechanism; technical and technological security; provision of security personnel; industrial security; financial security; tax guarantee; interface security; material security; energy security, and others.

With this allocation of functional areas in the economic security system, it is included in the resource-functional approach when conducting an assessment and analysis of its level. Given the diversity of components in the economic security system of an enterprise, a comprehensive approach must be followed when organizing it, which involves covering the maximum number of functional areas of the enterprise's security.

Applying a comprehensive approach when developing the strategy for organizing the economic security system in an enterprise will optimize the economy, increase its productivity, and allocate resources for the further successful operation of the economic security service in the enterprise.

A key feature, and at the same time a challenge, in organizing the economic security system is that its effectiveness almost entirely depends on the human factor. Even with a professionally trained head of the economic security service, modern technical means, and the company's leadership, the desired results will not be achieved until every colleague

and employee realizes the importance and necessity of the implemented economic security measures. If an enterprise allocates resources solely to ensure its functioning, it will typically operate as a system; however, the organization of security efforts enables such functioning to be carried out with a better combination of resources, improved management, favorable external conditions, and higher performance outcomes.

For a company to move forward with further development, it must allocate funds for the ongoing provision of its economic security, in addition to the funds necessary for basic operations. As soon as development processes begin, the level of threat constantly increases due to faster dynamics and the weakening of the system. The enterprise grows, which leads to higher profits, but for expanded reproduction and to ensure an adequate level of economic security, increasingly significant resources are required. These circumstances are associated with the fact that during its development, the company will claim a market niche or a portion of its competitors, which already constitutes a substantial security threat.

If the enterprise is capable of allocating funds for the operation and maintenance of its current level of economic security, as well as for the potential organization of future economic security, this is considered the highest level of economic security. It enables not only safe development but also the formation of the enterprise's capacity to ensure its own economic security in the future.

Thus, the organization of the economic security system involves adherence to a significant number of principles and the application of a comprehensive approach, which means structuring the enterprise's security system across all its critical functional components. At the same time, in the process of organizing the economic security system within an enterprise, issues must be addressed at the methodological, technological (technical), and organizational levels.

One of the main elements of the economic security system of an enterprise is its information support. Without information, specialists in the economic security service will not be able to assess its current state or make proposals for improvement. At modern enterprises, the primary information system is the accounting system of the enterprise.

It is no coincidence that Andriiv N. states: "The organization of a proper state of information support is only possible with adequate assistance, particularly managerial and technical" (Andriiv, 2023). The core of information support is integrated accounting (operational, managerial, financial, and tax accounting). It is accounting that "...generates accounting and analytical information appropriate to management goals, which contributes to achieving and maintaining the level of economic security necessary for the normal functioning and stable retention of the enterprise's desired position" (Andriiv, 2023).

Thus, economic security system specialists in their activities will primarily rely on the enterprise's accounting system to obtain the necessary information. However, it must be taken into account that not all information needed by security professionals can be immediately retrieved from the accounting system or used correctly. On this matter, Andriiv N. writes: "No system can exist without information, but in addition to its presence, the quality and the ability to obtain and use it as efficiently as possible are also crucial" (Andriiv, 2023).

This confirms our view that in order to obtain the necessary information from the

accounting system, it is first necessary to develop a specific mechanism for information transfer, to determine the timing, scope, and reporting formats in which such information will be generated. In this regard, Nataliia Andriiv notes: “This is possible in the case of establishing appropriate information channels and developing an internal data exchange format based on the widest possible application of information technologies” (Andriiv, 2023).

We fully agree with her opinion that the transmission of information will be most effective through the company's communication tools by applying available information technologies. The security service can also obtain the necessary information by implementing a system of access to information arrays within the enterprise. This means that certain specialists responsible for areas of economic security are granted access to accounting software or specific modules, but without the right to make changes. Under such conditions, the specialist responsible for organizing economic security will be able to independently export the necessary data in the form of reports or spreadsheets and further process them.

Thus, the next step after obtaining the information is its analytical processing in order to derive the necessary indicators that characterize the level of the enterprise's economic security in terms of its components. This means that a financial and economic security analyst must possess appropriate tools to analyze the obtained data.

According to Skoruk O., “Accounting and analytical support for the economic security of an enterprise should be understood as the process of collecting, preparing, recording, and processing accounting and analytical information and making management decisions based on it” (Skoruk, 2021).

Considering that the information processing must be carried out in accordance with the needs of security implementation, the same author notes: “Accounting and analytical support for economic security is a complex system consisting of three interrelated subsystems (components) that exist in a single information space: accounting, analytical, and special support” (Skoruk, 2021).

Accounting and analytical support is a key element in the effective management of an enterprise's economic security. Its significance lies in creating an informational foundation that enables well-grounded managerial decisions to reduce risks and threats, protect resources, and ensure stability in the enterprise's operations. Several aspects highlight the role of accounting and analytical support in the economic security system of an enterprise:

1. Information Support – The accounting and analytical system provides accurate, complete, and timely information about the enterprise's financial condition, assets, liabilities, income, and expenses. This information serves as the basis for timely and effective decision-making.
2. Control and Monitoring – Through accounting data, the economic security system can maintain continuous control over asset movement, financial operations, and budget execution. This allows for quick responses to violations within the enterprise's internal environment and helps prevent their negative consequences.

3. Risk and Threat Assessment – Analytical tools make it possible not only to assess the current state of the enterprise but also to forecast potential risks in financial, economic, or organizational areas. This contributes to the timely identification of threats that could negatively affect the enterprise's future operations.

4. Planning and Forecasting – Based on accounting and analytical information, strategic and tactical plans are developed to ensure the enterprise's stability. This allows for effective resource allocation, cost optimization, and focusing on priority areas of activity.

5. Decision Support – Accounting and analytical support serves as the foundation for decision-making related to ensuring economic security. Thanks to clear data, management can justify actions aimed at minimizing risks, strengthening financial stability, or improving internal processes.

6. Enhancing Transparency – Accounting and analytical information ensures transparency in the enterprise's financial and business operations, which strengthens trust among investors, partners, and government authorities.

Thus, accounting and analytical support plays a key role in the financial and economic security system of an enterprise. It is an integral part of this system, contributing to its overall effectiveness, adaptability to changes in both the external and internal environments, and ensuring the stability and competitiveness of the enterprise. Therefore, when organizing the enterprise's economic security system, special attention must be paid to accounting and analytical support.

Research has shown that most small and medium-sized enterprises (SMEs) do not have a separate unit responsible for economic security. In addition, many companies lack a formal security concept and have not adopted administrative documents that assign responsibilities for economic security among individual employees.

Based on this, we consider it necessary to encourage enterprise leaders to focus on developing specific approaches to organizing economic security and formalizing its procedures. First of all, it should be noted that if a company is a small or medium-sized business, creating a separate department for economic security may not be appropriate. Instead, it is necessary to develop action mechanisms for current employees to maintain economic security at an adequate level.

On this matter, Skoruk O. states: "Depending on the situation and its development, the economic security system can operate in three modes: routine, high alert, and emergency" (Skoruk, 2021). Let us consider how these modes can be implemented at a specific enterprise.

The routine mode of operation of the economic security system is the standard working condition in which all subjects of the system, except for the crisis group, perform their regular duties. They are engaged in preventing the emergence of negative factors, detecting them, and also developing standard action plans in case of various threats. This is the standard mode in which the enterprise operates at the moment. To maintain this mode at the enterprise, it is sufficient to assign the issues of security provision in the job descriptions of employees.

The high alert mode of the economic security system is the operation of the system under conditions when specific threats have been identified that may negatively affect the

enterprise's activity. In this mode, all subjects of the economic security system intensify their efforts, moving from regular monitoring to the implementation of specific actions to minimize risks and reduce the destructive impact of these threats.

For example, in the case of a sharp deterioration in financial indicators or the detection of signs of fraud, the enterprise may enhance control over expenses, introduce additional checks of financial documentation, and also restrict access to financial data or bank accounts for certain employees.

If the enterprise experiences failures in the operation of critically important equipment, a technical group is formed to promptly eliminate the problem, and measures are developed to prevent the recurrence of the situation.

In the case of a cyberattack or data leak, those employees who, according to their job descriptions, are also responsible for maintaining information security in addition to their main duties, are activated. To eliminate the negative impact of the cyberattack, a security system audit is carried out, threatening channels are blocked, passwords are updated, and employees are given instructions on how to avoid further risks.

Thus, in the high alert mode, the main goal is to prevent threats from escalating into a crisis. This is achieved through clear coordination of all structures, quick response, and the application of pre-prepared plans for managing specific situations.

Another mode in which the economic security system of the enterprise can operate is the emergency (crisis) mode, that is, such a state of operation of the economic security system which is activated in the presence of serious threats that can cause significant damage to the enterprise. In this mode: enterprise management is transferred to a crisis group, which must be headed by the enterprise manager if there is no separate security specialist at the enterprise. This group promptly makes all key decisions to overcome the threat. It operates continuously, ensuring monitoring of the situation, coordination of actions, and control over the implementation of response plans.

All units of the security system, including the security service, heads of functional areas, and other personnel, must be ready to immediately implement measures to neutralize threats and minimize their consequences. If necessary, the enterprise engages external resources such as the state security service, police, or structures of the Ministry of Emergency Situations for additional support and security provision. This mode is aimed at the fastest possible response to danger, effective coordination of actions of all participants in the process, and the prevention of serious losses for the enterprise.

The decision to apply a particular mode of organizing the economic security system must be made by the director of the enterprise at each specific point in time. However, for each employee to understand their duties in ensuring security in a specific situation, these must be prescribed in certain internal regulatory directives of the enterprise.

Thus, the task of the enterprise's manager is to timely choose the mode of operation and organize the work of the employees, that is, in fact, the manager must have a mechanism for choosing a security strategy.

A security strategy is understood as a set of the most important decisions aimed at ensuring a programmatic level of enterprise functioning security.

In practice, three main types of economic security strategies of an enterprise have

been formed and distinguished. We can propose them for use in existing enterprises, conventionally naming them as follows: preservation and monitoring strategy, response strategy, and protection restoration strategy. Thus, depending on their financial capabilities and the current situation, the head of the enterprise can choose one of the presented strategies for organizing the economic security system.

The most rational one is the preservation and monitoring strategy; however, it requires constant attention from the enterprise's specialists to security issues and continuous situation monitoring. The formation of the economic security system and the definition of its structural elements is one of the main tasks in organizing the economic security system at the enterprise. The construction of such a system depends on the scale of the enterprise, as well as its economic, financial, technical, informational, and intellectual resources.

In practice, small enterprises, when organizing their economic security system, usually use the services of external specialized organizations, such as consulting, security, or information companies. These can be agencies for personnel selection and certification, marketing centers, private security structures, etc. Another model of organizing the economic security system of a small enterprise is also common. Since such business entities often lack the ability to create separate departments or hire external specialists on a permanent basis, the relevant responsibilities may be distributed among different employees.

Medium-sized enterprises often choose a combined approach to security. They may turn to external specialists when necessary but simultaneously actively use internal resources such as legal or financial departments, marketing departments, occupational safety services, access control, or document flow departments. To improve the efficiency of these departments, it is advisable to create a coordination body within the enterprise or appoint a responsible person to oversee financial and economic security issues.

The economic security system of a large enterprise is formed as a complex, multi-level structure that integrates internal departments, specialized services, and external partners to ensure stable operations, asset protection, and counteraction to possible threats. Its construction depends on the scale of the enterprise, industry, volume of financial resources, level of risks, and the company's strategic goals.

The main central body of the economic security system of large enterprises is a separate unit – the economic security service. This body monitors threats, develops strategies for their neutralization, and coordinates the actions of all departments. The legal department provides legal support, prevents contractual risks, and defends the interests of the enterprise in court. The financial department – monitors the budget, cash flows, and identifies financial risks (fraud, theft). The information security service – ensures the protection of confidential information, prevents cyberattacks, and organizes data access policies.

A security and access control department may be established as a separate unit. It is responsible for physical security, the protection of material assets, and access control to the enterprise's premises. Large enterprises actively cooperate with external companies to address specific security issues – staffing agencies, marketing companies, IT companies specializing in cybersecurity and database protection. These enterprises may also cooperate with law enforcement agencies, customs services, tax authorities, and other state structures to ensure legal protection, counteract fraud, or investigate incidents.

Regardless of the size of the enterprise, a certain action algorithm must be followed to form a security system. The content of each stage may vary depending on the specifics of the business entity, its size, and financial capabilities. The proposed action algorithm for forming (updating) the economic security system of an enterprise is shown in Fig. 3.5.6.

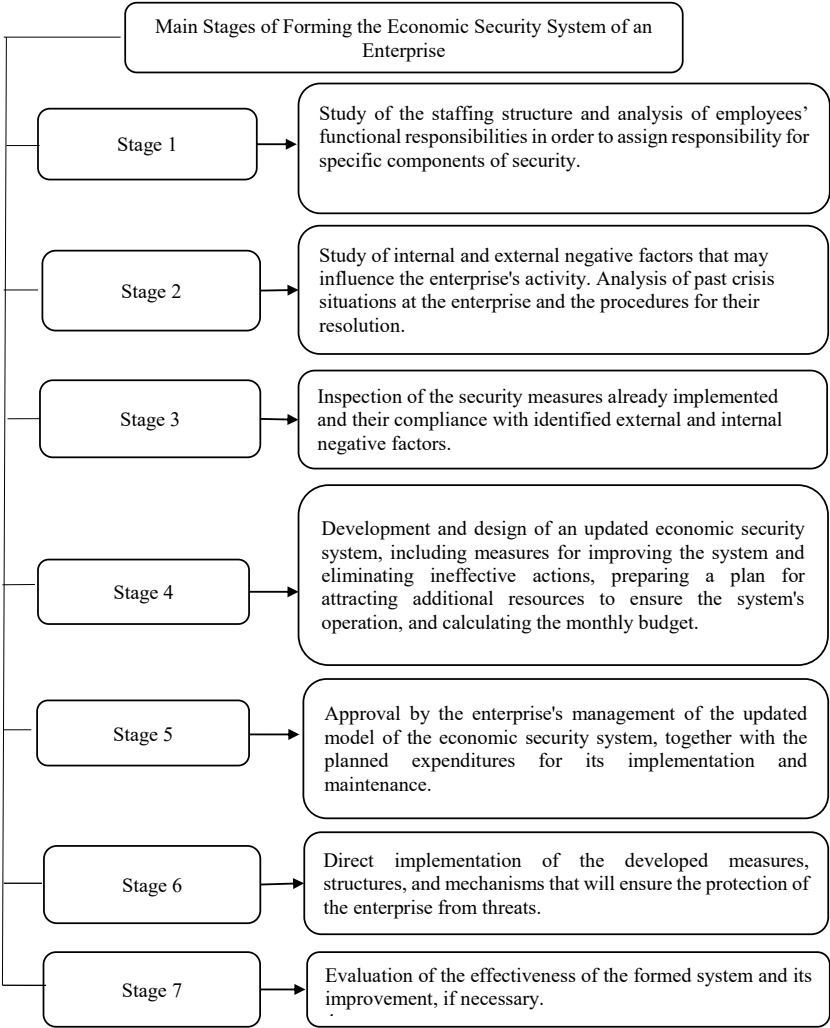


Fig. 3.5.6. Proposed algorithm of actions for the formation (renewal) of the enterprise's economic security system

Thus, the organization of the economic security system of an enterprise will depend on its size, financial capabilities, and the risks and threats it faces. The algorithm for forming an effective economic security system can be conditionally divided into 7 stages, which include the entire range of work for its organization, from surveying the object to evaluating the effectiveness of the formed system.

The result of implementing this algorithm is the formation of an economic security policy, which represents a system of views, measures, decisions, and actions in the security field, the creation of conditions, and a favorable environment to achieve the enterprise's goals. Thus, as a result of proper organization of the economic security system in the enterprise, a policy for its provision should be developed.

By studying various scholars' views on the essence of economic security and highlighting the main elements that formed the basis for defining its essence, it becomes clear that the economic security of an enterprise is a complex and comprehensive concept, and its provision is the result of a combination of actions that maintain the enterprise's solvency and liquidity of its current assets, the organization of control over all types of activities of the enterprise to improve its effectiveness, the qualification, competence, and activity of managers and staff, the effective use of all types of resources, and the process of preventing possible losses due to external and internal threats, etc. Therefore, the main goal of economic security is to guarantee the financial stability and maximum effective functioning of the enterprise in the current period, as well as a high potential for development in the future. It should be noted that the economic security of an enterprise is a rather complex system, which includes a certain set of internal characteristics aimed at ensuring the effective use of material, labor, information, and financial resources.

The need to build an effective management system for an enterprise is determined by the ongoing trend of changes in the external and internal environment, the emergence of factors affecting the level of financial-economic security, the necessity of applying justified approaches to determining and assessing the level of financial-economic security under uncertainty, as well as the need to find effective methods and algorithms for ensuring the financial-economic security of the enterprise.

Security should be considered through the lens of its functional components, which allows for: monitoring factors that affect the state of both functional components and financial-economic security in general; studying the processes that influence the provision of financial-economic security; analyzing the distribution and use of the enterprise's resources; examining economic indicators that reflect the level of provision of functional components; developing measures that will contribute to achieving a high level of the components, which will lead to strengthening the financial-economic security of the enterprise as a whole.

Based on this, we believe that the organization of the economic security system should be carried out in such a way as to maximize the use of the already existing resources of the enterprise: material, technical, human, and informational. In fact, a significant portion of the work done by the enterprise to keep it operational is actually aimed at enhancing its economic security, although this is often not regulated by any

internal regulatory document. Therefore, in our opinion, the organization of the economic security system of a stable enterprise should be embedded in the management process of the enterprise, which is aimed at forming the appropriate level of its economic security.

Thus, the process of organizing economic security at an enterprise should be integrated into its overall management system. Moreover, the costs of organizing the economic security system of the enterprise should be minimal. In other words, the organization of economic security should be based on transferring the management of the enterprise to a qualitatively new level.

The conducted research has shown that the key elements of organizing the economic security system at an enterprise are the identification of subjects, objects, and the subject matter of the organization. At the same time, working on the development of the structural model of organizing economic security has led to the conclusion that the ultimate result of this process is the development of the enterprise's economic security policy.

Based on this and considering the necessity of ensuring the stable development of any economic entity in the future and its investment attractiveness, we can highlight the main forming elements of the enterprise's economic security system: goal, subjects and objects and their functions, systematic implementation, security policy.

To ensure an appropriate level of economic security for any enterprise, it is necessary, first of all, to consider each of the identified elements of its formation. Thus, the establishment of the goals of the economic security system should be based on the specifics of its activities and industry. We believe that such goals include achieving the operating goals of the economic entity, ensuring the effective use of its resources and their preservation, adapting to external influences, maintaining financial stability, liquidity, and solvency at the appropriate level, ensuring the protection of information and trade secrets, the safety of personnel, intellectual property protection, and so on.

Based on the defined goals, in the process of managing the enterprise, the subjects of the formation of the economic security system of the enterprise are identified. These subjects include the owners, the enterprise management, and financial managers, who, through analytical research of both the internal and external environment of the enterprise, develop relevant proposals to prevent financial problems in the future.

The subjects of organizing the economic security system of a commercial enterprise can be either individual persons, according to their defined powers and official duties, or an entire department, which can include specialists from the enterprise capable of conducting analytical calculations regarding the state of the enterprise's economic security and generating internal reporting.

Moreover, economic entities, in the course of their activities, are influenced by external subjects managing their economic security. These subjects may include legislative and executive authorities, law enforcement and judicial bodies, the system of educational and scientific institutions, non-governmental security agencies, analytical, consulting, and information services, insurance companies.

The objects of the economic security system of the enterprise, when organizing it, should include every factor of its activity that contributes to increasing the effectiveness

of its functioning and profitability. These include:

- The financial and economic condition of the company, both at the present moment and in the future;
- The current and strategic goals and interests of the enterprise;
- Various areas of its activity, such as production, commerce, management, procurement, planning, etc.;
- The assets and resources of the enterprise, including financial, material, informational, and human resources;

The employees of the enterprise, its management, shareholders, owners, as well as all structural units, services, partners, and other involved parties.

In addition, the objects of the enterprise's economic security should also include personnel, information, the totality of property and non-property rights, and the economic interests of the enterprise.

Therefore, the systemic implementation of economic security involves studying the interrelationship between the factors of activity that affect the state of the enterprise's economic security and examining them using a comprehensive approach. Moreover, the systematization of financial and economic security, in our opinion, should involve conducting analytical procedures to determine the state of security at the enterprise on an ongoing basis, with a specially defined frequency, and building a certain algorithm for actions to improve the financial situation of the enterprise.

The systematic approach should form the basis for the development of the enterprise's economic security policy, which involves developing a set of measures aimed at achieving and maintaining a secure financial and economic state of the enterprise, based on its strategic goals at all stages of its development.

Furthermore, in our opinion, the financial and economic security policy should also provide for a set of tools for implementing the proposed set of measures at the enterprise, taking into account its operating conditions and financial capabilities, which represents the methodological component of the enterprise's economic security.

To improve the level of economic security of enterprises, it is necessary to activate the management functions of government bodies in the direction of a safe business environment. We believe that, based on the conditions of today's active business, during the organization of its economic security system, it is necessary to form the appropriate set of measures, which can become the foundation of the enterprise's economic security policy.

Thus, the combination of the financial and economic security policy of the enterprise at both the external and internal levels will enhance the enterprise's economic security across all defined components. At the same time, in modern conditions, in our opinion, the internal level remains the foundation of the enterprise's economic security policy, as it is at this level that the enterprise can increase its financial and economic security by finding internal reserves, while actions by government bodies can be seen as external factors of the internal economic security policy.

Therefore, we can conclude that the process of managing an enterprise should be

organized in such a way that it promotes the formation of an appropriate level of economic security for the enterprise. Moreover, the process of organizing the economic security system within the enterprise should be integrated into its overall management system, and the costs of its formation should be minimal. The main elements of organizing the enterprise's economic security system are its goals, subjects, objects, a systemic approach, and a security policy, which includes both external and internal levels.

Modern business entities often have to work in conditions of uncertainty, lack of information, and doubts about its reliability. Even established accounting standards involve the concept of professional judgment by accountants, that is, making certain assessments and reflecting operations based on their own experience and understanding of the processes. At the same time, the accounting system is the main source of information for management decisions in general and in the field of economic security in particular. This means that if, for some reason, inaccurate or false information is generated in the accounting system, it will reach the manager and may lead to ineffective decisions. Obtaining unreliable information in accounting is considered a concept of the professional risk of the accountant.

Our research shows that the information coming from the accounting system must be properly processed "...so that, in the process of its processing and interpretation, conclusions can be drawn about the current state of economic security and possible ways to improve this situation in the future" (Andriiv, 2023).

The processing of information obtained from accounting and non-accounting systems is carried out by analysts, and in their work, there are also risks associated with incorrect selection of processing tools, calculation errors, or incorrect interpretation of the results.

Thus, in addition to the risks associated with entrepreneurial activity and reflected in the accounting system, significant impact on the enterprise's economic security is exerted by professional risks, which arise due to the human factor in the process of performing accounting operations. The high responsibility of the accountant to the users of financial statements and the significant level of risk inherent in their professional activity require the recognition of the concept of "accounting professional risk" within the enterprise's risk management system. This also creates a need to improve the organization of accounting in the context of risk. However, the issue of studying the nature and essence of professional risks related to the movement of accounting information remains insufficiently researched in both accounting and risk management.

Skoruk O. mentions that "professional risk of an accountant refers to informational risks related to the distortion of accounting data, which arise in the accounting system and are the result of actions or omissions by accounting personnel" (Skoruk, 2021).

We agree with this view and believe that when organizing the economic security system of an enterprise, it is necessary to identify such risks to minimize their impact on information support. These risks can be conditionally divided into three groups:

1. Professional risks related to the organization of accounting at the enterprise include risks of information distortion. These include cases of violations by accounting staff of legislative or regulatory requirements that govern the financial and economic activities of the company, leading to unreliable accounting data. Such violations can be

unintentional, caused by the insufficient qualification of personnel, or intentional, when actions are taken to gain unlawful benefits. The consequences of discovering unreliable or falsified information may include fines and other sanctions by tax and law enforcement authorities, damage to reputation, loss of clients, and, as a result, a decrease in the effectiveness of the enterprise and the level of its economic security.

2. Risks related to violations of the accounting methodology due to improper choice of accounting policy. These risks can lead to accounting information becoming unsuitable for effective management of the enterprise, and published financial statements may mislead external users, prompting them to make decisions that are not beneficial to the company. There may also be an increase in costs due to the increased complexity of accounting operations. As a result of these risks, unjustified changes in the valuation of assets and capital often occur, which negatively impacts the enterprise's reputation.

3. Organizational risks arise when the structure of the accounting service, the organization of accounting processes, the qualification level, and the personal qualities of the employees do not meet the tasks set for the accounting department. This can lead to increased labor intensity, reduced speed of accounting operations, unjustified expansion of the workforce, and, as a result, a decrease in the effectiveness of the accounting system. This group of risks also includes losses of confidential information due to negligence or intentional actions of accounting staff.

As we can see, the work of the accounting department is one of the components of the organization of the enterprise's economic security system, which, on the one hand, forms the basis for establishing accounting and analytical support for the management of economic security, and on the other hand, creates a separate group of risks within the system of economic security of the enterprise. Based on this, we consider it necessary to highlight the main directions for minimizing the impact of professional risks of accountants-analysts on the level of economic security of the enterprise and the measures that will allow for the implementation of each identified direction. These include: management of accounting personnel, protection of confidential information, Automation of accounting processes, Verification of the accuracy of accounting data, participation of analysts in the development of accounting policies.

Thus, we have established that the work of accountants and analysts, on the one hand, forms the basis of accounting and analytical support for managing economic security, and on the other hand, creates a separate group of risks within the enterprise's economic security system. Based on this, three groups of professional risks of accountants-analysts that affect the state of economic security of the enterprise were identified, and directions were proposed to minimize the impact of their professional risks on the level of economic security of the enterprise along with means for their implementation.

Therefore, a qualitatively organized system of economic security of business entities is possible only with the use of a comprehensive and systematic approach in its organization and management. This system makes it possible to assess the prospects for the development of the enterprise, develop its tactics and strategy, reduce the consequences of financial crises and the negative impact of new threats and dangers.

CHAPTER 4. FINANCIAL AND CREDIT SUPPORT FOR INNOVATIVE DEVELOPMENT OF AGRO-INDUSTRIAL ENTERPRISES: MODERN CHALLENGES

4.1. FINTECH AS A DRIVING FORCE FOR THE TRANSFORMATION OF TRADITIONAL BANKING

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Financial technologies (FinTech) are one of the fastest growing industries in the modern world. They combine finance and technology, providing new opportunities to improve traditional financial processes, reduce costs, increase the speed and convenience of providing financial services. Financial technologies (FinTech) are modern technological solutions aimed at facilitating access to financial services, increasing the efficiency of financial transactions and improving the quality of financial products. They cover a wide range of innovative technologies, such as blockchain, digital currencies, mobile platforms for banking services, as well as automation of investments, insurance and lending. FinTech contributes to the development of more transparent, accessible and secure financial systems, which is important for both businesses and end consumers. For example, the introduction of mobile applications for financial transactions allows users to make payments, manage their accounts or make investments without having to visit physical bank branches.

The essence of financial technologies is to integrate traditional financial services with the latest technological advances to create more convenient and accessible solutions for users. They help to solve a number of problems, such as reducing transaction costs, increasing the security of financial transactions, improving the inclusiveness of financial systems and expanding opportunities for wealth management.

Innovative financial technologies also make it possible to respond more quickly to market needs and adapt to changing economic conditions. They help to optimize payment processing processes, reduce the risks of fraud through the use of biometrics, and also contribute to the development of new business models, such as peer-to-peer lending.

Financial technologies can be classified according to various criteria, but the most common is the division according to the areas of their application. Fig. 4.1.1 shows the main areas of application of financial technologies.

Payment technologies include technologies that facilitate the processes of making payments and transfers. Payment technologies reduce the time and costs of processing financial transactions, as well as provide convenience and security for users. One of the most important and widespread financial technologies is payment systems that allow for safe and convenient financial transactions. In particular, mobile payment systems such as Apple Pay, Google Pay, Samsung Pay are important. They allow users to make payments using smartphones without using plastic cards. Contactless payment technologies have

significantly simplified the process of making transactions, making them fast, convenient and secure.

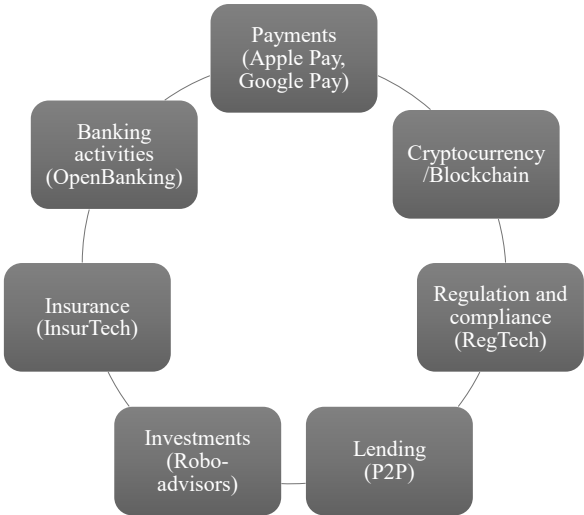


Fig. 4.1.1. Main areas of application of financial technologies

Technologies related to lending and lending, in particular online lending and P2P platforms, allow users to borrow funds without the mediation of traditional financial institutions. These platforms provide quick access to financing and, usually, offer more flexible lending terms (Masliy et al., 2020). Investment technologies include online investment platforms, automated investment management bots (robo-advisors), and technologies that facilitate access to stock markets. This allows ordinary users to invest in markets that were previously only available to large institutional investors.

Robo-advisors are automated online systems that provide investment advice based on algorithms and big data. They analyze a client’s financial situation, goals, and risk profile to create an individual investment portfolio. This approach significantly reduces the cost of financial advisor services, making them affordable even for small investors. This innovation has changed the investment market, giving ordinary users the opportunity to benefit from professional advice without having to turn to expensive financial advisors or banks. Robo-advisors are often used in conjunction with other FinTech products, such as stock or cryptocurrency exchange platforms.

InsurTech is a sub-sector of FinTech that deals with innovations in the insurance industry. InsurTech technologies are used to improve the processes of underwriting and managing insurance policies, assessing risks, and settling insurance claims. They include the use of Big Data, artificial intelligence, and the Internet of Things (IoT) to more accurately predict risks and determine the cost of insurance premiums. For example, with the help of IoT technologies, insurance companies can track driver behavior using sensors

in cars and offer better conditions to those who drive carefully. In turn, this reduces risks for insurers and makes services more affordable for consumers.

Cryptocurrency is a digital currency that uses cryptography to ensure the security of financial transactions and regulate the creation of new units of currency. Bitcoin was the first cryptocurrency, and over time other popular currencies such as Ethereum, Ripple, and Litecoin have emerged. Cryptocurrencies offer a secure and anonymous way to transfer funds, independent of traditional financial institutions.

The key technology behind cryptocurrencies is blockchain. It is a distributed database that allows transactions to be made without the need for a centralized intermediary, such as a bank. Each transaction is recorded in a block, which is then added to the blockchain, ensuring transparency, immutability and security of data. Blockchain has great potential for use not only in cryptocurrencies, but also in other financial and legal areas, such as smart contracts, supply chains and data verification.

The use of financial technologies in the field of regulation and compliance (RegTech) involves the use of technologies to automate monitoring processes and ensure compliance with regulatory requirements. They help banks and financial institutions reduce the risks of violating the law, including by automatically detecting suspicious transactions and preventing fraud.

In banking, Open Banking is widely used - a concept according to which banks open access to their data and payment systems to third-party developers via APIs (Application Programming Interfaces). This allows the creation of new financial products and services, such as applications for managing personal finances or platforms for comparing loan offers. This technology contributes to the development of a more open and competitive financial ecosystem, where customers have more control over their data and can use better tools for managing their finances.

Financial technologies have a significant impact on modern economic processes. They stimulate the development of new business models, facilitate access to financing for small and medium-sized enterprises, and contribute to increasing financial literacy among the population. In addition, FinTech contributes to more efficient use of resources, optimization of business processes and reduction of costs of financial transactions. At the same time, the rapid development of this industry creates new challenges, such as the need to create an appropriate regulatory framework for regulating innovative financial services, as well as ensuring a high level of security and protection of user data.

Thus, Financial Technology (FinTech) is a rapidly growing industry that includes innovative solutions for the provision of financial services using the latest technologies. It not only changes traditional models of banking and financial services, but also creates new opportunities for access to finance, risk management, investment and payments.

Payment systems, cryptocurrencies, P2P lending, robo-advisors, insurtech and Open Banking are just some of the important aspects that are changing the landscape of financial services around the world. Each of these technologies opens up new opportunities for business, provides access to financial services for wide segments of the population, increases the efficiency of operations and improves interaction with customers. However, with the development of this industry, new problems arise that require careful research

and improved regulation. Therefore, it is important to correctly assess the potential of financial technologies and ensure their stable and safe development (Rubanov, 2020).

Financial technologies (FinTech) have become one of the most innovative and rapidly developing areas in the modern world. From the creation of the first banking systems to the present day, FinTech has transformed the financial industry, making it more accessible, transparent and efficient. The history of FinTech development is closely related to the development of information technologies, the globalization of the economy and changing consumer needs.

The roots of FinTech can be traced back to the mid-20th century, when the first automated systems for managing finances appeared. In 1950, the first bank card product was released - the Diners Club credit card. It revolutionized the payment system, as it allowed purchases to be made without the need to carry cash. This step can be considered the beginning of financial technology, as it changed the way we interact with money.

In the 1960s, financial institutions began to introduce computerization to automate accounting processes. One such innovation was the electronic check processing system, which allowed for faster processing of financial transactions. At the same time, the first automated teller machines (ATMs) were created, which greatly simplified the process of withdrawing cash.

The 1990s were crucial for the development of FinTech, as it was during this period that the Internet began to develop actively. The transition to digital technologies opened up new opportunities for financial institutions. In 1994, First Internet Bank became the first to launch online banking services. At the same time, the first electronic payment systems appeared, in particular PayPal, founded in 1998. PayPal was a real breakthrough in digital payments, allowing people to make online payments, which was convenient and safe for online shopping. Also at this time, electronic trading platforms (e-commerce) began to develop actively, which contributed to the development of payment systems and financial instruments to support these processes. As the Internet made it possible to purchase goods and services around the world, developers began to create new solutions for fast and secure money transfers between users.

The introduction of blockchain technology in 2008 was another important stage in the development of FinTech. It allowed for the creation of a distributed system for storing data, which became the basis for cryptocurrencies. Bitcoin, which was created using blockchain, appeared as an alternative to traditional currencies. Accordingly, this period can be considered the beginning of a new era in financial technology, as cryptocurrencies and blockchain have become not just new tools for investors, but also change approaches to asset management, transactions and even banking services.

New lending platforms (P2P platforms) have also begun to develop actively, as well as new investment models through online services. Robo-advisors (automated investment platforms) allow even beginners in finance to effectively manage their investments, without the need to contact traditional financial advisors.

One of the most important innovations during this period was the use of technologies to automate insurance services (InsurTech). InsurTech companies such as Lemonade have emerged as new players that use algorithms and artificial intelligence to optimize the processes of concluding and paying out insurance policies.

Starting from the 2010s, FinTech has experienced a real boom. Technology continued to improve, resulting in a growing number of startups in the industry, investment in innovation, and increased competition among traditional banks. One of the main trends was mobile finance, which allowed people to conduct financial transactions using mobile applications. From 2010 to 2020, there was a significant expansion of the range of financial services. At this time, cryptocurrencies, blockchain, and smart contracts gained popularity. More and more innovative startups began to create alternatives to traditional financial institutions. It is noteworthy that it was during this period that peer-to-peer lending, new mobile payment systems (such as PayPal, Apple Pay, Google Wallet), as well as the development of digital banks and neobanks took place.

From 2020 to today, we have seen a new wave of innovation: the spread of artificial intelligence (AI), big data analytics, financial process automation and decentralized finance (DeFi), affecting all aspects of the financial market. And now, from 2025, we can expect the active spread of Open Banking technologies, central bank digital currencies (CBDCs), as well as the significant development of green finance.

The impact of FinTech on the banking sector is significant and comprehensive. This impact is not only changing traditional business models, but also contributing to the development of new technologies and services that significantly increase the efficiency, convenience and accessibility of financial transactions. At the same time, banks need to adapt to the new challenges they face in order to remain competitive in a rapidly changing environment. Technologies emerging at the intersection of finance and innovation promise to continue to transform the financial sector and create new opportunities for consumers and businesses.

One of the great achievements of FinTech is undoubtedly the possibility of personalizing financial services. Technology allows banks to create individual products, focusing on the specific needs of customers. For example, investment platforms that offer individual investment strategies, or mobile applications to monitor spending and savings based on personal financial habits.

FinTech also contributes to greater financial inclusion, providing access to financial services to those who previously could not use them due to the lack of bank branches in remote areas or due to an insufficient level of financial literacy. Technology allows people with limited financial resources to access loans, insurance or other financial instruments.

However, the rapid development of FinTech also poses new challenges for regulators: the need to adapt legal regulations to rapidly changing technologies, as well as to ensure an adequate level of protection of customer data and financial assets. The increased use of cryptocurrencies and decentralized financial platforms (DeFi) requires the creation of new regulations to ensure the stability and security of the financial system.

Thus, the history of FinTech development is a vivid example of how innovations in the field of technology can change traditional industries and create new opportunities for consumers and businesses. From the first bank cards to cryptocurrencies and mobile payments, each stage of FinTech development has become an important step towards creating a more efficient, accessible and inclusive financial system. No matter how this

industry develops in the future, its impact on financial services, the economy and society will remain enormous.

Financial technologies (FinTech) have long become an integral part of the modern economy. One of the most influential areas where these technologies have had a significant impact is the banking system. They are changing approaches to the provision of banking services, reducing costs, increasing the effectiveness of risk management and improving interaction with customers.

One of the key features of the application of financial technologies in the banking system is the automation of the lending process. From the traditional way of obtaining a loan through physical bank branches to fully digital solutions, such technologies significantly simplify the process. Using algorithms and artificial intelligence, banks can now automatically assess the creditworthiness of borrowers, make decisions on granting or refusing a loan, which reduces the time for considering applications. The use of Big Data and analytics allows banks to more accurately determine the risks when issuing loans. Traditionally, banks assess creditworthiness based on several standard factors (credit rating, income, debts, etc.). However, FinTech technologies make it possible to analyze new data sources (e.g. social networks, behavioral data) to create a more comprehensive and accurate picture of the borrower's solvency. This allows for expanded access to credit for people who previously could not obtain a loan due to traditional assessment criteria.

Another important element that has changed the credit landscape is P2P lending (peer-to-peer lending), or platforms for lending without the mediation of traditional financial institutions. With the help of such platforms, people can lend money to each other, bypassing banks. This allows borrowers to obtain a loan on more favorable terms, and investors to receive higher interest rates on their investments. Platforms such as LendingClub, Prosper or Bondora allow you to automate the processes of granting and receiving loans, using the Internet as a channel for convenient and fast connection of borrowers and lenders.

A distinctive feature of P2P lending is the flexibility in granting loans - the ability to set individual conditions and rates, which is impossible within the framework of traditional bank lending. However, despite the numerous advantages for end consumers, P2P lending platforms also carry certain risks for investors and require appropriate regulation.

Innovative technologies such as blockchain and cryptocurrencies have also found their place in the credit and banking system. Blockchain is a distributed transaction recording technology that provides a high level of security and transparency for financial transactions. It can be used by banks to store data on loans, payment transactions, or other financial documents, which reduces the risk of fraud and reduces the cost of data management.

Cryptocurrencies, led by Bitcoin, are becoming an alternative to traditional currencies, and banks are gradually starting to explore the possibilities of integrating them into their operations. Some financial institutions already offer cryptocurrency exchange

services and are also starting to issue their own digital currencies that can be used for lending or investing.

Mobile banking has become an important part of financial technology in the banking system. With the help of mobile applications, customers can not only check their balances and make transfers, but also apply for loans, receive decisions on them, and even make repayments with just a few clicks. This greatly simplifies the process of interacting with banks and makes banking services available anytime, anywhere.

The use of mobile applications also allows banks to effectively interact with customers by personalizing offers, analyzing their financial habits and offering individual products. This reduces transaction costs, improves user experience and allows them to remain competitive in the financial services market.

The characteristics of innovative FinTech tools are given in Table 4.1.1.

Table 4.1.1

| Innovative FinTech tools | |
|--|---|
| Innovative FinTech tools | Characteristic |
| Artificial Intelligence and Machine Learning | Artificial intelligence (AI) and machine learning (ML) technologies are automating tasks previously performed by human intelligence, leading to significant changes in customer service, analyzing large amounts of data from the Internet of Things, and improving security. |
| Distributed Ledger Technology (DLT) / Blockchain | DLT decentralizes the management of customer transaction data, providing a more open platform; while blockchain ensures that historical transactions can never be altered, forcing all companies that serve customers to provide transparency |
| Biometrics | Passwords and PINs are gradually becoming obsolete, giving way to biometrics, including facial and voice recognition, which allow for continuous, real-time verification of a user's identity. |
| 5G | Ultra-fast mobile internet is capable of providing data download speeds of over 1 gigabyte per second, which significantly improves the quality of user experience and the efficiency of real-time services. |
| Cloud technologies | Cloud computing eliminates the need for hardware resources for data storage and processing, enabling banks to provide everyday users with powerful data processing tools accessible from any Internet-connected device. |
| Internet of Things (IoT) | Provides maximum personalization of products and services, making all aspects of consumers lives more convenient and integrated |
| Quantum computer technologies | A tool for analyzing and processing large amounts of data obtained from the Internet of Things. Promotes faster learning of AI and ML |
| Augmented Reality (AR) / Virtual Reality (VR) | Enables banks to present detailed information in the real world, helping customers make more informed decisions |

An important aspect of the application of innovative FinTech tools, listed in Table 4.1.1, is the issue of security and data protection. As the number of digital financial transactions increases, the risk of cybercrime also increases. Therefore, banks and financial institutions are actively implementing modern technologies to ensure transaction security, in particular biometric systems and multi-factor authentication. Implementation

allows to reduce the risks of fraud, unauthorized access to accounts and provide customers with the security of their financial transactions.

Thus, the use of financial technologies in the credit and banking system has a significant impact on the evolution of banking services, allowing to reduce costs, increase the availability of financial instruments and improve the quality of customer service. Process automation, P2P lending platforms, blockchain and cryptocurrencies, mobile banking and increased security are just some of the innovations that are changing the traditional banking model. However, along with the advantages, FinTech also carries certain challenges related to regulation, data protection and cybercrime. Therefore, for the successful implementation of financial technologies in the banking system, it is necessary to balance innovation with an appropriate level of control and security (UAFIC, 2024).

In the modern world, financial technologies (FinTech) have become one of the most important and dynamic areas in the development of the global economy. FinTech encompasses a wide range of innovative solutions that have changed not only the way financial services are provided, but also transformed the relationship between banks and customers. Immediately after FinTech began to be actively implemented in the banking sector, it caused significant changes, creating new opportunities, as well as new challenges for financial institutions. The development of these technologies requires banks to adapt and revise old approaches in order to remain competitive in the face of technological change.

FinTech has changed the very nature of banking services and posed a number of new challenges for traditional financial institutions. First of all, it has become obvious that banks must adapt to new realities. Technologies such as mobile banking, digital currencies, and process automation are changing consumer expectations, forcing banks to provide faster, more convenient, and personalized services. At the same time, FinTech has significantly increased competition in the global banking market. Traditional banks now compete not only with each other, but also with numerous financial startups that offer alternative financial products and services. Neobanks and digital banks without physical branches are able to offer their customers more favorable conditions and reduced service costs.

In 2024, the European region was the leader in the global market in terms of neobank profitability, providing more than 29% of total global income. The development of the European neobank market is due to the introduction of innovative technologies into traditional banking and their effective use. In addition, companies are actively working to launch new product platforms and establish partnerships to improve their market positions. The most popular neobanks in Europe in 2024 are presented in Table 4.1.2.

Table 4.1.2

The most popular neobanks in Europe in 2024

| Name of the neobank | Country of foundation | Number of customers, million people | Net profit, million euros |
|---------------------|-----------------------|-------------------------------------|---------------------------|
| Revolut | Great Britain | 50 | 1000 |
| N26 | Germany | 8 | 300 |
| Monzo | Great Britain | 10 | 270 |
| Bunq | Netherlands | 9 | -10,49 |
| Monobank | Ukraine | 8 | 50 |

The data in Table 4.1.2 indicate that in 2024, the ranking of the most popular neobanks in Europe was headed by the British neobank Revolut. The number of bank clients reaches 50 million people, and the net profit is 1 billion euros. The Ukrainian neobank Monobank with a profitability of 50 million euros serves 8 million people. However, so far Monobank serves customers only in Ukraine, so to increase the profitability and popularity of the bank, it is necessary to look for ways to enter the European banking market.

Mobile banking is one of the biggest innovations in FinTech, which has directly changed the interaction between banks and customers. Every year, more and more people use smartphones to carry out financial transactions. Mobile applications allow you to carry out banking transactions from anywhere in the world, which significantly reduces the need for physical bank branches. Many traditional banks now provide their services through mobile applications, and are also showing a willingness to implement new technologies that make the user experience more convenient and personalized.

Banking mobile applications are increasingly adapting to popular platforms such as Spotify, Uber, Amazon, social networks, combining FinTech tools with features such as tags, notes, comments, likes, emojis and geolocation. The main goal of the combination is to increase the usability of banking mobile applications and improve the user experience.

In addition, innovations such as QR codes or the “buy now, pay later” service, which have become popular among retailers, are gradually becoming a standard in the banking sector, indicating a growing need for more flexible payment methods. Compliance with modern user habits makes these features mandatory (Fig. 4.1.2).

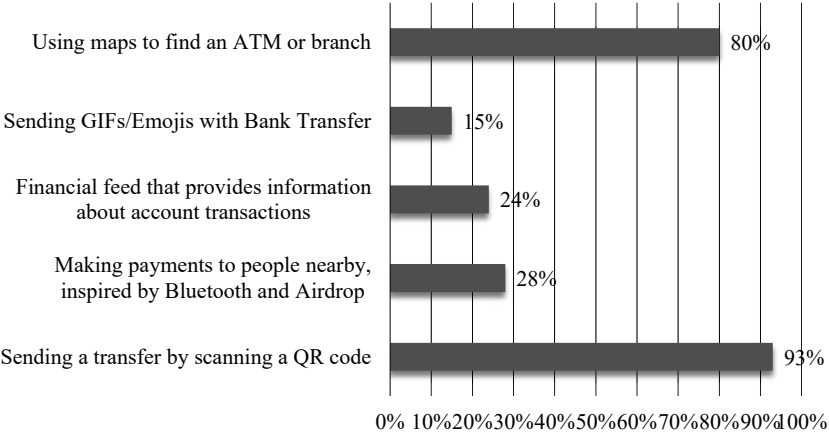


Fig. 4.1.2. Level of implementation of new banking functionality based on FinTech in 2024

Fig. 4.1.2 shows that 93% of banking institutions worldwide have successfully implemented the function of sending a bank transfer by scanning a QR code generated by

the recipient in 2024. 80% of banks have added the ability to use online cards to find ATMs or bank branches. The least popular functions are:

- making payments to people nearby (the function is available in 28% of banking institutions);
- a financial feed that displays information about transactions made on a bank account, similar to a feed on social networks (available in 24% of banks);
- the ability to send a GIF or emoji with a bank transfer (available in only 15% of banks).

Another striking example of the interaction of FinTech and traditional banking institutions is the emergence of Open Banking. The global Open Banking market is divided into three main regions: North America, Europe and Asia-Pacific. North America holds the largest share, and this trend is likely to continue due to the rapid adoption of new technologies and the presence of most of the key players in this region. An additional factor stimulating market growth is the active development and implementation of innovations in the banking sector. The analysis of global open banking API platforms and their API products in 2024 is presented in Table 4.1.3.

Table 4.1.3

Global Open Banking API Platforms and Their API Products in 2024

| Region | Number of API platforms | Annual growth of API platforms (in % by 2023) | Number of API products | Average number of API products (per API platform) |
|------------------------|-------------------------|---|------------------------|---|
| North America | 34 | 21% | 320 | 9 |
| Europe and Scandinavia | 1160 | 3% | 2537 | 2 |
| Great Britain | 51 | 9% | 300 | 6 |
| Latin America | 51 | 24% | 284 | 6 |
| Middle East and Africa | 79 | 16% | 485 | 6 |
| Asia-Pacific region | 203 | 44% | 1638 | 8 |

The data in Table 4.1.3 indicate that the world leaders in the number of API platforms and API products are Europe and Scandinavia (1,160 platforms and 2,537 products) and the Asia-Pacific region (203 platforms and 1,638 products) (Fig. 4.1.3).

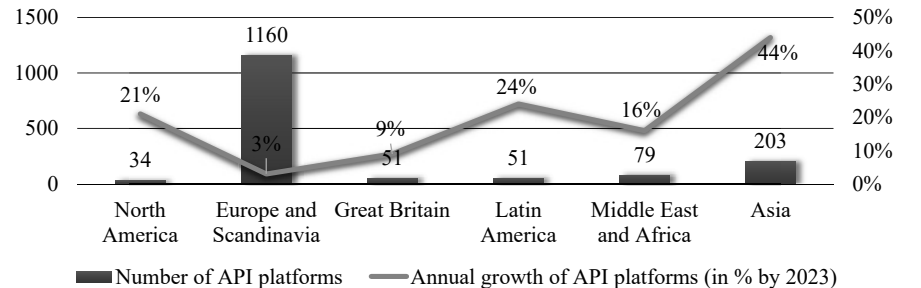


Fig. 4.1.3. Number of API platforms by region and their growth in 2024

Fig. 4.1.3 shows that the UK and Latin America had the fewest API platforms in 2024 (51 platforms each). The UK is a prime example of a country that has gained significant early adopters of open banking. However, it has also faced challenges, such as a strict 90-day re-authentication time limit that can compromise customer service. Open banking APIs also involve the sharing of personal and confidential information, which increases the risk of data breaches, fraud, or misuse.

An important trend in the global banking market is the integration of artificial intelligence into banking. AI allows banks to automate processes, improve creditworthiness assessments, provide greater personalization of services, analyze vast amounts of data to predict market trends, and minimize risks for institutions. This, in turn, allows banks to reduce costs and improve customer service. Artificial intelligence (AI) is being actively implemented in banking around the world, contributing to increased efficiency and quality of services. The main areas of its use are listed in Table 4.1.4.

Table 4.1.4

| Main areas of use of artificial intelligence in banking | |
|---|--|
| Direction of use of AI | Characteristics of AI use |
| Customer service | Using chatbots and virtual assistants for customer service, automating answers to frequently asked questions, real-time consultations and assistance |
| Data analysis and personalization | Applying AI to analyze large amounts of customer data and develop personalized financial offers or advice |
| Fraud prevention | Detect suspicious transactions, anomalous activities, and other risks using machine learning algorithms that analyze behavioral patterns |
| Credit score | Automated assessment of customers' creditworthiness based on analysis of their financial histories |
| Business process automation | Automation of routine tasks (processing documents, loan requests or payments) |
| Risk management | Market data analysis and risk forecasting |
| Investment strategies | Using algorithms to analyze the market, predict trends, and create personalized investment decisions |

The data in Table 4.1.4 indicate that the active use of artificial intelligence opens up new opportunities for banking institutions, allowing them to reduce costs and optimize internal processes. Thanks to the use of artificial intelligence, banks can provide more accurate and personalized solutions for their clients, reduce risks when making credit decisions, and even predict users' needs for financial services.

Thus, the development of FinTech in global practice has not only significantly improved the accessibility and efficiency of financial services, but also posed important tasks for banks to adapt to new technologies and competitive conditions. Traditional financial institutions must not only use innovations to improve their service, but also actively work to increase security and compliance with new market requirements. Thanks to these changes, the banking sector will continue to develop, contributing to wider financial inclusion, reducing costs and increasing convenience for users (Havrylko et al., 2020).

Financial technologies (FinTech) have become an important factor in global changes in the financial sector, and Ukraine is no exception. In recent years, the development of

FinTech in Ukraine has gained significant momentum, demonstrating both positive trends and a number of problems that need to be addressed for the further growth of this sector. The Ukrainian financial technology market covers a wide range of services, from payment systems and mobile banking to cryptocurrencies and investment platforms.

According to the territorial distribution, as of 01.01.2025, 79% of FinTech companies are located in Kyiv (Fig. 4.1.4).

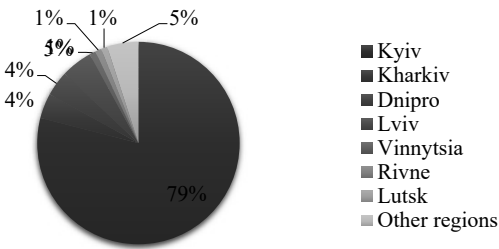


Fig. 4.1.4. Regional distribution of FinTech companies in Ukraine in 2024

As can be seen in Fig. 4.1.4, Lviv is in second place with a share of 5%, and Kharkiv and Dnipro share third place. These leading cities have maintained their positions since 2019. Despite the difficult conditions in the eastern regions of Ukraine, 8% of FinTech companies are located in Kharkiv and Dnipro. Other FinTech companies are located in the central and western regions of the country. 47% of Ukrainian FinTech companies are already operating in international markets, while 38% are only planning to expand globally. Among the foreign markets that are of interest to respondents, the following stand out: Europe (4%); Asia (1%); USA (3%) (Fig. 4.1.5).

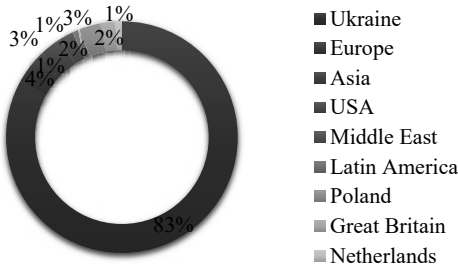


Fig. 4.1.5. Global market share occupied by Ukrainian FinTech companies

Due to the war launched by the Russian Federation against Ukraine in February 2022, 6% of companies have moved abroad but plan to return, another 5% have temporarily changed their location within Ukraine, but have already returned to their previous offices.

In addition, 5% of companies operate in a distributed format: some employees have gone abroad, but the majority remain in Ukraine. Abroad, the main countries of presence of Ukrainian FinTech companies since the start of the full-scale war are Poland (3%), the United Kingdom (2%) and the Netherlands (1%) (Obushnyy et al., 2023). In Ukraine, FinTech companies specialize in various areas of activity, from lending to cybersecurity and blockchain. In 2024, the share of the technological infrastructure sector reached 36%, which confirms the stable demand for IT solutions for financial institutions, especially in the context of their digital transformation. Payment services in 2024 remained in second place with a share of 15%, which indicates the resilience of the Ukrainian payment market, despite the challenges of the war. Payment systems that provide the opportunity to make instant transfers and payments, in particular through Privat24, Monobank or LiqPay, are also developing particularly actively. The popularity of mobile payment systems such as Google Pay, Apple Pay contributes to the growth of non-cash payments, which makes the payment transaction processes more convenient. The consumer lending segment showed a noticeable decrease to 7% in 2024, which is likely due to increased lending standards and borrowers' caution in a situation of economic uncertainty. One of the key trends is the growth of P2P lending (Peer-to-Peer), which allows individuals or companies to borrow money without the mediation of traditional financial institutions. Ukrainian startups, such as P2P.ua, offer users the opportunity to get a loan on more favorable terms, and investors - the benefit of interest on invested funds.

The share of Regtech and Legaltech also decreased: from 7% to 6% and from 7% to 4%, respectively. However, these areas remain relevant, as companies continue to look for solutions to comply with regulatory requirements and manage risks.

One of the most noticeable trends in the Ukrainian FinTech market is the active use of mobile banking. Mobile applications from leading banks allow you to make payments, manage accounts and even open deposits directly from smartphones. However, despite the popularity of mobile banking, the neobank segment in 2024 experienced a decrease - from 7% to 4%. With the beginning of a full-scale invasion, the Ukrainian fintech market lost three neobanks: Todobank, Neobank and Sportbank, which indicates significant challenges and difficulties in doing such a business in the current environment.

The cryptocurrency market and blockchain technology are also actively developing in Ukraine. Cryptocurrency exchange platforms such as Kuna, Whitebit and others are gaining popularity, providing Ukrainian users with the opportunity not only to trade digital currencies, but also to use them as an alternative way of investing.

If we consider the prevalence of modern financial technologies in Ukraine, it is worth noting that API was the most common technology among fintech companies in Ukraine in 2024, which is not surprising, since 36% of them are focused on technological infrastructure (Fig. 4.1.6).

As shown in Fig. 4.1.6, the second most common use is cloud services: in 2024, their share was 44%, which is due to such key advantages of cloud services as high scalability and flexibility, which allow companies to quickly adapt to market changes and customer needs. Cloud solutions help optimize business processes through automation and integration of various systems and programs. The least common financial technologies in

Ukraine in 2024 were the Internet of Things (IoT) and NFT, with a prevalence of 4% and 3%, respectively (KPMG, 2023).

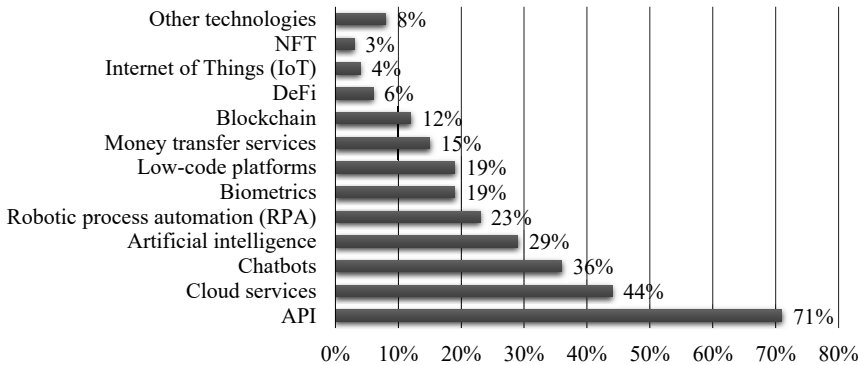


Fig. 4.1.6. The level of prevalence of financial technologies in Ukraine in 2024

One of the main problems facing the FinTech market in Ukraine is the low level of financial literacy of the population. Many people do not fully understand the benefits of digital payment systems, investment instruments, or even banking services. The problem is that even those Ukrainians who have access to online banking and mobile applications often do not use all the functionality of these platforms. Therefore, it is important to conduct educational campaigns and increase the level of financial literacy among the population so that FinTech can find widespread application in Ukraine.

Another important challenge is the issue of security and data protection. In the context of the growth of digital financial transactions and the use of mobile payment systems, the number of cyber threats is also increasing. It is necessary to develop appropriate infrastructures to protect personal data and transactions. In particular, Ukraine still has high vulnerability to cyberattacks, fraud and leakage of personal data, which can lead to a decrease in trust in financial technologies among consumers.

According to the results of an anonymous survey conducted in 2024 by the Ukrainian Association of FinTech and Innovative Companies (UAFIC), 67% of surveyed FinTech companies consider war to be the main factor hindering the development of the FinTech market in Ukraine. 62% of respondents consider the outflow of personnel abroad as a deterrent factor, 48% - political and economic instability in the country, 48% - legislative restrictions, and the remaining 38% - lack of funding (Fig. 4.1.7).

Despite the negative factors shown in Fig. 4.1.7, the FinTech market in Ukraine has great potential for development. Given the high level of digitalization of the population, the rapid growth of online payments and cryptocurrencies, it can be expected that in the future Ukraine will become an important player in the FinTech market of Eastern Europe. The sector of mobile banking, payment systems, as well as blockchain and cryptocurrency technologies has the greatest prospects.

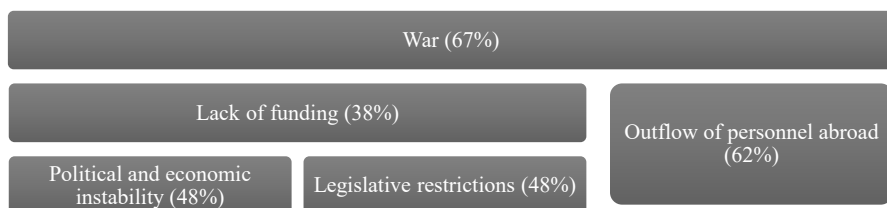


Fig. 4.1.7. Factors hindering the development of the FinTech market in Ukraine

Thus, the FinTech market in Ukraine continues to develop actively, but for its sustainable growth it is necessary to overcome a number of problems, including the lack of a clear legal framework, low levels of financial literacy and security issues. Trends such as the growth of mobile payments, the development of cryptocurrencies and blockchain, as well as the popularity of P2P lending, indicate significant potential for development. In the case of improving the regulatory framework and increasing the level of digital literacy of the population, FinTech can become one of the drivers of economic development of Ukraine (UAFIC, 2025).

Financial technologies (FinTech) are significantly changing the traditional landscape of the credit system, leading to profound transformations in the basic mechanisms of lending, risk management, and the interaction between banks and their customers. Innovations in this area not only improve the availability of financial services, but also create new lending models, allowing to reduce costs, reduce application processing time and lower barriers to borrowing. At the same time, they introduce significant changes in the functioning of financial institutions, in particular banks, and pose new challenges to them. Traditionally, the credit system involves interaction between borrowers and financial institutions (banks), which are intermediaries between them. However, FinTech significantly changes this process by introducing new technologies and lending models. FinTech credit services cover a wide range of digital financial solutions that change traditional approaches to lending. As shown in Table 4.1.5, P2P lending is one of the innovative FinTech credit services. P2P lending allows individuals or companies to borrow money without going through traditional financial institutions like banks. This technology allows borrowers to get loans at more favorable terms, while investors can earn interest on loans while minimizing risk through diversification.

In addition, FinTech companies are actively using technology to create new lending models, such as microlending or data-driven lending, which allows borrowers to be assessed not only using traditional credit scores, but also using alternative data, such as utility payment history or information from social networks.

One of the most tangible effects of FinTech is the expansion of access to credit through mobile platforms and online services. In countries with a developed banking infrastructure, users can obtain loans and credits without visiting a bank branch, which significantly reduces service costs and facilitates the loan process. This is especially true for people living in rural areas or regions with limited access to banking services. At the same time, digital loans are growing in popularity - such loans that can be obtained using

a mobile application, based on an instant assessment of the borrower's creditworthiness, which is carried out automatically based on a large amount of data.

Table 4.1.5

| Credit FinTech services | |
|---|---|
| Type of credit FinTech services | Characteristics and implementation mechanism |
| Peer-to-Peer (P2P) lending | Platforms (e.g. LendingClub, Prosper) connect borrowers and investors directly, bypassing banks, which allows for lower interest rates |
| Online lending | Digital lending platforms (e.g. Credy, Moneyveo, CreditKasa) provide short-term loans completely online without the need to visit a bank. Instant loans are also available in mobile apps and services that use AI and Big Data to quickly assess solvency and issue a loan in minutes. |
| Buy Now, Pay Later (BNPL) | Services from companies like Klarna, Afterpay, Affirm allow you to make purchases with installment payments without traditional credit. Integrated into online stores, these services simplify payment for goods and services without additional fees for customers |
| Alternative credit scoring | Using Big Data to assess creditworthiness (analysis of transactions, social media activity, behavioral factors) instead of traditional credit history. AI systems identify risks and lending opportunities even for clients without a banking background |
| Small and medium-sized business lending (SME lending) | Platforms (Funding Circle, Kabbage) provide fast financing to businesses without bureaucratic hurdles. Using FinTech solutions allows small businesses to access working capital faster than in traditional banks. |
| Cryptocurrency lending | Decentralized financial platforms (DeFi) allow you to receive loans in cryptocurrency against digital assets (Aave, Compound). Some services allow you to use cryptocurrency as collateral for obtaining loans in fiat currency |
| Credit cards with FinTech innovations | Virtual credit cards integrated with mobile wallets and crypto payments (Revolut, Monzo). Dynamic credit limits that change based on the customer's financial behavior. |

Thus, the transformation of the credit system under the influence of FinTech is a multifaceted and complex process. The introduction of new technologies, such as mobile platforms, blockchain, artificial intelligence and alternative methods of creditworthiness assessment, contributes to improving the availability of credit, reducing costs and increasing the efficiency of financial transactions. However, these changes also create new risks, in particular in the field of data security and regulation. At the same time, with the right approach and adaptation to new conditions, FinTech has the potential to improve the credit system worldwide (Website Statista, 2025).

Financial technology (FinTech) is one of the most dynamic and rapidly developing industries in the global financial market. Every year, new innovations change the way people receive financial services and how banks and financial institutions interact with their customers. Innovations in the field of FinTech have the potential for even more significant transformations in the next few years. Key trends in the development of FinTech in 2025-2026 in the world are shown in Fig. 4.1.8.



Fig. 4.1.8. Key trends in FinTech development in 2025-2026 in the world

Fig. 4.1.8 shows that one of the main trends for the coming years is the introduction of artificial intelligence (AI) and machine learning (ML). In the next few years, we can expect even more advanced automation of processes such as credit scoring, transaction processing, and even more accurate forecasting of financial trends and customer needs. More intelligent AI-based systems will be able to respond quickly to market changes and, thus, increase the efficiency of financial operations. According to KPMG, by 2030, artificial intelligence can reduce the banking sector's operating costs by 22%, which is equivalent to a cost reduction of \$1 trillion. Generative AI will have a significant impact on most processes and roles in commercial banking. According to KPMG's research, this technology can affect 67% of working time in the banking sector, with 33% of tasks having high potential for automation, and 34% of efficiency can be significantly improved. The use of generative AI can increase the operating income of the average bank by 20%, and the productivity of such banks can increase by 22-30%. In addition, 35% of banks believe that generative AI will be one of the three key technologies that will transform corporate banking in the next five years.

Blockchain technologies and decentralized finance (DeFi) are also having a major impact on the development of the global credit system. They allow the creation of smart contracts that automate the provision and repayment of loans. In this context, cryptocurrencies and blockchain technologies can be used to create new lending mechanisms, where money is provided directly between borrowers and lenders, which allows reducing the time and costs of processing transactions.

One of the main directions in the future is the development of central bank digital currencies (CBDCs), which promise to be the next big change in the global financial system in 2025-2026. Many central banks around the world are already experimenting with launching their own digital currencies, which will provide greater stability in the market, reduce transaction costs, and strengthen control over financial flows. In addition, cryptocurrencies and DeFi technologies can open up new opportunities for non-bank

financial institutions, allowing businesses and startups to raise funds without the involvement of traditional financial intermediaries.

Security innovations will also play an important role in the FinTech of the future. The use of biometric technologies (such as facial recognition, fingerprints, or voice recognition) to authenticate customers and authorize transactions is becoming increasingly popular. By 2026, we can expect a significant expansion of the use of biometrics in financial institutions, which will make processes safer, more convenient, and faster. Financial technologies focused on biometric security can reduce the number of fraudulent transactions, as they make it more difficult for third parties to access accounts and payment systems.

Also in 2025-2026, we should expect a wider use of APIs (Application Programming Interface) for Open Banking, which will allow customers to choose the best financial products from different sources, as well as provide even more opportunities for innovative startups in the financial sector. A study conducted by the McKinsey Global Institute shows that the implementation of open data systems can contribute to GDP growth by 1.5% by 2030 in the UK, the European Union and the US, and up to 5% in India. In addition, the use of APIs for open banking can significantly reduce the costs of financial institutions: according to forecasts, open banking can save the banking industry up to \$ 1 trillion by 2030. An important trend in FinTech in the coming years will be the focus on sustainability and “green” finance. Banks and financial institutions are expected to invest more in green projects, socially responsible investments and environmentally friendly technologies. FinTech companies will develop platforms for “green” investments, allowing users to support environmental initiatives through financial instruments.

Also, one of the key trends for FinTech in 2025-2026 will be increasing financial inclusion. More attention will be paid to developing solutions that allow providing financial services to those who traditionally had limited access to banking services. Financial institutions will be able to provide services even to those categories of citizens who were previously excluded from the traditional banking system, such as people who have no credit history or do not have access to classic banking products.

In Ukraine, in 2025-2026, artificial intelligence and military technologies will be the main drivers of the development of the financial technology sector. At the same time, cybersecurity and open banking are among the five most promising areas of development for the second year in a row.

Let's consider the main trends in the development of FinTech in Ukraine in 2025-2026 (Fig. 4.1.9).

Fig. 4.1.9 shows that the main direction of FinTech development in Ukraine in 2025-2026 is the Development of the NBU Electronic Payment System. In recent years, the National Bank of Ukraine has been actively improving the electronic payment system (EPS), ensuring its availability 24/7, which contributes to increasing the speed and convenience of financial transactions.

The National Bank also continues to implement the instant payment system in Ukraine. Instant payments will reduce the costs of non-cash payments for clients of financial institutions. In addition, the transfer of payment details is simplified, as well as the ability to make a payment by phone number or email address.

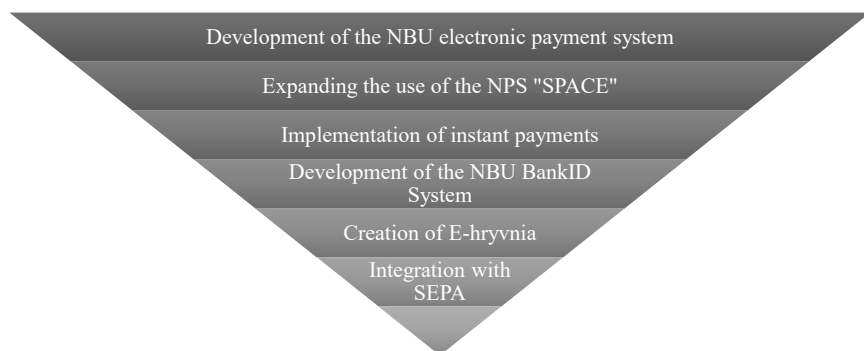


Fig. 4.1.9. FinTech development trends in Ukraine in 2025-2026

During a full-scale war, the National Bank's Strategy provides for increasing the level of national security through the expansion of the use of the NPS "PROSTOR" as one of the measures to maintain the country's financial stability. The NPS "PROSTOR" is an effective tool that can optimize bank costs in the short term. The system allows for full-fledged servicing of internal card transactions at favorable rates, minimizing dependence on external factors.

During the period of full-scale war, the need for tools for remote identification of citizens and access to various remote services has significantly increased. One of the most important remote identification systems in Ukraine remains the state BankID System of the NBU. Since the beginning of martial law, it has provided continuous access to state and financial services for millions of citizens. Improving the BankID system will facilitate access to financial services and increase the level of security.

The National Bank is actively working on developing its own digital currency - e-hryvnia. According to the regulator, its implementation can contribute to the digitalization of the Ukrainian economy, the development of non-cash payments and the creation of new financial products. Also, as part of the plan for Ukraine's integration into the EU, preparatory work is being carried out from 2023 to begin the process of Ukraine's accession to the Single European Payment Area (SEPA). The main goal of Ukraine's integration into SEPA is to simplify the interaction of Ukrainian enterprises and citizens with the EU market, as well as to reduce the costs of payment market participants through the use of a standardized European payment infrastructure.

Thus, in 2025-2026 we will witness a new stage of FinTech development, which will change the traditional financial landscape. Innovations such as artificial intelligence, blockchain, biometric security and Open Banking will provide new opportunities for financial institutions and users, improving the accessibility, security and inclusiveness of financial services. At the same time, it is important not to forget about the challenges related to regulation and security, which will need to be addressed on the way to the development of the latest financial technologies.

The modern banking system is undergoing significant changes due to the introduction of financial technologies (FinTech). Innovative solutions in the field of finance allow banks to significantly improve their services, increase the efficiency of operations and reduce costs. However, along with the advantages of using financial technologies in the banking system, serious risks arise that require careful management.

Let us consider the advantages of using financial technologies in the banking system (Fig. 4.1.10).

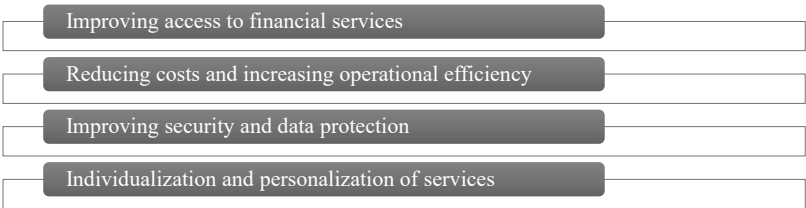


Fig. 4.1.10. Advantages of using financial technologies in the banking system

As shown in Fig. 4.1.10, one of the main benefits of FinTech is improving the accessibility of financial services to a wider audience. Thanks to mobile applications, online platforms and process automation, banking services have become more accessible to customers anytime, anywhere. This is especially important for those living in remote areas or with limited access to traditional bank branches.

In addition, FinTech opens up new opportunities for micro-lending and P2P lending, which allows small and medium-sized enterprises or individuals to obtain financing that they might not otherwise receive through traditional banking channels.

The use of automation and artificial intelligence allows banks to reduce the costs of servicing customers and processing transactions. Technologies such as robo-advisors for investments and automated lending systems can significantly reduce decision-making time and reduce human errors, leading to increased overall efficiency of banking operations. Process automation also reduces personnel costs, as many operations can be performed without human intervention. This, in turn, allows banks to offer their services at lower prices, making them more competitive.

One of the significant advantages of FinTech is improving the security of financial transactions. The use of cryptography, blockchain technologies and biometric data to authenticate users reduces the risks of fraud and ensures a high level of personal data protection. Blockchain, in particular, allows for the creation of transparent and immutable records of all transactions, which ensures trust in financial transactions. The introduction of two-factor authentication and the use of mobile devices to confirm transactions minimize the risks of unauthorized access to bank accounts and protect customers from theft and fraud (Vucinic, 2020).

FinTech allows banks to provide personalized financial services tailored to the individual needs of each customer. With the help of Big Data analytics and artificial intelligence (AI),

banks can analyze the financial habits and needs of customers, offering them personalized loans, investment solutions or insurance products. This allows for more accurate and effective financial strategies that increase customer loyalty and reduce the risk of default. While FinTech offers numerous benefits, including easier access to credit and lower costs for users, it also poses new challenges to the traditional credit system (Fig. 4.1.11).

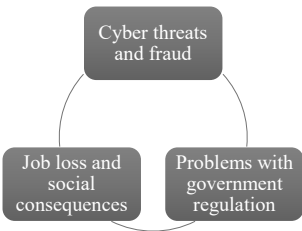


Fig. 4.1.11. Risks and challenges for the traditional credit system

As shown in Fig. 4.1.11, despite the numerous security benefits, cyber threats remain one of the main challenges for FinTech. As the number of digital transactions increases, so does the number of cyber-attacks, including phishing, cryptocurrency attacks, and bank system hacks. If these threats are not detected and neutralized in a timely manner, they can lead to significant financial losses and a decline in trust in banks. Other cybersecurity issues include the leakage of personal data and inadequate transaction protection. The need to continuously improve security measures to protect customers from criminal attacks remains an important part of the development of FinTech. As more and more credit transactions are carried out online, banks and FinTech companies must take additional measures to protect their customers' data from possible cyber-attacks. Another challenge is the regulation of FinTech. Since FinTech often develops faster than the regulatory framework, there is a need to update legislation to ensure the security of financial transactions and protect consumer rights. In addition, there is a need for harmonization of legislation between different countries, especially when it comes to cross-border loans and digital currency transactions. Imperfections in legislation regarding cryptocurrencies, online lending, blockchain technologies and other aspects of FinTech can lead to legal difficulties. Imperfections can not only limit the implementation of new technologies, but also create legal risks for banks and financial institutions if they cannot guarantee compliance with the law. Regulatory problems and uncertainty also affect customer confidence in digital services, especially in areas such as cryptocurrencies, which are volatile and require strict regulation.

The widespread use of automation and artificial intelligence can lead to job losses in traditional banks. Processes that were previously performed by bank employees can now be automated, which threatens a significant number of unemployed people, especially in regions where banks are the main employers. This can cause social problems, including increasing inequality between people who have access to technology and those who cannot master it.

Therefore, financial technologies in the banking system provide numerous benefits, including improved service availability, reduced costs, increased security, and personalized offerings. However, along with the benefits come serious risks, such as cyber threats, technical failures, legal uncertainty, and social implications. To maximize the benefits of FinTech in the banking sector, it is important to consider these risks and actively work to minimize them through improved regulation, investment in cybersecurity, and support for the education and retraining of bank employees.

Financial technologies (FinTech) have gained immense popularity in recent decades, significantly changing the landscape of global finance. They encompass a wide range of technological solutions that affect all aspects of financial services, from mobile banking and payment systems to cryptocurrencies and blockchain technologies. The introduction of new technologies not only improves the quality of customer service, but also radically changes the structure of the financial sector, creating new opportunities and challenges for banking institutions.

In today's world, financial technologies (FinTech) play a key role in transforming the credit and banking system. Thanks to digital innovations, banks and financial institutions have gained new opportunities to increase efficiency, reduce costs and improve the quality of customer service. This trend is significantly changing the traditional approach to lending, risk management and interaction between financial institutions and their customers.

One of the key impacts of FinTech on the credit and banking system is process automation. Thanks to artificial intelligence (AI) technologies, banks can analyze customer creditworthiness faster, reducing the time for considering applications. This significantly simplifies the process of obtaining a loan, increasing its accessibility for a wide range of consumers.

Thanks to FinTech, new forms of lending are developing, such as peer-to-peer (P2P) lending and crowdfunding platforms. They allow individuals and small businesses to receive financing directly from investors, bypassing traditional banks. This contributes to increased competition in the financial sector and forces banks to improve their products.

Traditional credit scoring methods were based on a limited amount of data, such as a borrower's credit history and income level. FinTech innovations allow the use of large data sets (Big Data) from various sources, including social networks, transaction activity and behavioral analytics. This contributes to a more accurate assessment of risks and a reduction in the level of non-returned loans.

Financial technologies also affect the increase in the level of security of banking operations. The use of blockchain technologies ensures transparency and immutability of financial transactions, reducing the likelihood of fraud. Biometric authentication and multi-factor protection increase the level of trust in digital banking services.

Mobile applications and contactless payments have become an integral part of modern banking. FinTech companies are actively implementing new solutions, such as virtual cards, cryptocurrency wallets and payments via QR codes, which makes financial services more accessible and convenient for customers.

Today, FinTech is an important part of the financial infrastructure, and its impact on the economy will only grow. It is expected that in the near future, further implementation

of artificial intelligence, machine learning and big data will occur to increase the efficiency and security of financial transactions. In addition, the development of FinTech is facilitated by new legislative initiatives, in particular the creation of regulatory sandboxes that allow testing of innovative solutions without threatening the stability of the financial system.

Financial technologies (FinTech) have significantly changed the financial landscape over the past few decades, in particular, they have affected the traditional banking sector. Initially, banks were dominant players in the financial services market, but with the development of FinTech, new models of interaction with customers began to emerge, which called into question the usual business processes in the banking sector. The impact of FinTech on the banking sector is multifaceted and variable, it affects both technical and strategic aspects of the work of banks.

FinTech has contributed to the emergence of new business models that have become serious competition for traditional banks. One such model is online banking, when all operations can be performed without the need for a physical presence in the bank. This has led to a decrease in the role of branches and the need to maintain a large number of employees. Customers have been able to carry out any financial transactions (from opening accounts to repaying loans) directly through mobile applications or web platforms. At the same time, the emergence of new financial services, such as regional online banks, neobanks and financial platforms for lending (P2P), has significantly changed the competitive environment. For example, companies such as Revolut, Monzo or N26 have begun to offer full-fledged banking services, but without the need to maintain physical branches. This has allowed banks to significantly reduce infrastructure costs and offer their services at more affordable prices. One of the most obvious changes under the influence of FinTech is the development of mobile payment systems. With platforms like PayPal, Apple Pay, and Google Pay, banks have faced competition from technology companies that have become major players in the payment services market. Mobile payments and contactless cards have significantly changed the way financial transactions are made, making them more convenient and accessible to a wider audience. In addition, blockchain technology and cryptocurrencies have provided an alternative to traditional currencies and payment systems, significantly reducing the costs of international transfers, making them faster and safer. The introduction of this technology has the potential to change the way financial transactions are made, particularly in aspects such as transactions between banks and even between states.

One of the main benefits that FinTech has brought is the automation of banking processes. The use of modern technologies for processing big data (Big Data), artificial intelligence (AI) and machine learning allows banks to reduce costs for operational processes, improve the efficiency of transaction processing and lending decisions. Banks can use these technologies to automatically analyze the financial condition of customers, which allows not only to speed up decision-making, but also to reduce risks by more accurately assessing the solvency of borrowers.

For example, a credit scoring system based on Big Data allows banks to more effectively assess credit risk, and robo-advisor technologies in the field of investments

allow customers to receive professional advice on managing their finances and assets for free or for a small fee.

One of the biggest challenges for traditional banks is the need to comply with strict regulatory requirements. FinTech can both help and complicate the processes of compliance with these requirements. RegTech, or regulatory technologies, help banks automate compliance control and transaction monitoring processes, in particular to combat fraud and money laundering. They allow banks to reduce risk management costs, make processes more transparent and efficient. Thus, FinTech innovations are radically changing the credit and banking system, increasing the efficiency, accessibility and security of financial services. Thanks to digital technologies, banks receive new opportunities for development, and clients receive more convenient and advantageous service conditions. In the future, the role of FinTech will only grow, contributing to the further transformation of the financial sector.

The global development of FinTech in recent years has significantly increased the accessibility and efficiency of financial services, while at the same time posing important challenges for banks to adapt to modern technologies and new competitive conditions. Traditional financial institutions must not only introduce innovations to improve their services, but also work to strengthen security and compliance with current market requirements. Thanks to these changes, the global banking industry will continue to evolve, ensuring broader financial inclusion, reducing costs and improving comfort for users.

The Ukrainian FinTech market also continues to develop dynamically, but to ensure its sustainable growth, several key issues need to be addressed, such as the lack of a clear legislative framework, low levels of financial education and security issues. Financial technology trends, the development of cryptocurrencies, blockchain and the popularity of P2P lending, demonstrate great potential for further growth. If the regulatory environment is improved and the digital literacy of the population increases, FinTech can become one of the key drivers of economic development in Ukraine.

Under the influence of FinTech, the credit system is undergoing a multifaceted and complex transformation. The integration of modern technologies, such as mobile platforms, blockchain, artificial intelligence and non-traditional approaches to creditworthiness assessment, contributes to increasing the availability of loans, reducing costs and improving the efficiency of financial transactions.

In 2025-2026, the global FinTech market will enter a new stage of development, transforming the usual financial landscape. Innovations, including artificial intelligence, blockchain, biometric technologies and Open Banking, will open up new prospects for financial institutions and users, increasing the accessibility, security and inclusiveness of financial services.

FinTech innovations are fundamentally transforming the credit and banking system, contributing to increasing its efficiency, accessibility and level of security of financial services. Digital technologies open up new horizons for the development of banks, while customers receive more comfortable and advantageous service conditions. Looking ahead, the role of FinTech will continue to grow, enabling further transformation of the financial sector.

4.2. ENHANCING FINANCIAL SUPPORT FOR UKRAINE'S AGRICULTURAL SECTOR: THE INTERPLAY BETWEEN STATE BUDGET FUNDS AND COMMERCIAL BANK LENDING

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Agriculture remains a cornerstone of Ukraine's economy, not only as a key contributor to GDP and export revenues but also as a critical component of rural livelihoods and national food security. In the wake of the full-scale war, the agricultural sector faces unprecedented challenges, including physical destruction of assets, disrupted logistics, and a tightening credit environment. These challenges have highlighted the urgent need for robust and well-coordinated financial support mechanisms.

Traditionally, state budget programs have served as a primary source of support for farmers, particularly small and medium-sized enterprises. However, given fiscal constraints and the scale of reconstruction needs, reliance on public funding alone is insufficient. This necessitates an effective synergy between government programs and the banking sector, which can mobilize additional resources, mitigate risks, and promote sustainable development in the sector.

Financial support for the agrarian sector is a critical element of national agricultural policy and serves as a key instrument for ensuring food security, enhancing agricultural production, and maintaining the sustainable functioning of related industries.

Financial support for the agrarian sector is a fundamental prerequisite for its effective functioning and development, as agriculture plays a strategic role in ensuring food security, shaping export potential, and contributing to national economic growth. The financing of the agrarian sector is characterized by high capital intensity, a lengthy production cycle, seasonality, and significant vulnerability to economic and political risks. Accordingly, the establishment of an effective financial support system for agriculture requires a balanced approach to utilizing various funding sources, among which budgetary allocations, bank lending, investments, international financial programs, and alternative financial instruments play a key role.

Theoretically, financial support is understood as a system of economic relations concerning the mobilization, distribution, and utilization of financial resources to meet the needs of agricultural production, taking into account the sector's high risk level and seasonal nature.

Budgetary financing is defined as direct financial support provided by the state to agricultural producers through the allocation of public funds. State aid is typically classified into three types: direct, conditionally direct, and indirect:

- Direct support includes subsidies;
- Conditionally direct support refers to state procurement, energy-related privileges, and participation in government programs;

- Indirect support encompasses the purchase of agricultural products for public needs, market regulation through procurement and commodity interventions (e.g., grain reserves), as well as the protection of agricultural producers' economic interests in international markets.

Financial support for agricultural enterprises is a key instrument of state regulation in the development of the agrarian sector, but its impact depends largely on the effective use of allocated funds (Yavna et al., 2024).

Scholars emphasize the importance not only of identifying the priority areas for budgetary financing, but also of determining the actual volume of funds allocated.

Thus, budgetary financing of the agrarian sector represents a set of state measures aimed at supporting agricultural development through the allocation of resources from national and/or local budgets. It constitutes one of the main instruments of state regulation in agriculture, contributing to the sector's modernization, productivity growth, and enhanced competitiveness.

Budgetary support for agriculture in Ukraine is traditionally implemented through a range of instruments, including government subsidies, direct grants, compensation schemes, and tax incentives. These mechanisms are designed to promote the development of agricultural producers, stimulate investment in rural infrastructure, encourage innovation, and strengthen the overall competitiveness of the agrarian sector. However, the practical impact of such support remains limited due to several systemic constraints. Among the most significant challenges are the uneven distribution of public funds, excessive bureaucratic procedures for accessing financing, institutional inefficiencies, and weak control over the targeted use of budgetary resources. These factors reduce the efficiency of public spending and hinder the achievement of long-term development goals in the sector (Fig. 4.2.1).

Credit provision is an integral component of the financial support system for agricultural enterprises. It represents a framework of economic and organizational relations between banks and agricultural producers, regulated by relevant legal and regulatory acts that define the procedures for the allocation and repayment of financial resources (Podyk, 2024). Credit serves as one of the key mechanisms contributing to sustainable economic growth, financial stability, and the strengthening of Ukraine's economic potential—both under conditions of wartime and economic uncertainty, and in the post-war recovery period. As of early 2024, access to credit resources remains limited and uneven across the market, primarily due to the economic and financial crisis caused by the full-scale war that began in 2022 (Antoniuk, 2024).

The main challenges in the field of agricultural bank lending include high interest rates, substantial collateral requirements, and the underestimation of agrarian risks by financial institutions. These factors reduce banks' confidence in agricultural enterprises, particularly small and medium-sized farms.

The current credit system for Ukraine's agrarian sector combines both market-based and preferential mechanisms. This structure is largely due to the implementation of

targeted concessional lending programs aimed at increasing the efficiency of agricultural production.

A wide range of institutions are involved in providing credit and other financial services to the sector, including commercial and investment banks, credit unions and cooperatives, savings and loan associations, non-governmental organizations, input suppliers, processors, agricultural commodity traders, retailers, and even pawnshops (Antoniuk, 2024).

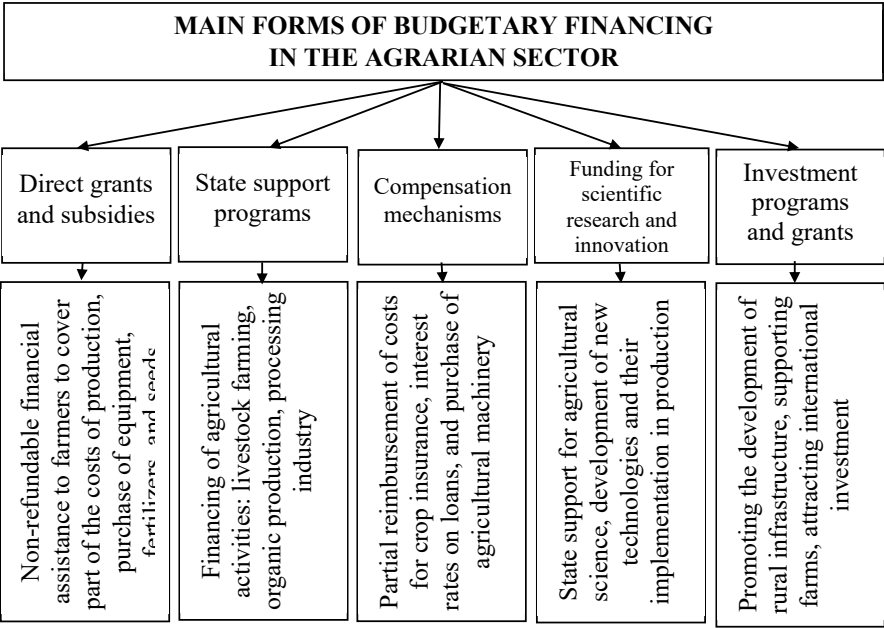


Fig. 4.2.1. Main Forms of Budgetary Financing in the Agrarian Sector

The interaction between budgetary financing and bank lending in Ukraine remains underdeveloped, which complicates the mobilization of financial resources for the agrarian sector. Public funds can serve as instruments for interest rate compensation or as guarantee funds for banks; however, such mechanisms are still insufficiently implemented in Ukraine. A significant financing gap exists between large agroholdings and small-scale farms, resulting in a concentration of financial resources in the hands of major market players and placing smaller producers at a competitive disadvantage.

Alternative financial instruments are gaining increasing significance in the context of globalization and rapid transformations in financial markets. These instruments represent methods of capital mobilization that do not rely on traditional financial

institutions such as banks or stock exchanges. One of the most accessible and widely used alternative tools is crowdfunding, which enables businesses, startups, or individuals to raise funds from a large number of contributors via online platforms such as Kickstarter or Indiegogo.

Another important form of alternative financing is capital raised through digital assets, including cryptocurrencies and asset tokenization. Cryptocurrencies like Bitcoin or Ethereum facilitate financial transactions without intermediaries and provide access to global capital markets. Tokenization allows the conversion of physical or other types of assets (e.g., real estate, securities) into digital form, making it possible to invest in fractional ownership and thereby increasing accessibility for small investors.

Additionally, private debt markets have gained traction, enabling investors to lend directly to companies or individuals while bypassing traditional financial intermediaries. This is typically facilitated through online platforms such as LendingClub or Funding Circle.

There are also alternative methods for investing in high-risk assets, such as venture capital and angel financing, which allow investors to support innovative startups that do not yet have access to traditional sources of funding. These instruments offer the potential for high returns, but they also carry significant risks due to limited regulation and a high degree of uncertainty.

All of these alternatives provide both businesses and investors with new opportunities for growth and development. However, they also pose challenges in terms of investor protection and the need for appropriate regulatory frameworks.

International financial institutions actively support Ukraine's agrarian sector through financial instruments aimed at promoting sustainable agricultural development and the adoption of innovative environmental technologies. In particular, the World Bank has allocated a \$200 million loan to Ukraine to attract private investment in the agricultural sector, ensuring stable financing and creating favorable conditions for the growth of agricultural enterprises. Additionally, the World Bank launched the ARISE program, which provides \$320 million in grants and a \$230 million loan to support small and medium-sized agricultural producers, facilitating access to funding through concessional loans and grant assistance (Ministry of Agrarian Policy and Food of Ukraine, 2025; Kyivstar Business HUB, 2025). The European Bank for Reconstruction and Development is also actively involved in financing the agricultural sector, offering loans for infrastructure modernization, the introduction of advanced technologies, and the support of environmental initiatives in agriculture.

The International Monetary Fund, in turn, provided Ukraine with \$1.1 billion in financial assistance in September 2024, part of which was allocated to support agricultural producers and enhance the stability of agricultural enterprises amid global economic challenges. In February 2025, the IMF initiated a review of its lending program with Ukraine, which may provide an additional \$917 million, including targeted support for the agrarian sector, with a focus on sustainable development and the implementation of environmentally friendly technologies in agriculture (Ministry of Agrarian Policy and

Food of Ukraine, 2025; Kyivstar Business HUB, 2025). These investments aim to improve the efficiency of agricultural production, promote the adoption of technologies that reduce environmental impact, and ensure access to essential financial resources for agricultural producers.

Overall, the support provided by international financial institutions plays a strategically important role in fostering the development of Ukraine's agrarian sector. This assistance not only helps to stabilize the sector during times of economic crisis but also facilitates the introduction of advanced technologies and the modernization of production processes. These developments are crucial for enhancing Ukraine's competitiveness on international markets and for strengthening national food security, particularly in the context of post-war recovery and long-term sustainable development.

Moreover, the involvement of global institutions encourages the alignment of Ukraine's agricultural sector with international standards, including those related to environmental sustainability, social responsibility, and innovation-driven growth. Through financial instruments such as concessional loans, grants, technical assistance, and investment guarantees, international actors support systemic reforms and build institutional capacity.

However, despite the growing volume of external assistance, the agricultural sector continues to face a number of systemic constraints that hinder the effective mobilization and utilization of financial resources. Among the most critical obstacles are macroeconomic instability, high inflation rates, political uncertainty, currency fluctuations, and regulatory deficiencies, particularly in the area of agrarian finance. Furthermore, small and medium-sized agricultural producers often suffer from limited financial literacy, insufficient collateral, and weak credit histories, which restrict their access to both domestic and international sources of financing.

To overcome these challenges, a comprehensive and coordinated strategy is required. Such a strategy should include the enhancement of public policy frameworks for agricultural financing, the development of effective risk-sharing mechanisms (including credit guarantees and insurance schemes), the expansion of public-private partnerships, and the simplification of procedures for obtaining financial support. In addition, it is essential to promote innovative financial tools, such as crowdfunding, digital finance, and blended finance mechanisms, which can open new opportunities for small-scale farmers and agricultural entrepreneurs. Strengthening institutional cooperation between the government, financial institutions, development partners, and the private sector will also be vital for ensuring the long-term resilience and competitiveness of Ukraine's agrarian economy.

Thus, improving the financial support of the agrarian sector involves the application of various financial instruments to achieve maximum efficiency with minimal costs, ensuring stable access to financing for agri-producers and reducing financial risks. The main aspects of optimizing financial support for the agrarian sector include:

- attracting and efficiently utilizing financial resources;
- modernization of financial instruments and mechanisms;

- development and implementation of budgetary and financial programs;
- improving the effectiveness of fund utilization in agriculture;
- creating favorable conditions for investors.

Overall, optimizing financial support for the agrarian sector requires a comprehensive approach to financial management, which helps increase the efficiency of agricultural production and ensures its sustainable development in the context of economic instability and climate change.

Optimization of financial support for the agrarian sector should be based on creating a favorable financial environment that ensures equal access to financing for all market participants, stimulates innovation, and enhances the competitiveness of Ukraine's agrarian sector in the global market.

Financing the agrarian sector of Ukraine is a complex and multifaceted issue that is based on two primary mechanisms: budgetary support and bank lending. Each of these mechanisms has its own specific features and implementation challenges, which require in-depth analysis to develop optimal strategies for improvement.

Budgetary financing serves as a crucial instrument of state policy in the agrarian sector, implemented through government programs, subsidies, grants, and financial aid aimed at stimulating agricultural development, improving infrastructure, ensuring food security, and supporting the sustainable growth of the sector.

In recent years, budgetary funding for agriculture in Ukraine has increased; however, the amounts allocated still fall short of fully meeting the sector's needs. According to the Ministry of Agrarian Policy and Food of Ukraine, state expenditures to support farmers in 2023 amounted to over UAH 60 billion, which is 12% more than in 2022. Nevertheless, when compared to the actual needs of the sector, these expenditures remain insufficient to ensure effective development, particularly for small and medium-sized enterprises (Ministry of Agrarian Policy and Food of Ukraine, 2025).

The analysis of agricultural financing from the Consolidated Budget of Ukraine during 2018–2024 reveals significant fluctuations in expenditure volumes, reflecting the country's economic conditions and shifting state priorities over different periods (Fig 4.2.2). In particular, in 2024, expenditures on agriculture increased by 4,27% according to the revised plan and by 3.21% based on actual execution compared to 2018, indicating a gradual rise in funding despite the challenges of previous years. At the same time, in 2022 and 2023—years marked by the severe impact of war – there was a noticeable decline in expenditures, with execution levels reaching only 82,60% and 79,56%, respectively. This drop can likely be attributed to the need for prioritizing funding for other sectors of the economy and national security.

Compared to 2022, expenditures on agriculture in 2024 increased by 23,00% according to the plan and by 36,28% in actual execution, indicating a recovery of funding after significant cuts in previous years. This financial rebound in 2024 can be seen as evidence of economic stabilization and renewed investment in the agricultural sector following a crisis caused by both external and internal factors – particularly the war, which affected the fulfillment of budgetary obligations in previous years.

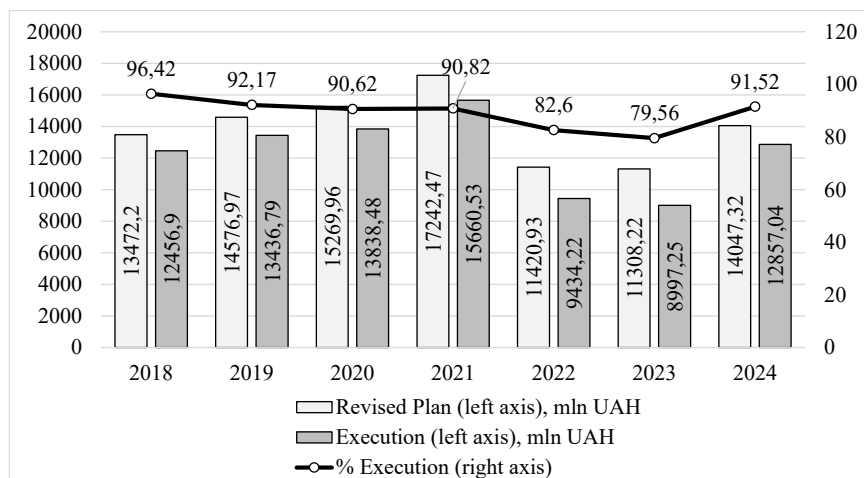


Fig. 4.2.2. Expenditures on Agriculture from the Consolidated Budget of Ukraine in 2018–2024 (Open Budget, 2025)

One of the main directions of budgetary financing is subsidies and grants aimed at compensating the cost of agricultural machinery, fuel, and supporting environmentally friendly production. Another important tool is grant programs for small farms, which are focused on supporting investments in the development of agricultural infrastructure.

Despite the positive dynamics in the amount of allocated funds, the efficiency of budget program implementation remains quite low. One of the main problems is the uneven distribution of financial resources. Large agroholdings receive the majority of subsidies and grants, while small farmers face difficulties in accessing state support due to limited access to programs, complicated documentation, and the lack of clear criteria for obtaining funding (Table 4.2.1).

Table 4.2.1

The distribution of budgetary subsidies among different categories of agrarians in 2023 (Committee of the Verkhovna Rada of Ukraine on Agrarian and Land Policy, 2025; Ministry of Agrarian Policy and Food of Ukraine, 2025)

| Agricultural categories | Amount of subsidies, mln UAH | Share in total amount (%) |
|--------------------------------|------------------------------|---------------------------|
| Large agribusiness holdings | 40000 | 66 |
| Small and medium-sized farmers | 12000 | 20 |
| Other agricultural enterprises | 8000 | 14 |

In our opinion, to improve the efficiency of budget funding, it is necessary to:

- Introduce clearer criteria for providing subsidies and grants.

- Simplify the procedures for obtaining financing for small and medium-sized agricultural enterprises.

- Implement mechanisms that ensure a more transparent distribution of funds, particularly through electronic platforms for submitting applications and verifying their compliance with requirements.

Bank lending is another significant source of financing for farmers. However, there are several problems in this area, including high interest rates, limited access to credit products for small and medium-sized agricultural enterprises, and a low level of trust from banks in the agricultural sector as a high-risk industry.

For farmers to develop their businesses, they need access to financial resources. However, currently, only 30-40% of agricultural enterprises have the opportunity to obtain loans from banks. The main issues are high interest rates (ranging from 18% to 25% annually), which make lending unprofitable for most farmers, and the lack of sufficient collateral assets among small farmers to obtain loans.

Banks are reluctant to lend to agricultural producers due to the high level of risks associated with unstable weather conditions, fluctuations in market prices for agricultural products, and currency exchange rate volatility. These factors make loans for the agricultural sector more expensive and less accessible, thereby hindering the sector's development.

Thanks to government programs implemented in Ukraine, agricultural producers have access to financial resources necessary for development, modernization of technical equipment, implementation of innovations, and covering current operational expenses. The most successful and popular lending initiative, implemented with the support of the President and the Cabinet of Ministers of Ukraine through the Ukrainian State Entrepreneurship Support Fund, is the "Affordable Loans 5-7-9%" program.

According to the Ministry of Agrarian Policy and Food of Ukraine, in 2024, 46% of all loans issued were granted under this program. Over the course of the year, more than 13000 agricultural producers received approximately UAH 105 billion in loans, with 9000 producers participating specifically in the "Affordable Loans 5-7-9%" program, receiving UAH 47 billion. As of early 2025, 549 agricultural enterprises have already attracted UAH 2,3 billion in funding through this state initiative (Fig 4.2.3) (Ministry of Agrarian Policy and Food of Ukraine, 2025).

In 2022, the largest volumes of lending to farmers were observed in the Kyiv region (15,5 billion UAH), Vinnytsia region (10,2 billion UAH), Kirovohrad region (8,6 billion UAH), Dnipropetrovsk region (6,8 billion UAH), and Odessa region (6 billion UAH). However, by the beginning of 2025, the amount of loans disbursed in these regions significantly exceeded the figures of 2022. In particular, in the Kyiv region, the amount increased by 15,7 times, in Vinnytsia region by 15 times, in Kirovohrad region by 21 times, in Dnipropetrovsk region by 21,2 times, and in Odessa region by 34,8 times. The "Affordable Loans 5-7-9" program offers enterprises the opportunity to obtain financing for the purchase of agricultural machinery, modernization, production expansion, and provision of working capital.

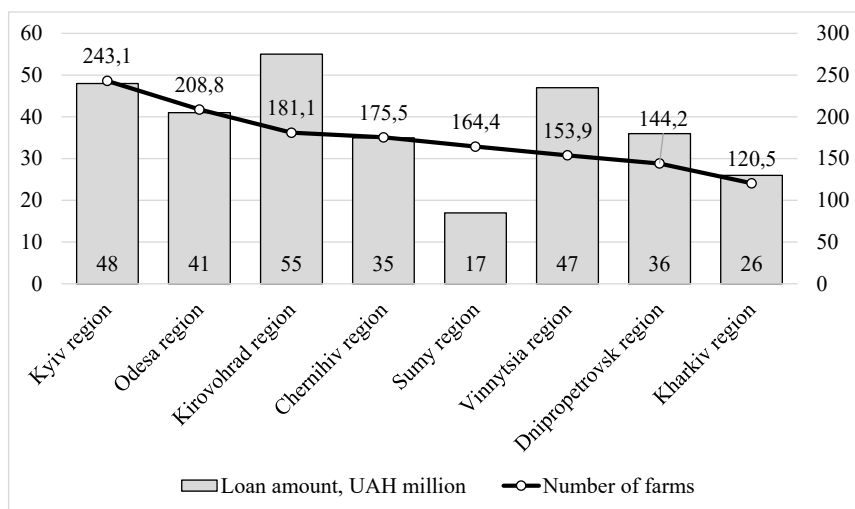


Fig. 4.2.3. Loans received by agricultural enterprises by region under the “Affordable Loans 5-7-9%” program since the beginning of 2025 (Kyivstar Business HUB, 2025)

The government continues to support entrepreneurs through the mechanism of interest rate compensation for loans. In February, the Entrepreneurship Development Fund received approximately 1,7 billion UAH for this purpose within the framework of the "Affordable Loans 5-7-9%" program. This is the second financial contribution in 2025 – in January, 1,5 billion UAH was allocated. Thus, the total amount of compensation over two months amounted to 3,2 billion UAH, and the government continues to follow its course of creating favorable lending conditions for businesses (Ministry of Economy of Ukraine, 2025).

The budget for 2025 allocates 18 billion UAH for financial support to entrepreneurs. These funds are directed to cover the difference between market rates and favorable loan conditions, allowing entrepreneurs to receive financing at reduced interest rates. Since the beginning of 2025, Ukrainian businesses have already secured 3727 preferential loans totaling 11,7 billion UAH. Overall, since the launch of the program in 2020, entrepreneurs have received 107,4 loans amounting to 371,8 billion UAH. The program is most actively used by representatives of the manufacturing industry, agriculture, and trade. The regions with the highest amounts of issued loans include Lviv, Dnipropetrovsk, Kyiv, Odessa, Kharkiv, Vinnytsia, Poltava, and the capital city (Kyiv). A total of 46 banks have joined the initiative. The largest number of loans have been issued by PrivatBank (49,6 thousand), Oschadbank (16,6 thousand), and Ukrgasbank (5,9 thousand) (Ministry of Economy of Ukraine, 2025).

The interest rate on loans ranges from 5% to 9% per annum, depending on the category of the borrower and the area of activity, with a portion of the interest rate being compensated from the state budget. The main advantages of the program include a reduced loan interest rate and a simplified loan application process for small and medium-sized agricultural enterprises. At the same time, one of its drawbacks is that it does not cover all areas of agricultural activity.

Banking institutions actively cooperate with the state in implementing preferential credit programs for agricultural producers, providing financing through specialized agricultural funds that support the development of various sectors of the agricultural market. In addition, banks may offer advisory services on financial management, risk minimization, and business plan development for obtaining loans, which enables farmers to better plan their financial resources and take advantage of available credit opportunities.

In our opinion, to improve the situation with bank lending, it is necessary to:

- Develop mechanisms for state guarantees on loans, which would reduce risks for banks.
- Introduce interest rate subsidies for loans to small and medium-sized agricultural enterprises.
- Create state-backed guarantee platforms to partially cover risks associated with lending.

According to the World Bank (World Bank, 2025), budgetary financing and bank lending vary depending on the economic situation, government policies, and agricultural development plans in different countries around the world (Table 4.2.2).

International Experience in Budgetary Financing and Bank Lending to the Agricultural Sector demonstrates considerable variability depending on economic policy and the structure of the agricultural sector in different countries.

In the United States, government support is implemented through the USDA, which provides subsidies, insurance, and funding for rural development. Bank lending is carried out by the Farm Credit System, which issues over \$200 billion in loans annually, contributing significantly to the modernization of agriculture.

The European Union finances its agricultural sector through the Common Agricultural Policy (CAP), with an annual budget of approximately €58-59 billion. This policy ensures income stability for farmers and supports rural development, although it can sometimes create competitive imbalances among member states.

In Canada, financing is provided through the Farm Credit Canada (FCC), which allocates around \$3-5 billion annually. The total volume of bank loans to the sector reaches \$40-50 billion, ensuring access to financial resources but also increasing dependence on lenders.

Australia funds its agricultural sector primarily through government assistance programs during natural disasters and investments in infrastructure. However, the overall volume of financing remains relatively small (AUD 2-4 billion), which may limit farmers' capabilities during periods of economic crisis.

Table 4.2.2

Financing and lending to the agricultural sector in different countries
for the period 2020–2023 (World Bank, 2025)

| Country | Budget financing (billion USD per year) | Bank lending (billion USD per year) |
|-----------|---|---|
| USA | USDA programs include subsidies, insurance support for farmers, and rural development financing, with total funding amounting to approximately \$20–25 billion annually | The Farm Credit System provides specialized loans for farmers and agribusinesses, with an annual loan volume exceeding \$200 billion USD |
| EU | The Common Agricultural Policy (CAP) includes subsidies, rural development initiatives, and financial support in crisis situations, with approximately €58–59 billion allocated annually for agricultural subsidies | Banks offering preferential interest rates for agricultural loans provide funding amounting to several hundred billion euros. These financial institutions support the agricultural sector by facilitating access to affordable credit for farmers and agribusinesses |
| Canada | The Farm Credit Canada (FCC) supports farmers through loans, subsidies, and investments, with an annual allocation of approximately \$3–5 billion USD | Specialized programs from Canadian banks with low rates for farmers (about 40-50 billion USD) |
| Australia | Government funding for natural disasters, subsidies and infrastructure investment (at the level of 2-4 billion Australian dollars) | Banks that provide loans for the development of agricultural enterprises with special conditions (about 30-35 billion Australian dollars) |
| China | Government funding, reduced loan rates for farmers, investments in agricultural modernization (about \$10-15 billion) | Agricultural Bank of China offers soft loans to farmers (over \$150 billion) |

China actively supports agriculture through budgetary funding (USD 10-15 billion annually) and lending via state-owned banks such as the Agricultural Bank of China, which issues over USD 150 billion in loans. This facilitates large-scale development of the agricultural sector but also creates risks of debt burden for small-scale farmers.

Overall, effective financing of the agricultural sector promotes the stability of food markets, innovative development, and enhanced competitiveness. However, excessive

reliance on government support can distort market mechanisms, while high levels of credit activity may pose risks of debt instability.

Analysis of international experience shows that for sustainable development of the agricultural sector, it is essential to create favorable conditions for attracting financial resources from both public and private sectors. For instance, countries like the Netherlands and Canada actively use agricultural receipts as a financing tool, allowing farmers to receive loans against future harvests. They also implement agricultural risk insurance programs, providing farmers with additional confidence in the stability of their operations.

Notably, in Ukraine, agricultural receipts have already helped agricultural producers secure financing of over UAH 32 billion. Thanks to joint efforts by civil society, the state, and the private sector, agricultural receipts have become one of the most widespread and convenient financing tools in Ukrainian agriculture.

The agricultural receipt should evolve from a commodity-based document into a securities transaction, which would significantly expand farmers' opportunities to attract additional funds. The first international agricultural receipt was issued by a farmer from the Chernihiv region for the delivery of 10000 tons of corn from the next harvest. The first international financial agricultural receipt was issued by a producer from the Lviv region in the amount of USD 50000, secured by 140 tons of future rapeseed harvest.

In Ukraine, such instruments are only beginning to develop. Agricultural enterprises still face certain limitations in accessing international grants and programs, mainly due to complex reporting requirements and limited access to international financial institutions/

In our opinion, for Ukraine's agricultural sector to develop sustainably, it is essential to combine budgetary financing with effective bank lending. Key steps include:

- Improving state support programs for the agricultural sector.
- Increasing access to credit for small and medium-sized agribusinesses.
- Introducing mechanisms for state-backed credit risk insurance and establishing dedicated support funds for agricultural producers.

By leveraging global experience and adapting best practices, Ukraine can enhance the effectiveness of agricultural financing, contributing to sustainable development and ensuring the country's food security.

As we have already established, Ukraine's agricultural sector plays a strategically important role in the country's economy, ensuring food security, contributing a significant share to GDP and export revenues. However, its sustainable development largely depends on proper financial support. In the context of martial law, infrastructure destruction, increasing risks, and the limited financial resources of agricultural producers, the issue of optimizing funding sources has become particularly urgent.

Previous studies have shown that, at present, the financial support for Ukraine's agricultural sector is characterized by a number of problems:

- insufficient budget funding: The volumes of state support are often inadequate to cover the urgent needs of the sector, especially in the conditions of a wartime economy and the need to restore affected territories;

- limited access to bank credit: High interest rates, complex collateral conditions, short credit terms, and increased risks of the agricultural sector limit the ability of many agricultural producers, especially small and medium-sized ones, to attract bank financing;

- low efficiency in the use of budget funds: Existing mechanisms for the allocation and use of budget support do not always ensure its targeted direction and maximum impact on the development of the sector;

- insufficient coordination between budget financing and bank crediting: The lack of clear mechanisms for synergy between these two key sources of funding leads to duplication, inefficient use of resources, and missed opportunities to support the agricultural sector;

- increased influence of external factors: War, instability in global markets, climate change, and other external factors create additional financial risks for the agricultural sector, necessitating the search for more resilient and adaptive financing models.

In our opinion, the optimization of financial support for Ukraine's agricultural sector through the development of scientifically grounded approaches and practical recommendations for improving state support mechanisms, stimulating bank crediting, and establishing effective interaction between these funding sources will contribute to:

- increasing the financial stability and competitiveness of the domestic agricultural sector;

- ensuring food security in the country amid wartime and post-war realities;

- attracting investment in the development of agricultural infrastructure and innovative technologies;

- stimulating economic growth and creating new jobs in rural areas;

- improving the efficiency of the use of state funds and credit resources.

The optimization of financial support for Ukraine's agricultural sector requires a comprehensive approach, which includes the integration of budget funding and bank crediting with the implementation of innovative financial instruments, state support, and expanding cooperation between the public and private sectors.

The activation of bank lending for agricultural producers requires macroeconomic stabilization and the development of institutional support for agricultural crediting. This includes specifying and protecting property rights to land, improving the legislative framework for financial and credit support in the agricultural sector, particularly regarding the assessment, registration, confiscation, and sale of collateral, enhancing state support programs for crediting, and developing and implementing new technologies for managing agricultural credit risks (Rozhko et al., 2021).

A promising direction involves the introduction of agricultural bonds as an alternative source of financing. The implementation of government bonds with a fixed yield will enable the accumulation of funds for the establishment of a dedicated support fund for the agricultural sector, while the issuance of corporate bonds by large agricultural enterprises will provide an opportunity to attract investment secured by future production or assets.

Creating an Agro-Financial Fund for public-private partnerships (PPP) seems like a practical solution. By pooling resources from the state budget, banking institutions, and international financial organizations, such a fund could help mitigate risks and improve access to financing for farmers. State guarantees on a portion of loans would lower the risk for banks, making credit more accessible to agricultural producers.

This could enhance the overall sustainability of the agricultural sector. Public-private partnership (PPP) is a long-term collaboration between a government entity and the private sector based on a contractual agreement aimed at implementing projects and providing services that were traditionally carried out by the state. It is characterized by the distribution of risks, responsibilities, and rewards, the involvement of private funding and expertise, long-term project timelines, a focus on results, shared accountability, and a need for transparency and accountability. Additionally, PPPs can take various forms, such as concessions and management contracts, which help optimize resource use and improve the efficiency of public service delivery by combining public interests with private initiatives.

The implementation of agricultural bonds will enable:

- attraction of additional financial resources for the development of the agricultural sector;
- reduction of dependence on traditional sources of financing (e.g., bank loans with high interest rates);
- increased capital accessibility for large agricultural enterprises, facilitating the implementation of investment projects;
- creation of supplementary opportunities for small and medium-sized farmers through the redemption or partial collateralization of agricultural bonds.

Therefore, the introduction of agricultural bonds holds significant potential for improving the financing of the agricultural sector in Ukraine, contributing to its development and stability.

A crucial instrument for expanding access to finance is the establishment of a guarantee fund for small and medium-sized farms. This will enable the mitigation of a portion of credit risks and enhance the accessibility of bank loans by reducing collateral requirements and lowering interest rates. The creation of an Agri-Financial PPP Fund represents a significant initiative for the development of the agricultural sector, facilitating the accumulation of financial resources from diverse sources and fostering the sustainable development of agriculture and rural areas. The establishment of the fund entails the provision of support to agricultural producers by ensuring their access to finance, particularly for small and medium-sized agribusinesses. This measure aims to enhance their production capabilities and secure financial stability within the sector. Furthermore, investments will be directed towards the modernization of the agricultural sector through the implementation of innovative technologies, the promotion of sustainable agricultural practices, environmental conservation efforts, and the improvement of production efficiency. To guarantee an effective and resilient financial framework, a diversification

of funding sources is planned, encompassing the attraction of both public and private capital, alongside resources from international financial institutions.

The operational framework of the fund will involve the mobilization of governmental resources through preferential loans, subsidies, and investments, the engagement of banking institutions in offering favorable credit terms and managing financial assets, the attraction of investments, grants, and low-interest loans from international financial organizations, and the incorporation of funding from private investors with a vested interest in the industry's advancement. Effective fund management will be ensured through a joint governance system encompassing both public and private sector representation, the implementation of transparency and accountability measures via supervisory bodies and clear project evaluation protocols, and the establishment of mechanisms for providing long-term loans, preferential credits, and grants to support specific projects and enterprises.

The establishment of an Agri-Financial Public-Private Partnership Fund holds significant potential for the development of the AIC; however, it necessitates meticulous planning, management, and control to minimize risks and maximize positive outcomes. It represents a complex and large-scale undertaking that requires a well-considered approach and interaction among state institutions, banks, international financial organizations, and private investors.

The establishment of an Agri-Financial PPP Fund represents a critically important step for the sustainable development of Ukraine's agricultural sector, particularly amidst current economic challenges and the imperative for post-conflict recovery. This is because it will ensure the expansion of access to finance for a vital sector, reduce the financial burden and risks for agricultural producers, stimulate investment in modernization and sustainable development, diversify funding sources and enhance the industry's resilience, foster the development of rural territories, improve the transparency and efficiency of fund utilization, thereby enabling a significant increase in the pool of available financial resources for agriculturalists, decreasing the financial strain and making access to funds more attainable through preferential loans, subsidies, or partial guarantees, mitigating a portion of the credit risks for banks, encouraging them to more actively lend to the agricultural sector, finance projects related to innovative technologies, sustainable agriculture, energy efficiency, and environmental conservation, attract best practices and funding for sustainable development projects from international organizations, consolidate public, private, and international funds to diversify funding sources, attract additional investment from private investors, positively impact the development of rural areas by creating new jobs and improving infrastructure, ensure the transparency and efficient use of funds through a clear management structure and control mechanisms, and also facilitate the harmonization of financial support for the agricultural sector with the practices of the European Union. This constitutes a strategic initiative aimed at the comprehensive development of the agricultural sector, enhancing its competitiveness, ensuring the country's food security, and promoting the sustainable development of rural

areas, the successful operation of which necessitates a clear state policy, effective interaction among all stakeholders, and transparent management mechanisms.

The advantages of establishing the fund, along with associated risks and challenges identified through SWOT analysis, are presented in Fig. 4.2.4.

| Strengths | Weaknesses |
|---|---|
| <ul style="list-style-type: none"> – attracting multiple sources of financing – supporting small and medium-sized agribusiness – stimulating investments in the modernization of the agricultural sector – developing rural areas | <ul style="list-style-type: none"> – risk of ineffective use of funds – possibility of improper distribution of funds – dependence on the state budget – little experience in creating such funds |
| Opportunities | Threats |
| <ul style="list-style-type: none"> – creation of new jobs – modernization of agricultural enterprises – expansion of international cooperation – increasing environmental sustainability | <ul style="list-style-type: none"> – political changes and instability – low level of trust in institutions – economic risks – competition for funding |

Fig. 4.2.4. Advantages of Establishing the Agri-Financial Fund, Risks, and Challenges

The analysis of the prospective Agri-Financial Fund reveals substantial strengths, notably its capacity to attract diverse funding sources—governmental, banking (both domestic and international), global financial organizations, and private investors—thereby ensuring resilience and long-term support. The fund holds the potential to bolster small and medium-sized agribusinesses, fostering their growth and contributing to food security, as well as to stimulate investment in agricultural modernization through technological adoption and sustainable development. Furthermore, the fund can facilitate rural development by generating economic activity and enhancing the quality of life.

Concurrently, inherent risks include the potential for inefficient resource utilization due to inadequate oversight and transparency, alongside the possibility of misallocation, encompassing corruption. Reliance on the state budget may introduce long-term vulnerabilities. The limited prior experience in establishing comparable funds within Ukraine could lead to implementation challenges. Realizing the fund's potential necessitates strategic planning and robust governance frameworks.

The analysis of the potential Agri-Financial Fund reveals several significant advantages that underscore its importance for the sustainable development of Ukraine's agricultural sector. A key benefit is its capacity to attract diverse funding sources, including governmental allocations, domestic and international banking institutions, global financial organizations, and private investors. This diversification establishes a robust and resilient financial foundation, reducing reliance on singular sources and enhancing the fund's overall sustainability for long-term agricultural support.

An important aspect is the fund's potential to provide critical support to small and medium-sized agribusinesses, fostering their growth and strengthening the country's food security. The fund should also stimulate investment in the modernization of agriculture through the adoption of advanced technologies, sustainable farming practices, and efficient resource management, which is vital for increasing productivity and competitiveness. Furthermore, the Agri-Financial Fund can play a significant role in the development of rural territories, contributing to the creation of new jobs and the improvement of infrastructure.

At the same time, potential risks need to be considered. These include the possibility of inefficient fund utilization due to inadequate oversight and transparency, as well as the risk of misallocation, including corrupt practices. Dependence on the state budget may create certain long-term financial vulnerabilities. Additionally, the limited prior experience in establishing similar large-scale agri-financial funds in Ukraine could lead to certain difficulties during the implementation phase. For the successful realization of the fund's potential, thorough strategic planning, the creation of reliable and transparent management mechanisms, and the engagement of relevant expertise are necessary.

In conclusion, the SWOT analysis of the proposed Agri-Financial Fund for Ukraine reveals a compelling landscape of both potential and peril. The strengths of attracting diverse funding, supporting small and medium-sized agribusinesses, stimulating modernization, and fostering rural development provide a strong foundation for positive impact. The identified opportunities in job creation, enterprise modernization, international cooperation, and enhanced ecological sustainability offer a promising trajectory for growth and long-term benefits.

However, these positive aspects are counterbalanced by significant weaknesses including the risks of inefficient fund utilization and improper resource allocation, potential dependence on the state budget, and limited prior experience in establishing such a fund. Furthermore, the threats posed by political instability, low institutional trust, economic risks, and competition for funding cannot be understated.

Ultimately, the successful realization of the Agri-Financial Fund's potential hinges on the proactive and strategic management of its weaknesses and threats. Robust governance structures emphasizing transparency and accountability are paramount to mitigating the risks of inefficiency and corruption, thereby fostering trust and attracting both domestic and international support.

Diversifying funding sources beyond the state budget is crucial for ensuring the fund's long-term sustainability and resilience to political and economic fluctuations. Leveraging international expertise and adopting a phased implementation approach can help overcome the challenges associated with limited prior experience.

By capitalizing on its inherent strengths and the identified opportunities while diligently addressing its weaknesses and mitigating potential threats, the Agri-Financial Fund has the potential to be a transformative instrument for the sustainable development and enhanced competitiveness of Ukraine's vital agricultural sector and its rural communities. However, its success will be contingent upon a well-defined strategy,

effective implementation, and unwavering commitment to sound financial management and transparent governance.

An additional direction for improving the financing of the agricultural sector is the integration of financial technologies into lending processes and the allocation of budgetary funds. The integration of financial technologies (FinTech) into lending processes and the allocation of budgetary funds holds immense potential for enhancing the efficiency, transparency, and accessibility of financial services. The application of FinTech in these areas can significantly transform the way financial institutions, governments, and entrepreneurs interact.

Key aspects of financial technology integration include:

1) Integration of FinTech into Lending Processes:

- Automation of Credit Processes. Modern financial technologies enable the automation of a significant portion of the lending process, particularly creditworthiness analysis. Algorithms based on AI and machine learning can assess risks, verify credit histories, and even predict the likelihood of loan repayment.

- Improved Access to Credit. FinTech can assist small and medium-sized agribusinesses, as well as individual entrepreneurs, in obtaining loans even if they lack sufficient credit history or collateral. This is possible through alternative creditworthiness assessment methods, such as the analysis of behavioral data, social networks, or other non-traditional information sources.

- Online Lending and P2P Platforms. Peer-to-peer (P2P) lending platforms allow individuals or businesses to provide or obtain loans without intermediaries in the form of banks. Such platforms make lending more accessible and cheaper.

- Mobile Applications and Digital Wallets. Mobile technologies and applications enable the rapid submission of loan applications and the receipt of funds without the need to visit banks or other financial institutions. This provides convenience for customers and reduces servicing costs.

2) Integration of FinTech into the Processes of Public Budget Allocation

The integration of financial technologies (FinTech) into public financial management offers significant potential to enhance transparency, efficiency, and accountability in the distribution of budgetary resources.

- Transparency and expenditure control - FinTech solutions can assist governments in efficiently allocating budgetary funds and ensuring transparent use of public finances. For instance, the application of blockchain technology enables the creation of systems in which all transactions are securely recorded and verifiable in real time. This significantly reduces opportunities for misappropriation and corruption, while fostering trust in public institutions.

- Digital platforms for fund distribution - Public authorities may develop digital platforms to facilitate the allocation of budgetary resources, whereby stakeholders (e.g., entrepreneurs, civil society organizations) can submit applications for grants or project funding. These platforms streamline the application process, automate document

verification, and enhance monitoring and evaluation of fund utilization, thereby improving administrative efficiency and governance.

- Electronic auctions and procurement tenders - The use of electronic platforms for conducting tenders and auctions ensures transparency, reduces the risk of malpractice, and promotes fair competition. Such technologies minimize administrative costs and provide equal access to public financial support, thereby increasing the overall effectiveness of budget execution.

- Integration with public registries and databases - FinTech applications can be integrated with existing governmental registries, such as business registration databases, land registries, and other relevant administrative records. This facilitates automated verification of eligibility for budgetary support and enhances the integrity of the distribution process by ensuring that funds are allocated to legitimate and compliant entities.

The advantages of FinTech integration include improved accessibility and efficiency of financing, enabling greater access to funds for small businesses, farmers, and other economic participants, particularly when traditional banks may be cautious in lending; reduced administrative costs through the automation of processes, lowering expenses for loan management and the allocation of budgetary funds, allowing for a focus on strategic aspects; facilitated monitoring and reporting, enabling governments to more effectively track the use of budgetary funds and promptly identify deviations from the plan, allowing for timely adjustments; and enhanced transparency, as FinTech fosters the creation of more transparent financial systems where all transactions can be tracked using blockchain technologies and digital platforms, reducing the likelihood of fraud and corruption.

The challenges and limitations of FinTech integration include security and data protection, as the processing of large volumes of sensitive information necessitates robust cybersecurity measures and the development of reliable protection systems against hacking attacks and data leaks; infrastructure and technological barriers, where successful integration into state processes requires adequate infrastructure and a high level of digital literacy among users, potentially posing difficulties in countries with low levels of information technology development; and regulatory challenges, requiring governments and financial organizations to establish a legal framework for regulating FinTech use, including defining legal norms for digital loans, electronic payments, and the allocation of budgetary funds through online platforms.

The integration of financial technologies into the processes of lending and public budget allocation can significantly enhance the efficiency, accessibility, and transparency of financial operations. At the same time, it is crucial to ensure an adequate level of cybersecurity, technological infrastructure, and regulatory oversight for the successful implementation of these technologies at all levels.

The use of blockchain platforms and digital tools—particularly the development of a digital agricultural passport for farming enterprises—can ensure transparency in funding allocation, streamline credit scoring procedures, and strengthen oversight over the utilization of financial resources. Furthermore, it is advisable to introduce preferential

financing mechanisms for enterprises focused on sustainable development and environmentally friendly technologies.

The implementation of “green” financial instruments, including concessional credit programs for agricultural producers who adopt environmentally sustainable practices or utilize renewable energy sources, will contribute to the development of a resilient and sustainable agricultural sector.

The key aspects highlighting the importance of introducing green investments include:

1) Promotion of sustainable practices in agriculture. Environmentally friendly production methods—such as organic farming and the reduction of chemical pesticide use – contribute to the long-term sustainability of agricultural systems.

2) Renewable energy integration. The use of solar, wind, bioenergy, and other renewable energy sources enables a reduction in energy costs and the carbon footprint of agricultural operations.

Given the increasing global demand for organic and environmentally sustainable products, agricultural producers adopting green practices can gain a competitive advantage in international markets. They may be able to export their products at premium prices, offsetting the additional energy and technological investment costs. In developed market economies, many companies and consumers prioritize purchasing products that are certified as environmentally friendly or organic. Establishing such certification standards and supporting producers through green credit schemes can assist farmers in certifying their products and accessing these high-value markets.

The use of renewable energy sources and the adoption of more environmentally friendly production methods significantly reduce greenhouse gas emissions, thereby lowering the ecological footprint of the agricultural sector. Sustainable production practices may include crop rotation, agroforestry, and the preservation of natural ecosystems on agricultural land, all of which contribute to the conservation of biodiversity and natural resources.

The introduction of green financial instruments – particularly low-interest loan programs for agricultural producers that implement eco-friendly practices or utilize renewable energy – will undoubtedly foster the development of sustainable agriculture. These measures will help preserve the environment, enhance production efficiency, and strengthen the competitiveness of agricultural producers both domestically and internationally.

The implementation of the proposed initiatives will improve the efficiency of financial support for the agricultural sector, expand access to financial resources, minimize credit risks, and contribute to the establishment of a resilient financing model. Such a model will ensure long-term stability and global competitiveness for Ukraine’s agricultural sector.

The research has established that the financial support system of the agricultural sector is a multi-component framework that includes budgetary financing, bank lending, investments, grant programs, and other financial mechanisms. It has been determined that the effectiveness of agricultural sector financing depends on the optimal combination of state support and market-based financial instruments.

The study revealed that budgetary financing plays a crucial role in supporting the agricultural sector; however, its scale remains insufficient to ensure the sustainable development of the industry. It was found that government support programs – such as subsidies, grants, and compensation mechanisms – often exhibit low efficiency due to bureaucratic procedures, delays in fund allocation, and limited access to state aid for small and medium-sized enterprises.

The analysis demonstrated that bank lending to Ukraine's agricultural sector remains underdeveloped due to high interest rates, significant collateral requirements, and a low level of trust from financial institutions towards agricultural enterprises. Despite the availability of specialized credit programs, a substantial portion of agribusinesses face difficulties in accessing bank loans, which constrains their capacity to invest in production development.

The research has identified key challenges in the financial support system of the agricultural sector, including insufficient state resources, limited access to bank loans, financial environment instability, and the impact of macroeconomic risks and political uncertainty. It was found that the interaction between budgetary financing and bank lending remains inefficient, creating additional barriers to the development of the agricultural sector.

An examination of international practices in agricultural sector financing has shown that successful countries actively employ mechanisms such as public-private partnerships, credit insurance, flexible loan programs, and subsidized lending. It was determined that the adaptation of these mechanisms to Ukrainian conditions could significantly improve access to financial resources for agricultural enterprises.

Based on the conducted analysis, the following proposals were made: to optimize state support mechanisms by increasing their transparency and accessibility for all agricultural market participants; to expand preferential credit programs for agricultural enterprises with the inclusion of government guarantees; to introduce new financial instruments, such as agricultural receipts, credit insurance mechanisms, and the development of alternative sources of financing; to strengthen cooperation between banks, public institutions, and agribusinesses to create a more favorable financial environment.

Thus, the findings of the study confirm the necessity of a comprehensive approach to agricultural sector financing, which implies the interaction of budgetary support, bank lending, and other financial mechanisms aimed at ensuring the sustainable development and further post-war recovery of not only the agricultural sector, but also the entire economy of Ukraine.

4.3. FINANCIAL RISKS OF INNOVATIVE ACTIVITIES IN THE AGRO-INDUSTRIAL COMPLEX: ASSESSMENT AND MITIGATION STRATEGIES

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In the modern context, the activities of agro-industrial enterprises are of crucial importance both in terms of ensuring food security and for the development of the national economy.

The presence of favorable climatic conditions and the quality of institutional support have contributed to the development of such enterprises and enabled a gradual increase in the efficiency of their performance.

Innovation is an inseparable component of agro-industrial enterprises and determines their level of competitiveness in global commodity markets. It contributes to improving product quality, reducing operational costs, and ensuring optimal use of available natural resources. The implementation of biotechnology, digital innovations, automated control systems, and artificial intelligence in the production process creates new impulses for active development.

However, agricultural enterprises today also face a number of barriers and threats that negatively impact their operations and constrain their development. Financial risks, in particular, play a significant role, as they greatly complicate the process of attracting investment resources and obtaining credit for the modernization of production and the transition to an innovative development model.

In this regard, issues related to the in-depth analysis of the nature of financial risks in the AIC, the identification of their formation mechanisms during the implementation of innovative projects, and the development of effective approaches to their assessment become particularly relevant.

Innovations in modern agriculture act as one of the key factors for increasing the efficiency of agricultural production, improving product quality, optimizing costs, and ensuring the competitiveness of enterprises at both the national and international levels. In a broad sense, innovations in the agricultural sector are the results of scientific research, technical developments, testing, and the practical implementation of new solutions that can change existing farming methods, making them more productive, technologically advanced, and environmentally safe (Brukhanskyi, 2014).

The main types of innovations used in agricultural production include technological innovations (new crop cultivation methods, improved agrotechnical practices, mechanized and automated soil treatment systems, precision farming); biotechnological developments (new varieties and hybrids of plants resistant to pests, diseases, and climate changes, as well as bioproducts for plant protection and soil fertility enhancement); information and communication technologies (such as GPS navigation, drones for field

monitoring, and agricultural software for farm management); and organizational and managerial innovations (new approaches to management, logistics, and marketing that enable agricultural enterprises to adapt better to market conditions).

Despite their evident advantages, the implementation of innovations in agriculture has specific features that necessitate a particularly cautious and strategic approach. Living organisms (plants or animals) are always highly responsive to changes in external conditions, which creates a high level of uncertainty.

This complicates the assessment of the effectiveness of innovations and introduces additional time-related risks.

Third, innovation in agriculture is carried out under conditions of high dependence on climate and weather conditions, such as droughts, excessive humidity, and temperature fluctuations, which directly affect yields and the stability of agricultural businesses (Yevtushenko, 2023).

The level of staff training must also be considered, as employees are directly involved in working with new technologies. A lack of relevant skills or resistance to change may become a serious barrier to innovative development.

Innovative activity in the agro-industrial complex is characterized by a high level of risk, which is due to both internal features of agricultural production and external influencing factors. Risks are among the main deterrents to the implementation of innovative projects, as uncertainty regarding future results often discourages investors from financing new developments. For effective innovation management, it is important to identify and classify the risks that may arise at different stages of the innovation process.

One of the most common approaches is classification by nature and area of impact, which allows identifying several main groups of risks (Table 4.3.1).

Scientific and technical risks are a type of risk inherent to the very nature of innovation. They arise due to the uncertainty of the outcomes of implementing new technologies, processes, or products. Despite prior research and experimental development, it is not always possible to accurately predict how a new technology will perform under real production conditions. There is a probability that an innovation will not meet its planned technical specifications, will prove unsuitable for specific conditions, or will require significantly more resources than expected. In the agricultural sector, these risks are particularly pronounced when using new plant varieties, automation systems, or biotechnologies, where adaptation precision to natural environments is critical (Borshch, 2020).

Financial risks occupy a central place among all risks of innovative projects, as financing is the driving force of any innovation activity. These include the possibility of losing invested funds, reduced expected profits, or even the occurrence of losses. Such risks may result from internal factors (poor resource allocation, overly optimistic profit expectations) as well as external ones (market fluctuations, currency instability, inflation). In agriculture, financial risks are further complicated by seasonal production cycles, dependence on climatic conditions, and long payback periods for innovation investments. For example, investing in machinery modernization or the introduction of new agro-

technologies may fail to deliver expected results due to poor harvests or falling product prices. An additional source of financial risk is the underdevelopment of agricultural insurance mechanisms and the difficulty of accessing long-term credit capital.

Table 4.3.1

**Classification of Risks Associated with Innovation Projects
in the Agro-Industrial Complex**

| № | Type of Risk | Description / Characteristics |
|----|--------------------------|---|
| 1. | Scientific and Technical | Related to the uncertainty of the effectiveness of new technologies or their potential mismatch with production needs. |
| 2. | Financial | Include the likelihood of investment losses or reduced expected returns due to unforeseen internal or external factors. |
| 3. | Organizational | Arise from lack of qualified personnel, weak infrastructure, and poor project management and coordination. |
| 4. | Legal | Associated with changes in the regulatory environment or imperfections in contractual relationships. |
| 5. | Environmental | Caused by the potential negative impact of new technologies on the environment, leading to reputational or legal risks. |

Legal risks encompass all possible legal obstacles that may affect the implementation of an innovation project. These include changes in legislation, the introduction of new standards or regulations that complicate or prevent the use of specific technologies, and risks related to poorly developed contractual relations between project participants. For the agro-industrial complex, particular threats include sudden changes in land laws, fertilizer and pesticide use regulations, and genetically modified organism (GMO) oversight. Such restrictions can halt the implementation of ongoing innovations or significantly increase their costs.

For example, the use of new fertilizers or plant protection products, or the introduction of biotechnologies and GMOs, may provoke negative reactions from society or environmental organizations. This creates reputational risks for enterprises and, in some cases, legal consequences. Moreover, a poorly calculated environmental impact may have catastrophic consequences for regional ecosystems and, consequently, for agricultural production itself. Therefore, classifying risks in innovative agricultural projects (Borshch, 2020) not only helps to identify vulnerable areas in the innovation process but also to develop appropriate countermeasures. This, in turn, enhances enterprise resilience to uncertainty, improves financial results, and provides a foundation for sustainable innovation development.

Financial risks in the agro-industrial sector have a specific nature that distinguishes them from similar risks in industry or services. They arise under the influence of a combination of external and internal factors, most of which are of an objective nature and

cannot be directly regulated by the enterprise. The main feature is the close interconnection between the financial results of agricultural enterprises and biological and natural-climatic conditions, which serve as the basis for the production process.

Another significant source of financial risks is natural conditions, which have a decisive impact on the productivity of agricultural production. Agriculture is one of the few industries that is highly dependent on factors that are beyond the control of the producer. Adverse weather conditions, such as droughts, frosts, heavy rainfall, hail, and storms, can lead to a significant reduction in crop yields or, in some cases, complete crop failure.

Financial risks are also exacerbated by limited access to credit resources. A significant number of agricultural enterprises do not have sufficient credit histories or do not meet the requirements of banks for collateral, which significantly narrows the pool of potential financing sources. Moreover, innovative projects are often considered high-risk by banks, especially if they have long implementation periods or involve the introduction of poorly researched technologies. This leads to high interest rates or outright rejection of credit applications. The presence of credit restrictions limits the ability to finance innovations externally, forcing enterprises to rely solely on internal resources, which in most cases are insufficient.

Thus, financial risks in the agro-industrial complex have specific manifestations related to the seasonality of production, the influence of natural factors, price volatility, difficulties in accessing borrowed capital, and inflationary processes. Their peculiarity is that they not only accompany the operational activities of agricultural enterprises but also directly affect the possibilities of implementing innovations, scaling innovations, and long-term strategic planning. Taking these risks into account is critical for forming an effective financial management and risk management system in the agro-industrial complex.

Innovative activity in the agro-industrial complex, like any other form of entrepreneurship, operates in conditions of uncertainty. However, the agricultural sector is the most sensitive to the impact of external and internal risks, which significantly affect the financial results of innovative projects. Financial risks are the main barrier to the implementation of innovations and directly affect all stages of the innovation process – from planning and attracting resources to implementation and commercialization of results (Table 4.3.2).

The most common mechanism of financial risk impact is limited access to capital. Due to the high probability of failure or unstable profitability of innovative solutions in agriculture, investors often refuse to finance such projects or impose stringent financing conditions. A reduction in access to investment resources leads to insufficient financing for innovations, delays in their implementation, or complete abandonment of initiatives. Banks, in turn, are cautious about lending to agricultural enterprises, reducing the possibility of attracting external funds.

Another significant channel of impact is the increase in financing costs due to the higher risk of project implementation. The high degree of uncertainty forces creditors to

set higher interest rates, making financing expensive and less accessible. This, in turn, leads to increased production costs for innovative products, reduced competitiveness of enterprises, and worsened economic outcomes of projects (Zos-Kior M.V. 2022).

Table 4.3.2

**Mechanisms of Financial Risk Impact on Innovation Activities
in the Agribusiness Sector**

| No. | Mechanism of Impact | Essence | Consequences |
|-----|---------------------------------|---|---|
| 1. | Reduced access to capital | High risk level decreases investor and bank interest in financing | Resource shortage for implementing innovation projects |
| 2. | Increased cost of financing | High interest rates due to riskiness | Increased costs, reduced profitability, higher cost of innovation |
| 3. | Decreased management efficiency | Inability to make long-term strategic decisions in uncertain conditions | Misalignment of investment policy, planning losses |
| 4. | Loss of competitive advantages | Lack of access to innovations, lagging behind market leaders | Reduced market share, falling profitability, reputational losses |

To mitigate the negative impact of risks, it is necessary to implement a systematic risk management approach that includes both risk identification and assessment as well as measures for their minimization. Thus, innovation activities in the agribusiness sector are a key factor in improving production efficiency, competitiveness, and environmental sustainability in agriculture.

An analysis of the classification of risks identifies five main types: scientific and technical, financial, organizational, legal, and environmental. A comprehensive understanding of the mechanisms of risk impact on the results of innovation activities forms the basis for developing effective management tools, among which insurance, diversification of funding sources, government support, and the establishment of an internal risk management system deserve particular attention.

Financial risks in innovative agricultural projects arise due to uncertainty in market conditions, fluctuations in raw material prices, changes in legislation, technological failures, and other factors. To assess these risks, both qualitative (expert assessments, SWOT analysis, PEST analysis) and quantitative methods (probabilistic models, Monte Carlo method, sensitivity analysis, Value at Risk) are used. The assessment of financial risks in innovative agricultural projects involves the use of both qualitative and quantitative methods, each of which has its own advantages and specific applications.

Expert assessments – a method that involves engaging specialists from various fields (economists, agronomists, financiers) to identify and analyze potential risks. Experts evaluate the likelihood of risk events and their potential impact on the project based on their knowledge and experience. The Delphi method is a more structured form of expert evaluation. It involves multiple rounds of anonymous surveys of a group of experts with subsequent generalization of the results.

Causal analysis focuses on identifying key factors that may lead to financial losses. This method involves building cause-and-effect diagrams (such as Ishikawa diagrams), which help visualize the interrelation between various risk factors.

Quantitative methods allow for the assessment of risks in numerical terms, enabling more accurate forecasting of potential losses and informed decision-making. The main quantitative methods include:

Probabilistic models, which encompass probability analysis and decision tree modeling. Probability analysis evaluates the likelihood of risk events and their potential impact on financial results. Decision trees provide a visual representation of different development scenarios and allow for the estimation of expected outcomes for each. These methods are particularly useful in assessing risks associated with market price volatility or changes in demand for agricultural products.

The Monte Carlo method is a powerful simulation tool. It involves performing numerous iterations with varying combinations of input parameters (such as product prices, production volumes, costs) to generate a distribution of possible outcomes. This method not only allows for the assessment of expected financial indicators but also determines the probability of achieving specific results. In agricultural projects, it is especially useful for evaluating the impact of yield variability or price changes on final financial performance.

Sensitivity analysis helps determine how project outcomes are affected by changes in individual parameters. This method involves the sequential variation of each key factor (such as grain prices, fuel costs, yield levels) while keeping other conditions constant, and analyzing the impact of these changes on the project's profitability. The results of sensitivity analysis help identify the most critical risk factors and focus management efforts on these parameters.

The combined use of qualitative and quantitative methods allows for a comprehensive risk assessment of innovative agricultural projects. Qualitative methods make it possible to identify a wide range of potential risks, while quantitative methods assess their financial impact in numerical terms.

Technological factors may include the implementation of cutting-edge technologies such as precision agriculture, which increases resource efficiency, reduces fertilizer and pesticide costs, and boosts crop yields.

Scenario modeling involves creating several possible development scenarios, allowing businesses to account for different changes in the environment and choose the most optimal strategies. An optimistic scenario assumes high product prices and favorable weather conditions, leading to high profits and stable development. A pessimistic scenario takes into account declining product demand due to economic issues or worsening climatic conditions, such as drought, resulting in significant losses. A realistic scenario assumes a stable market with average yields and moderate product prices, ensuring steady but not excessively high profits.

These analytical tools allow not only the assessment of the current state of an enterprise in the agro-industrial complex but also the development of strategies based on various development scenarios. The use of such methods makes it possible to make well-informed decisions and adapt to changing environmental conditions.

Among the key tools for quantitative risk assessment in investment and financial decision-making is the Value at Risk (VaR) method. Widely used in banking and asset management, VaR is increasingly relevant for evaluating risks in innovative agricultural projects. It estimates the maximum potential financial loss over a given period at a specified confidence level (typically 95% or 99%), helping businesses quantify possible losses and make informed decisions.

Common methods for calculating VaR include historical simulation, variance-covariance, and Monte Carlo simulation. Historical simulation uses past data without distributional assumptions but depends heavily on the relevance of historical trends. The variance-covariance method offers fast calculations under the assumption of normal distribution, though it may be inaccurate when returns deviate from normality, common in agriculture. Monte Carlo simulation, although resource-intensive, models complex, non-linear relationships, making it ideal for the high uncertainty of agricultural markets.

In the agro-industrial complex, VaR helps forecast financial losses from price volatility, weather fluctuations, and production risks, providing a clear metric for developing effective risk mitigation strategies.

In conclusion, the Value at Risk method is a critical component of modern risk management in the agro-industrial sector. Its use enhances the ability of enterprises to quantify financial exposure, prioritize risks, and implement appropriate mitigation strategies. For innovative agricultural projects, which operate under conditions of elevated uncertainty, VaR provides a solid foundation for decision-making and long-term sustainability.

In assessing the financial risks of innovative projects in the agro-industrial complex, it is crucial to evaluate both the probability of risk occurrence and its potential impact on the project (Author's development based on Borshch, 2020). The matrix presented below provides a structured approach to classify and prioritize these risks based on these two dimensions (Fig. 4.3.1). This matrix highlights how risks such as price risk, liquidity risk, inflation risk, and credit risk vary in terms of their likelihood of occurrence and the severity of their consequences on the project. By categorizing risks into low/high probability and low/high impact quadrants, the matrix helps to identify which risks require immediate attention and strategic mitigation efforts.

| | | | |
|-------------|------|----------------|----------------|
| Probability | Low | Price risk | Liquidity risk |
| | High | Inflation risk | Credit risk |
| | | High | Low |

Fig. 4.3.1. Matrix of Financial Risks in Innovation Projects of the Agro-Industrial Complex

The matrix of financial risks in innovative projects of the agro-industrial complex (AIC) illustrates the relationship between the probability of occurrence of different financial risks and their impact on the project. It is divided into two main axes: probability (low/high) and impact (low/high).

Low probability / Low impact:

This quadrant includes risks that have a low probability of occurring and a minimal impact on the project. These may be less significant financial risks that are unlikely to lead to major losses.

Low probability / High impact:

Risks that are unlikely to occur but can have a significant impact on the financial outcomes of the project. For example, this could be price instability of key raw materials or sudden legislative changes.

High probability / Low impact:

These are risks that are likely to occur, but their impact on the project will be minimal. For example, constant fluctuations in the price of some agricultural goods or energy costs, which have little effect on the overall financial performance.

High probability / High impact:

These are the most critical risks, which have both a high probability of occurrence and a significant impact on the project. Examples include inflation, credit risk, or liquidity risk, which can significantly affect the financial outcomes of the project.

The matrix provides a visual way to assess and classify risks based on their probability and potential impact, enabling better risk management and optimization of risk management strategies in innovative agro-industrial projects.

The agricultural sector, especially under conditions of innovative changes, is exposed to significant financial risks. The lack of market stability, the impact of climatic factors, price fluctuations of raw materials, and other external factors can significantly affect the economic stability of agricultural enterprises. Therefore, an important task is to search for and apply effective tools to minimize financial risks. Among these tools, key roles are played by the diversification of funding sources, risk insurance, the role of agricultural credit unions, leasing and factoring, as well as the use of digital platforms and financial technologies.

The agricultural sector is one of the key elements of the economy in many countries, including Ukraine. However, it is also highly vulnerable to financial risks that can significantly impact the economic stability and development of businesses in this sector. This is due to several factors, including market instability, changes in climatic conditions, fluctuations in the prices of raw materials and products, as well as dependence on external financial conditions.

Innovative changes in the agricultural sector can help reduce some of these risks, but they can also lead to new challenges that require constant monitoring and the application of effective tools to mitigate financial losses. Since financial risks can have a significant impact on the profitability of agricultural enterprises, their ability to adapt and stability in the market, it is important to develop and implement strategies to reduce their likelihood and consequences.

One of the main tools to reduce financial risks is the diversification of funding sources. This means attracting financial resources from various sources, which minimizes dependence on a single funding source and thus reduces risks associated with fluctuations in interest rates, credit conditions, or reduced availability of funding. Diversification can include using equity capital, attracting investments from venture companies, obtaining loans from banks and international financial organizations, as well as using various financial instruments such as bonds and other securities. This allows businesses to have more opportunities for funding their investment projects and reduces the likelihood of financial difficulties in the event of market changes (Kashchena and Chmil, 2022).

Another important tool is risk insurance, which allows agricultural enterprises to protect themselves from the negative consequences of unforeseen events. For example, crop insurance helps cover losses caused by adverse weather conditions (droughts, frosts, floods), which can severely affect crop yields and, accordingly, the financial condition of the enterprise. In addition, insurance for machinery, compensation for losses due to natural disasters, or increases in raw material prices allows businesses to ensure income stability and reduce unforeseen expenses.

The development of agricultural credit unions is another effective tool for minimizing financial risks. Agricultural credit unions provide loans to their members on more favorable terms than traditional banks, particularly in the form of loans with low interest rates. These unions also allow farmers to obtain the necessary funds for business development during periods of economic instability, as well as to form resources for investing in new innovative projects.

Instruments such as leasing and factoring are also important for reducing financial risks in the agricultural sector. Leasing allows enterprises to use equipment or machinery without the need for significant capital investments, which reduces initial costs and allows for quicker adaptation to market changes. Factoring enables agricultural businesses to improve liquidity by receiving financing based on their accounts receivable. This helps avoid cash flow deficits during periods when there are significant debts but payments from buyers have not yet arrived.

Modern digital platforms and financial technologies play an increasingly important role in reducing financial risks. The use of digital tools for risk monitoring, forecasting climate changes, analyzing market conditions, and product prices allows agricultural enterprises to respond quickly to occurring changes and adapt their strategies to new realities. At the same time, blockchain technology and big data allow ensuring the transparency of transactions and reducing the risk of fraud, which is an important aspect of increasing trust between agricultural businesses and their counterparties.

Thus, the increasing complexity of financial risks in the agricultural sector due to innovative changes and external factors requires the use of various tools to mitigate these risks. Diversification of financing, insurance, the development of credit unions, leasing and factoring, as well as the implementation of digital technologies help businesses adapt to market changes, maintain financial stability, and ensure long-term sustainability in a competitive environment.

Diversification is one of the key mechanisms for reducing financial risks and ensuring stable development in the agricultural sector, especially in the context of rapid changes and innovations. For agribusinesses, diversification of funding sources is a critical component of their strategy, allowing them to reduce reliance on a single source of funds and ensuring greater financial stability and flexibility in response to external and internal challenges. Let's explore the main directions of funding diversification that help mitigate risks for agribusinesses.

1. Attracting Own Capital.

One of the most reliable ways of financing is using the company's own financial resources or funds obtained from shareholders or business owners. This reduces the dependency on external creditors or investors, thus minimizing financial risks. However, this method requires the business to have significant financial reserves or the ability to attract investments from business owners. Since own capital does not need to be repaid, it is a stable funding source that also allows the business to maintain control over the enterprise.

2. Attracting Credit Resources.

Having access to various credit options is an important tool for financing diversification in agribusinesses. From traditional bank loans to loans from non-governmental organizations or government support programs, agribusinesses have the opportunity to choose the most advantageous funding conditions. However, this may also be associated with certain risks, such as changes in interest rates, repayment terms, and credit payment periods. Therefore, it is important to carefully assess the various options to select the optimal conditions for each specific case. Furthermore, using different credit sources reduces the risk of financial instability caused by changes in financial market conditions.

3. Using Venture Capital.

For innovative projects that require significant investment, attracting venture capital is a possible and promising option. Investors who are willing to invest in new agrarian initiatives often seek projects that are innovative and have a high risk, but can yield high returns in the future. This approach reduces financial risks for the enterprise as investors share part of the risk while also receiving a stake in the business. However, this option requires a clear strategy for investment return and business development. Investors expect a high profit, so long-term development plans need to be carefully developed.

4. Attracting Grants and Subsidies.

Another important funding source for agribusinesses can be grants and subsidies from government and international organizations. This is especially important for businesses engaged in innovation implementation or infrastructure modernization, as the costs for these processes can be substantial. Grants and subsidies help reduce financial strain during periods of high expenditure on innovations or other projects. They enable agribusinesses to implement new initiatives without incurring a large financial burden.

5. Bond Loans.

Large agribusinesses can also use bond loans as a means of attracting additional funds. Bond financing allows businesses to raise significant amounts of money without having to sell ownership shares or attract external investors. Bonds have several

advantages, including fixed interest rates and repayment terms, which help businesses plan their financial expenses better. However, this method requires a strong credit reputation and the ability to service debt obligations.

Advantages and Importance of Diversification for Risk Reduction.

Diversifying funding sources allows agribusinesses to reduce their reliance on a single funding source, which, in turn, reduces the risks associated with changes in financial market conditions, increasing interest rates, or financial instability. Such financing helps ensure business stability in times of economic turbulence and market fluctuations, while also allowing agribusinesses to quickly adapt to new conditions and requirements. Moreover, diversification can help reduce the risk of liquidity shortages, which often arise due to delays in revenue from the sale of agricultural products or other financial difficulties.

Overall, diversification of funding sources is a necessary tool for agribusinesses that aim for sustainable development and financial risk minimization. It not only ensures financial stability during difficult times but also provides opportunities for investment in innovative projects, which are key to the future development of the agribusiness sector.

Insurance is a crucial financial instrument for mitigating risks associated with natural disasters, unexpected market changes, technological failures, and other hazards. In the agricultural sector, where businesses are highly vulnerable to external shocks, various forms of insurance play a vital role in ensuring financial stability and risk management. The implementation of insurance schemes in agriculture helps businesses to protect their assets and operations from unforeseen events and uncertainties, allowing them to continue functioning even in adverse conditions.

One of the primary types of insurance in the agricultural sector is crop insurance, which serves as an essential tool for farmers to protect their harvests from damage caused by unpredictable weather conditions such as droughts, frosts, floods, and other climatic anomalies. Given the increasing unpredictability of weather patterns due to climate change, crop insurance has become a necessary safeguard for ensuring the financial viability of agricultural enterprises. In many cases, crop insurance offers compensation for losses that could otherwise lead to severe financial distress for farmers, especially in the event of a poor harvest. This type of insurance provides a safety net for businesses, allowing them to recover from crop failures and continue operating in the following seasons without incurring overwhelming financial losses.

Another important type of insurance is insurance for agricultural machinery and equipment. Modern farming operations are heavily dependent on machinery for planting, cultivating, and harvesting crops. However, the risk of equipment breakdown, malfunction, or accidents is ever-present, and such occurrences can disrupt the farming process and incur significant repair or replacement costs. Machinery insurance helps farmers manage these financial risks by covering the costs of repair or replacement in the event of mechanical failure, accidents, or other unforeseen incidents. This form of insurance is particularly important in the context of large-scale agricultural enterprises, where the efficiency of machinery directly impacts overall productivity and profitability.

Insurance against financial risks is another critical component of the risk management strategy for agricultural businesses. This type of insurance is designed to cover financial losses arising from a variety of factors, including fluctuations in commodity prices, reduced demand for agricultural products, or unexpected changes in the market. The agricultural market is notoriously volatile, with prices for crops and livestock subject to frequent changes due to shifts in global supply and demand, government policies, and economic conditions. Financial risk insurance can provide farmers with compensation in the form of income protection, helping them maintain cash flow and financial stability in the face of market downturns or adverse price changes. This form of insurance can also extend to covering risks related to the loss of contracts or customers, which are particularly relevant for agribusinesses involved in the supply chain.

In addition to these more traditional forms of insurance, natural disaster insurance is becoming increasingly important due to the rising frequency and intensity of extreme weather events. Climate change has led to more frequent and severe natural disasters, such as floods, hurricanes, and droughts, which pose a significant threat to agricultural operations. Natural disaster insurance helps to safeguard physical assets, such as farm buildings, infrastructure, and crops, from the devastating effects of these events. It ensures that businesses are not left financially vulnerable in the aftermath of catastrophic events and can receive compensation to cover the costs of rebuilding or restoring their operations.

Beyond the direct protection of assets, insurance in the agricultural sector plays an essential role in enabling businesses to plan and invest with greater confidence. The certainty that insurance provides allows agribusinesses to focus on long-term goals, including innovation, expansion, and modernization, without the constant fear of financial ruin due to unforeseen events. Moreover, insurance mechanisms can contribute to improving the overall stability of the agricultural economy, as they help farmers and agribusinesses avoid bankruptcy or excessive debt in the face of natural or market-related shocks.

In summary, insurance is a critical risk management tool for agricultural enterprises, providing a means to mitigate the financial impact of unforeseen events. Whether through crop insurance, machinery coverage, or protection against market fluctuations, insurance offers farmers and agribusinesses a safety net that helps ensure their continued operation despite the inherent risks of the agricultural sector. Given the increasing volatility of global markets and the impact of climate change, the role of insurance in the agricultural sector will only grow in importance. It is therefore essential for agricultural businesses to adopt comprehensive insurance strategies to safeguard their operations, enhance financial stability, and promote long-term sustainable growth.

The agricultural sector is an important component of the economy in many countries, and its effective development requires proper financing, which will provide access to modern technologies, improve production processes, and increase output. In conditions of economic instability, high interest rates, and limited access to traditional bank loans, alternative financial instruments such as agricultural credit unions, leasing, and factoring are gaining increasing popularity. Agricultural credit unions are an important tool for

financing small and medium-sized agricultural enterprises as they provide access to cheaper credit resources compared to commercial banks. Due to the democratic membership conditions and lower interest rates, credit unions help agricultural enterprises receive financing on favorable terms, which is especially important for small businesses that may not always be able to provide high creditworthiness for traditional banks. A classic example is the Raiffeisen model, which demonstrates the effectiveness of credit unions in financing the agricultural sector, allowing farmers not only to reduce loan costs but also to reduce dependence on large commercial banks that are often not interested in working with small businesses due to high risks (Zos-Kior M.V. (2022).

Leasing is another powerful financing tool for agricultural enterprises, especially when it comes to acquiring expensive equipment and modern machinery. Thanks to leasing services, farmers can obtain necessary innovative technologies without spending significant amounts on initial investments. This allows them to implement the latest technologies, such as drones for field monitoring or sensors for precision farming, which helps increase production efficiency and reduce costs. Moreover, in many countries, leasing is accompanied by tax incentives, making it even more attractive for farmers. These tax incentives may include the possibility of classifying leasing expenses as tax-deductible costs, reducing the tax burden on enterprises and increasing their profitability.

Factoring is another form of financing that allows agricultural enterprises to quickly obtain funds against accounts receivable. This is especially useful for grain exporters and other agricultural product sellers, as it allows them to obtain financing before the actual settlement by their customers. In cases where agricultural producers often face liquidity problems due to the long period between product sale and receipt of payment, factoring becomes an effective tool for covering temporary financial needs. It enables enterprises to maintain cash flow without waiting for the completion of the sales and payment cycle.

Poland is one of the prominent examples of leasing being used for the implementation of precision farming technologies. The country actively develops leasing financing programs for farmers, allowing them to acquire modern equipment without making a large upfront payment. Already at the first stage, farmers started using drones, sensors, and other technologies for collecting data and analyzing soil conditions, which helped increase yields and reduce costs for fertilizers and water supply. The governments of Poland and the EU actively support such initiatives by providing additional financial and tax incentives for farmers who adopt innovative technologies in the agricultural sector. Thanks to leasing agreements, Polish farmers were able to quickly update their machinery fleet, including the use of unmanned aerial vehicles for monitoring and processing large land areas, which contributed to increased productivity and sustainable agricultural development (Shubravska, 2021).

Agricultural credit unions, leasing, and factoring provide agricultural enterprises with the necessary financial tools for development and modernization (Table 4.3.3). Credit unions help small businesses reduce financial burdens and reduce dependence on traditional banks, leasing provides access to the latest technologies without significant capital investment, and factoring allows farmers to effectively manage cash flows.

Successful cases, such as leasing for the implementation of precision farming technologies in Poland, demonstrate the potential of these instruments for increasing the efficiency of agricultural enterprises and the development of the agricultural sector as a whole (Popelo and Lopashchuk, 2024).

Table 4.3.3

Purpose and Benefits of Financial Instruments

| Financial Instrument | Purpose | Benefits | Example |
|----------------------------|--|---|---|
| Agricultural Credit Unions | Financing for small and medium enterprises | Lower interest rates, less reliance on commercial banks | Raiffeisen model – lower loan costs and reduced dependence on large banks |
| Leasing | Acquiring modern equipment and technology | No large upfront investment, access to new technologies, tax incentives | Use of drones and sensors for precision farming in Poland, equipment leasing programs |
| Factoring | Financing through accounts receivable | Fast financing, improves cash flow, reduces liquidity issues | Grain exporters using factoring to get funds before receiving payments from buyers |

Agricultural Credit Unions are an effective financing tool for small and medium-sized enterprises as they allow for lower interest rates and reduce dependence on large commercial banks. An example of this is the Raiffeisen model, which helps reduce loan costs and reliance on major banks.

Leasing provides agricultural enterprises with access to modern equipment and technologies without the need for significant upfront investments. This allows for the efficient use of innovations such as drones and sensors for precision farming, as well as tax incentives. An example of this is the implementation of leasing programs for farmers in Poland, which allows them to quickly update their equipment and increase productivity.

Factoring is a fast financing method through accounts receivable, which improves cash flow and resolves liquidity issues. It is particularly useful for exporters of grain and other agricultural products, as they can receive funds before actual payments are made by buyers. The use of these financial instruments enables agricultural enterprises to optimize costs, increase production efficiency, and ensure the sustainable development of the agricultural sector.

Modern technologies are transforming the agricultural sector, enabling farmers to more effectively manage risks, optimize productivity, and improve sustainability. One of the key areas where technology is playing a significant role is in risk prediction and reduction. The adoption of digital platforms and FinTech solutions has become increasingly prevalent, offering a variety of tools to enhance decision-making processes, monitor agricultural activities, and optimize financial management.

Platforms such as Climate FieldView and OneSoil are pivotal in monitoring crop yields and weather conditions, offering farmers valuable insights into their operations.

These platforms collect vast amounts of environmental and crop data, which are then analyzed to forecast yield patterns, monitor crop health, and optimize inputs like water, fertilizer, and pesticides. By using these platforms, farmers can make more informed decisions about when to plant, irrigate, and harvest, significantly improving crop productivity and reducing resource waste.

In addition, these platforms assist in managing risks related to unpredictable weather conditions, such as droughts, heavy rainfall, or temperature extremes, which are becoming more frequent due to climate change. By providing real-time weather forecasts and historical data, these technologies help farmers anticipate adverse conditions and take preventive measures to protect their crops.

Another critical application of technology in agriculture is the use of Artificial Intelligence (AI) for predicting commodity prices. Gro Intelligence is an AI-powered platform that uses vast datasets to predict trends in commodity prices, including agricultural products. By analyzing historical data and global trends, Gro Intelligence can forecast future price movements, helping farmers make better-informed decisions about when to sell their products. These predictive models provide farmers with an advantage in the market, allowing them to time their sales to maximize profits and mitigate the risks associated with price volatility.

Blockchain technology offers a revolutionary solution for improving transparency and reducing risks in agricultural supply chains. By providing a secure, immutable record of transactions, blockchain ensures that every step of the supply chain can be traced, from farm to consumer. This traceability is particularly important for reducing the risk of counterfeit products entering the market, which is a significant concern for high-value agricultural products like organic produce, pharmaceuticals, and certain crops. With blockchain, consumers and suppliers can verify the authenticity of products, ensuring that they meet quality standards and were produced in a sustainable and ethical manner.

Moreover, blockchain enhances trust between producers, processors, and consumers by ensuring that all parties involved in the supply chain have access to the same transparent information. This reduces the possibility of fraud and errors, improving the overall efficiency and integrity of agricultural trade.

The rise of FinTech has also had a profound impact on agricultural finance. The information in Table 4.3.4 is sourced from (Shubravska, 2021; Yevtushenko, 2023). One of the key FinTech innovations is online insurance. Platforms like WeFarmUp provide farmers with the opportunity to purchase insurance for their crops, livestock, and machinery directly online. These platforms simplify the insurance process, making it more accessible to small farmers who may not have access to traditional insurance providers due to geographical or financial barriers. By using data-driven models, these platforms offer more personalized and affordable insurance products, improving risk management in agriculture.

Additionally, P2P (peer-to-peer) lending has gained traction as a solution for providing financing to small farmers who may not qualify for traditional bank loans. P2P platforms connect farmers with individual investors who are willing to lend money at

competitive interest rates. These platforms reduce the reliance on banks, making financing more accessible to farmers in rural areas, where access to credit is often limited. With the help of P2P lending, farmers can secure funding for purchasing equipment, expanding operations, or covering operational costs during periods of low cash flow.

Table 4.3.4

Comparison of FinTech Solutions for Agricultural Sector

| FinTech Solution | Description | Advantages | Challenges | Platform Examples |
|-----------------------------|--|---|--|--------------------------------------|
| Agri-Crowdfunding | Platforms connecting agricultural projects with small investors | <ul style="list-style-type: none"> - Non-bank financing access - Lower interest rates - Supports local initiatives | <ul style="list-style-type: none"> - Limited funding capacity - Default risk | Crowdfarming (Spain), AgFund er (US) |
| P2P Lending | Direct online loans between investors and borrowers | <ul style="list-style-type: none"> - Fast funding access - Flexible terms - Competitive rates | <ul style="list-style-type: none"> - High investor risk - Loan amount limitations | Kiva, LendingClub |
| Digital Insurance Platforms | AI-powered crop/equipment insurance using IoT and satellite data | <ul style="list-style-type: none"> - Automated claims - Transparent policies - Accessibility | <ul style="list-style-type: none"> - Limited risk coverage - Data quality dependency | WeFarmUp, CropIn |
| Blockchain Platforms | Supply chain transparency and smart contract payments | <ul style="list-style-type: none"> - Fraud reduction - Automated settlements | <ul style="list-style-type: none"> - High implementation cost - Technical expertise required | AgriDigital, IBM Food Trust |
| AI Market Analytics | Price forecasting and market intelligence for agricultural commodities | <ul style="list-style-type: none"> - Accurate predictions - Sales optimization | <ul style="list-style-type: none"> - Requires quality input data - Potentially expensive subscriptions | Gro Intelligence, FarmLogs |
| Mobile Payment Systems | Digital wallets and money transfer apps | <ul style="list-style-type: none"> - Instant transactions - Rural accessibility | <ul style="list-style-type: none"> - Transaction limits - Potential service outages | M-Pesa (Africa), AgroPay |

In Germany, the Internet of Things (IoT) is being utilized to create smarter crop insurance models based on real-time data. IoT sensors are deployed in fields to monitor soil moisture, temperature, and other critical factors affecting crop health. This data is

transmitted to insurance providers, who can use it to assess the condition of crops more accurately and adjust premiums or payouts based on real-time conditions rather than relying on traditional, often outdated, methods of assessment. This technology allows for more tailored insurance products, where farmers are insured based on actual data, reducing the likelihood of over or under-insurance. The use of IoT sensors provides a more transparent, efficient, and fair insurance system, benefiting both farmers and insurers by aligning the risk with real-time environmental conditions.

In conclusion, the integration of digital platforms and FinTech solutions into agriculture has significantly transformed the way farmers manage risks, optimize resources, and make financial decisions.

From weather forecasting and AI-powered price predictions to blockchain and IoT-driven insurance models, these technologies provide farmers with the tools they need to enhance productivity, reduce uncertainty, and improve sustainability in agriculture. As technology continues to advance, it is expected that digital platforms and FinTech will play an even more significant role in shaping the future of the agricultural sector (Donets, 2006).

Modern financial technologies offer innovative tools to mitigate risks in agricultural production and improve financial stability for farmers. The following table compares key FinTech solutions available to agribusinesses, highlighting their benefits, limitations, and practical applications. These digital tools help address challenges such as funding access, price volatility, and supply chain transparency, making them essential for competitive and sustainable farm management in the 21st century.

FinTech solutions offer significant advantages for agriculture, improving financial access, transparency, and risk management. Agri-Crowdfunding and P2P Lending provide alternative financing options, with lower interest rates and faster funding, though they face challenges like limited funding capacity and high investor risk. Digital Insurance Platforms leverage AI and IoT to offer automated claims and transparency, while Blockchain Platforms ensure supply chain transparency and reduce fraud. However, the high implementation costs and technical expertise required can limit their adoption.

AI Market Analytics and Mobile Payment Systems optimize sales strategies and offer instant transactions, respectively, but depend on quality data and may face service limitations. Overall, these digital tools are essential for modern farm management, addressing issues such as funding access, price volatility, and supply chain efficiency. However, careful consideration of challenges such as cost, data quality, and risk management is crucial for their effective implementation.

The agro-industrial complex (AIC) plays a critical role in the global economy, producing essential food and raw materials. However, the sector faces a wide range of financial risks due to factors such as climate change, fluctuating market prices, technological changes, regulatory shifts, and financial instability. As innovation plays an increasingly central role in improving productivity and sustainability within the AIC, new types of risks emerge. These risks, stemming from the adoption of new technologies, new business models, and changes in regulatory landscapes, require comprehensive risk

management strategies to ensure the sector's stability and growth. This study outlines the key perspectives and recommendations for improving risk management in the context of innovation within the AIC, emphasizing the need for adaptive, data-driven, and forward-looking risk management approaches.

1. Understanding the Key Financial Risks in Innovative Activities. The introduction of innovative technologies, such as precision farming, AI, blockchain, and Internet of Things (IoT) solutions, carries both significant opportunities and inherent financial risks. The key financial risks that arise due to innovation in the AIC include:

The volatility of prices for agricultural products is a key concern, with risks intensifying due to unpredictable weather patterns, geopolitical instability, and changing consumer preferences. For instance, the introduction of new farming technologies might result in an oversupply of products or a shift in the demand for certain goods, making it difficult to predict market behavior.

The integration of new technologies into farming and processing operations can result in unforeseen disruptions. This includes the risk of technical failures, the need for employee retraining, and the challenge of managing the complex interactions between traditional and modern farming practices.

Many innovative technologies in the agro-industrial sector require substantial upfront investments. However, farmers and agribusinesses often face difficulty accessing the necessary funding due to high capital requirements, poor credit history, or a lack of access to traditional financing channels.

As governments introduce new regulations to support the adoption of green technologies or enhance food safety standards, companies in the agro-industrial sector may face new compliance costs or penalties for non-compliance, which can disrupt cash flows and increase operational costs.

Although innovation in agriculture promises significant returns, the adoption of new technologies is not always straightforward. Issues such as the compatibility of new systems with existing infrastructure, high costs of initial implementation, and potential obsolescence of technology pose significant financial risks.

2. Recommendations for Improving Risk Management in the Agro-Industrial Complex. Given the complexity of risks associated with innovative activities, a multi-faceted approach is needed to effectively manage financial risks in the AIC. The following recommendations are crucial for improving risk management:

a) Establishing a Risk Assessment Framework

A comprehensive risk assessment framework tailored to the needs of the agro-industrial complex is essential for identifying and evaluating financial risks. This framework should include both qualitative and quantitative methods of risk assessment, integrating data from various sources, including weather patterns, market trends, and technological developments. It is also essential to prioritize risks based on their potential impact on the business, with particular attention to those that can significantly disrupt financial stability.

The establishment of a centralized data platform to collect and analyze real-time data on weather, market trends, and supply chains would greatly enhance the ability to identify emerging risks and predict market behavior more accurately.

b) Risk Diversification. To mitigate financial risks, it is essential for agro-industrial businesses to diversify their activities. This includes diversification across crops, markets, and geographies, as well as diversification into value-added products or services. Diversification spreads the risk across multiple areas, reducing the dependence on a single product or market.

Agro-industrial businesses should invest in research and development (R&D) to identify alternative crop varieties, as well as new business models and markets. Engaging in value-added processing, such as packaging or organic certification, could also reduce exposure to price fluctuations of raw agricultural products.

c) Leveraging Financial Instruments for Risk Management.

The AIC can benefit from various financial instruments designed to mitigate risk. These instruments include crop insurance, futures contracts, and options, which provide financial protection against price volatility and crop failures. Additionally, the use of Agricultural Credit Unions and P2P lending platforms can offer better access to financing at more competitive rates than traditional banks, reducing liquidity risks. Agro-industrial businesses should actively engage with insurance providers to develop tailored risk coverage plans.

d) Adoption of Technology to Monitor and Predict Risks.

The integration of digital technologies, including IoT devices, AI, and blockchain, can provide real-time data on farming conditions, supply chain dynamics, and market prices. This enables more informed decision-making and risk management by identifying potential threats early on. For instance, IoT sensors can provide data on soil moisture and crop health, while blockchain can enhance transparency in supply chains, reducing the risk of fraud and operational inefficiencies. Agro-industrial enterprises should invest in precision farming technologies and data analytics platforms that can predict risks and optimize decision-making processes. For instance, using AI-powered price forecasting tools and IoT-enabled soil and crop monitoring systems can greatly reduce market and operational risks.

e) Building Resilience through Sustainability Practices. In the long term, sustainable farming practices can reduce exposure to environmental risks, such as climate change and resource depletion. Practices such as soil health management, water conservation, and agroecological farming not only improve environmental sustainability but can also reduce costs associated with resource use and increase crop yields, enhancing financial stability.

Governments and businesses should work together to promote sustainable farming through incentives, subsidies, and policies that support eco-friendly practices. Furthermore, adopting regenerative agricultural practices can help businesses future-proof their operations against climate-related risks.

f) Strengthening Financial Literacy and Risk Management Capabilities. For effective risk management, it is crucial to strengthen the financial literacy and risk management

capabilities of farmers and agribusiness owners. This includes educating them on available financial instruments, risk mitigation strategies, and emerging technologies. By improving their understanding of risk, businesses can make more informed decisions and adopt more effective mitigation strategies.

Recommendation: It is essential to establish training programs and workshops on financial literacy and risk management for farmers, particularly in rural areas. Governments, banks, and financial institutions can collaborate to provide educational resources and workshops on risk mitigation strategies and financial tools.

3. Conclusion. In conclusion, innovative activities in the agro-industrial complex bring both significant opportunities and challenges. To ensure sustainable development and financial stability, it is essential to adopt a proactive approach to risk management that incorporates comprehensive risk assessment, diversification strategies, and the use of financial instruments. Additionally, embracing technology, adopting sustainability practices, and enhancing financial literacy will help mitigate risks and position businesses for long-term success. The integration of these strategies will ultimately enable the agro-industrial sector to navigate the complexities of innovation and achieve sustainable growth in an increasingly volatile global environment.

The modern agro-industrial complex (AIC) faces numerous financial risks caused by climate change, market price fluctuations, technological innovations, and regulatory changes. Innovative activities aimed at increasing productivity and sustainable development simultaneously create new challenges, such as market instability, operational disruptions, liquidity issues, regulatory changes, and technology adaptation risks. Effective management of these risks requires a comprehensive approach that combines risk assessment tools, diversification, financial mechanisms, and digital technologies.

A key element is the development of a structured risk assessment system that integrates both qualitative (SWOT, PEST analysis) and quantitative methods (VaR, Monte Carlo). Centralized platforms for collecting data on weather, market trends, and supply chains will allow real-time risk forecasting. Diversifying production, markets, and financing (through credit unions, leasing, factoring) will reduce dependence on individual factors. Financial instruments such as crop insurance, futures, and P2P lending will ensure stability in conditions of uncertainty.

Digital technologies (IoT, AI, blockchain) play a crucial role in risk monitoring and decision optimization. For example, AI-driven price analytics and IoT soil sensors reduce operational and market risks, while blockchain enhances supply chain transparency. The implementation of sustainable practices (regenerative agriculture, efficient resource use) reduces vulnerability to climate change. Additionally, increasing financial literacy among farmers through educational programs will support informed decision-making.

Thus, achieving resilience in the AIC requires combining proactive risk management strategies, innovative technologies, and institutional support. This will minimize financial losses, ensure long-term competitiveness, and enable adaptation to global challenges.

4.4. CONTEMPORARY FEATURES OF AGRICULTURAL ECONOMICS MODELING

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Modeling is a powerful tool in agricultural economics that offers a range of benefits that help us understand and navigate the complexities of the agricultural sector. The major approach is to break down the complicated agricultural operations into manageable components that can be represented and analyzed through models of different nature. In a straightforward way modeling is the process of creating a bit simplified representation of a real-world system or concept. Nowadays the most usable form of modeling are mathematical or computer-based ones. It explains features of the described full-scale thing and allows us to make predictions about its behavior. The key missions of models are simplification, representation, analysis, understanding, and prediction. It implies that researchers intentionally leave out some excessive details to focus on the most important aspects of the object in question. By doing this, simulating is able to capture the essence without getting bogged down in secondary elements. Mathematical forms in agricultural economics make it possible to unveil relationships between prices, production costs, yields, consumer demand and so on. It could also be a computer simulation that mimics how farms might respond to different internal conditions and external factors. Model can be used as a “black box” to track how the outputs change if we modify model inputs. Such experiments and observations help us understand the key drivers of the system behind the model and how different factors interact. A main purpose of many models is to forecast what might happen in the future. So, modeling is about building a useful, but simplified version of reality, in particular for tackling the complex essence of agricultural economics. The key areas of farming in Ukraine that need urgent systematic modeling are as follows (Vasylieva et al., 2023).

1. Planning of crop production means simulating the entire cycle from deciding on what to cultivate (considering market prices, local soil conditions, and expected regional weather patterns), to sowing schedules, fertilizer and pesticide application (taking into account current legal regulations), irrigation management, harvesting logistics and machinery, labor availability, storage options (market risks and demand), and finally, selling strategies (direct to consumers, wholesalers, importers from other countries).

2. Livestock management is about modeling the processes encompassed in raising animals, such as breeding schedules, feeding regimes (optimal with regard to cost and growth), protocols of disease management, housing and pasture management (given the regional features), and the processes for selling livestock (to slaughterhouses and markets).

3. Farm machinery investment suggests simulating the decision-making process that revolves around purchasing new or used farm technical resources. This could cover modeling the expenditures and advantages of different types of machinery (tractors, combines,

planters), considering factors like fuel usage, costs of equipment repair, labor savings, and the influence on total productivity for the specific crops cultivated in the region.

4. Irrigation system optimization is dedicated to modeling specific irrigation technologies in order to determine the most efficient water usage for grown crops, taking into account water availability, energy costs, and the harvested yields under different climatic scenarios.

5. Storage and logistics are in need of simulating the diversified flows of harvested crops from the field to storage facilities, and then the logistics of transporting these goods to market (focusing on transport expenses, distances to potential clients, and infrastructure availability in the region).

6. Financial planning and risk management depend on modeling the farm's financial flows, including input costs of seeds, fertilizers, fuel, loan repayments, income from sales, and potential risks such as price fluctuations, crop failures due to the adverse weather or disease outbreaks. This might need simulating various insurance strategies or hedging techniques.

7. Agri-tourism operations are meant for farms that diversify into green tourism. Then simulating involves attracting and managing visitors, marketing efforts, advertising, booking systems, staffing, and providing the best customer experiences.

8. Processing of agricultural products are essential for farms that process their own goods (for example, manufacturing dairy products, jams, juice, dried fruit, canned vegetables). Then it is advisable to simulate the production process, including raw material inputs, packaging, quality control, and marketing of the ready-to-sale products.

9. Supply chain management modeling is aimed at the interactions between the farm and other actors in the corresponding supply chain, combining input, processing, distribution, and retailing to optimize efficiency and profitability via appropriate contracts, arrangements or logistics strategies.

10. Labor management implies simulating the hiring, training, and scheduling of farm workers, balancing labor availability in the local agriculture, seasonal peaks in demand, wage costs and workers' qualifications.

Focusing specifically on the financial and marketing sides of agricultural operations, we can consider some business processes ripe for modeling (Bryant, 2018; Cramer et al., 2011). Firstly, financial business processes combine loan acquisition and working capital management; budgeting and cash flow forecasting; investment in assets; insurance strategy optimization; government support and policy impact; financial risk assessment and so on. In particular, modeling agricultural loans with different lenders, interest rates, repayment terms and schedules can deliver reasonable assessment of the debt impact on the farm's financial condition subject to various income scenarios. Through simulating annual or seasonal budgets, tracking expenses for inputs, for example, seeds, fertilizers, fuel, laborforce, and for outputs like crop and livestock sales, we empower farmers to forecast cash flow, seasonal variations in income and expenditures so that they are able to identify potential deficits or surpluses typical for farming. The development of models of financial evaluation for future investments in purchasing new machinery, upgrading

irrigation systems or building storage facilities provides farmers with optimal payback periods and clarifies a rational financial structure. Simulating the effectiveness of different agricultural insurance options makes it possible to mitigate financial losses under various adverse events that happen in farming. The goal of modeling the management of short-term assets and liabilities would be to optimize the use of working capital to guarantee profitable operations and prevent financial liquidity issues. Modeling available agricultural subsidies might have a positive effect on farm's viability and sustainability. Models which calculate the farm's vulnerability to various financial risks, mostly caused by price fluctuations, could be based on stress testing as well as scenario analysis.

Secondly, marketing business processes are in need of modeling the market channel selection; optimization of pricing strategies; sales and distribution logistics; market analysis; contract negotiation and many others. Namely, modeling farmers' decision-making processes for choosing the most profitable marketing channels could cover several vectors of sales online or directly to consumers at local markets as well as to wholesalers and processors. When researching export opportunities, the model might consider market access, prices, and transportation costs. Simulating different pricing strategies for the farm's products means defining production costs, market demand, competitor pricing, sales volume and overall revenue. Models of product distribution take into account order fulfillment, transportation arrangements, available storage, and manage relationships with buyers. Simulating the process of collecting and processing market data supports production and marketing decisions dependent on price trends, consumer preferences, and competitor activities. Branding efforts and promotional activities need models for developing customer relationships and implementing marketing strategy. Simulating the financial viability of processing raw products into higher-value goods and marketing these value-added products to consumers or businesses is also one of major avenues of modeling in agricultural economics. At last, negotiation models can secure favorable prices and terms for the farm products.

By modeling these financial and marketing business processes, farmers and agricultural economists in the Dnipro region can gain valuable insights into how to optimize their operations, manage risks, and improve profitability in a dynamic and often challenging agricultural environment.

Agricultural economics modeling of have to address numerous intrinsic and external challenges explored in fundamental studies like (Carpentier et al., 2015; Naik, 2008) Overall they can be generalized as shown in Fig. 4.4.1. Indeed, agriculture deeply intertwined with biological systems, weather patterns, and volatile commodity markets. Climate, pests, diseases directly impact production leading to the essential variability and uncertainty driven by nature itself. Unlike other sectors of economics where people can tightly control outputs, farming is heavily dependent on factors like precipitation, temperature, soil quality, and outbreaks of plant diseases and pest infestation. Modeling harvests or livestock growth demands incorporating probabilistic methods and optimization under uncertain conditions. In other words, specialists and experts in agricultural economics meet strong interdependence of production and environment that

is out of their direct control in many cases. Besides, the biological complexity of agricultural production also one of the reasons for the intricate modeling. Living organisms do not always behave as they are intended to. This phenomenon is attributed to genetics, nutrition, and environmental fluctuations that distort the predicted rates of growth and levels of yields. Modeling these biological aspects usually includes complex systems of dynamic approaches which are good at capturing interactions between different controversial elements.

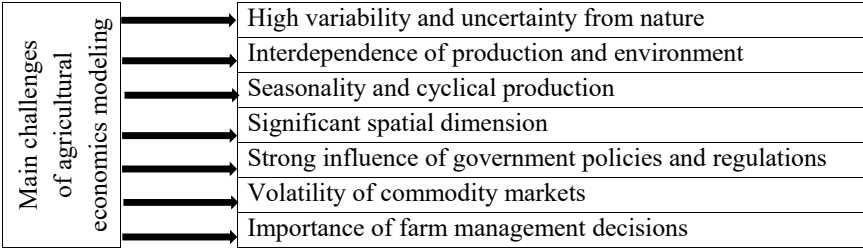


Fig. 4.4.1. Main challenges of agricultural economics modeling

Another key peculiarity is the seasonality and cyclical nature of production observed in agriculture. This is because all stages in growing, harvesting, and marketing frequently follow particular seasonal patterns, which can essentially influence cash flow, storage constraints, and labor demands. Models need to correlate with these cycles and the time lags that accompany major agricultural processes. Decisions made now might not have outcomes for months or years due to long production cycles. These steps are unavoidable being dictated by nature so that business processes have to align with it.

When it comes to spatial dimension is also far more crucial in agriculture than in many other sectors of economy. Namely, locations of farms determine their suitability for different crops or livestock because of access to agricultural lands and water resources as well as to transportation and market infrastructure especially when it comes to perishable fruit and vegetables. To put it simply, these geographical factors can significantly reshape modeling agricultural supply chains and logistics. Therefore, understanding the landscape might bring success to the business process in agriculture.

Agricultural economics relies on government policies and regulations. It is no surprise that subsidies, price supports, environmental regulatory rules, and trade limitations can all have a substantial impact on farmers' management decisions and the total profitability of different agricultural activities. To be effective, agricultural economics modeling ought to incorporate these policy factors and account for how changes in legislation might affect outcomes of farming. However, this is a difficult task as sometimes government decisions stemming from global instability could be completely unpredictable. Meanwhile, the volatility of commodity markets adds another layer of complexity. Prices for agricultural products can demonstrate huge fluctuations owing to

tangible factors like global supply and demand, natural disasters or speculative trading. Farmers and agribusinesses have to make management decisions in the face of such price uncertainty. Models that incorporate price forecasting and risk management strategies are invaluable. It is not an exaggeration because these models deal with market swings and do whatever possible to protect farmers from potential losses.

At last, the extremely fragmented nature of the agricultural sector can present challenges for collecting data and modeling. It is typical of small and medium-sized family farms that provide livelihood to population in rural areas. However, large scale farms often consist of many branches scattered around the region. Differences in record-keeping systems and lack of transparencies degrade quality of modeling due to the diversity mentioned above.

To sum up, agricultural economics modeling requires deep insights of economic principles, biological systems, environmental factors, and the specific institutional context of agriculture. Scientists need to address the dynamic interplay between nature and market forces to provide solutions and recommendations that will aid farmers and agricultural stakeholders to make more informed decisions regarding food security.

When mapping out the strengths, weaknesses, opportunities, and threats associated with modeling in agricultural economics, one can conclude that advantages essentially outweigh potential drawbacks (Barkley et al., 2016; Nehrey et al., 2019). Being a powerful tool, modeling proposes a wide range of benefits that help us cope with influential features of agricultural economics.

Firstly, modeling provides better explanations and clearer clarifications when it comes to:

- simplifying complexity and building structured framework for analysis of a multitude of interacting factors like weather, markets, policies, and biological processes. Models help us break down such complexity into manageable components that are easier to explore;
- identifying key drivers by representing the fundamental elements and highlighting pivotal factors that affect agricultural productivity and profitability;
- exploring scenarios for “what-if” analysis without the cost and time of real-world experiments. This enables quantitative assessment of scenarios and helps in forecasting potential consequences of making decisions in reply to changes in input prices, government policies, or climate patterns;
- revealing unexpected connections. Modeling facilitates understanding of complex interactions and feedback loops that could not be obvious through other traditional research methods.

Secondly, modeling is a perfect method created to assist advanced decision-making by means of:

- informed strategic planning including crop selection, resource allocation, technology implementation, and risk management adoption aiding in the development of contingency plans;

- effective policy design intended for policymakers, who are interested in evaluating the potential impacts of agricultural policies on production, markets, trade, and environmental sustainability before practical use. This approach can ensure precisely targeted interventions.

Thirdly, modeling is an excellent source of quantitative recommendations:

- forecasting and prediction are based on mathematical and statistical techniques, bringing substantiated conclusions concerning agricultural economics. In addition, its assumptions are always clearly stated, provide the logical consistency and reliable verification;
 - integrating diverse data because models can synthesize large datasets, identify trends, and generate logical inferences related to effective agricultural practices.
- Finally, modeling is good at encouraging innovative development and sustainability:
- identifying collaboration opportunities across disciplines for richer models. By doing so, modeling can help pinpoint areas where cutting-edge technologies generate more viable economic and environmental benefits;
 - promoting sustainable practices that are eco-friendlier and are more adaptable to emerging environmental challenges that have a negative effect on agricultural economics.

By and large, modeling in agricultural economics performs as a virtual laboratory, allowing scientists to study and examine agriculture that is vital for food security and economic development.

From a critical assessment perspective, there are some weaknesses and threats posed by agricultural economics modeling. These drawbacks appear when developed models are overly simplistic; neglect real-world complexities; are highly dependent on quality data that is inaccessible; require special knowledge and skills to interpret the calculated results; are prone to bias because of design and parameterization; need validation against real-world data that time-consuming and intricate. Threats linked to agricultural economics modeling may occur when stakeholders misinterpret or misuse model outcomes. It also happens owing to lack of trust and resistance to adopting model-based recommendations in decision-making. However, quick changes in agricultural environment can rapidly make qualitative model results obsolete. Then over-reliance on found solutions can play a cruel joke on farmers who neglect inevitable changes. Besides, models are unable to capture unpredictable force major events. Other potential threats are related to funding limitations on the model development and updates as well as ethical concerns with regard to data privacy and model transparency.

Models of agricultural economics are the most effective when scientists apply system thinking introduced by Ludwig von Bertalanffy's approach (Katrenko, 2023). By doing so, researches recognize that simulating is not just about individual farms or markets, but a complex system of closely interacting elements. In this context, a model element could be a single agribusiness, a consumer, a government agency, a specific input (like seeds, fertilizers, fuel), or even a weather pattern, depending on the scope of the model developed. For example, in a model analyzing the impact of a new subsidy, the elements

might include individual corn farmers, ethanol producers, consumers of gasoline, and government regulators. A subsystem might be the dairy industry within a larger agricultural system, possessing its own distinct characteristics while still being influenced by and having some effect on other parts. For instance, a model of the US agricultural sector could have subsystems for the beef industry, the grain industry, and the dairy industry, each with its own supply and demand dynamics. A model component could be a group of all grain producers, sharing similar characteristics but not necessarily acting as a single decision-making unit with system-level properties. For instance, when modeling the global wheat market, we might consider “wheat farmers in Ukraine” as a component, distinct from “wheat farmers in France or Argentina”.

The structure of the agricultural economy model shows how these elements, groups (components), and subsystems relate – the essential, relatively stable connections like market linkages, supply chains, and policy frameworks. These ensure the agricultural system’s core functions. For example, the structure of a vertically integrated poultry industry includes the connections between feed producers, hatcheries, poultry farms, processing plants, and distributors. Interconnections are crucial. These represent the flows of goods (crops, livestock), capital (investment, credit), information (market prices, weather forecasts), and energy (fuel, electricity) between different elements. These connections define the constraints on individual actors and create the integrated nature of the agricultural economy. We can analyze these connections by their direction (who is supplying whom?), strength (how dependent are they?), and type (like a buyer-seller relationship or a regulatory link). A strong connection exists between fertilizer prices and corn production costs. A weak connection is observed between consumer preferences for organic food and the adoption of specific farming practices by a small subset of farmers.

The state of our agricultural economic model at any point in time is defined by key variables like crop yields, market prices, input costs, land use, and farmer’ income. System events occur when these states change, perhaps due to a drought affecting yields (a change in an element state) or a policy shift impacting prices (a response to an external event). The behavior of the agricultural sector is its ability to move between these states over time. A process could be the evolution of commodity prices over a growing season, represented by a series of changes in price levels. For example, the state of the US corn market in a certain month might be described by variables like average corn price, total corn stocks, ethanol production volume, and export demand. A system event could be the release of the USDA’s crop production forecast, which then leads to price adjustments.

We can model the agricultural sector as an open system, heavily influenced by the external environment – things like global markets, climate change, technological advancements, and consumer preferences, with which it constantly exchanges resources, information, and energy. We might choose to model a specific, highly controlled agricultural market as a relatively closed system for a particular research question, but generally, agriculture is very open. For instance, the global coffee market is an open system, influenced by weather patterns in Brazil, changes in consumer tastes in Europe,

and trade policies in Asia. A model focusing on a small, isolated community garden could potentially treat it as a closed system for certain purposes.

Agricultural economic systems can range from well-organized (highly regulated markets) to more diffuse (smallholder farming in remote areas). Importantly, we can simulate the capacity of agricultural systems for self-organization (like farmer cooperatives), self-adaptation (when farmers rotate crops and their varieties in response to climate change), and innovation (think of the implementation of new technologies). For instance, the development of online platforms connecting farmers directly to consumers represents self-organization within the agricultural market. Farmers adopting drought-resistant crop varieties is an example of self-adaptation.

The strength of connections within the agricultural economy can vary. Homogeneous sectors (like large-scale monoculture farming) might show a trend towards standardization, while heterogeneous systems (with diverse farming practices and market channels) exhibit more independent actors. Similarly, the market for commodity corn is relatively homogeneous, with strong price links across different regions. The market for organic vegetables is more heterogeneous, with far more independent prices and greater product differentiation.

Key properties of the agricultural economic system to consider in our models include:

- the interconnectedness of different sectors;
- the fact that the overall behavior is not simply the sum of individual actions;
- the number of variables and the complexity of their relationships;
- the degrees of freedom individual actors have;
- the hierarchical structure of farm-level decisions consistent with regional and national policies;
- the need for multiple perspectives to fully understand it.

For example, a change in biofuel policy can have emergent effects on corn prices, livestock feed costs, and land use patterns that are not immediately obvious from analyzing each sector in isolation. When connecting our agricultural economics model to the external environment, we need to define the input and output channels, the degree of autonomy of the agricultural sector, the intensity of information and resource exchange, and its compatibility with the broader economy and environment. It means that the model of the regional agricultural economy would need to incorporate input channels like weather forecasts, national farm policies, and global commodity prices, and output channels like crop exports, greenhouse gas emissions, and impacts on local water quality. The dynamics witnessed in the agricultural economics are often driven by:

- the long-term goals of food security and rural development;
- the influence of higher-level policies and market forces;
- the cumulative effects of technological adoption;
- the reliability of supply chains;
- the efficiency and emergent properties of different agricultural markets;
- the inherent uncertainties in weather, markets, and policy.

For instance, the long-term goal of increasing food security in a developing country drives policies that affect land use, technology adoption, and market development. When modeling the dynamic development in agricultural economics, we consider its ongoing ability to produce and adapt, the various pathways for achieving goals, the synergistic effects of combining different agricultural practices or technologies, the time lags in response to changes, the capacity for adaptation, the organization around optimal production and sustainability goals, the impact of innovation, the role of standardization and quality grades. For example, the adoption of precision agriculture technologies can lead to a synergistic effect that manifests itself in increasing yields while reducing the use input resources. However, the full impact may take several years to materialize due to learning curves and infrastructure investments. Finally, there are the principles of systematical modeling which can bring enormous benefits to agricultural economics.

1. The “global goal” principle always complies with top objectives like food security, economic viability, environmental sustainability. Indeed, a model analyzing the impact of trade liberalization on the agricultural sector should consider its effects on food security, farm incomes, and environmental sustainability, not just export volumes.

2. The “unity” principle analyzes the agricultural economy both as a whole and by examining its individual components and their interactions. Namely, to understand the impact of a drought, we need to ponder about its effects on certain farms, regional production, and national market prices.

3. The “modularity” principle breaks down the complex system into manageable sub-models for different levels of detail. In particular, a global agricultural trade model might consist of modules for different regions or commodity sectors.

4. The “connectivity” principle recognizes that the behavior of each element is influenced by its connections to others. Indeed, farm-level decisions on crop selection are influenced by market prices, which are, in turn, affected by aggregate supply and demand.

5. The “hierarchy” principle reflects on decisions and processes at different levels including farm, regional, national, and global ones. Namely, a land use priority model might encompass farm-level decisions about crop planting, regional policies on land zoning, and national policies on agricultural subsidies.

6. The “functionality” principle prioritizes understanding the functional relationships over the structural elements. In particular, understanding how price transmits through the supply chain is more reasonable than only describing the structure of the supply chain.

7. The “development” principle focuses on how the agricultural system evolves and improves over time. Indeed, a model of agricultural technology adoption should cover the dynamic process of innovation, learning, and diffusion.

8. The “decentralization” principle investigates the balance between centralized control (for example, government regulations) and decentralized decision-making (for instance, individual farmer choices). Namely, a model analyzing the effectiveness of water management policies needs to look into both top-down regulations and bottom-up farmer responses.

9. The “uncertainty” principle explicitly accounts for unpredictable factors like weather, market volatility, and policy changes in the models in question. In particular, a model of crop production should incorporate the uncertainty associated with weather patterns and potential yield variations.

By applying these system analysis principles and incorporating relevant examples, we can build more comprehensive and relevant models of agricultural economics, leading to better understanding and more effective policy and management decisions.

The intersection of globalization and digitalization presents both significant challenges and substantial benefits for agricultural economics modeling. Major challenges are as follows:

- huge data volume and complexity since digitalization generates vast amounts of data from various physical and online sources. Ensuring data interoperability and standardization across different platforms requires advanced analytical tools and expertise;
- market volatility as globalization increases the interconnectedness of agricultural markets, making them more vulnerable to global shocks of political, economic, and environmental nature;
- accounting for environmental factors such as climate change, resource depletion, and environmental regulations is challenging. But models in agricultural economics should incorporate these dynamic uncertain components;
- social equity and inclusivity are often under threat because digitalization and globalization can exacerbate inequalities between large-scale and small-scale farmers, as well as between developed and developing countries. Models need to address these social dimensions and see to it that technological advancements benefit all stakeholders;
- rapid technological change brings constant evolvement in the agricultural sector, so keeping models up-to-date with these advancements is a continuous challenge.

Prime benefits that go with globalization and digitalization are as follows:

- improved data availability and accuracy since digital technologies are good at providing access to real-time data on the weather, crop yields, soil conditions, pest infestation, disease outbreaks, market prices, and supply chains. Such inputs subsequently raise reliability of agricultural economic models;
- enhanced modeling capabilities are obtained via advanced analytical tools that can tackle the development of more sophisticated and accurate models that present complex interactions between different factors and generate more relevant forecasts;
- increased efficiency and productivity responding to tasks of resource allocation, input costs reduction, crop yields growth, that is to exploit opportunities to increase efficiency and productivity throughout the agricultural value chain;
- improved decision-making is rooted in models which can provide valuable insights to farmers, policymakers, and businesses regarding production, marketing, and investment for launching more sustainable and profitable agricultural practices;

- enhanced market transparency and accessibility as a result of modeling real-time prices and supply-demand dynamics that contribute to the bargaining power of farmers;
- greater capacity for sustainable development which stems from models on closer monitoring of environmental impacts and aid in more informed policy design.

In conclusion, globalization and digitalization shape contemporary agriculture that can be reinforced by means of advanced modeling.

Artificial intelligence (AI) is rapidly transforming various sectors, and agricultural economics is no exception as proven by numerous modern research (Altayeb et al., 2024; Mana et al., 2024). In compliance with these findings, Fig. 4.4.2 illustrates how AI can offer significant advantages in modeling this complex field.

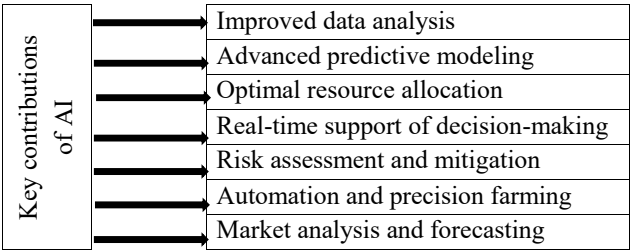


Fig. 4.4.2. Key contributions of AI to agricultural economics modeling

Namely, AI-driven software is excellent at processing vast miscellaneous data from sensors, satellites, weather stations, and market indicators. Therefore, AI is incredibly good at comprehensive analysis when modeling agricultural economics and substantiating strategies on production and sales. AI-propelled models surpass conventional mathematical models in identifying trends and non-linear relationships and producing more accurate forecasts of crop yields, market prices, and potential natural risks, such as disease outbreaks or weather-related disasters. AI can perform optimization of restricted valuable resources like water, fertilizers, and pesticides, leading to better efficiency and reduced environmental impact that are imperatives of sustainable agriculture. AI-powered systems can provide versatile insights into soil conditions, crop health, and market fluctuations, enabling farmers and policymakers to make timely reasonable decisions. This can shrink waste and boost market responsiveness. Given historical data, AI is capable of detecting unfavorable patterns and then build proactive risk management strategies to eliminate or at least mitigate potential losses. AI contributes to the development of automated farming systems, such as robotic harvesting, precision irrigation, and targeted pesticide application followed by increased productivity, reduced labor costs, and minimized environmental impact. As AI technology continues to advance, its role in agricultural economics will definitely become even more significant, contributing to a more resilient and sustainable food system.

Modeling the innovative development in agricultural economics is super important for a few reasons (Vasylieva, 2007). This is because currently agriculture is a dynamic field constantly facing new challenges and opportunities, from climate change and resource scarcity to evolving consumer demands and technological innovations. is good Models of innovative development help us see the bigger picture and anticipate how cutting-edge technologies, new policies, or emerged market shifts might play out in the agricultural economics. They can highlight promising areas for breakthrough achievements and potential setbacks. Modeling innovative development results in boosting efficiency and productivity. By simulating different scenarios, models can pinpoint the most perspective ways to use resources, optimize production processes, and ultimately increase agricultural output. This is crucial for providing food security on a global scale. Modeling innovative development goes with improved sustainability. Innovation in agriculture is not just about extra food; it is also about greener practices. Models can measure the environmental impact of different farming techniques and help identify innovations that reduce the ecological footprint. Models on innovative development in agricultural economics influence guiding policy and investment. Really, when governments and businesses are making decisions about agricultural development, they need solid information. Models provide a framework for analyzing the potential consequences of different policies and investments, leading to smarter choices. Agriculture is inherently risky caused by weather and market volatility. Models can help assess these risks and evaluate how innovations can build resilience in the face of uncertainty. Just because an innovation exists does not mean farmers will use it. Models on innovative development in agricultural economics can help us understand the factors that influence the adoption of new technologies and practices and pick out more effective strategies to promote beneficial changes. Agricultural economics is intertwined with so many other areas – the environment, technology, social issues, and other industries and sectors. Simulating helps us realize these complex relationships and the ripple effects of innovation. Overall, modeling innovative development in agricultural economics ensures a more secure and prosperous future for the agricultural sector and everyone it feeds.

The sustainable side of agricultural economics also get benefits from modeling. It takes on even greater significance because it means not only some updates, but comprehensive progress that lasts and respects our planet. Simulating aids to figure out how to feed people now without messing things up for future generations. Modeling innovative development in sustainable agricultural economics gives us the tools to navigate the vulnerable balance between economic viability and environmental health. Sustainability is much broader than just go green. It is also about making sure that the agricultural sector can thrive economically. Models can reveal those spots where innovative practices boost profitability and productivity without environmental harm like pollution, soil degradation, and biodiversity loss. The consequences of unsustainable practices can take years, even decades, to fully materialize. Modeling allows us to simulate these long-term effects, showing us the potential cost of inaction and the advantages of adopting sustainable innovations. This foresight is essential for making

responsible choices at present. Often, there are trade-offs involved in choosing one agricultural approach over another. For example, a high-yield method might have negative environmental consequences. Models can facilitate understanding and quantifying these trade-offs, making more informed decisions that weigh different priorities. Simulating is outstanding when it comes to identifying the most prospective sustainable techniques. Models make it possible to assess which of these approaches are the most appropriate in different contexts, considering their economic performance and environmental efficiency. Governments and officials play a big role in implementing sustainable agriculture. Modeling can help policymakers perceive how different regulations, subsidies, or carbon pricing mechanisms might impact the adoption of sustainable farming methods and achieve desired outcomes through designing effective policies and incentives. Agriculture is deeply connected to other systems, like water resources, energy markets, and the broader economy. Models analyze how sustainable agriculture might provide system-wide effects via these interconnected systems, both positively and negatively. Climate change is a major threat to agricultural sustainability. Simulating can help us evaluate how different sustainable practices and technologies can foster the resilience of farming systems to climate-related shocks like droughts, floods, extreme temperatures, and other natural disasters. Ultimately, modeling the sustainable development in agricultural economics is about creating a roadmap for a future where agriculture can meet the needs of a growing population while safeguarding the environment and ensuring food production in a way that is smart, responsible, and truly sustainable.

Contemporary agriculture also relies on circular economy. Modeling circular agricultural economics enables us to make the most of resources available and minimize waste in how people grow and produce food. The motto of circular economy is that everything gets used and reused in a loop, in other words, work with nature, not against it. Indeed, reusing crop waste and animal manure allows us to cut down on pollution from chemical fertilizers and excess waste. Modeling circular agricultural economics boosts resilience. In particular, when farmers are less reliant on outside inputs and able to find value in byproducts, they are better equipped to address price swings, supply chain disruptions and other troubles. Besides, turning waste into valuable resources can result in new business opportunities and income flows. As the population keeps increasing, farmers and scientists need secure ways to produce enough food without draining the planet's resources. To a great extent, modeling circular agricultural economics can support the development of an innovative sustainable food system where everything has a purpose.

Modeling agricultural economics in Ukraine during and after the war with Russia has a vital and multifaceted mission mostly revolving around critical insights for immediate crisis management and long-term sustainable recovery (Andrienko et al., 2024; El Bilali et al., 2024). During the war simulating agricultural economics should be focused on providing real-time analysis and forecasts to navigate the severe disruptions caused by the ongoing war. Firstly, models are well suited to quantifying damage to agricultural infrastructure such as land, livestock, equipment, storage facilities as well as evaluating sharp decrease in production due to fighting, landmines, displacement of labor, disrupted

supply chains and export-import logistics. Secondly, agricultural economics simulating is responsible for maintaining data-driven insights to guide informed emergency response to meet the current needs of farmers and the food security condition by region. Thirdly, models support reasoning market instability through simulating price volatility for agricultural commodities in both domestic and international markets, raised production costs on account of fertilizers and fuel, and experienced export-import limitations. The obtained model outcomes contribute to understanding the economic pressures on farmers and consumers. Finally, modeling reveals the most effective avenues for government support programs and interventions, international aid, and trade policy adjustments to increase the resilience of the agricultural sector during wartime.

After the war the mission of modeling should shift towards supporting innovative reconstruction, economic recovery, and long-term sustainable development of the agricultural sector. Simulating would calculate the financial, material, and human capital required for the agricultural recovery, including the cost of demining agricultural land, restocking livestock, and repairing damaged infrastructure such as irrigation systems storage facilities. By creating and assisting reconstruction strategies, agricultural economics modeling can guide investment decisions on agricultural infrastructure, technology, and sustainable farming practices. This incorporates studying opportunities for diversifying production, processing, and market access. By exploring soil and water contamination as well as other environmental consequences of the war, modeling would make it possible to analyze long-term impacts of the war on soil health, land use, labor availability, and the global competitiveness of Ukrainian agriculture. Simulating sustainable growth in the post-war context could involve modeling rural development, support for smallholder farmers, and promotion of productivity through the introduction of innovative technologies like agricultural drones, robots, satellite images, and surveillance cameras. Models of agricultural economics would offer different recovery scenarios to project the long-term trajectory influenced by miscellaneous factors such as evolving technological advancements, global market conditions, and investment flows. Hence, simulating agricultural economics in Ukraine both during and after the war is able to provide a robust and sound analytical foundation for decision-making based on the foreseeable challenges and opportunities on the way to future prosperity.

It is important to understand that agricultural economics modeling is not a one-size-fits-all approach. Fig. 4.4.3 comprises main specific aspects which shape agricultural economics and compel scientists build and use particular models adjusted to the EU and Ukraine. This insight is especially valuable as it defines the precise vector for farmers and policymakers who focus on changes necessary to make Ukrainian agricultural economics compatible with the EU market environment. The core aspects of modeling agricultural economics in the EU countries are as follows (Bocean, 2024; Georgescu et al., 2025; Giuliani et al., 2023). The EU's Common Agricultural Policy (CAP) is a massive framework that determines agricultural practices across member states. That is why simulating considers direct payments to farmers and the way these payments affect production decisions, farm incomes, and market prices; rural development programs to

find out the economic and social effects of investments in local infrastructure, diversification, and environmental measures; impacts of price supports, export subsidies, import tariffs, and other interventions on trade flows and market stability; the development of environmental regulations aimed at reducing pollution, conserving biodiversity, and mitigating climate change and their relationship with farm practices and economic performance. The EU countries have access to comprehensive, standardized data over long periods available from established statistical agencies that allows sophisticated and reliable modeling. Owing to integrated markets, the EU models of agricultural economics consistently analyze price transmission, trade flows and competitiveness between member states. Agricultural economics simulating in the EU persistently explores and promotes sustainable agriculture. They demonstrate special interest in policies aimed at climate change mitigation, reducing greenhouse gas emissions associated with farming, agricultural practices designed to support climate change adaptation, advanced technology that foster agricultural sustainability, protect natural habitats and species, encourage the biodiversity conservation.

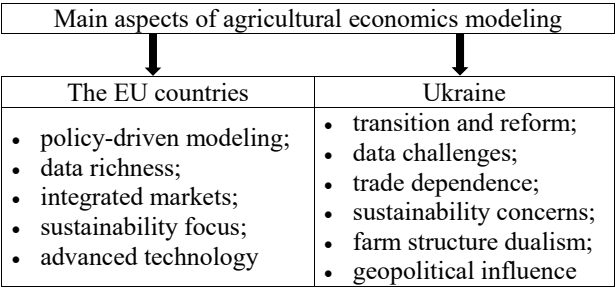


Fig. 4.4.3. Key peculiarities of agricultural economics modeling in the EU and Ukraine

In contrast to the listed aspects observed in the EU, modeling agricultural economics in Ukraine needs to consider a bit different factors. Namely, Ukrainian agricultural sector is still undergoing significant transition and reform, stemming from its post-Soviet history. It means it explores how land ownership and land markets affect farm structure and efficiency; studies find the economic consequences of privatizing state-owned agricultural enterprises; addresses the evolution of agricultural competitiveness with regard to the growth of large agro-holdings and the persistence of small family farms. While statistics availability is improving, simulating agricultural economics may still face challenges in terms of data quality, consistency, and historical comparability. This can slow down and brake many modeling efforts. Stimulating agricultural economics provides insights on Ukrainian export potential and trade dependence. The topics in question are about the barriers to Ukrainian agricultural exports and the ways to overcome them, especially for grains and oilseeds. Models also have to handle the impacts of trade agreements with the

EU and other countries on Ukrainian agricultural trade as well as how vulnerable the national agricultural economics is to fluctuations in global commodity prices. Sustainability concerns are a little different from those related to the simulating the EU agricultural economics. Ukrainian models of agricultural economics highlight farming practices which can prevent soil erosion and maintain soil fertility; promote approaches that can reduce pollution from agricultural runoff and industrial activities; emphasize implications of climate change which would affect vulnerable agricultural production in different regions of Ukraine. Modeling agricultural economics in Ukraine is complicated due to farm structure dualism. There is coexistence of large-scale agro-holdings and small-scale family farms. The former are often vertically integrated companies that produce wholesale commodities. The latter are focused on producing a wider range of crops and livestock for both subsistence and retail market sales. That is why models need to account for the different behaviors and constraints of these two groups. On top of that, modeling agricultural economics in Ukraine have to take into account significant risks of geopolitical and economic instability, including the consequences of the ongoing war which has drastically impacted agricultural production, trade, and land use.

By and large, despite the identified peculiarities both the EU and Ukrainian modeling grapple with uncertainties and limitations while shaping policies and improving decision-making in agricultural economics. Model types and mathematical apparatus have much in common, using cluster-based, econometric, dynamic programming, partial and general equilibrium, optimization, fuzzy logic, system dynamics, and agent-based approaches for planning, balancing, and forecasting in agricultural economics. However, specific examples are different. On the one hand, in the EU stimulating is used for projections and policy assessment at EU and member state levels, evaluates the impact of CAP instruments, provides for farm-specific policy impacts. On the other hand, contemporary models in Ukraine are applied to Ukrainian agri-food markets amid war and recovery, to forecast the competitiveness of the agricultural sector, to optimize the structure of arable land for sustainable farming. Table 4.4.1 contains key distinctions between the EU and Ukrainian models of agricultural economics. In anticipation of further integration combined agricultural economics modeling in the EU and Ukraine will contribute to

- quick aligning Ukrainian agricultural system with the EU standards and market requirements;
- a special emphasis on leveraging Ukraine's significant agricultural potential such as land and lower production costs;
- a broader simulation landscape historically integrated into a unified framework of the EU member states.

However, it is smart to look beyond the EU for agricultural economic models that could benefit Ukraine (Carpentier et al., 2015; Nehrey et al., 2019).

1. North American models from the USA and Canada often elevate market-oriented approaches, commodity price forecasting, and the influence of government support programs provided by the Food and Agricultural Policy Research Institute (FAPRI). These sophisticated models can empower Ukraine in grain and oilseed production via

advanced techniques designed for exploring price volatility, global market trends, and export competitiveness. By simulating policy impact, these models help assess the impacts of different subsidy schemes, trade policies, and insurance offers on farm incomes and production decisions. Besides, with a special focus on technological adoption, some models aid to promote new agricultural practices, such as cutting edge biotechnology and precision farming, which could be relevant for modernizing Ukrainian agriculture and enhancing its economic efficiency.

Table 4.4.1

Prime differences between the EU and Ukrainian models of agricultural economics

| Feature | The EU agricultural modeling | Ukrainian agricultural modeling |
|--------------|--|--|
| Data sources | Eurostat; OECD databases; Farm accountancy data network (FADN); national statistical agencies | State statistics service of Ukraine; regional statistical agencies; FAO statistics |
| Constraints | Agro-climatic and structural heterogeneity within the EU member states for harmonized rural development; CAP instruments and impacts; environmental regulations and targets through Green Deal, Farm to Fork; globalized market and trade agreements | Implementation of sustainable agricultural practices; ensuring food security and optimizing export potential; adapting management approaches to EU standards; enhancing competitiveness for EU market integration; addressing challenges posed by the war and reconstruction |
| Purpose | Assessment of environmental sustainability and alleviation of climate change impacts; prediction of agricultural policy implications on markets and trade at EU and member state levels; farm-level analysis with economic and social aspects | Optimizing resource management at the national level; analyzing diversification for sustainable farming; estimating the impact of war and subsequent recovery on food security and agri-food markets; assessing labor potential and development of agricultural practices in the context of EU integration; forecasting competitiveness in the EU market |

2. Australian agricultural models often concern about climate change, water scarcity, drought risk, and the long-term sustainability of farming in a challenging environment. Adaptation of these strategies through simulating can be valuable for Ukraine in resource management. Australian models can support the economic trade-offs between agricultural production and sustainability, including issues like soil degradation, pollution, and biodiversity conservation. On the way to open market liberalization, modeling agricultural economics in Ukraine can benefit from Australian findings on the effects of deregulation and privatization that are positive for competitive farming.

3. Latin American models from Brazil and Argentina study large-scale agricultural production and export-oriented strategies aimed at economic development. Simulating agricultural economics in Ukraine could benefit from best Latin American practices on large-scale farming and infrastructure patterns implemented in agricultural enterprises. Brazil and Argentina are major agricultural exporters. As a result, their models introduce approaches for enhancing export competitiveness, accessing global markets, and overcoming trade barriers. Latin American models can also assess ambiguous consequences of land use change, such as deforestation and the biodiversity protection.

4. Asian models from China and India are invaluable concerning food security, population growth, smallholder farming, and the role of agriculture in rural development. Thus, models of agricultural economics in Ukraine can adapt the most effective methods on balancing food security in the face of domestic needs and international responsibilities. While Ukraine has large-scale agricultural enterprises, models from Asia can enrich policies and programs that support smallholder farmers, who may be a key agricultural player in certain sectors. Moreover, models from China and India can reveal the link between agricultural growth and poverty reduction in rural areas, which are crucial for long-term economic development in Ukraine.

5. African models mostly grapple with issues like subsistence farming, land tenure, and poor agricultural development caused by limited resources and adverse environmental conditions. African models show economic impacts of land ownership changes and analyze the potential of resilient agricultural systems built in developing economies in order to withstand climate change, economic shocks, and political instability. This ideas and considerations can be embodied in agricultural economics modeling in Ukraine to assist resilience planning and ensure more robust recommendations.

To sum up, models developed in other countries will need to be adapted to specific context inherent in Ukraine, such as policy environment, market conditions, farm structure, and resources available. It is vital to build local expertise in agricultural economic modeling and collect high-quality data. Agricultural economics simulating has to resonate with the most pressing policy challenges facing Ukraine, such as promoting sustainable development, enhancing competitiveness, and supporting rural communities. Ukraine can benefit from combining elements from various models to create hybrids that suit its unique needs and circumstances.

A deeper understanding and integration of the labor force quality, human capital development, and psychological aspects of the human factor can considerably empower

modeling agricultural economics in Ukraine (Carillo, 2024; Hill et al., 2021). The main ways of how these elements intertwine are as follows.

The human factor is intrinsically linked to labor productivity, a key driver of agricultural output. Wages as a primary motivator as well as socio-economic incentives like working conditions, motivation through opportunities for professional development, and job satisfaction via involvement in decision-making directly influence how efficiently people work in agriculture. Simulating in agricultural economics should take into account the availability and quality of the agricultural labor force. A shortage of skilled and experienced farmers is slowing down and sometimes braking the adoption of modern agricultural technologies and practices in Ukraine. Shifts in the demographic structure of the rural population in Ukraine due to aging personnel, employees' migration, and the ongoing war are significantly affecting the size and composition of the agricultural workforce with more women entering traditionally male-dominated positions and jobs. All of the above need to be considered in Ukrainian long-term models of agricultural economics to grapple with the observed skill mismatches.

Investments in human capital development through education, vocational training programs, and extension services will pay off through significant agricultural growth in farming, dissemination of agricultural innovations and their implementation for sustainable development. Policies aimed at improving human capital in farming deserve to be reflected in agricultural economics modeling.

Like all humans, farmers, agricultural managers, and other stakeholders are susceptible to cognitive biases and heuristics that can result in irrational decision-making. These mistakes, which stem from “common sense” that substitutes scientific knowledge, can range a lot showing significant deviations in how farmers process and interpret information. With principles of behavioral economics incorporated into agricultural models, we can alleviate human errors that destroy outcomes of agricultural performance. Psychological factors influencing risk perception should also be engaged in models aiming to predict agricultural responses to various scenarios.

Understanding the psychological factors underlying farmers' motivation and attitudes towards implementing innovative sustainable practices can bring more effective policy design and interventions. Indicators of psychological barriers and facilitators, risk perception, technology uptake should be introduced into models of agricultural economics. Thus, simulating will be able to provide a more realistic assessment of the farmers' ability to withstand challenges and recover from shocks like market fluctuations and climate change. Cooperation between agricultural specialists, economists, and psychologists will enable modeling to reach more comprehensive conclusions about the human dimension of agricultural economics.

Overall, versatile improvements of modeling agricultural economics in Ukraine is a top priority for scientists and practitioners as their advanced findings and vital recommendations will contribute to the sustainable development of thriving competitive innovative farming in Ukraine.

CHAPTER 5. REALITIES AND PROSPECTS FOR THE DEVELOPMENT OF INSURANCE AND THE STOCK MARKET OF UKRAINE

5.1. THE ROLE OF INSURANCE IN INVESTMENT PROTECTION AND DEVELOPING FINANCIAL MARKETS

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Insurance companies can be important for the stability of financial systems, mainly because they are large investors in financial markets, because of the increased links between insurers and banks, and because insurers protect the financial stability of households and firms through risk insurance.

The International Association of Insurance Supervisors (IAIS) released the Global Insurance Market Report (GIMAR) for 2023, highlighting key risks that shape trends in the global insurance sector. The report is based on data collected from approximately 60 of the largest international insurance groups, representing over 90% of global insurance premiums.

Despite inflationary pressures, the global insurance market demonstrated resilience in 2023. Even as inflation increased, insurance prices remained relatively moderate, indicating the sector's ability to adapt and maintain stability.

Despite rising inflation, insurance market prices remained relatively stable. However, high-risk profiles and losses, particularly those linked to natural disasters and major U.S. obligations, experienced more noticeable increases in tariffs.

Established insurers expanded their operations, while new entrants actively entered emerging markets, fostering healthy competition and enhancing risk management potential. Conversely, complex risks with negative financial impacts encountered coverage limitations, prompting many insurers to seek alternative risk transfer solutions.

Although underwriting remained strong, by the end of 2023, targeted growth metrics led to greater flexibility and new opportunities for clients, especially in low-loss risk categories. Reinsurance limits and expired deductibles were readily available for most global risk placements. Some insurers leveraged accumulated premiums to either increase coverage limits or reduce deductibles, particularly for high-demand insurance products such as cyber insurance and directors' and officers' liability insurance.

Insurers continued to differentiate their offerings through coverage terms and underwriting strategies. However, restrictions on infectious diseases, territorial coverage, strikes, and political or civil unrest remained unchanged.

During martial law, Ukraine's economy came to a standstill, with every industry affected by Russia's invasion. The total cost of recovery as of January 1, 2024, is estimated at \$486 billion, surpassing the previous assessment of \$411 billion from a year earlier.

The updated Rapid Damage and Needs Assessment (RDNA3) was published by the Ukrainian government, the World Bank Group, the European Commission, and the United Nations. According to Ukrainian government estimates, \$15 billion is required in 2024 for urgent national and local recovery efforts, focusing on private sector mobilization, housing reconstruction, social infrastructure, energy, and transportation.

While \$5.5 billion of these needs have been secured through international partnerships and Ukraine's budget, approximately \$9.5 billion remains unfunded.

The Ukrainian insurance sector is expected to face a wave of war policy claims from vessels affected by sea mines, missile strikes, and bombings in the conflict zones of the Black and Azov Seas. Additionally, claims may arise under marine war policies for ships and cargo that were blocked or seized in Ukrainian ports and coastal waters during the Russian blockade.

Key Trends in 2024:

- Regulatory Shift: New legislation, capital requirements, and investment strategies are shaping a risk-oriented approach.

- Market Consolidation: The number of registered insurance companies declined from 210 in 2020 to 111 in 2023, affecting both life and non-life insurance.

- Premium Growth: The non-life insurance sector saw a 22% increase in premiums in 2023, signaling renewed business activity.

- Sector Adjustments: The war led to a reduction in large property insurance, motor insurance, and corporate health insurance, while green card insurance doubled due to mass migration to Europe.

Despite challenges, insurers are enhancing customer service and expanding online platforms to adapt to market changes. While CASCO insurance shrank by 30%, mandatory auto insurance remained stable, and compensation payouts continue, albeit with longer processing times.

Would you like a deeper analysis on any specific aspect? You can also check out the latest insurance market statistics for more details.

The Ukrainian insurance market has shown positive trends, particularly in the non-life insurance sector, where premiums increased by 22% in 2023 compared to the previous year. This growth signals a revival in business activity and a rise in contracts with individual clients.

Key Market Developments:

- War-related shifts: Since Russia's invasion on February 24, 2022, the industry has not undergone a full transformation but has seen reductions in large property insurance due to financial instability and loss of assets.

- Motor insurance decline: The drop in new car sales has negatively impacted CASCO insurance.

- Corporate health insurance struggles: Businesses face challenges in supporting employees due to staff migration and inflation, which has raised product costs.

- Life insurance concerns: The market contraction has made life insurance more problematic, requiring additional support.

Despite all these negative trends, most insurance companies have chosen a strategy of improving customer service. Understanding that customers are switching to online communication and shopping, companies are actively developing services for the convenience of such communication. This approach helps to adapt to changes in the market and provide a high level of service and protection for customers.

The CASCO market in Ukraine declined by 30% in 2023 compared to the previous period. The civilian car market remained largely unaffected, with luxury car volumes remaining at 2021 levels in 2022-2023. The green card market nearly doubled due to the mass migration of Ukrainians to Europe with their cars.

Many insurance companies, especially regional ones operating in conflict-affected areas, have been affected. However, most market participants are operating stably and paying compensation to their clients, although payment terms have increased somewhat. The role of the European Protocol has increased as a result of military actions. In the early weeks of the war, when it was difficult to contact the police, car owners actively used the Euro Protocol. In the first quarter of 2022, claims resolved under the Euro Protocol increased significantly, reaching 39% of all claims filed.

It is only natural to question the possibilities of insuring military risks in a state of martial law. The government is actively and effectively working on this project in collaboration with international partners, including the World Bank and the European Bank for Reconstruction and Development. It is therefore hoped that the developed ready-made mechanism will be presented no later than the first quarter of 2024.

New challenges in the insurance sector include ensuring stable and uninterrupted work under all circumstances, as well as implementing projects related to veterans' rehabilitation. These challenges concern the sustainability of Ukrainian businesses and social responsibility. The National Bank of Ukraine, as a regulatory body, is committed to effective and transparent communication.

Unfortunately, war always involves destruction and damage. Insurance generally aims to compensate for damages. However, in the event of war, there are exceptions to this rule. Different insurance companies may have different provisions in their war insurance policies.

More-sophisticated capital management structures require that insurers build robust frameworks, modeling, and analytics to inform decisions on how capital should be best allocated across a growing number of balance sheet options (onshore, offshore, sidecar, third-party reinsurers, and divestment).

Such capability builds are even more important in Asia, where capital management is rapidly evolving and globalizing in response to regulatory shifts and greater emphasis on profitability and cash flow.

As a rule, all insurance policies contain such a clause. Damages resulting from hostilities are not taken into account under insurance. This means that the mere facts of hostilities cannot be the basis for recognizing an insured event and non-payment of the insurance premium.

Financial Stability Board approved a conceptual note for the implementation of a fully functional military risk insurance system in Ukraine, as provided for in the Memorandum on Economic and Financial Policy between Ukraine and the International Monetary Fund (IMF). This concept was developed with the participation of specialists from the World Bank, the National Bank of Ukraine Ministry of Finance of Ukraine and Ministry of Economy of Ukraine. The defined model of military risk insurance provides for the introduction of both mandatory and voluntary insurance, which will be implemented in stages.

The next step in developing the war risk insurance model will be its detailed presentation and discussion with business representatives. This phase is crucial, as the effectiveness of the mechanism will depend on how well it addresses the needs of insurance companies, entrepreneurs, and investors. The proposed model will involve both local and international insurers, as well as government participation through a specially created State Agency (or another institution designated by international donors after future discussions).

A key requirement for launching this initiative is the development of a separate legislative framework. This will require a thorough review of existing laws and necessary amendments to ensure the successful implementation of war risk insurance. The legislative work will be carried out by a working group, including experts from the National Bank of Ukraine (NBU), the Ministry of Finance, and the Ministry of Economy of Ukraine. This collaboration will ensure transparency in the process and alignment of regulatory measures with market needs.

During the recent Financial Stability Council (FSC) meeting, the council reviewed the updated macroeconomic forecast and conducted an analysis of systemic risks in the financial sector. Despite the challenges posed by the war, Ukraine's economy is showing signs of recovery. This is particularly significant for the financial industry, as economic stability directly affects trust in both the banking and insurance sectors. Improving macroeconomic indicators also supports the revival of insurance companies, which are seeking new opportunities for growth and adaptation.

While war inevitably leads to destruction and financial losses, insurance plays a critical role in providing compensation. However, in cases of armed conflict, exceptions apply—most insurance policies exclude coverage for war-related damages. This means that the imposition of martial law alone does not justify claim denial, but direct losses from military actions are typically not covered by standard policies. That is why the new war risk insurance mechanism must establish a framework for compensating losses through specialized programs and guarantees.

The implementation of this initiative will help businesses mitigate financial risks, attract investments, and create a new financial protection model that contributes to the recovery of economic activity and enhances financial stability in Ukraine. If you need more details about any aspect of this initiative, I'd be happy to provide further insights (Ukrinform, 2024).

The Financial Stability Council has reviewed and taken into account the results of the stress tests conducted by the National Bank of Ukraine. According to these evaluations, the majority of Ukrainian banks possess a sufficient level of capital, demonstrating the overall resilience and strength of the banking system. However, those banks that need to enhance their capital adequacy ratios are required to implement restructuring or recapitalization programs in stages. These programs, aligned with the National Bank of Ukraine (NBU), must be completed by April 2026.

In terms of the insurance sector, incidents related to war risks are typically not covered by insurance policies. Nevertheless, other claims are processed according to the terms of the insurance agreement. Drawing parallels with the crisis brought about by the Covid-19 pandemic, insurance companies have begun offering coverage for war-related risks during martial law. As demand for such products continues to grow, these risks remain expensive and necessitate mandatory reinsurance. As a result, there is a pressing need to establish an effective system for reinsuring these risks.

Another significant challenge for the economy during martial law is the virtual halt in the flow of foreign investments into Ukraine. Both Ukrainian and international entrepreneurs have been anticipating the development of market programs to insure against war and political risks. Experience from other countries shows that insuring investment activities during martial law can be achieved through specialized institutions. These organizations can be categorized as either national-government-backed insurance agencies providing guarantees to domestic investors-or international, involving various global organizations.

Some of the most prominent international entities specializing in investment insurance include the Multilateral Investment Guarantee Agency (MIGA), Japan's Nippon Export and Investment Insurance (NEXI), Italy's Servizi Assicurativi del Commercio Estero (SACE), the UK's Export Credits Guarantee Department (ECGD), and Belgium's Credendo (formerly BECA). These organizations focus on guaranteeing and insuring foreign investments as well as export credits.

Considering the challenges of the present, Ukraine's insurance sector faces the urgent need to create new products that would cover risks associated with war and cyberattacks. The future development of Ukraine's insurance market will largely be shaped by processes of European integration and the implementation of programs agreed upon with the International Monetary Fund (IMF). Rapid progress in these areas is critical to ensure that Ukraine does not miss any opportunities as it works toward EU membership and seeks financial assistance from donor coalitions. The insurance market is expected to fully recognize the vital importance of these actions for the country's advancement.

At this stage, the primary priority is the implementation of necessary changes, while integration into international processes serves as a strategic objective that will influence the approaches taken by the National Bank of Ukraine (NBU). The regulator is focused on creating conditions under which the national insurance market becomes attractive to foreign private investors, modern, promising, and flexible in its operations.

Two major initiatives are of particular importance and require implementation. The first is the introduction of a risk-based prudential supervision system, which will strengthen the requirements for the financial stability of insurers. The second is the establishment of a new type of supervision centered on market conduct. This form of oversight includes monitoring compliance with rules and standards in the provision of insurance services, the dissemination of information about these services, and assessing the business reputation of company owners and managers.

Every investor wants to protect their investments. Investors are supported by specialized organizations, such as insurance companies, which are ready to directly insure assets (fixed assets, tangible assets, etc.), as well as commercial and other insurance risks.

Investment insurance provides protection for the property rights of investment institutions. The investor is offered to sign a contract under which the insurer undertakes to compensate for the loss in part or in full in the event of loss or damage. The investor agrees to pay the insurer the insurance premium specified in the contract.

A separate category is insurance for foreign investors whose interests may suffer from political risks, for example, as a result of political or military action in a foreign country. International investment protection is carried out on the basis of specific economic agreements concluded between different countries.

If you have enough money to pay off your debts, insurance is a great way to get out of an unpleasant situation. There are many factors that influence the choice of project and preparation methods.

The financial stability of an insurance company, its solvency, and its ability to fulfill obligations to policyholders regarding insurance payments depend on the accurate calculation of insurance reserves and how unfulfilled or incomplete obligations are taken into account.

If the insurance (reinsurance) company does not have sufficient insurance reserves to cover the insurance claim, it must pay the premium from its own funds. This will create solvency in addition to the solvency paid by its own funds and established insurance reserves.

The European Union countries have identified seven main factors influencing the formation of the insurance reserve system, which are:

- reversal of the insurance organization cycle;
- stability of the insurance portfolio;
- risk structure of the insurance package;
- organizational structure of the insurance company;
- investment activities of the insurance company;
- the level of development of reinsurance in the market;
- inflation.

If Ukrainian insurers (reinsurers) adhere to these key factors, they can create insurance reserves that ensure the financial stability of the insurance market and the ability of insurers and other insurance (reinsurance) companies to timely fulfill their obligations to them.

The insurer's participation in investment activities has a significant impact on the sources and volume of insurance reserves, as well as their composition. First, successful investment activities allow the insurance organization to direct part of its profits to compensate for the negative financial consequences of insurance operations as a result of increased losses in a given year and high competition in the insurance market. In foreign practice, income from investment activities helps to compensate for extraordinary losses and increase the amount of insurance reserves.

Secondly, participation in investment activities allows the insurer to transfer part of the profit to the insured. As a rule, this type of obligation is taken into account when concluding a contract. Special reserves (funds) are created to accumulate funds for payments to policyholders.

Third, investment income is a source of equity growth for the insurance company and can be used as a self-insurance fund to cover insurance liabilities in emergency situations.

The investment activity of an insurance company can be defined as the activity of an insurance company related to the placement of temporarily free funds in order to obtain a certain benefit, that is, investment income.

Investment income provides additional income for the insurer in addition to income from insurance activities. The rate of return generated by profitable investment activities decreases tariff rate, and, consequently, the tariff is reduced by this amount, in which both insurers and policyholders are equally interested.

An insurance organization independently determines its investment policy, but when investing insurance reserves, it must comply with state regulatory standards aimed at ensuring the return on investment and liquidity, since not only the insurer's income, but also its solvency, depends on the efficiency and reliability of placing temporarily free funds.

The insurance company independently defines its investment strategy for the allocation of its own funds and insurance reserves: when choosing an investment objective, the interdependence of risk and return must be taken into account, the principle of investment diversification must be followed.

Thus, part of the funds can be directed to investments with low returns and low risks, and the other part to investments with high returns but high risks. As a result, the investment risk will be distributed between different types of investments, thus ensuring the stability of the insurer's investment portfolio.

Investment life insurance is one of the most important segments of the modern life insurance market, combining elements of capital preservation and accumulation, allowing not only to receive insurance payments in the event of an insured event, but also to invest part of the contributions paid in various financial instruments, such as stocks, bonds or other assets.

Life insurance linked to investments is an innovative financial instrument that combines insurance protection and investment functions, allowing you to simultaneously provide financial support in the event of unexpected events and accumulate capital for

future needs. Insurers could pursue distinctiveness in all three components, offering a truly integrated flywheel model.

This has largely been the approach of players backed by private capital. The next hurdles for such players will be further expansion of loan origination platforms and capabilities, including outside the United States; increased complexity of liabilities (such as long-term-care insurance); and a broader set of external investors to fuel growth. But for many, achieving distinctiveness in all three components may not be the

In the conditions of economic instability and insufficient level of social protection, which are characteristic of Ukraine, investment life insurance acquires special importance, acting as an effective mechanism for improving the financial security of the population, as well as a tool for stimulating long-term savings and investment activity. Despite its significant potential, the investment life insurance market in Ukraine is underdeveloped and faces many challenges. The main factors hindering the growth of this segment include low financial literacy of the population, limited trust in insurance companies, economic instability, and immature legislation.

At the same time, in the context of globalization and integration into international markets, interest in advanced financial products is growing in Ukraine, which creates opportunities for the further development of investment life insurance. The investment life insurance market in Ukraine is relatively young and is gaining customer trust. Compared to other segments of the insurance market, the share of life insurance remains low, which is due to several socio-economic and political factors.

The number of insurers is low, which is explained by various socio-economic and political factors.

The main goal of investment life insurance is to ensure the financial protection of citizens and capital accumulation through investment mechanisms. In the investment life insurance market, the following leading insurance companies are worth highlighting: TAS, Unika Life, PZU Ukraine Life Insurance, ARX Life and MetLife.

The most important factor in the development of unit life insurance is interest the laziness of the population to protect and increase their financial resources. Others In other words, the purpose of unit life insurance is financial.

It is a valuable tool for accumulating and increasing the free funds of citizens. It is a financial instrument for accumulating and developing free funds of citizens. Accordingly, investment life insurance programs should correspond to the interests and goals of citizens as savings are formed and increased. Only then will the population be ready to invest their funds in investment life insurance.

The main reasons why citizens save are; to ensure financial stability for the future, to save for large purchases or investments, to be prepared for unexpected expenses, to ensure children's education, and to build retirement capital for a comfortable life after retirement. Given the citizens' tendency to save and their desire to protect themselves from risks, life insurance companies are expanding their investment life insurance services. Therefore, using the investment calculator of the company ARX Life, it was possible to determine an approximate income that can be obtained from such insurance products.

This tool allows customers to estimate future investment returns, taking into account the policyholder's gender and age, payment currency (hryvnia or dollars), payment type (monthly installments or lump sum), contract term, and expected return.

In general, an investment life insurance program embodies all the advantages of insurance and conventional investing. However, it should be noted that there are many difficulties in implementing investment life insurance programs. For example, insufficient financial literacy of the population, low real incomes of the population, low solvency of potential insurers, low profitability of life insurance policies, lack of effective mechanisms for protecting client rights, low trust in insurance companies, high administrative costs and commissions in the insurance company, low quality of services provided by insurance intermediaries, unstable macroeconomic situation.

Understanding the problems and having an idea of their solutions, one can clearly present the prospects for the development of investment life insurance in Ukraine, which are quite positive, especially if we take into account the possibilities of adapting international experience. The use of advanced practices from developed countries can significantly improve the situation in the Ukrainian market. This applies to both regulatory norms and standards and customer service standards. The introduction of transparent and effective regulatory mechanisms similar to those used in the EU and the USA, will help increase confidence in unit-linked life insurance (Pakhomov and Ershova, 2024).

Another important aspect is the implementation of high service standards, including personalization of services and customer support at all stages of interaction. Experience in implementing innovative products that offer additional benefits and opportunities for investors can also positively affect the market situation.

The role of the state in stimulating the development of the market is very important. The state can introduce tax incentives for citizens who invest in life insurance, which will increase the attractiveness of this product. It is also important to support insurance companies by creating government programs that provide additional government guarantees for customers. Additionally, the government can support financial education programs for people of all ages, leading to a better understanding of the benefits of saving.

Innovative approaches and technologies in the field of investment-based life insurance can significantly increase the efficiency and attractiveness of these products. Digitalization of services, including the introduction of online platforms for policy management, will allow clients to conveniently control their investments and insurance payments online. The use of big data and artificial intelligence allows insurance products to be personalized and more efficient. Artificial intelligence can also be used to improve underwriting, risk assessment, and portfolio management processes.

Life insurance as an investment is an effective financial tool, but its widespread adoption depends on the financial literacy of the population. Educational campaigns and training programs play a crucial role in raising awareness among citizens. The continuous development and implementation of new investment life insurance products are essential for successful market expansion. Regular updates and diversification of insurance offerings ensure they meet the varied needs of consumers. Creating policies with

adaptable terms enables customers to tailor their insurance coverage to align with their financial situation and life circumstances.

In protecting against uncertainty and helping individuals build wealth, life insurance carriers play a critical role in societies. Although the industry's relevance has declined, there is an opportunity for insurers to harness emerging structural tailwinds and redefine their role beyond life insurance. Harnessing these structural forces and opportunities for value creation demands that insurers build new capabilities and step into new adjacencies, recalibrating their position across financial services, health, and longevity care. Now more than ever, going beyond traditional life insurance is a necessary and exciting growth imperative for the industry.

Moreover, integrating life insurance with other financial instruments, such as pension or investment funds, can enhance its appeal. Additionally, incorporating medical and accident insurance within investment life insurance products can further boost their attractiveness.

The investment life insurance market in Ukraine has considerable growth potential but faces challenges such as low financial literacy, economic instability, distrust in insurance companies, an underdeveloped legal framework, and high administrative costs. Despite these obstacles, there are clear opportunities for progress and expansion.

To strengthen the market, it is crucial to analyze international best practices that emphasize transparency, effective regulatory frameworks, and high standards of customer service. The government can play a key role by introducing tax incentives and providing support for insurance companies. Additionally, financial education initiatives can help improve public understanding of investment life insurance.

Innovative technologies, including digitalization, big data, and artificial intelligence, can enhance the efficiency of insurance products and make them more attractive to customers. Continuous adaptation and diversification of offerings - through flexible and combined products with additional benefits - will further boost consumer interest.

With a strategic approach to resolving current issues, investment life insurance in Ukraine can experience sustainable growth, ensuring financial security for individuals, increasing trust in insurance providers, and promoting long-term savings and investment activity.

Over the past decade, several key trends have shaped the global life insurance market:

- Increasing demand for financial independence: Policyholders now prefer greater control over their investments, seeking flexibility in fund allocation. Traditional life insurance often fails to meet these expectations, as it adheres to the insurer's investment strategy rather than allowing individuals to explore market alternatives. With the availability of digital tools, particularly the internet, customers can easily evaluate different financial options.
- Conservative profitability standards: Insurance companies typically set returns below actual market yields and often lower than those offered by banks or pension funds. However, some insurers provide policyholders with a share in company profits,

particularly for policies with payouts upon survival. Despite this, life insurance policies may still appear less attractive compared to other financial instruments.

- Dissatisfaction with coverage assessment methods: Many prospective policyholders are concerned that insurance coverage is based on subjective management decisions rather than objective financial indicators, such as market profitability or actual mortality rates.

These trends indicate a shift in consumer preferences, highlighting the need for more transparent, adaptable, and competitive life insurance solutions.

Investment life insurance is more aligned with mixed insurance in terms of insurer obligations. However, while traditional mixed insurance balances risk protection and savings, investment life insurance prioritizes the latter.

A distinctive aspect of this type of policy is that the portion of the premium allocated to savings is invested in financial markets according to the policyholder's preferences. Insurers provide a range of investment options grouped into portfolios based on different criteria, such as:

- Geographical focus – Investments in assets specific to a region, such as stocks of Japanese companies.

- Industry-based selection – Portfolios composed of assets from companies within a particular economic sector.

- Risk preference – Investments tailored to the policyholder's desired risk level.

This model offers policyholders greater control over fund management while combining insurance coverage with investment strategies.

When offering investment opportunities through life insurance, insurers must also accommodate clients who prefer a risk-free approach. Consequently, investment life insurance often includes an option for secure investments with a modest annual return.

Upon policy activation, policyholders monitor their premium reserves through two separate accounts. The investment account fluctuates based on market trends and the assets selected within the chosen portfolio. Insurers generally disclaim responsibility for investment decisions, acknowledging that a policyholder's choices could lead to a total loss of initial contributions by the contract's end.

The guaranteed income account operates similarly to traditional life insurance, where contributions grow at a fixed rate set by the insurer. Unlike the investment account, insurers are fully responsible for ensuring the declared return on this account.

In investment life insurance, policyholders set their premium amounts within the minimum and maximum limits defined by the insurer. The policy guarantees a payout upon death, but the final accumulated amount at maturity depends on the performance of the selected investment portfolio. Despite its strong investment focus, investment life insurance remains a financial protection tool. Insurers implement various risk-mitigation strategies to uphold its reputation as a secure financial option.

The main feature of investment insurance compared to traditional types of long-term accumulative life insurance is the ability of the policyholder to independently decide where the accumulative component of his premiums will be invested.

The introduction of investment life insurance in foreign countries aimed to attract policyholders by offering competitive insurance services. Today, this type of insurance has become a standard practice and is widely adopted across the European Union and the United States.

For example, in France, investment life insurance is one of the most popular ways to save money, as it allows clients to earn investment returns without tax burdens. In Germany, this form of insurance is also highly popular among the population and serves as one of the primary methods for securing future financial stability. In Spain, investment life insurance is recognized as an effective tool for attracting investments, contributing to long-term financial security.

These examples highlight how investment life insurance has evolved into a key financial strategy in various countries. The types of insurance available depend on the type and characteristics of the chosen investment.

For those planning to invest in infrastructure or business, a wide range of insurance products are available. These include property and title insurance, capital insurance, contracts, and even loans and advances. In Ukraine, there is a Deposit Guarantee Fund for Individuals, which guarantees payments in the event of a bank bankruptcy.

The Fund guarantees the reimbursement of funds that were attracted by the bank in cash or non-cash form in national or foreign currency. Return of deposits attracted by the bank in foreign currency is made in UAH at the official NBU rate at the end of the day preceding the day of the beginning of the procedure for withdrawal of the bank from the market.

The Fund returns to depositors of each Ukrainian bank the amount of their deposits plus accrued interest at the end of the day before the Fund begins the procedure for withdrawing the bank from the market. From April 13, 2022, the date of entry into force of the Law of Ukraine «On Amendments to Certain Legislative Acts of Ukraine on Ensuring the Stability of the Deposit Guarantee System of Individuals» for the period of martial law in Ukraine and three months from the date of its cancellation or termination the Fund reimburses each bank depositor for the full amount of the deposit, including interest accrued as of the end of the day preceding the day the bank begins to withdraw from the market (Deposit Guarantee Fund for Individuals, 2022). This rule applies to banks whose decision on bankruptcy or withdrawal of a banking license was made after April 13, 2022, during the period of martial law and three months after the date of termination or lifting of martial law in Ukraine.

Unfortunately, such insurance is not available to legal entities. If an investor chooses securities as financial instruments, such as stocks and bonds, insurance options are limited. In this case, brokerage bankruptcy insurance helps protect investors' rights. However, it should be noted that there are no foreign organizations providing such services in Ukraine.

In Ukraine, brokers operate independently of banking organizations and do not have access to their clients' accounts, as the money is on deposit. As a result, insurance coverage is not provided. Ukrainian investors should be careful when choosing a broker.

For American brokers, investor bankruptcy insurance is a mandatory procedure - it is implemented by SIPC. SIPC accelerates the recovery of a customer's domestic assets by protecting each customer up to \$500,000 in paper and cash documents (including a \$250,000 limit for cash) within the limits. SIPS is a non-profit organization that has been protecting investors for 50 years. The company works to recover investors' money and securities in the event of a brokerage firm's bankruptcy. SIPC has returned billions of dollars to investors.

SIPC was created as a nonprofit membership corporation under the Securities Investor Protection Act. SIPC oversees the liquidation of member firms, closing them down if they become bankrupt or experience financial difficulties and customer funds are unavailable. During a liquidation under the Securities Investor Protection Act, SIPC and a court-appointed trustee work to return securities and funds belonging to customers as quickly as possible.

SIPC is an important part of the overall investor protection system in the United States. While many federal and state securities agencies and self-regulatory organizations investigate investment fraud, SIPC focuses on a different, narrower issue: brokerage companies are returning cash and securities left in the hands of bankrupt brokerage firms due to the financial crisis. Congress did not authorize SIPC to combat fraud. Although SIPC was created under federal law, it is not an agency or agency of the United States government and has no authority to supervise or regulate its participating brokers. It is important to understand that SIPC is not the global equivalent of the Federal Deposit Insurance Corporation (FDIC), which insures depositors of insured banks.

Without SIPC, investors in brokerage firms in financial trouble could lose their securities or money forever. Although SIPC does not protect every investor or transaction, at least 99 percent of legal entities get their investments back through SIPC. Since its creation by Congress in 1970, SIPC has paid out \$3.6 billion to help approximately 773,000 investors with \$143.8 billion in assets. The liquidation trustee of Bernard L. Madoff Investment Securities LLC returned \$14.556 billion and distributed approximately \$14.33 billion. Each client with a net asset value of up to approximately \$1.705 million was fully accounted for. Clients with larger claims received more than 70.704% of the net amount entrusted to Madoff's firm.

SIPC does not protect digital asset securities, which are investment contracts not registered with the U.S. Securities and Exchange Commission, even if they are held by a SIPC member brokerage firm. You can check whether your broker is insured on the website SIPC.

The German Ministry of Economics provides risk insurance for its investors through an investment guarantee scheme, which allows German companies to invest in Ukraine now and not leave it until the end of the war. With this instrument, the federal government protects German investors against political risks in order to prevent or compensate for potential losses.

Under the terms of the program, the German government has commissioned the international consulting firm PricewaterhouseCoopers (PwC) to implement the

investment guarantee scheme. PwC acts as a consultant, analyses project risks and assists at every stage of participation in the program (Garantien für Direktinvestitionen – Investitionsgarantien, (2024). The regime includes the following risks: war, expropriation (nationalization), certain acts of terrorism and the risk of breach of contract. The plan covers the following risks: war, expropriation (nationalization), certain acts of terrorism and the risk of breach of contract. The guarantee plan can cover both new projects and recently invested funds. There are no restrictions on the amount of investment. To reduce long-term risks for German investors, an investment guarantee scheme was introduced (Koster, 2023).

Insurers have always needed to stay informed about financial market trends. However, the urgency to comprehend and respond to these trends has increased, touching upon more areas of the insurance business. While predicting market fluctuations with absolute accuracy remains impossible, understanding market dynamics is crucial for insurers to fulfill their primary role-evaluating risk and offering appealing products to policyholders. This involves recognizing the connection between financial markets and insurance and managing the associated risks effectively.

Two key areas where financial market trends are growing increasingly relevant are the growing complexity in managing capital and investments:

- Previously, in-depth financial market expertise was mainly the domain of investment teams within insurance companies. Now, it has become equally vital for capital management and actuarial teams, especially as regulatory frameworks such as Solvency II and IFRS 17 spread across Asia. Countries like Korea, Hong Kong, and Japan have adopted or plan to implement similar standards, requiring insurers to closely monitor both liabilities and assets, as well as asset-side capital charges. With balance sheet elements being marked to market, insurers must adapt to frequent fluctuations, demanding that actuaries work more collaboratively with investment teams to predict long-term consequences.

- The development of insurance products bridging the savings and retirement gap:

In the Asia-Pacific (APAC) region, there's significant potential for investment-focused insurance products. Developed markets here face aging populations, while developing nations often lack robust social safety nets. A report by the Swiss Re Institute points to a growing retirement savings gap across major markets, which could reach USD 483 trillion by 2050. Insurers can help address this gap by creating products that combine protection with investment benefits, ensuring steady income for retirees. However, doing so requires cross-functional expertise and a strong grasp of financial risks.

To navigate this volatile environment, insurers need to adopt three key strategies: fostering dialogue within the industry, emphasizing education across functional teams, and building partnerships, especially with reinsurers. Engaging in these practices will enable insurers to deepen their understanding of market conditions, adapt effectively to risks, and strengthen their resilience for long-term success.

IFC signed a \$3 billion credit insurance policy with 14 global insurance companies under its Managed Co-Lending Portfolio Program (MCPP) to support investments in real

sector projects, create jobs and drive sustainable economic growth in emerging markets. The program, MCPP Real Sector, leverages the risk-bearing capacity of leading insurers to enhance IFC's ability to invest globally in real sectors such as energy, transport, telecoms, media and technology, metals and mining, water and waste management, manufacturing, agribusiness & forestry, health, education, life sciences, tourism, retail, construction and real estate.

MCPP Real Sector is IFC's first credit insurance facility targeting the real sectors of the economy. It offers insurers an opportunity to expand their coverage to transactions across various sectors and clients, delivering significant social, economic, and environmental benefits in the markets that IFC invests in.

With this new program, the total capacity raised under all IFC MCPP platforms, the organization's portfolio syndications platform for institutional investors and insurers, will exceed \$19 billion.

A consortium of prominent global insurers has joined MCPP Real Sector. They are Swiss Re, the Tokio Marine Group, AXIS Capital, AXA XL, SCOR, Munich RE, Everest, The Hartford, HDI Global, Liberty Specialty Markets, Aspen, Allianz Trade, Chubb and Somo. The program also demonstrates the growing role that private insurers can play to help mobilize financing to improve livelihoods and achieve long-term economic development.

MCPP Real Sector builds on the success of previous iterations of the MCPP platform which were designed to support additional IFC lending to financial institutions. This new facility connects insurers to IFC's diverse, high-quality pool of real economy investments in emerging markets.

To date, MCPP has supported more than 329 IFC clients across 68 countries, demonstrating its impact on advancing sustainable and inclusive development.

The decision to provide federal government guarantees for investments in Ukraine will be made on a case-by-case basis. The guarantee covers political risks, including military risks. The final decision on whether to provide an investment guarantee is made by an interdepartmental commission that meets six times a year. The advantage of the investment guarantee scheme is the long-term coverage of political risks in risky countries. The following measures were taken to prevent losses: active crisis management by the federal government; diplomatic intervention; and federal participation in the costs of preventing losses (in some cases).

Compensation is also paid in dangerous situations. Financing under the program has special conditions depending on the value and volume of (re)financing. In 2022, new investments and investments were agreed under this program to expand and extend the warranty period of existing guarantees.

The duration of these investment guarantees is 15 years and can be extended for an additional five years upon request. The agriculture and construction sectors showed significant demand for guarantees. There were also requests for projects related to energy infrastructure (Matschos, 2023).

The draft law on investment insurance for Polish companies in Ukraine provides for reinsurance of risks of companies registered in Ukraine with Polish capital. This insurance mechanism will be implemented by the Polish export credit agency KUKE for a long term (two or more years). It is proposed to introduce reinsurance of cargo transported to Ukraine.

KUKE currently primarily insures contracts, not investments. On June 13, 2022, the Polish government expanded the scope of risk insurance in mutual trade between Polish companies and Ukrainian buyers by resuming the provision of insurance guarantees to Polish companies in Ukraine through KUKE. KUKE suspended its operations in Ukraine on February 25, 2022 due to a payment moratorium imposed by the National Bank of Ukraine, which prohibited Ukrainian entities from making payments in foreign currency. The insurance provided by KUKE covers receivables arising from export contracts with Ukrainian buyers for goods or services for which a payment moratorium was not imposed.

This insurance covers contracts for the supply of goods or services that are vital to the population, such as: food; drugs; fuel; and important imports for the country's economy, including the energy and security sectors. KUKE has launched PLN 500 million in financing for Ukrainian companies under the program until the end of 2022.

In Ukraine, investment insurance is being developed to protect assets from war-related risks and other emergency situations, especially in times of war. For example, in 2023, the Ukrainian Verkhovna Rada adopted a bill allowing export credit agencies to insure investments against risks related to terrorism or military operations.

This innovation provides a legal and financial basis for protecting investments, stimulating industry, and promoting economic activity in the spirit of war and the post-war period. This resolution, approved at the 9th quarterly meeting of 2024, requires the National Bank to be authorized to develop rules and procedures for insurance against such risks. War risk insurance is also an important tool for creating a positive investment environment in the country.

Since 2018, a private joint-stock company «Export Credit Agency» has been established and operating in Ukraine, the founder of which is the state represented by the Cabinet of Ministers of Ukraine. The authorized capital of the Export Credit Agency of Ukraine is UAH 2 billion. The purpose of the Export Credit Agency is to promote the large-scale expansion of exports of goods (works, services) from Ukraine.

This goal is achieved by insuring financial risks arising during Ukrainian exports. At the same time, the Law of Ukraine «On Financial Mechanisms for the Development of Export Activity» № 3497-ІІІ «On Investment Insurance of Ukraine» dated 22.11.2023 the responsibilities of export credit agencies include insuring loans and investments against military and/or political risks.

Already in September 2024, the Export Credit Agency of Ukraine (ECA) carried out the first insurance of an investment loan against military and political risks. The amount of the insured loan was UAH 9 million, which supported an investment of UAH 45.72 million. The final investment amount that ECA now wants to insure is UAH 200 million.

The insurance rate for direct investments is from 0.49 to 8.05 percent, and for investment loans - from 0.95 to 4.05 percent.

Insurance companies in Ukraine offer investors insurance that may include:

- insurance against financial risks - can cover the insolvency of the other contracting party, non-payment of the contract, changes in the tax or regulatory environment;
- property and business asset insurance - provides protection against the risk of damage to or loss of invested property, including equipment, structures and other physical assets;
- political insurance - provided to protect against political risks such as expropriation, nationalization or other government actions that could jeopardize investments.

In addition to government initiatives, international companies offer investment risk insurance solutions in Ukraine that will help attract capital to the country and support entrepreneurial activity during this difficult period:

- MIGA (Multilateral Investment Guarantee Agency): A division of the World Bank, MIGA provides political insurance to foreign investors to protect them from ownership, legal changes, currency depreciation, and other risks.

- Projects under the protection of ORIS (USA Overseas Private Investment Corporation): ORIS also provides political insurance to protect investments, which helps attract foreign investment to Ukraine (DFC, 2024).

The Multilateral Investment Guarantee Agency (MIGA), part of the World Bank Group, is the largest provider of political risk insurance, covering risks associated with political instability, government expropriation, and conflict in countries where private insurers avoid doing business. In September 2022, the Ministry of Economy of Ukraine signed an agreement with MIGA on the implementation of an investment insurance mechanism during military operations. A pilot project for political risk insurance worth US\$30 million is expected to be implemented in 2022. Insurance coverage represents at least 90% of the invested capital. Although the scope of this project was limited in its pilot phase, its objective was to test and improve the war risk insurance mechanism and expand the program in the future. However, due to a lack of reinsurance options, the processing of applications has been suspended.

Furthermore, MIGA products can only cover risks for international investors, and this mechanism is not available to Ukrainian companies.

On April 14, 2023, Japan became the first country to contribute \$23 million to cover military risks associated with investments in Ukraine. This contribution will be made to MIGA.

In February 2023, MIGA provided a one-year guarantee of EUR 100 million to Raiffeisen Bank International AG (RBI) to cover risks related to the nationalization (liquidation) of the required reserves of its subsidiary Raiffeisen Bank Ukraine, Ukraine's largest private bank with foreign capital.

The guarantee applies to investments in the capital of Raiffeisen Bank Ukraine. In accordance with the rules applicable to the Ukrainian banking system, Raiffeisen Bank Ukraine is required to maintain mandatory reserves for lending operations. The MIGA

capital optimization guarantee reduces the risk weight that the RBI Group assigns to these reserves to zero, within the limit of the amount of this guarantee, in accordance with European banking regulations. The MIGA guarantee will strengthen Raiffeisen Bank Ukraine's overall financial position and contribute to its ability to provide vital support to the Ukrainian economy, enabling the bank to free up funds for additional lending to critical sectors of the Ukrainian economy during the war and increasing the scope of commission purchases, foreign exchange, trade, etc.

Finding funding for investment risk insurance programs is a major hurdle. In this context, the proposal of the Ukrainian think tank CASE Ukraine to use Russian funds frozen (and possibly seized) by the sanctions coalition countries should receive attention and active diplomatic work with partner countries should be developed as collateral for Ukraine to attract private investment (Boyarchuk, 2023). According to government officials, the Ukrainian Finance Ministry is considering ways to attract private creditors against collateral in frozen reserves of the Russian Central Bank or other Russian assets (Butsa, 2023).

Relying solely on Ukrainian state guarantees may not be enough due to increasing budgetary constraints. Given Ukraine's unprecedented challenges in the context of Russian aggression, the Ministry of Economy of Ukraine is calling on foreign governments to cooperate in developing a special war risk insurance program for both foreign and local entrepreneurs. Appropriate insurance products should be made available to a wide range of applicants through refinancing and reinsurance funds with preferential obligations to cover the risks of insurers. The United Kingdom, Japan, Germany, France, Canada, Australia and Israel have government agencies that provide war risk investment insurance, usually linked to national treasury departments. One such Ukrainian government agency is the Export Credit Agency (ECA). It is managed by the Cabinet of Ministers of Ukraine through the Ministry of Economy of Ukraine.

In general, given the scale of the losses suffered by Ukraine as a result of the war and the multiple problems faced by investors in a war-torn economy, it is advisable to focus efforts on creating a comprehensive system of mechanisms to support investment activities in Ukraine, which would include the participation of international donors, the Ukrainian government, and insurance market participants. It should be aimed at creating equal rights and conditions for Ukrainian and foreign investors regarding the possibilities of insuring investments against war risks. Undoubtedly, the key to solving this problem is to enlist the help of international partners and donors. Diplomatic efforts should aim to create a specific political agreement, an "investment coalition" of partner countries (with the participation of many donors) an agreed international program of insurance against military risks or the provision of financial guarantees for investment activities in Ukraine.

Another level of solving the problem of high investment risks in Ukraine should be to direct part of the funds provided by international partners to: the goals of rebuilding Ukraine through the World Bank Trust Fund; and insuring investors against war risks.

The creation of a domestic war risk insurance mechanism is key to national efforts to support the reconstruction of Ukraine's economy. At the current stage, the financial

support for this mechanism is critical, given the country's war-induced budget constraints. This task can be achieved in the following ways:

- using part of the funds received by the Economic Recovery and Transformation Fund to finance the national program of insurance of investments against war risks through the Export Credit Agency;
- to allocate part of the funds under the program of insurance of risks of investors in Ukraine to subsidize part of the insurance premiums for private insurers that can insure investment projects in regions of the country with low military risks. This will require classifying the regions by the level of military risk and determining the target activities for such insurance;
- introduction by the Government of Ukraine of sovereign bond issues under the guarantees of the governments of partner countries for the purposes of investment insurance, financing the costs of insurance companies for insurance of investments against military risks and compensation for probable losses;
- definition (during the introduction of the mechanism for insuring investors against war risks through the expansion of the mandate of the Export Credit Agency) of clear criteria for including types of activities in the scope of coverage of the insurance program, in particular: introduction of new equipment; creation of additional jobs; introduction of innovative technologies, solving the problem of providing the Ukrainian economy with critically needed resources; creating new industries; introducing energy and resource-saving technologies; generating electricity from new sources.

Considering the challenges of the present, Ukraine's insurance sector faces the urgent need to create new products that would cover risks associated with war and cyberattacks. The future development of Ukraine's insurance market will largely be shaped by processes of European integration and the implementation of programs agreed upon with the International Monetary Fund (IMF). Rapid progress in these areas is critical to ensure that Ukraine does not miss any opportunities as it works toward EU membership and seeks financial assistance from donor coalitions.

At this stage, the primary priority is the implementation of necessary changes, while integration into international processes serves as a strategic objective that will influence the approaches taken by the National Bank of Ukraine (NBU). The regulator is focused on creating conditions under which the national insurance market becomes attractive to foreign private investors, modern, promising, and flexible in its operations.

Two major initiatives are of particular importance and require implementation. The first is the introduction of a risk-based prudential supervision system, which will strengthen the requirements for the financial stability of insurers. The second is the establishment of a new type of supervision centered on market conduct. This form of oversight includes monitoring compliance with rules and standards in the provision of insurance services, the dissemination of information about these services, and assessing the business reputation of company owners and managers:

1. Building a robust and sophisticated insurance market that can effectively manage risks in an unpredictable environment;

2. Providing comprehensive support to all population groups and businesses, empowering them to take reasonable risks and ensuring confidence in the protection they require. This effort encourages the creation of new insurance products designed to meet evolving needs;

3. Introducing reliable measures for insuring investments against war-related risks, which could stimulate financial inflows for national recovery. These measures would also support the relocation of enterprises, foster the development of high-tech industries and services, boost exports, reduce imports, create new jobs, adopt and implement innovative practices, increase incomes, attract additional investments into the economy, and enhance tax revenues and other budgetary contributions;

4. Promoting financial literacy among the population by highlighting the advantages of engaging with the insurance system, thus making it more accessible and beneficial to all; - Further improvement of innovative systems to provide clients with the ability to address their needs remotely.

5. The outlined prospects for the operations of insurance companies during martial law highlight their crucial role in ensuring financial stability and assisting the country's recovery after the end of the armed conflict.

6. As for the role of insurance companies in post-war recovery, they can significantly contribute to economic revival and social welfare by making insurance payouts. These payments help individuals and businesses affected by the conflict to restore their property and health.

7. Another important aspect is the collaboration between insurance companies and government or international organizations. Such partnerships ensure better coordination of insurance measures and maximize the effectiveness of compensation efforts in the aftermath of war.

In times of risks and uncertainty, a reliable insurance mechanism can only be established through collective collaboration. This mechanism must ensure that all conditions are clearly defined, and all terms are interpreted unambiguously to avoid disputes. Both temporary and permanent insurance products hold immense importance, as they provide essential support to citizens during difficult times. These products will remain relevant depending on the ongoing development of the situation, particularly as the threat of a full-scale war may persist.

The complete recovery process may take up to five years. However, as Ukraine approaches the final stages of its journey toward EU membership, significant internal and external investments are anticipated, alongside substantial economic growth. These developments will greatly enhance the volume and quality of insurance services, fostering a dynamic and optimistic future.

5.2. THE MECHANISM OF EFFECTIVE FUNCTIONING OF STOCK EXCHANGES UNDER THE CONDITIONS OF UNCERTAINTY

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Stock markets are affected by global crises, political and military conflicts, pandemics, which creates considerable uncertainty. In such circumstances, there is a need to improve the mechanisms for regulating exchange trading to ensure stability. Uncertainty in the stock markets leads to sharp fluctuations in shares, which negatively affects the economic status of investors and companies. Optimizing the work of the exchange will reduce the impact of unpredictable factors and improve trade transparency. The study of market stabilization mechanisms will help attract more investors, increase the stability of the stock market and its adaptability in modern challenges.

The stock exchange is an organized market where securities, such as shares, bonds, derivatives, and other financial instruments. Its activity provides a mechanism for market participants (investors, companies and financial intermediaries), which allows to redistribute capital and reduce risks through various financial instruments.

The principles of activity of the stock exchange are shown in Fig. 5.2.1.

1. Transparency - all participants must have equal access to prices, offers and transactions. Transparency is one of the key principles of the stock exchange. It guarantees that all market participants have access to the same and timely information on the market status, securities and terms of transactions. This helps to provide fair competition and minimize manipulation opportunities (Brazhnyk, 2024).

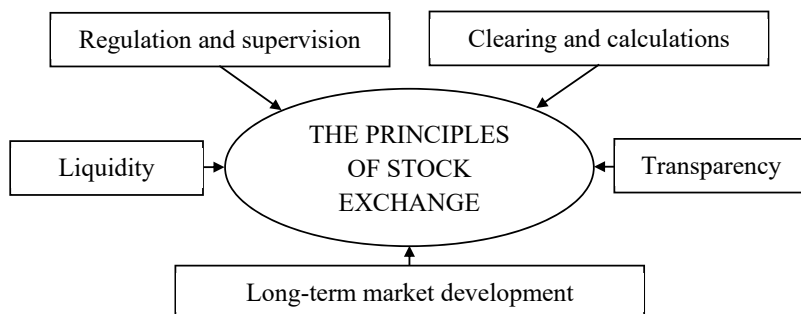


Fig. 5.2.1. The principles of stock exchange activity

The importance of transparency is reflected in the following: providing a fair game - when all information is available to all market participants, eliminates unfair benefits, which contributes to healthy competition and trust in the market; reduction of volatility -

transparent information helps investors make sound decisions that reduces unforeseen fluctuations on the market; increasing confidence in the market - transparency helps to increase the trust of investors, as they can be sure that the market is functioning honestly and predictably. This principle is key to maintaining the integrity of the market and attracting new investors, as they can be sure that they receive truthful information on which financial decisions can be made.

2. Liquidity is an opportunity to buy or sell securities quickly and at a fair price. Liquidity is the ability of the asset to quickly turn into cash without significant losses in value. Liquidity is one of the most important principles of the stock exchange, as it determines how easily investors can buy and sell securities without affecting their price. High liquidity provides appropriate advantages that determine: risk reduction - liquid assets are less risky because they can be sold quickly as needed. This provides investors flexibility; cost reduction - a smaller spread between the purchase and sale price reduces transaction costs for market participants; market stability - a high level of liquidity contributes to the stability of the market, since large transactions do not lead to significant fluctuations in prices (Popadynets, 2023). Thus, liquidity is an important principle that ensures the efficiency of the stock exchange, making it attractive to investors and stable to the issuers.

3. Long-term market development - ensuring stability and growth of the capital market through reliable regulation. This principle is that the stock exchange should work not only in the short-term interests of investors and issuers, but also to promote the sustainable growth of the market and the economy as a whole. This means that the exchange should create the conditions for long-term market functioning, stimulate investments and promote business development.

4. Regulation and supervision - the activity of the Exchange is controlled by national regulators to prevent manipulation and to ensure a fair play in the market. The principle of regulation and supervision on the stock exchange aims to ensure fair and efficient operation of the market, protect the interests of investors and maintain confidence in the capital market. It is based on a set of regulations, rules and standards that apply to all participants in exchange activities. The importance of regulation and supervision ensures stability and safety of stock markets, minimizes risks for market participants, increases transparency and fairness of trade. It promotes the protection of investors, strengthening confidence in the financial markets and contributes to economic growth by raising capital through the securities market.

5. Clearing and calculations are the reliability and speed of financial transactions that minimizes the risks for the parties to the agreement. The principle of clearing and calculations is one of the key in the functioning of the stock exchange, as it ensures the completion of all transactions between market participants. Clearing means the process of verification, reconciliation and preparation for the implementation of transactions, and the calculations provide for the actual transfer of financial assets. Thus, clearing and calculations are important mechanisms that guarantee a safe and efficient completion of the stock exchange transactions, reducing the risks for all market participants.

The National Stock Market appears in our country after Ukraine's independence is established. It was since 1991 that the first stock exchange began to function - the

Ukrainian Stock Exchange (UFB). The dynamics of the number of stock exchanges for the period 2016-2023 are presented in Fig. 5.2.2. During this period, the number of exchanges has been reduced by 2 times and as of 01.01.2020, only four stock exchanges have already been operating, which have been licensed to conduct organizational activity on trading in the stock market. But in the spring of 2021, the regulator canceled a license for the oldest stock exchange - PJSC "UFB". The reason for such actions was the failure of PJSC "UFB" in the market of professional activity during the year. Therefore, according to the NCSSMC today, there are only 3 stock exchange in Ukraine today: JSC "Ukrainian Exchange", JSC "PFTS Stock Exchange", PJSC "Perspective Stock Exchange".

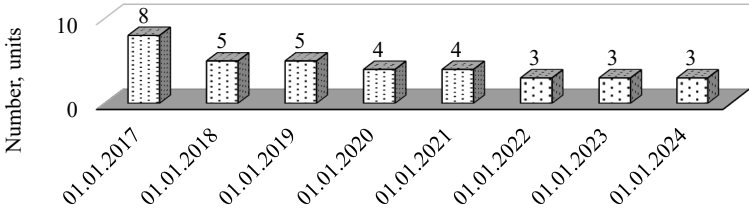


Fig. 5.2.2. Changing the number of stock exchanges in 2016-2023 in Ukraine, units

For the overall awareness of the stock market trading, we generally compare the size of the stock market and GDP in 2017-2023, which is clearly reflected in Fig. 5.2.3.

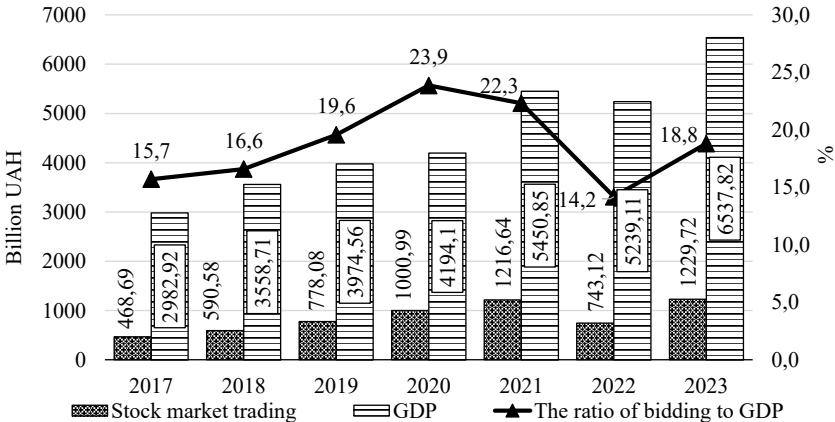


Fig. 5.2.3. Stock market trading and GDP of Ukraine in 2017-2023, billion UAH

The data presented in Fig. 5.2.3 reflect the tendency to constantly increase the volume of trading in the stock market. Thus, in 2023, this figure increased by 162,4% compared to

2017. Positive can also be considered a constant increase in the ratio of stock market trading to GDP. Thus, for the period 2017-2023, this figure increased from 15,7% to 18,8%. But in countries with a high degree of economic development, the ratio between the volume of stock market operations and GDP volume should always be more than 100%.

If you deepen the analysis in this direction, it turns out that during the period 2017-2023 there is a small but constant increase in the fate of the exchange of exchange stock market to GDP, namely: 2017 – 6,9%, 2018 – 7,33%, 2019 – 7,67%, 2020 - 8%, 2021 – 8,3%, 2022 – 3,1%, 2023 - 6,7%. As we can see, in 2022-2023, this trend was somewhat distorted due to military aggression. But the pace of such growth is insufficient, because the share of the unorganized market is increasing at a higher rate.

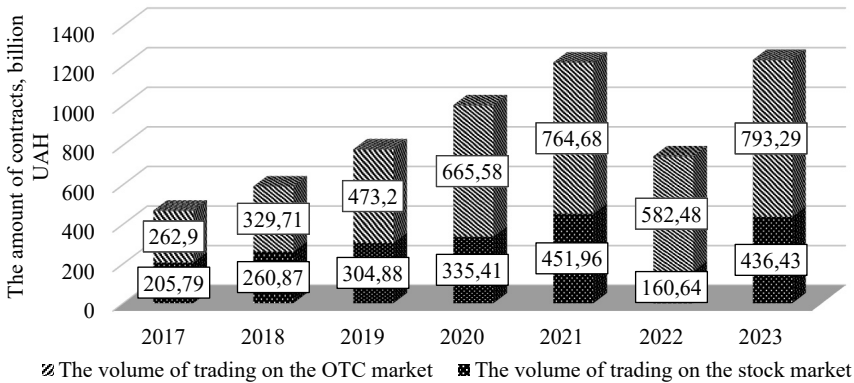


Fig. 5.2.4. The volume of securities market contracts, in billion UAH

Stock market operations regarding the sale and purchase of financial instruments can be carried out on both exchange and over-the-counter market. In general, these markets are not only complementary but also interdependent, because they affect some extent on each other's development and efficiency. So we will compare the proportion of operations that fall to each of these market segments (Fig. 5.2.4). It should be noted that for countries with a developed stock market, the proportion of the OTC market in the total volume of operations is less than in Ukraine.

The growth rate of the stock market in 2023 was 112%, comparing with 2017 (Fig. 5.2.4). It should be noted that according to the NCSSMC, in 2020 against 2017, the amount of securities trading on the stock market increased by 63% (despite the pandemic stagnation), while at the same time, this indicator increased as much as in the OTC market. In addition, on average for 2017-2020, the fate of organized securities trade in the total amount of bidding at the Furniture was about 39% (the largest value of the share was 44,2% in 2018, and the least in 2020 - 33,5%). But such a share of trade in the stock market is very insignificant and this indicates the insufficient development of stock exchange activities in Ukraine.

In the organized market during 2017-2023 there is a significant consolidation of trade in financial instruments on two exchanges of PJSC "FB" Perspective "and JSC" FB "PFTS", which covers the results of 2021 as much as 99,88% "Perspective".

As can be seen from Table 5.2.1, the proportion of leading stock exchanges on the organization of bidding securities has constant fluctuations for the period 2017-2023. Thus, in 2017, the largest share (61,91%) of securities bidding was at FB "Perspective".

Table 5.2.1

Structural distribution of trading volumes between participants
in an organized market in 2017-2023, %

| The name of the exchange | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| PJSC "FB "Perspective" | 61,91 | 48,81 | 61,13 | 60,06 | 48,04 | 38,12 | 33,68 |
| PFTS FB JSC | 31,26 | 43,13 | 37,61 | 39,22 | 49,02 | 52,28 | 62,94 |
| JSC "Ukrainian Exchange" | 6,52 | 8,05 | 1,26 | 0,72 | 2,94 | 9,60 | 3,38 |
| Other FB | 0,30 | 0,01 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

In 2018, this share decreased to 48,81%, but the prospect continued to remain a leader, although the share of FB "PFTS" (up to 43,13%) has also increased a little. However, in 2019-2020, the share of FB "Perspective" increased again, and in 2020 reached 60,06%. But at the end of 2023 FB "Perspective" significantly lost its position and occupied only 33,68% on the market. In turn, the Ukrainian Exchange JSC for the period 2017-2023 reduced the share of 6,52% in 2017 to 3,38% in 2023, so this exchange should today be characterized as a small site for the stock market in the stock market. In the stock market among financial instruments, the predominant volume of bidding for 2017-2023 was in transactions with state bonds of Ukraine, and in 2020 the volume of bidding of the ATP was already 98,33% (Table 5.2.2).

Table 5.2.2

Structural distribution of exchanges in financial assets in 2017-2023, %

| Type of financial asset | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|
| KIF shares and shares | 2,45 | 0,47 | 0,11 | 0,18 | 0,13 | 0,06 | 0,03 |
| State bonds of Ukraine | 92,11 | 94,19 | 96,73 | 98,32 | 99,22 | 97,55 | 93,07 |
| Business bonds | 2,97 | 3,94 | 2,85 | 0,28 | 0,53 | 0,19 | 0,02 |
| Investment certificates | 0,03 | 0,10 | 0,11 | 0,02 | 0,003 | 0,001 | 0,003 |
| Derivatives (derivatives) | — | 0,28 | 0,13 | 1,17 | 0,01 | 0,004 | — |
| Other securities | 2,44 | 1,02 | 0,07 | 0,03 | 0,10 | 2,19 | 6,87 |
| Total | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 |

Concerning the participation of exchanges in the organization of bidding by the bonds of companies (Table 5.2.2), it should be noted that in 2017-2023 there was a significant decrease in the share of this financial instrument in the total volume of debt from 2,97% in 2017 to 0,02%-in 2023. This situation emphasizes the problems of Ukrainian companies once again with the entry into organized financial instruments markets, although around the world this stock market segment is considered an alternative to banks' credit funds.

According to the NCSSMC, the unconditional leadership on the share of exchange operations on the T-State Tax Service during 2017-2023 has FB "Perspective" and, accordingly, the share of the concluded agreements was maximum in 2017 and was 65,34% and a minimum in 2023 - 32,1%. The second by this indicator was the PFTS FB with a share of transactions, respectively, the minimum share of 30,59% in 2017 and the maximum in 2023 – 64,6%. And in the third place was JSC "Ukrainian Exchange", for which the share of concluded agreements on government bonds for the analyzed period ranged from 4,07% in 2017 to 3,25% in 2023. The development of exchange activities in Ukraine can also be characterized on the basis of the analysis of the dynamics of the main stock index of the country - PFTS. This index was first designed to Ukraine in October 1997. The PFTS index is the price index, weighted in the volume of the most liquid shares in the free circulation on the exchange. The PFTS index basket includes 20 issuers.

On the basis of Fig. 5.2.5, we conclude on the largest trading increase in 2019, when the index was 563,06 points. The minimum index value in 2016 was 243,01 points, which was due to the economic and political crisis of 2015-2016. Although some positive dynamics of the index has been observed since 2017, the PFTS index value in general indicates the slow development of this market (the value of the index in 2023 is almost twice less than in early 2011).

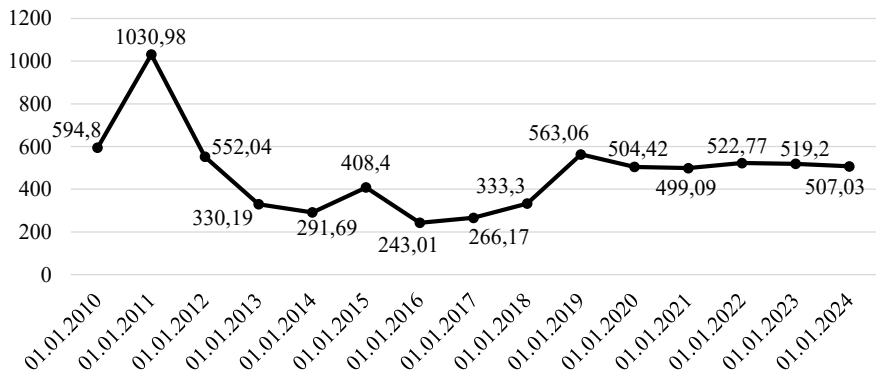


Fig. 5.2.5. PFTS Index Dynamics in 2010-2023

In general, in 2016-2018, securities reduced by changing the NCSSMC's clearing procedure in the stock market and increasing transparency of transactions in the exchange segment. The procedure envisaged the introduction of new requirements for exchange lists of securities, based on European standards and allowing only quality securities. In addition to reducing the number of companies whose securities are subject to new rules, the reduction of market operations in 2018 was also influenced by the fact that the NBU's deposit certificates were no longer taken into account in trade calculations. In 2019, the market began to grow by 26%, which was the result of stabilization of the country's

economy. However, in 2019-2023, the pandemic and military aggression again slowed down the process of growth of this index.

The volume of trading operations is determined by one of the key indicators of the stock exchange operation indicators, as they reflect investors' activity and the overall demand for securities. When the volume of trading operations increases, it may indicate a high interest in certain assets or in general in the market, which usually pushes stock prices up. Low volumes, on the contrary, indicate low interest in assets or caution of investors, which can determine the fall in prices for shares. Significant trading volumes are often observed during important economic events, such as publication of companies, changes in monetary policy or economic crises. Volumes also help investors to estimate the liquidity of the market, which is important for the ability to quickly buy or sell assets without significant changes in their price. High liquidity, which is observed at large volumes of bidding, makes the stock market more attractive to large investors.

Reducing trading may indicate risks or instability expectations when investors are maintained from active action. Volumes can also fluctuate depending on the season, as in the summer months or holidays, market activity may decrease. Analysts often use trading operations together with shares to identify trends and possible market reversals. In general, the volume of bidding is determined by one of the leading indicators that help to determine the current moods of the market, its stability and possible changes in investors' behavior. The study of the results of the auction at the organized site of FB "Perspective" can begin with the analysis of the dynamics of concluding transactions, which is presented in Fig. 5.2.6.

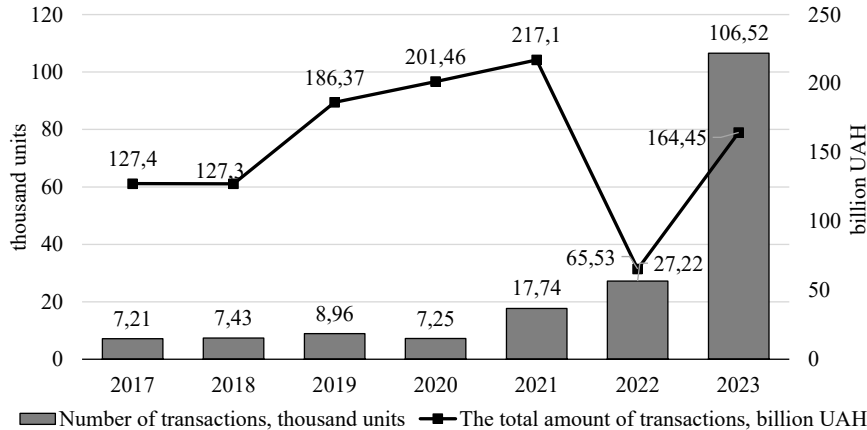


Fig. 5.2.6. Dynamics of conclusion of agreements on FB "Perspective" for 2017-2023

The number of transactions on the stock exchange is a significant indicator of market activity and the level of interest of investors. The high number of transactions mostly indicates a high level of liquidity of assets, which makes them more attractive to new investors. When the number of transactions increases, it may be a sign of the overall

confidence of investors in the stability of the market or expecting prices. On the contrary, reducing the number of transactions may indicate the caution of market participants or the expectation of instability, which reduces the readiness for active trade. The dynamics of the concluded agreements, represented in Fig. 5.2.6, indicates their significant increase in 2023 (+88,78 thousand units) equal to 2021 due to the increase in the level of interest of investors, especially shallows, but the amount of the auction did not exceed the level of 2021. This trend can be explained by the state policy of borrowing through the mechanism of military bonds, which involves the involvement of not only legal entities but also citizens.

Therefore, the number of transactions concluded also helps to estimate the dynamics of supply and demand for specific assets, and therefore understand moods and risks in the market. The shift in the volume of bidding at FB "Perspective" by varieties of financial instruments is shown in Table 5.2.3.

Table 5.2.3

Shifts in the volume of exchange trades by varieties of financial instruments of FB "Perspective" for 2017-2023, million UAH

| Type of financial asset | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------------------|----------|----------|----------|----------|----------|---------|----------|
| Shares | 11,39 | 30,00 | 0,86 | – | 4,86 | 0,30 | 0,06 |
| Investment certificates | 17,61 | 49,30 | 0,10 | – | – | – | – |
| Bonds of Ukrainian issuers | 2081,46 | 4654,00 | 554,50 | 66,50 | 955,79 | 105,80 | 95,81 |
| Bonds of foreign issuers | – | – | – | – | – | 16,56 | 44,56 |
| Bonds of foreign states | – | – | – | – | – | 1557,26 | 16373,95 |
| State bonds of Ukraine | 123844,5 | 121778,2 | 185614,5 | 200931,1 | 216100,9 | 63845,5 | 147936,0 |
| Municipal bonds | – | – | – | 394,80 | 29,38 | 1,06 | – |
| Optional certificates | 1455,09 | 813,53 | 196,12 | 59,82 | 22,15 | – | – |
| Total | 127410,1 | 127325,0 | 186366,1 | 201455,2 | 217113,1 | 65526,5 | 164450,4 |

So, according to Table 5.2.3, we observe that the total volume of bidding FB "Perspective" increased for 2017-2023 by UAH 37040,34 million, or an increase was 29,07%. However, such an increase in 7 years cannot be considered significant. This figure was the best on the eve of the military invasion in 2021, because it was then that the volume of bidding exceeded the 2017 indicators by 1,7 times. Accordingly, in 2022 it was the smallest and collapsed compared to 2021 by 70%. There was a certain elevation of the volume of bidding in 2023. This indicates the increased interest of investors in assets and increased their activity in the market. This situation may indicate positive expectations about economic conditions or future rises for shares. In addition, raising bidding is often accompanied by strong market trends or significant news that affects supply and demand.

In general, the greatest influence on the shifts in the volume of financial instruments at this site is the state bonds of Ukraine, which in fact set the trend. The importance of bidding by public bonds is evidenced by the structure of exchange trades on varieties of financial instruments of FB "Perspective", which is given in Table 5.2.4.

Table 5.2.4

The structure of exchange trades on varieties of financial instruments of FB
"Perspective" for 2017-2023, %

| A financial asset | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| Shares | 0,009 | 0,024 | 0,000 | – | 0,002 | 0,000 | 0,000 |
| Investment certificates | 0,014 | 0,039 | 0,000 | – | – | – | – |
| Bonds of Ukrainian issuers | 1,634 | 3,655 | 0,298 | 0,033 | 0,440 | 0,161 | 0,058 |
| Bonds of foreign issuers | – | – | – | – | – | 0,025 | 0,027 |
| Bonds of foreign states | – | – | – | – | – | 2,377 | 9,957 |
| State bonds of Ukraine | 97,20 | 95,64 | 99,60 | 99,74 | 99,53 | 97,43 | 89,96 |
| Municipal bonds | – | – | – | 0,196 | 0,014 | 0,002 | – |
| Optional certificates | 1,142 | 0,639 | 0,105 | 0,030 | 0,010 | – | – |
| Total | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 |

Table 5.2.4 data show one hundred percent dominance of debt tools in exchange auctions. Thus, Ukrainian state bonds had a share of 89,96%, and bonds of other issuers (Ukrainian companies, foreign issuers and states) – 10,04%.

Currently, bidding bonds are prevalent in Ukraine's stock exchanges, which is caused by their stability and relatively low risks compared to the shares of private companies. Public bonds also attract investors through government guarantees, which makes them stable tools to save capital. In addition, high demand for government bonds in Ukraine is supported by their favorable profitability and accessibility for different categories of investors. The volume of exchange trading financial instruments by type of market can tell a lot about the structure of investments and preferences of investors. In the primary market, high volumes testify to the successful placement of new securities and the strong interest of investors in new proposals. In the secondary market, large volumes indicate the active circulation of already released financial instruments, which indicates their liquidity and the ability to quickly resell assets. If the volume of trading in the derivative market is increasing, it shows increased interest in hedging risks and speculation. At the same time, the volume of trading in the markets of government bonds may signal the attractiveness of state instruments for investors as a safer investment option during uncertain periods.

Information in Table 5.2.5 on the volume of bidding financial instruments at FB "Perspective" by type of market reveals the predominant activity of investors in the secondary market. The minor activity in the primary market was observed in 2017-2019. This can be associated with a decrease in corporate securities. Subsequently, in 2020-2023, the lack of a spot primary market indicates a lack of liquid new issues that could provide rapid capital circulation. In addition, the absence of a spot primary market can

affect the overall liquidity of the exchange and slow down its development due to lack of investment opportunities for traders looking for rapid profits.

The secondary market shows a more lively dynamics in 2017-2023, which, however, is not unidirectional. Thus, the repo market in 2023 has the lowest bidding of UAH 15741,2 million, and the largest was recorded in 2021 - UAH 70962,72 million, a gap between volumes is 4,5 times. Currently, the secondary repo market reflects the current level of supply and demand for short -term loans secured, which is important to ensure the liquidity of the financial system. This market allows financial institutions to quickly receive access to funds (securities), which helps maintain the stability of their activities. In addition, the volumes and dynamics of the Repo secondary market may indicate the overall confidence of market participants and risk-free interest rates.

Table 5.2.5

The volume of bidding financial instruments at FB "Perspective"
by type of market in 2017-2023, million UAH

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------------------------|-----------|-----------|-----------|-----------|-----------|----------|----------|
| The primary market, total | 1329,97 | 2899,65 | 7,8 | – | – | – | – |
| including: | | | | | | | |
| courtyard | 1329,97 | 2899,65 | 7,8 | – | – | – | – |
| Secondary market, total | 126095,07 | 124425,37 | 186355,43 | 201455,17 | 217113,06 | 61240,43 | 146978,9 |
| including: | | | | | | | |
| Repo | 48626,46 | 32239,62 | 62775,82 | 55372,98 | 70962,72 | 17320,64 | 15741,2 |
| term | 0,04 | 0,13 | – | – | – | – | – |
| courtyard | 77468,5 | 92185,6 | 123579,55 | 146082,19 | 146150,33 | 43919,79 | 131237,7 |
| privatization | 0,05 | – | 0,07 | – | – | – | – |

In turn, the secondary spot market has a slightly smaller amplitude of oscillations in 2017-2023: from the smallest value of UAH 43919,79 million. In 2022 to the largest - UAH 146150,33 million. In 2021, or the specified gap is 3,3 times. The fluctuations in the volume of bidding in the secondary spot market indicate a change in the interest of investors in already issued securities, which may be associated with changes in market conditions or expectations for economic indicators. The raising of trading volumes can signal the highest liquidity of assets and the readiness of participants to actively buy or sell them on the market. On the contrary, the decrease in volumes may indicate uncertainty in the market or a decrease in interest in certain assets, which reduces their liquidity.

The main sources of formation of financial resources of the company are borrowed funds and equity. When managing the capital of the company, the key task is to maintain its ability to work steadily, providing profitability, as well as continuous financing of operating expenses, investment projects and the implementation of strategic goals of development. The current company administration policy is aimed at supporting the optimality of the structure that minimizes the total costs of raising capital, retains the trust

of investors, creditors and market participants, and contributes to the future growth of business.

Fig. 5.2.7 demonstrates dynamic changes in the total assets, liabilities and equity of FB "Perspective". During 2017-2023, the assets of the Company on more than 99% are funded at the expense of own (joint-stock) capital, which is explained by the specifics of the requirements for financial institutions of this type. Thus, the equity of the stock exchange must comply with the regulatory requirements defined by the legislation and regulatory bodies. For the stock exchange, which conducts clearing and calculations, equity should be at least UAH 25 million. During 2017-2023 the amount of the authorized capital of FB "Perspective" was UAH 50 million. This level of capitalization provides the possibility of covering risks, compliance with market participants and maintaining stable exchange activities.

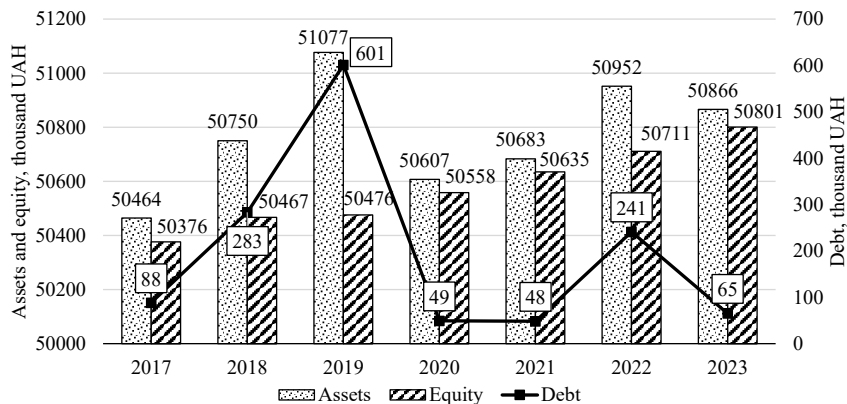


Fig. 5.2.7. Dynamics of total assets, equity and liabilities of FB "Perspective" for 2017-2023

In turn, the Perspective FB has no significant obligations. During 2017-2023, current debt was mainly associated with wages (unused staff leave) and budget payments. Only in 2019, there is a certain increase in the amount of obligations by concluding a contract for non -percent use with mandatory return.

The formation of financial results of the stock exchange is due to income from the provision of services for the organization of trade, clearing or payments under contracts with securities and derivatives. The Exchange makes a profit from commission fees paid by market participants for transactions, as well as from providing additional services, such as information service and analytical support. In addition, the income of the exchange may depend on the volume of trade and the number of transactions concluded, which increase the total revenue. Table 5.2.6 analyzes the dynamics of financial results of FB "Perspective" for 2017-2023.

Table 5.2.6

Analysis of formation of financial results of FB "Perspective", thousand UAH

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------------------------------|------|------|------|------|------|------|------|
| Net profit | 1449 | 1668 | 1490 | 1441 | 1627 | 1433 | 2245 |
| Cost | 1420 | 1671 | 1413 | 1168 | 1147 | 1145 | 1388 |
| The costs are administrative | 727 | 722 | 609 | 500 | 450 | 438 | 408 |
| Financial income | 872 | 816 | 496 | 151 | 7 | 77 | 552 |
| Financial expenses | – | – | – | – | – | – | 654 |
| Other income | 32 | 76 | 196 | 208 | 58 | 170 | 225 |
| Other expenses | 104 | 56 | 149 | 32 | 1 | 4 | 462 |
| Financial result before tax | 102 | 111 | 11 | 100 | 94 | 93 | 110 |
| Income tax | 18 | 20 | 2 | 18 | 17 | 17 | 20 |
| Net profit | 84 | 91 | 9 | 82 | 77 | 76 | 90 |

The financial activity of FB "Perspective" during the study period is profitable. The highest amount of net profit is fixed in 2018 and the smallest in 2019. The sharp decline in business profitability can be explained by pandemic restrictions and inhibition of investment activity of participants in the exchange. Among the positive points are the gradual reduction of administrative expenses from UAH 727 thousand. in 2019 up to 408 thousand UAH. in 2023 (by 43,8%). Reducing the administrative costs of the stock exchange indicates more efficient use of resources and optimization of operating processes. This notes the improvement of cost management systems and the introduction of more economical approaches to supporting the activities of the exchange. The reduction of administrative costs also has a positive effect on profitability, increasing the overall financial stability and competitiveness of the exchange. However, the situation with increasing financial expenses (+654 thousand UAH) and other expenses (+358 thousand UAH) in 2023 requires further observation, as such growth can significantly impair the generation of net profit of the exchange.

The financial condition of the stock exchange is also revealed by such indicators as the sufficiency of own funds, the liquidity of assets, the coverage of operating risk, the profitability and success of cost management. The sufficiency of own funds reflects the ability of the exchange to ensure stable work and meet the regulatory requirements of capital. The liquidity of assets indicates the ability to quickly fulfill obligations to market entities, which is a determining indicator of reliability. Operational risk coverage demonstrates how much the stock exchange can compensate for the risks of activity at the expense of your own expense. The level of profitability and success of cost management indicate the economic stability of the exchange and its ability to ensure growth and stability in the long run.

NCSSMC, in accordance with the Regulations on Prudential Norms of Professional Activity in the Stock Market and Requirements for Risk Management System, a number of parameters in evaluating the risks of actions on the organization of the stock market trading are determined. Table 5.2.7 analyzes the observance of these prudential standards of FB "Perspective" in 2017-2023.

Table 5.2.7

Analysis of Prudential standards of FB "Perspective" for 2017-2023

| Indicator | The standard | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--|--------------|---------|--------|--------|--------|--------|--------|--------|
| Absolute liquidity ratio | $\geq 0,5$ | 116,48 | 18,65 | 27,49 | 402,42 | 333,21 | 117,59 | 279,31 |
| Operating risk coefficient | ≥ 1 | 194,45 | 220,97 | 245,92 | 281,34 | 352,43 | 435,15 | 496,01 |
| An indicator of adequacy of own funds | ≥ 1 | 45,84 | 69,07 | 72,09 | 82,44 | 121,4 | 138,0 | 154,77 |
| The amount of capital of the 1-th level (thousand UAH) | – | 25274 | 32907 | 34085 | 35155 | 36288 | 37408 | 38535 |
| Value valuation of highly liquid assets (thousand UAH) | – | 10248,2 | 5276 | 16512 | 19767 | 16137 | 28308 | 18290 |
| The average size of a positive net income (thousand UAH) | – | 867 | 993 | 924 | 833 | 686 | 573 | 518 |
| Operational risk size (thousand UAH) | – | 130 | 149 | 139 | 125 | 103 | 86 | 78 |

Indicator of sufficiency of own funds of the stock exchange (includes the size of the capital of regulatory and fixed overhead costs for the previous year Financial), overlapping of operational risk (the ability of the stock exchange to cover their operating risks at the expense of own funds in accordance with a certain level of average annual positive income), as well. In addition, during 2017-2023 they undergo gradual growth. This confirms the company's ability to maintain sufficient equity to overlap costs, liquid assets to secure liabilities, and a stable risk covering.

The analysis shows that the work of stock exchanges in Ukraine accompanies a number of problems. So the main problematic issue should be that the main number of operations with financial assets is carried out in the unorganized market. And because of this, other problems of stock exchanges are created, namely: a small number of operations conducted on the exchanges, leads to a low level of liquidity and minor indicators of economic performance of their functioning; opaque pricing, etc. The further development of the stock exchange activity, despite the thirty -year evolutionary path of development, is maintained mainly by psychological rejection of exchanges by potential participants in the stock market. Another problem here can be defined as a limited number of highly skilled personnel. In general, you can agree with the experience of scientists and practitioners in the field of stock exchange activities, which quite often distinguish the following three main problematic issues of development of stock and monetary exchanges in Ukraine: the high level of market capitalization, problematic moments with the protection of shareholders and investors, imperfect regulation. Indeed, the study highlights the problem that most Ukrainian companies do not perceive the stock market

as a basis for attracting cheaper financial resources, which leads to a low level of capitalization of stock exchanges. And in Ukraine there are almost no state guarantees for the protection of the rights of enterprises in the stock market. Therefore, it becomes clear that the regulatory framework for the functioning of stock exchanges requires a well - considered approach to its reformatting. The problems in the actions of the exchange segment of the national stock market are presented in Fig. 5.2.8.

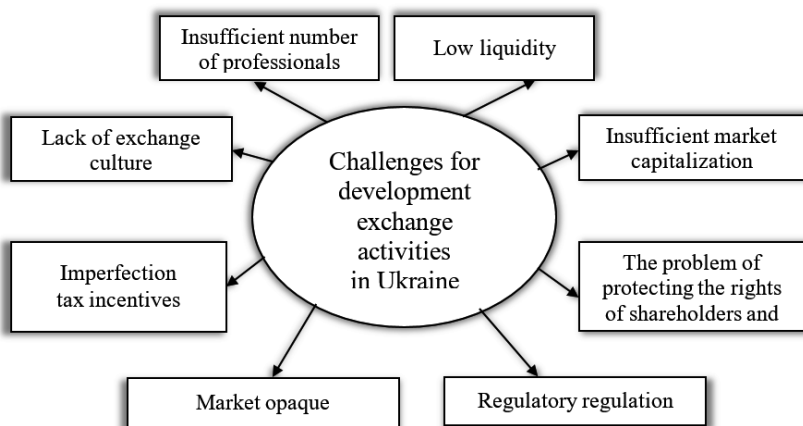


Fig. 5.2.8. Challenges for the development of stock exchange activity in Ukraine

Problems presented can be covered as follows:

1) low liquidity. In the organized market, due to the small amount of exchange operations, the situation of its low liquidity arises, which, in a circle, reduces the effectiveness of investors in the management of the portfolio of investment securities. That is, the absence or low market demand and supply do not make comprehensive ability to conduct assets at market prices;

2) low capitalization of the market. Potential stock market entities today do not consider it as a powerful source to obtain affordable and cheap financial resources. Market prices are not fully regarded as an indicator of the success and prospects of the development of issuers. Therefore, such an underestimation of most financial assets on the exchange causes a low overall level of market capitalization;

3) problems with rights and their protection for shareholders and investors. So today, in Ukraine, the rights of individual shareholders are more formal than a real mechanism. For example, restriction of access of individuals to the stock market arises due to the lack of opportunity to actually influence the activities of companies, the lack of guaranteed state protection of their rights and the reluctance of issuers to pay dividends;

4) regulatory regulation. Thus, in Ukraine, the legislative and regulatory framework for the regulation of exchange activities is still at the stage of formation, that is, the overwhelming number of regulations are not focused on international standards and

requires further settlement. These gaps are especially noticeable about market transparency and accessibility of exchange information;

5) market opacity. Information support of exchange activities is insufficiently presented for the general public from the standpoint, accessibility and completeness of operational data. Therefore, the market on the stock market presents very small volumes of operational analytics and a different information array of data;

6) imperfection of incentives by tax legislation. Taxation of investment income and lack of tax benefits for investors, various license payments, fee for registration of securities, double taxation for dividends do not stimulate the development of the stock market of Ukraine;

7) lack of exchange culture. The problematic situation is that households do not perceive the stock market as a potential opportunity to place their savings. This also happens because of the daily degree of awareness of the population about exchange activities;

8) lack of number of professionals and specialists. It is because of the limited development of the stock market infrastructure, namely a small number of investment brokers, consulting and analytical firms, that there are obstacles in the market for exchange professionals.

Thus, it is necessary to recognize the lack of development of exchange activities for Ukraine and the presence of numerous problematic aspects, but in that, you can also indicate its strong potential and development prospects. In Ukraine, integration into the international space is stimulated in Ukraine, first of all, paying attention to the experience of effective functioning of international stock exchanges. An important measure for the further development of the activities of the exchanges should be the regulation of the legislative and regulatory framework and improving the technological level of exchange trade (Kovalchuk, 2023).

Considering the need to further solve these problems in the activities of exchange institutions as stock market entities should be recommended to implement a number of measures to improve the activities of exchanges in Ukraine:

- increasing the share of the stock market, for which at the legislative level to create appropriate normative and organizational conditions for concluding contracts for the purchase and sale of financial assets within the stock exchanges;

- consolidation of exchange trading on a small number of exchanges, that is, gradually depart from the practice of considerable numbers (for the period 2015-2021, the number of stock exchanges in Ukraine from 10 to 3, which is a positive moment today). This is due to the fact that exchange activities in the amounts that can really affect the economy are carried out only a few. Therefore, for the successful conduct of stock exchange activities, as the experience of developed economies shows, there is a small number of exchanges. For example, for the leader of exchange activities-the United States, countries with a 330 million population, there are 11 stock exchanges for a successful organization of trading, as the United Kingdom itself with a population of 67 million. Citizens, has only 5 stock exchanges, and in the Sweden Stock Market, Switzerland and the Netherlands only one exchange operates;

- expansion of financial resources at exchange auctions by directing household funds,

as well as bringing foreign institutional investors through the creation of an attractive investment climate in Ukraine (Kuzmynchuk, 2022);

- increasing the level of protection of investors' rights, for which to increase the capabilities of the NCSSMC when exposed to the subjects of exchange activities and to create a reliable system of guaranteeing the protection of investors' rights;
- increase in capitalization and liquidity, to form conditions for enterprises on the primary public placement of shares of Ukrainian issuers on national stock exchanges;
- the increase in the degree of exchange culture, which should be ensured by increasing financial literacy among the population, as well as the promotion of financial investments in general through advertising means;
- development of the latest technologies of exchange trading, activation of Internet trading and other information technologies on the basis.

It should be noted that some of these measures are already implemented in a legislative and organizational-institutional plane. However, problematic issues such as bringing new financial instruments to the stock market, transferring the vast majority of securities trading to organized markets, etc. are still needed. In general, it can be noted that for the successful operation of the Ukrainian stock market, it is first and foremost necessary to improve the legislative framework and increase the confidence in exchange activities.

The modern stock market in Ukraine requires guaranteeing high liquidity of trade, which can occur by providing investors with a large range of financial instruments and thus diversification of investment directions. All this will allow various investment and behavioral strategies in the stock market.

Increasing a range of stock tools can occur in the following ways:

- reducing the level of rigidity of the requirements for the financial indicators, which are checked during lists of securities;
- the possibility of inclusion in the exchange register of a exchange of securities, which have already had circulation on another stock exchange, while, subject to sufficient starting liquidity, do not require permanent trading on this exchange for six months;
- increase of requirements for issuers for their information transparency;
- for issuers whose securities are in public circulation and have undergone listing procedures on the exchange, it is possible to provide certain tax preferences;
- simplification of the circulation of foreign securities in the exchange market.

The stock exchange will be effective primarily with sufficient transparency of exchange operations. It is possible to resolve these issues through the development of relevant information programs to process data arrays coming from issuers; analysis and systematization of securities market in accordance with the directions of their receipt; distribution through the Internet and special printed publications of information indicators and more (Khalatur, 2024). Such approaches will create the conditions for systematizing the status and development of the stock market, which will ultimately ensure the availability of this information to all interested persons.

In the context of further guaranteeing of transparency of exchange agreements, it is advisable to create a specialized accessible website, which will provide information on the dynamics of exchange trading indicators, on the effectiveness of activity and to

evaluate the financial position of the issuers, as well as information about the market prices of financial instruments.

It can be noted that for the national economy a prerequisite for its development is the further systematic development of the stock market.

In the direction of increasing the confidence of investors in the market of debt tools, it is necessary to introduce a set of measures that will ensure the creation of conditions for the protection of the right of corporate debt owners and expanding the list of mentioned tools. Such measures may include NCSMSC preventive actions about preventing fraudulent schemes in the market with corporate bonds, diversifying approaches to the process of release of corporate bonds in accordance with the level of issue activity of the company, conducting effective mechanisms for the issue of exchange bonds.

To activate the derivatives market, measures should be taken to promote the use of these derivatives, that is, to determine the mechanisms of their widespread use, especially for risks hedging.

In order to stimulate investments through joint venture institutions, a system of non-state pension funds, and to improve the quality of stock market tools, the development of legislation on derivative financial instruments can be considered. It will also contribute to improving the field of innovation by approaching the financial instruments. To support the rights of investors and to ensure information transparency is planned by regulating the rules of lending under securities, as well as the procedure for concluding agreements on their debt.

The key aspect is the involvement of individuals in the conclusion of transactions in the securities market. Therefore, to increase financial education and interest of retail investors should be:

- approve the program of improvement of financial literacy;
- to develop an effective mechanism of cooperation between private investor and NCSMS;
- ensure the dissemination of information about the stock market;
- to provide security measures to protect the capital of small unqualified foreign investors.

Thus, the study demonstrated that there is a strong potential for the development of Ukrainian stock exchanges. It is possible to solve the above problems with adequate state regulation, distributed in the country of exchange culture, reorientation of companies from the market of banking services to attract financial resources through the stock market, stimulate participation in bidding of foreign institutional investors, expand the list of exchange tools, development of technology.

The current stage of evolution is characterized by the growing uncertainty and risks caused by the rapid emergence of various, complex and constantly changing phenomena and processes in both companies and in their external environment. Important factors in the successful operation of companies in the market are the proper understanding of these processes and the ability to manage them effectively (Vodolazska, 2018). It is now relevant to study the problems of exchange of exchange trade using financial derivatives.

The development of economic systems through market mechanisms involves various institutional complexes aimed at the formation, organization and stimulation of trade

relations. In Ukrainian society there is no institutional memory of building an effective market, as well as the involvement of derivatives in the model of commodity exchange. Stock trade plays a significant role in the development of intermediary relations, strengthening market infrastructure. Exchanges provide the necessary rules and conditions for effective exchange of assets, including derivatives that serve both for protection against risks and for speculation. This increases market liquidity and creates new opportunities for participants in using these tools.

From a fundamental point of view, it is important to note that the exchanges provide high liquidity, providing investors a lot of opportunities for trading operations. Exchanges are a place of regular meetings where bidding, currency and other assets occur. Commodity exchanges operate with homogeneous and standardized goods, the prices of which are formed under the influence of supply and demand and become accessible to the general public.

Derivatives are regarded as financial instruments whose value is formed from the cost of a basic asset because they do not have independent value and depend on the corresponding asset. The derivative contract seller does not necessarily have a basic asset, but can provide the buyer with the means to purchase it or replace with another derivative. Derivatives contribute to the redistribution of price risks, and their key function is to hedge, that is, insurance against price fluctuations in the capital market and financial risks. The organized derivative market makes risks more predictable and consistent, which contributes to the stability of global monetary and financial relations.

However, there are some obstacles to the development of the derivative market, including low liquidity and high risk, political and economic instability, shortage of trained specialists, lack of a concept of development of the state capital market development and lack of standardized approaches to the assessment and accounting of derivatives.

Historically, exchanges have been divided into commodity and monetary in their organizational and legal form, and the state exchanges were well developed by the rules of activity established by the state. In the twentieth century, exchanges were widespread, managed by brokerage firms and banks that sought to create a securities market.

The organization of exchange trading significantly contributes to the development of financial derivatives. Modern exchanges provide the necessary infrastructure and regulatory rules for the effective exchange of assets, including derivatives that are used both for risks hedging and speculation. This increases market liquidity and creates favorable conditions for expanding market participants in using such tools (Kovalyuk, 2024).

Derivative contracts have existed since ancient times and have been used to provide a balance in the exchange of goods and services at the global level. Today, they have become even more accessible by reducing barriers between currencies and accounting systems that have previously complicated transactions between participants. For a better understanding of the role of derivative tools for the development of exchange trading, we give an illustration (Fig. 5.2.9).

Therefore, by functional purpose of derivative tools in the development of exchange processes recognize the following directions:

- risk management: derivatives help investors to protect themselves from market price fluctuations, since their use for hedging reduces the likelihood of unforeseen financial losses, which contributes to the stability and predictability of financial results;
- increasing liquidity: thanks to derivatives, the volume of exchange trading increases, attracting more participants and transactions, which improves liquidity and makes the process of sales and selling assets more convenient and more efficient for everyone;

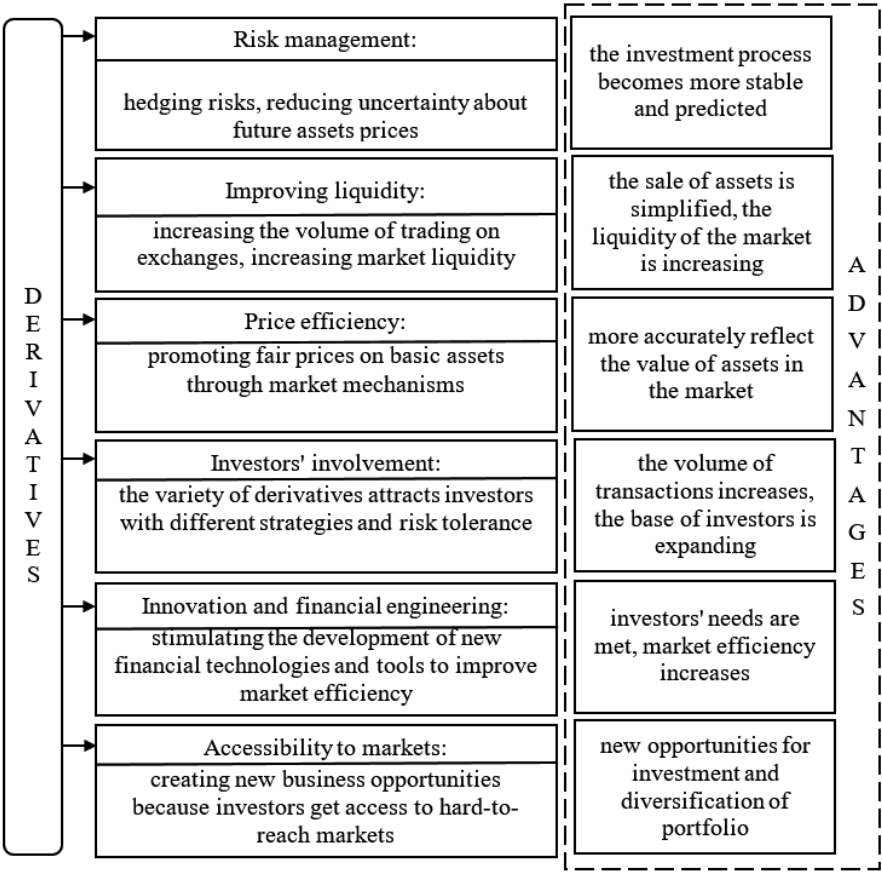


Fig. 5.2.9. Functional purpose of derivative instruments in the development of exchange processes

- providing price efficiency: assets prices are more accurately reflected in their real value, which is important for making informed investment decisions;

- investors' attraction: the variety of derivative tools attracts investors with different strategies, contributing to the overall increase in the number of market participants;
- innovations and development of financial products: derivatives stimulate the creation of new financial products and technologies, which allows the market to adapt to the needs of investors and promotes overall development;
- facilitating access to markets: derivatives enable investors to participate in markets that may be inaccessible due to high costs or regulatory restrictions, which allows you to diversify portfolios and reduce overall risk.

Therefore, financial derivatives are used both to protect investment and to perform speculative operations. A speculative investor can make a profit if the cost of acquiring a derivative contract is lower than the price of a base asset.

In the Ukrainian legislation, the main normative legal documents governing derivatives are the Civil Code and the Law "On State Regulation of Capital Markets and Organized Commodity Markets", which uses the term "derivative securities". The latter also defines the mechanisms of issue and circulation of securities derivatives that determine the right to purchase or sell securities, other financial and commodity resources within the term specified in the contract (contract). The Tax Code of Ukraine classifies derivatives as documents stating the right or obligation to buy or sell in future securities, tangible or intangible assets, as well as funds on established conditions, covering swaps, options, forward and futures contracts. However, there is still no comprehensive legal framework in Ukraine for the successful functioning of the derivatives market and this creates the risks of possible abuse by issuers and derivatives and contract owners (Shelenko, 2024).

The organization of exchange trading and the development of derivative instruments are the main elements of modern financial markets. Exchanges provide infrastructure and asset exchange rules, including derivatives that help maintain liquidity and risk management. Improvement of derivative tools allows market participants to effectively protect their investments, implement speculative strategies and manage the portfolio, which helps to overcome it with financial stability and development of global markets.

On the basis of the conducted research and taking into account the adaptation of the Ukrainian stock market and the derivatives market to international standards we believe that the main directions of further development of the derivatives market in Ukraine should include:

1. The transition to the cross model of state regulation of the derivatives market, which provides for the distribution of prudential supervision and regulation of financial transactions between the two bodies (since 2020 the NBU regulates non -bank services and the NCSSMC remained regulator of the securities market).
2. Creating a trade repository for forming a database of derivative contracts.
3. Development of the market of basic assets, including organized and liquid commodity markets for energy, agricultural products and metals.
4. Expanding index trade through introducing new financial instruments or updating existing (for example UX and PFTS).
5. Introduction of derivatives for digital assets, weather conditions, freight rates or emissions CO₂ to enhance risks hedging opportunities.

6. Activate the use of credit notes as a tool for debt and credit risk management.
7. Development of the National Development Program for Development of Exchange Activities and stimulating the participation of economic exchanges.
8. Granting permission for securities trading in foreign currency to attract investors.
9. Strengthening standardization and regulation of the OTC derivatives to eliminate asymmetries in financial and information procedures.
10. Introduction of oversight of the stock market infrastructure (central depository, securities payments, central counterparty and trading repository) to minimize risks.
11. Implementation of investor compensation schemes in accordance with the requirements of EU legislation.
12. Development of the Concept of Integration of Infrastructure of the Ukrainian Stock Market into the European T2S system, which provides for the opening of accounts for securities transactions.

13. Further implementation of international derivative market management standards and active cooperation with international organizations and regulators of other countries.

These areas will help to increase the transparency, liquidity and efficiency of the Ukrainian derivatives market, as well as to increase the security level of its participants.

The theoretical basis of the functioning of the stock exchange is nowadays highlighted from the standpoint of methods and models of trade in a set of securities used by investors. In general, these knowledge fields are called portfolio, technical and fundamental analysis.

Currently, economic and mathematical models of portfolios have become the theoretical basis of effective management of securities on the exchange, but they are ineffective in the unstable state of the stock market and not adapted to the specifics of different financial institutions. Thus, there are currently no universally recognized models that would describe directly the functioning of the stock exchange, taking into account the specifics of the unstable economy, and were aimed at improving the efficiency of its activities, as well as the activities of its participants.

Today, the so-called "agent-oriented models", which belong to the class of models based on the individual behavior of agents and created for computer simulations, have been increasingly developing in various fields and fields of science. Their basic idea is to construct a computing tool, which is a collection of agents with a certain set of properties and allows to simulate real actions.

When creating an agent-oriented stock exchange model, investors are investors or legal entities that carry out securities agreements in order to save their own funds or multiply it. Exchange investors may be different from each other by the following properties:

1) investor volume. It implies the amount of money that the investor is ready to spend on securities transactions. At the same time, the modeling assumes that this amount can be changed only through the purchase and sale of securities, that is, the investor cannot raise additional funds from the outside or vice versa to raise some of the amount from the exchange for extraneous needs. Conditionally by the size of the stock market investors are divided into: small (from 50 thousand to 500 thousand UAH); average (from 500 thousand to UAH 5 million); large (over UAH 5 million).

2) the term of investment. This property means the investment strategy of the investor chosen by the investor: long-term investment (for a term of 1 year) or a cumulative strategy. It means that the investor has the amount of money with which he is ready to divorce for a long time. This kind of investors believe that the company in which the funds are invested will be successfully developed, based on the analysis of the position of the company, the industry in which it functions and the state of the economy as a whole, despite the short-term declines; medium-term investment (for a period of several days to several months) or a positional strategy. Requires a lot of time for trading time compared to a cumulative strategy. This kind of investors, as a rule, operate within the existing trend, that is, open a position when the trend has already been formed and hold it until the trend is exhausted; short-term investment (trade within one day or several days) or speculative strategy. Trader tries to earn a profit on short-term fluctuations in stock quotes. It takes a lot of time and attention of the investor.

3) a tendency to risk. According to the tactics of their actions on the stock exchange, investors are divided into 3 types: conservative (slow to risk, which is why they are ready to sacrifice the profitability of transactions); moderate (do not go to unjustified risk, but are at risk); risky (for the sake of high income are ready to risk). In part, this property is related to the previous ones: conservative investors are usually resorted to a cumulative strategy, moderate - to positional, and risky - to speculative. However, in addition, the tendency to the risk is influenced by the personal qualities and psychological characteristics of the investor: risky investors are ready to sell all available securities together, as a rule, moderate, as a rule, do so, in the case of small quantities if the market situation confirms the decision.

4) the method of deciding on the agreement. When trading, it is very important to identify the time when you need to buy or sell securities to earn them, not to be in losses. In general, there are 3 groups of decision-making methods mentioned above: methods of technical analysis; methods of fundamental analysis; a comprehensive approach.

Each of these groups includes tens or even hundreds of tools. The investor can use both specific ones and their combination.

The study demonstrated that there is a strong potential for the development of Ukrainian stock exchanges. It is possible to solve existing problems with adequate state regulation, distributed in the country of exchange culture, reorientation of companies from the market of banking services to attract financial resources through the stock market, stimulate participation in bidding of foreign institutional investors, expanding the list of exchange tools, development of technologies.

The organization of exchange trading and the development of derivative instruments are the main elements of modern financial markets. Exchanges provide infrastructure and asset exchange rules, including derivatives that help maintain liquidity and risk management. Improvement of derivative tools allows market participants to effectively protect their investments, implement speculative strategies and manage the portfolio, which helps to overdo it with financial stability and development of global markets.

5.3. MODERN TRENDS IN THE DEVELOPMENT OF THE UKRAINIAN STOCK MARKET

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The modern world is in a state of turbulence. Fundamental changes in technologies are taking place, social production is finally being rebuilt into the sixth technological order. New financial technologies are transforming the functioning of financial markets, accelerating the circulation of capital, attracting new investors, and servicing the movement of new commodity flows. At the same time, there is a structural rebuilding of the world economy both in the context of production sectors and by world regions. These factors make the movement of financial flows extremely volatile, which, together with the systemic risks of the last ten years, significantly brings the global financial crisis closer.

The development trends of the stock market of Ukraine are quite specific, which is determined by the history of its formation and development in the context of the country's economic history. Since the modern period of time is characterized by rapid variability of economic realities, the study of current trends of any economic processes quickly loses its relevance. Determining the most modern trends in the development of the stock market is a prerequisite for formulating qualitative patterns of its development. This is especially important given the current crisis state of the Ukrainian economy, which is in aggressive conditions of martial law. Therefore, the purpose of this study is to formalize modern trends and problems in the development of the stock market of Ukraine.

The theoretical and methodological basis of this study was formed by the works of N. Alieinikovoi, D. Butenka, D. Vavzheniak, O. Vodolazskoi, O. Hordiiienka, O. Druhova, S. Zarazhevskoi, A. Kalyny, R. Kysliak, O. Korniiichuk, T. Kotenko, D. Leonova, S. Moskvina, R. Perepylytsi, Z. Pestovskoi, Yu. Radelytsi, S. Samets, Ye. Chemerys, K. Shevtsovoi, I. Shkolnyk, H. Yatsiukty and others, who at different times analyzed the trends, patterns, factors, problems and prospects for the development of the stock market of Ukraine.

The short history of the development of the Ukrainian stock market is burdened by significant fluctuations in activity, institutional and organizational difficulties, and the influence of destructive factors. In an aggressive environment, this led to the curtailment of the activities of stock exchanges in particular and the stock market as a whole.

However, the stock market in Ukraine, unfortunately, is not significant in relation to the gross domestic product and has shown a steady downward trend based on data (NSSMC, 2025) (Fig. 5.3.1). Statistical data on the state and development of the stock market in Ukraine were obtained from analytical reports of the National Commission for the Supervision of Financial Markets and Investments (NSSMC, 2025), data on the volume of GDP and the GDP deflator from statistics of the National Bank of Ukraine (NBU, 2025).

If in 2015 the ratio of trading volumes on the stock market to the value of GDP was about 16%, then before the start of the full-scale invasion it was already 8.19%. However, we should not forget that the starting point of the analysis, 2015, is also the beginning of the year of Russian aggression against Ukraine. The fall of the stock market from 2015 to 2017 is most likely due to the outflow of investors from the Ukrainian stock market. Unfortunately, it is not possible to assess the adequacy of such a conclusion, since the regulator does not provide statistical data until 2015.

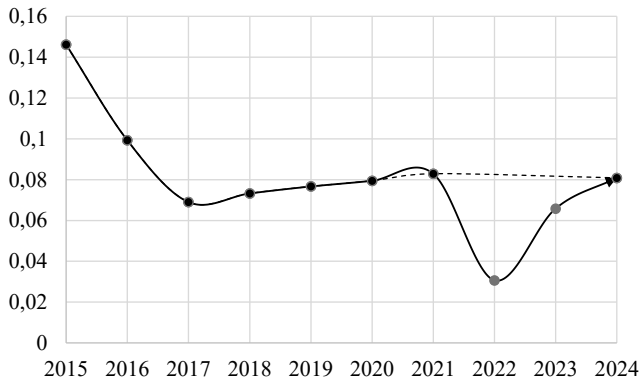


Fig. 5.3.1. Dynamics of the ratio of the volume of the Ukrainian stock market to GDP (γ_{SM})

Analyzing the trend of change in the significance of the Ukrainian stock market during the period under consideration, two approaches were used to determine the trend:

- for the period 2015-2024 with smoothing (smoothing 0.4:0.6) without excluding extreme data. The time dependence was obtained $\gamma_{SM}(t) = -0,0069 \cdot t + 14,004$,

Where γ_{SM} is the ratio of trading volume on the stock market to GDP;

- for the period 2015-2024 without smoothing, but with excluding extreme data. The trend was obtained $\gamma_{SM}(t) = -0,0005 \cdot t + 1,0165$,

In both cases, the reliability of the study by one-factor analysis of variance does not exceed 0.7. Such low reliability does not inspire confidence in the results obtained, but the following qualitative conclusion regarding the existence of destructive trends in the stock market is confirmed by other results.

In general, the trend towards a decrease in the significance of the Ukrainian stock market is manifested regardless of the influence of systemic destructive factors. The fall in trading volumes in 2022-2023 was completely dependent on the influence of the war and almost led to the complete destruction of the stock market.

At the same time, the ratio of trading volumes on the stock market is related to GDP with a lag of -1, but the correlation $\rho(\gamma_{SM,t}; GDP_{t+1})$ is negative, which means that the Ukrainian stock market does not fulfill its basic function - to stimulate economic

development by attracting and redistributing investment resources. It can be stated that the significance of the Ukrainian stock market for stimulating the economic development of the economy is low, the existence of functional dependence $GDP_{t+1}(\gamma_{SM})$ has not been confirmed.

The lack of correlation between the development of a country's stock market and its overall economic development is usually characteristic if the stock market is immature and fragmented. This is also characteristic of the Ukrainian stock market, which does not have a single centralized stock exchange, such as the NYSE in the USA or the Warsaw Stock Exchange in Poland. Below is information on the dynamics of the organizational support of the Ukrainian stock market (Table 5.3.1)

Table 5.3.1

Dynamics of organizational support of the Ukrainian stock market,
2015-2024 (NSSMC, 2025)

| Years | Number of trade organizers | Number of collective investment institutions | | |
|-------|----------------------------|--|-------------------------|----------------------------|
| | | Total | Mutual investment funds | Corporate investment funds |
| 2015 | 10 | 2131 | 1720 | 411 |
| 2016 | 9 | 2223 | 1755 | 468 |
| 2017 | 8 | 2337 | 1798 | 539 |
| 2018 | 5 | 2451 | 1830 | 621 |
| 2019 | 6 | 140 | 33 | 107 |
| 2020 | 4 | 244 | 36 | 208 |
| 2021 | 4 | 331 | 37 | 294 |
| 2022 | 4 | 70 | 7 | 63 |
| 2023 | 3 | 92 | 14 | 78 |
| 2024 | 3 | 275 | 18 | 257 |

Currently, there are three trading organizers in Ukraine: the Ukrainian Stock Exchange, the Perspektiva Stock Exchange, and the PFTS (“Prydniprovsk Stock Trading System”). Some of the exchanges exist formally, but active trading is concentrated on these three platforms. The dynamics of the number of collective investment institutions in Ukraine is interesting and ambiguous. Yes, in this dynamics, two turning points in the trends can be observed - 2019 and 2022.

Yes, in 2019, the number of collective investment institutions decreased by 94.28%. And there are several reasons for this:

- there have been significant changes in the legislation and regulation of collective investment institutions (CIIs). The National Securities and Stock Market Commission tightened requirements for CIIs, conducted an audit and cleaned up the register (funds and companies that were not actively operating and did not meet the requirements were excluded from the register), and electronic registers were introduced;

- activity on the stock market decreased, an active outflow of investors began. This was also combined with the fact that the State Financial Monitoring conducted an audit of the risks of illegal financial transactions and introduced requirements for reporting

suspicious financial transactions by CII. Accordingly, the number of opportunities to optimize taxation and withdraw assets through the stock market sharply decreased. The existence of collective investment institutions intended specifically for such activities became impractical and they were liquidated by the founders or simply did not undergo the re-registration procedure;

- a peculiar market regulation and concentration took place. Large investment companies remained on the market, the main activity of which was collective investment. Also, the merger of investment companies made it possible to reduce the costs of their administration.

In 2022, there was also a decrease in the number of collective investment institutions, but the reason was completely different. With the outbreak of the war, the National Securities and Stock Market Commission (NSSMC) temporarily suspended the capital market, allowing only transactions with military bonds. This restriction was in effect until August 8, 2022, when it was partially lifted, and full-fledged work of CII resumed only from August 22. After the market resumed in August 2022, there was a significant outflow of capital from open-end CII. This led to a decrease in the value of net assets in most CII sectors, with the exception of venture funds.

The war caused inflation, devaluation of the hryvnia, and a stock market crash. These factors reduced investor interest in CII and made it difficult to attract new investments. At the same time, the Ukrainian stock market faced low liquidity, a limited range of instruments, and a lack of comprehensive regulation.

The main regulator of the stock market of Ukraine is the National Securities and Stock Market Commission (NSSMC), which was established in 1995 as the State Securities and Stock Market Commission in accordance with the Decree of the President of Ukraine dated 12. 06. 1995 No. 446/95 (Legislation, 2025). In 2011, the State Securities and Stock Market Commission was renamed the National Securities and Stock Market Commission (Legislation, 2025). Decree of the President of Ukraine No. 1063/2011 continues to be relevant today. For example, the latest changes were made to it on 30. 06. 2020 and concerned the powers of the NSSMC and the number of its employees.

In general, the activities of the National Securities and Stock Market Commission, in addition to the aforementioned Decree of the President of Ukraine, are also regulated by:

- the Law of Ukraine “On State Regulation of the Securities Market” No. 448/96-VR dated 30. 10. 1996 (Legislation, 2025), which defines the status, powers and functions of the NSSMC. The latest current amendments to this law were made on 15. 11. 2024 and concerned the investigative and control functions of the NSSMC, as well as guarantees of the Commission’s independence;

- the Law of Ukraine “On Capital Markets and Organized Commodity Markets” No. 3480-IV dated 23. 02. 2006 (Legislation, 2025), which specifies the legal basis for the activities of the NSSMC in the field of capital markets and introduces European integration principles for its functioning. The latest current amendments to this law were made on 04. 12. 2024 and concern the powers of the Commission regarding the regulation of the circulation of bonds in wartime;

– the Law of Ukraine “On Collective Investment Institutions” No. 5080-IV of 07. 07. 2012 (Legislation, 2025), which characterizes the registration, accounting and monitoring activities of the NSSMC in relation to collective investment institutions. The latest current amendments to this Law were made on 01. 01. 2025 and concern the influence of the Commission on the circulation of agricultural notes through collective investment institutions;

– the Law of Ukraine “On Licensing Types of Economic Activities” No. 222-VIII dated 02. 03. 2015, which characterizes the procedure for licensing various types of economic and financial activities, including activities on the stock market, the powers of which are vested in the NSSMC. The latest current amendments to this Law were made on 05. 01. 2025.

Also of significant importance in regulating the activities of the NSSMC are the Commercial and Civil Codes of Ukraine, regulatory acts of the Commission itself and the National Bank of Ukraine.

In general, the National Securities and Stock Market Commission licenses market participants, monitors trading and analyzes the market situation, approves information disclosure standards, and protects investor rights.

During the period 2015–2025, the activities of the NSSMC have undergone profound changes in approaches to capital market regulation. The Commission is increasingly acquiring the characteristics of an independent state institution with significant powers. During this time, the Commission has implemented a significant number of measures to harmonize Ukrainian legislation with European requirements and standards in the field of securities and stock market regulation. In particular, the following provisions have been fully or largely implemented:

– MiFID 1 and MiFID 2 (Directive of the European Parliament, 2025) directives, which regulate the activities of collective investment institutions in EU countries regarding the protection of investors' interests, regulation of financial instruments, combating conflicts of interest, reporting requirements, algorithmic trading requirements, etc.;

– UCITS V directive (Directive of the European Parliament, 2025), which regulates the functioning of investment funds that work on collective investment in transferable securities (shares, bonds, etc.);

– EMIR Refit regulation (Directive of the European Parliament, 2025), which defines measures to reduce systemic risk in financial markets and requirements to increase the transparency of derivatives transactions.

As a state regulator, the NSSMC tightened the requirements for collective investment institutions and their registration, conducted an audit of the activities of professional stock market participants and the corresponding “cleaning” of registers. During the period 2023–2025, the powers of the NSSMC were significantly expanded: the Commission received the right to investigate violations, create a board of authorized persons to consider cases, and the ability to impose fines. Institutionally, the NSSMC is becoming more independent, forming its budget through mandatory contributions from participants. At the same time, from January 1, 2024, the NSSMC ceased maintaining the State Register of Financial Institutions, transferring this function to the National Bank of Ukraine.

Currently, the NSSMC continues its active transformation aimed at strengthening regulatory capacity, increasing transparency and efficiency of supervision of capital markets and organized commodity markets in Ukraine.

Key participants who actively carry out securities transactions on the domestic stock market are (Yaryshko, 2024; Registers, 2025):

- commodity exchanges that conclude derivative contracts. Four such exchanges are registered in Ukraine (Limited Liability Company “Ukrainian Universal Exchange”, Limited Liability Company “Ukrainian Energy Exchange”, Limited Liability Company “Ukrainian Trading Platform”, Limited Liability Company “Ukrainian Resource Exchange”);

- banks: among the largest participants in the securities market, JSC CB “PrivatBank”, JSC “Oschadbank”, JSC CB “Ukreximbank” and JSB “Ukrgasbank” stand out. They actively trade government and corporate bonds, stocks, provide depository services and underwriting.

- investment companies that are intermediaries between investors and issuers, manage client portfolios and trade securities, for example, private joint-stock company “Prykarpatska Investment Company “Prinkom””, open joint-stock company “Vinko”, etc.;

- brokerage companies: Brokers provide efficient securities trading and portfolio management. The market leaders are Univer Capital and AVentures Capital, which invest in startups and promising technology companies.

- hedge funds: use a wide range of strategies to maximize profitability, have flexibility in choosing instruments, which allows them to achieve high returns.

- non-state pension funds. A total of 124 non-state pension funds have been registered that invest pension savings in fund assets. Some of them are integrated with banks – open pension fund “Privatfond”, open pension fund “Concord”, open pension fund “OTP Pension”, corporate non-state pension fund of the National Bank of Ukraine, open non-state pension fund “Ukraine”, corporate non-state pension fund of JSC “VABank”, open pension fund “Aval”, open pension fund “Universal”, open pension fund “Oschadny”. Other non-state pension funds are corporate or sectoral in nature;

- mutual funds: KINTO company offers investors asset diversification, providing professional portfolio management to achieve financial goals.

- insurance companies: for example, ARX invests insurance reserves in bonds, stocks, and real estate, ensuring the stability and timeliness of insurance payments;

- venture capital funds: funds such as Express-Capital, Concord, Olympus, Brenber, Sorrento, Sibioz and others invest in startups at early stages, contributing to their development and entry into new markets. In Ukraine, venture capital funds also specialize in investing in bonds and stocks with low liquidity. A significant share of closed-end investment venture funds is designed to optimize the capital of companies

The main trading instruments on the Ukrainian stock market are stocks, bonds, investment certificates, and derivatives.

The dynamics of the issue and volume of stock exchange contracts for shares was as follows (in 2025 prices, price discounting was carried out using the GDP deflator) (Fig. 5.3.2, Table 5.3.2 based on data (NSSMC, 2025)). The overall dynamics of share issuance

on the stock market was extremely unstable. Even without taking into account the rapid decrease in issuance caused by the war and the NSSMC moratorium on transactions with stock securities, the variation of issuance was 1.11. The confirmed trend for the period 2015-2021 (2022-2024 is not included in the analysis, since qualitative changes in the trend do not allow for reliable smoothing) has the form of a third-order polynomial. As a rule, a polynomial trend gives a low forecasting horizon.

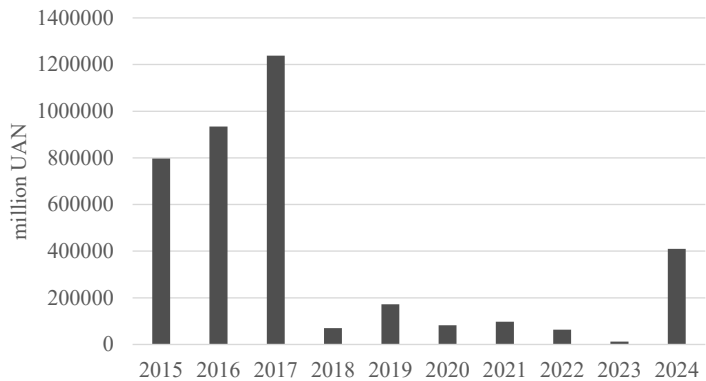


Fig. 5.3.2. Dynamics of share issuance volume on the Ukrainian stock market

In this case, the dynamics of the share issue volume indicator characterizes the state of this segment of the Ukrainian stock market as turbulent. The fall in the stock market in terms of share issue volume amounted to more than 72% both due to the onset of a full-scale war and as a result of a moratorium on securities transactions and investor outflow. At the same time, a significant share of the market recovered during 2023-2024, so that the total decrease in share issue amounted to 48.63%.

At the same time, the issue of shares of collective investment institutions demonstrates stable growth, albeit at a slow pace. The variation of the issue of shares of collective investment institutions was 0.49, there was no drop in the issue of CII shares in 2022, on the contrary, the growth was +32.21%. It cannot be said that martial law did not affect the issue of CII shares in any way, in 2024 the growth stopped, the market even rolled back a little. In general, this segment of the stock market is in a relatively stable state.

The most significant decline was shown by the volume of stock trading, which fell by 95% between 2015 and 2021, and by another 4.8% with the outbreak of the war. The end of the moratorium on transactions with stock assets led to a market recovery of only 0.8%.

Since the issue of shares of collective investment institutions constitutes only a small share (from 3.27% to 7.42%) of the total issue and taking into account that the volume of stock exchange contracts with shares is also relatively small (from 0.08% to 5.46% of the issue volume), we can conclude that the capital market in Ukraine is in the stage of

formation. The circulation of shares is not of an investment but of an institutional nature, the main share of the issue of shares accompanies the process of redistribution of capital, rather than its involvement in the development of the economy.

Table 5.3.2

Dynamics of share issuance and exchange contracts with them on the Ukrainian stock market, 2015-2024

| Name of the indicator of the development of the Ukrainian stock market | Description of the trend 2015-2021. | | Stock market decline in 2022, % compared to 2015 data | Stock market recovery in 2024, % to 2015 data. |
|--|--|---------------------------|---|--|
| | Description of the trend | Validity of approximation | | |
| Volume of share issue, UAH million, ES | $ES(t) = 33850,72 \cdot t^3 - 406651,5 \cdot t^2 + 1217488,6 \cdot t - 43775,13$ | 0,9999 | -72,73 | -48,63 |
| Volume of issuance of shares of collective investment institutions, UAH million, ES_{ij} | $ES_{ij}(t) = 13576 \cdot t + 11034$ | 0,9981 | +32,21 | +24,80 |
| Volume of stock trading in shares, UAH million. SEC | $SEC(t) = -4933,5 \cdot t + 30136$ | 0,9999 | -99,87 | -99,08 |

Completely different processes occur in the bond market (Fig. 5.3.3, Table 5.3.3 based on data (NSSMC, 2025)):

- although the variability of the dynamics of the total volume of bond issuance is also high (the variation is 0.88), it is still significantly lower than in the stock market. There are two significant crises in bond issuance – in 2019 and 2022, both associated with socio-political influences and military threats. That is why it is difficult to determine the dominant trends for the bond market. There is mainly a growth trend, which is interrupted in 2022, again due to a full-scale war and a moratorium on active operations on the stock market;
- the dominant asset on the bond market is domestic government bonds (DGB). The volume of exchange contracts on them exceeds the volume of exchange contracts on all other types of bonds by 47 to 8 times. Thus, one of the main areas of raising funds is the sale of DGB, which are characterized by attractive profitability and a high level of reliability;
- the impact of the start of a full-scale war against Ukraine led to a drop in both the volume of bond issuance and exchange-traded contracts by 82-85% in 2022. During 2023-2024, issuance failed to recover, but the volume of exchange-traded contracts for bonds

partially recovered – for DGB it recovered to 20% of the market, for other types of bonds – 91%.

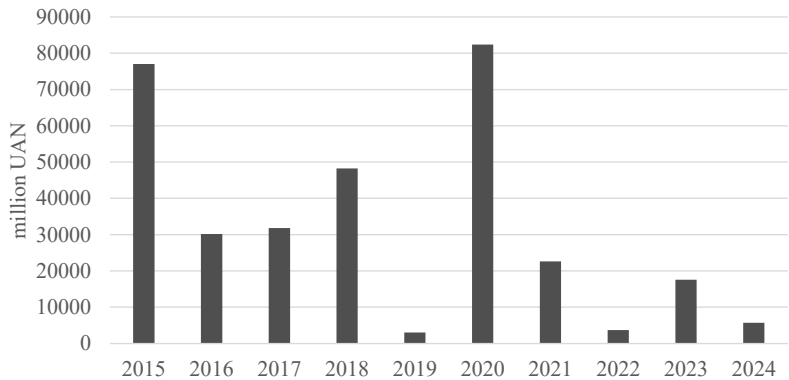


Fig. 5.3.3. Dynamics of bond issuance volume on the Ukrainian stock market

Table 5.3.3

Dynamics of share issuance and exchange contracts with them on the Ukrainian stock market, 2015-2024

| Name of the indicator of the development of the Ukrainian stock market | Description of the trend 2015-2021. | | Stock market decline in 2022, % compared to 2015 data | Stock market recovery in 2024, % to 2015 data |
|--|--|---------------------------|---|---|
| | Description of the trend | Validity of approximation | | |
| Volume of bond issue, UAH million, SB | $SB(t) = -3130,9 \cdot t + 54717$ | 0,9999 | -83,69 | -92,60 |
| Volume of exchange contracts on DGB, UAH million, EC_{DGB} | $EC_{DGB}(t) = 62391,67 \cdot t^2 - 565578,61 \cdot t + 1961935,5$ | 0,9981 | -82,32 | -60,82 |
| Volume of exchange contracts on other bonds, UAH million. EC_{OB} | $EC_{OB}(t) = 63225 \cdot t - 74447$ | 0,9999 | -85,32 | -9,99 |

The bond market is more diverse in terms of the instruments used on it. Thus, the dynamics of exchange-traded contracts for local loan bonds is unstable - in 2016, 2017, 2018, 2023, there is practically no trading in local loan bonds, in other periods - the volume of contracts for such bonds fluctuates within 1595% of the average value. Starting

from 2020, bonds of external state loans, bonds of foreign issuers, bonds of foreign states are actively listed on the Ukrainian stock market, which leads to a significant increase in trading volumes. With the beginning of the military invasion, all types of bonds are represented on the market, however, the volume of trading in them, with the exception of DGB, is significantly reduced.

Thus, the money market in Ukraine is more developed than the capital market. The volume of exchange contracts for bonds exceeds the volume of exchange contracts for shares in 2015 by 46 times, in 2016 - by 101 times, in 2017 - by 38 times, in 2018 - by 211 times, in 2019 - by 900 times, in 2020 - by 1219 times, in 2021 - by 651 times, in 2022 - by 154 times, in 2023 - by 3726 times, in 2024 - by 2048 times. Such a significant excess of contracts for bonds over contracts for shares is not a coincidence. It is explained by the high scarcity of free financial resources in the Ukrainian economy and the instability of financial processes in the market.

Another common stock asset in Ukraine is investment certificates, the dynamics of the issue of which by collective investment institutions is shown in Fig. 5.3.4, a mathematical description of the trends of issue and conclusion of exchange contracts is given in Table 5.3.4 (NSSMC, 2025).

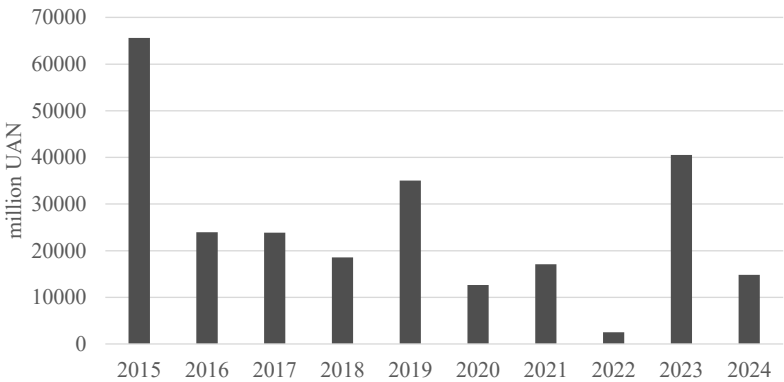


Fig. 5.3.4. Dynamics of the volume of issuance of investment certificates by collective investment institutions of Ukraine

The main issuer of investment certificates in Ukraine is collective investment institutions. And just as the number of collective investment institutions was unstable, the volume of investment certificate issuance was also unstable. Since the purpose of the existence of collective investment institutions until 2019 was most often not collective investments, but redistribution of the ownership structure and/or tax optimization and capital withdrawal, the issue of investment certificates tended to decrease. The

introduction of additional measures by the NSSMC to overcome fictitiousness of CII determined the need to increase the issuance of investment certificates. However, by 2021 its volume decreased by almost 90%, and the Russian invasion of 2022 actually led to the disappearance of the issuance of investment certificates. Only in 2023-2024 this segment of the stock market is restored, and then partially - to 22.58% of the 2015 level. The overall dynamics of the stock market for investment certificates is described by a logarithmic dependence with a certain downward trend.

Table 5.3.4

Dynamics of the issue of investment certificates and exchange contracts with them on the stock market of Ukraine, 2015-2024

| Name of the indicator of the development of the Ukrainian stock market | Description of the trend 2015-2021. | | Stock market decline in 2022, % compared to 2015 data | Stock market recovery in 2024, % to 2015 data. |
|--|---|---------------------------|---|--|
| | Description of the trend | Validity of approximation | | |
| Volume of issuance of CII investment certificates, UAH million, EIS_{jii} | $EIS_{jii}(t) = -20897 \cdot Ln(t) + 53551$ | 0,9999 | -96,20 | -77,41 |
| Volume of exchange contracts for investment certificates, UAH million, EC_{IS} | $EC_{IS}(t) = -1715 \cdot Ln(t) + 3817$ | 0,9006 | -99,93 | +60,31 |

In terms of the volume of concluded exchange contracts, the market for investment certificates is not active. The ratio of the volume of concluded exchange contracts to the volume of investment certificates issued during 2015-2024 ranges from 0.03% to 26.37%. In general, the capital market in Ukraine, both for shares and for investment certificates, is in a state of stagnation. We can hope for a gradual recovery of the market after the end of the war, but the process will be slow.

Derivatives are also a common financial instrument traded on the stock market in the world. In Ukraine, derivatives include swaps, futures, and government derivatives. However, the dynamics of the volume of exchange contracts for them (by different types) is so unstable that it does not lend itself to any method of theoretical approximation.

The generalized dynamics of the volumes of exchange contracts for derivatives is shown in Fig. 5.3.5 based on data (NSSMC, 2025).

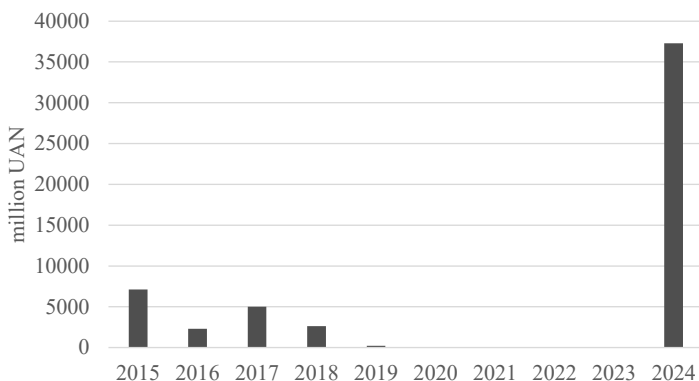


Fig. 5.3.5. Dynamics of the volume of exchange contracts for derivatives

The general patterns of dynamics in Ukraine have developed in such a way that throughout the entire historical period the secondary securities market has dominated (Fig. 5.3.6 based on data (NSSMC, 2025)), and in 2022 the primary stock market has disappeared altogether.

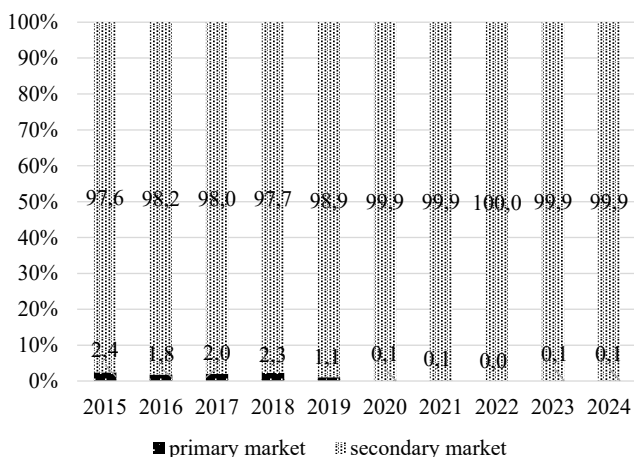


Fig. 5.3.6. Structure of the Ukrainian stock market

Current trends in the development of the Ukrainian stock market demonstrate the dominance of the money market, the activation of turnover in the money market and its high profitability in such a way that even the beginning of a full-scale war did not lead to

critical processes. The capital market demonstrated strong downward trends even before the war began, and after its beginning it almost disappeared.

The Ukrainian stock market is part of a unified system of global finance, and is therefore subject to the influence of the listed external factors. Thus, given the integration of the Ukrainian stock market, the dynamics of price indicators on global stock markets affects domestic fluctuations. So, the identified current trends in the development of the Ukrainian stock market indicate its gradual degradation, determined by a whole set of internal and external factors. There are a number of scientific works of different periods on the factors influencing the development of the Ukrainian stock market (for example (Tataryn N. B., Bundz N. B., Kravchuk A. S., 2021; Holiuk V. Ya., Kuzmynskyi V. Z., Chumachenko O. H., 2024; Tanklevs'ka N., Yarmolenko V., 2021; Shulyk Yu. V., 2024), the list of such changes significantly depending on the stage of development of the stock market. Also, the list of internal and external factors influencing the Ukrainian stock market largely depends on the target focus of the study. Below, in Fig. 5.3.7, the author's understanding of internal factors and the relationships between them is reflected.

The first, most significant group of security factors includes:

- high level of risks of loss of property and profit due to military threats. A significant number of enterprises have ceased to exist or significantly reduced their activities due to destruction, lack of resources (both material and energy, labor, financial, etc.). The consumer market has transformed and shrunk, the number of qualified labor has become insufficient, etc.;

- the state's coercive pressure on business, due to the needs of wartime. Although the state does not directly liquidate or nationalize enterprises, the state's coercive measures lead to a reduction in their activities and a deterioration in financial results. Thus, the increase in the tax burden due to the increase in the war tax rate to 5% had a particularly negative impact on the number and results of small enterprises, which created a significant share of added value in the services and trade sectors. For financial institutions, additional taxation of profits caused a decrease in their investment activity.

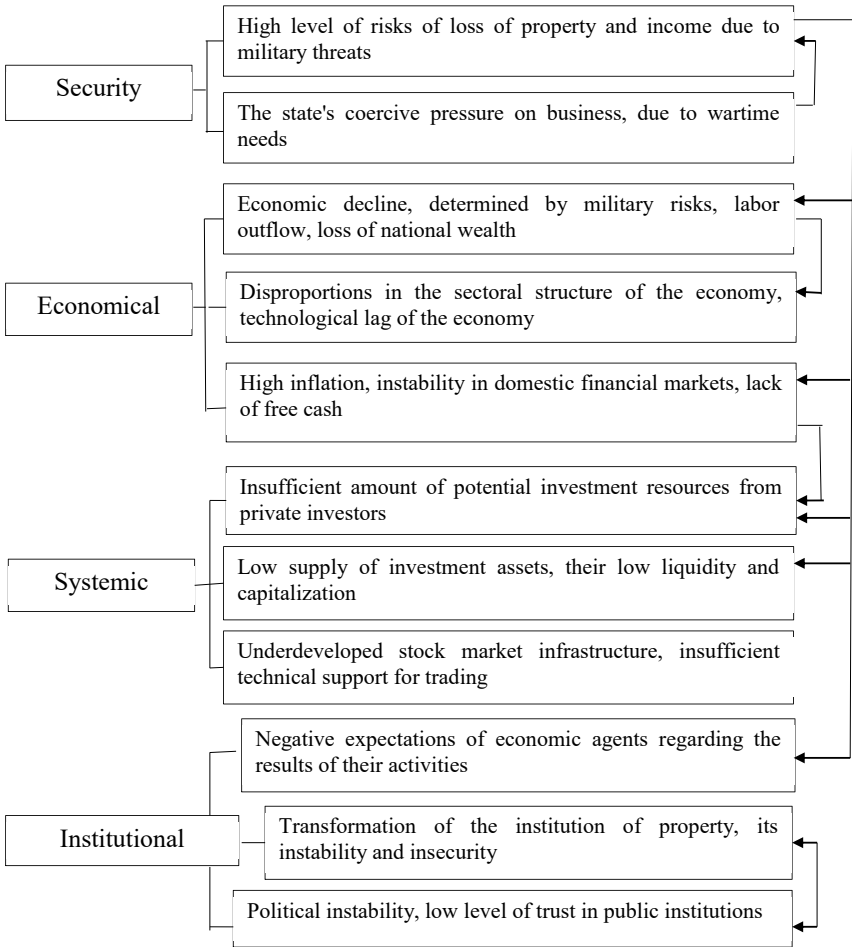
The entire set of security factors directly distracted foreign investors from the Ukrainian stock market and worsened the economic activity of domestic economic agents.

The second group of factors, economical ones, is both a result of the influence of security factors and is determined by previous economic processes. It includes:

- economic decline, determined by war risks, labor outflow, loss of national wealth. Direct economic losses determined by war are systemic in nature. Losses of national wealth due to the destruction of industrial enterprises, the withdrawal from use of a significant amount of land, loss of machinery, equipment, destruction of infrastructure, etc. are accompanied by negative synergistic effects. At the same time, technological chains are destroyed and consumption is distorted, which also leads to the collapse of commodity markets;

- imbalances in the sectoral structure of the economy, technological backwardness of the economy. This factor did not arise simultaneously with the Russian invasion, but war losses significantly increased its impact. Structural imbalances and low technological structure are inherent in the national economy of Ukraine, starting from the 90s of the twentieth century. Building a market economy is a long process, which in Ukraine was not

completed before the beginning of the Russian invasion. At the same time, signs of economic revival were observed from 2001 to 2008, but later global destructive factors suspended this process. Under such conditions, the financial efficiency of even profitable enterprises negatively affected the investment instruments of the stock market. The capital market in Ukraine has always “lagged behind” the debt instruments market, because its main purpose was the redistribution of property through the circulation of privatization instruments, concealment of actual beneficiaries and the withdrawal of capital and profits abroad;



– high inflation, instability in domestic financial markets, lack of free cash. Historically, the value of money in Ukraine was very volatile; economic agents, guided by such high volatility, always expected a high level of inflation and tried to preserve their value by diversifying assets which led to need of taking them abroad. The balanced policy of the National Bank regarding the stability of the value of the national currency was periodically violated by monetary shocks, which significantly reduced the effectiveness of operations in the money market. Overcoming expectations of high monetary volatility determined the need for a high value of free financial resources. The situation worsened significantly with the beginning of the war, since the destruction of a significant share of the real sector of the economy created additional grounds for increased inflation. At the same time, this led to an increase in the value of debt financial instruments. The value of domestic government bonds increased significantly, as did the income on them. This made it possible to preserve the bond market, but also created the prerequisites for the emergence of a "financial bubble" in this segment of the stock market.

The third group of factors, systemic ones, directly affects the functioning of the stock market. This group includes factors related to:

– insufficient amount of potential investment resources from private investors. From the economic side, private investors often have limited opportunities to accumulate capital due to low income levels, high inflation, instability of the hryvnia exchange rate and a limited number of attractive investment instruments. Also, a significant part of financial resources is directed to consumption, not to investments. As a result, private investors often choose conservative strategies (accumulation of cash, purchase of real estate) or investment abroad, which further limits the country's internal investment resources and inhibits the development of the stock market;

– low supply of investment assets, their low liquidity and capitalization. In Ukraine, the investment market is characterized by a limited supply of quality investment assets. National stock exchanges have a small number of active issuers, a limited selection of financial instruments and low market capitalization. This means that potential investors have a narrow field of opportunities for investing in the national economy. The liquidity of most investment assets remains low – that is, it is difficult to convert them into money without significant losses in value. This deters both small and large investors, as it limits their flexibility in case of need to quickly exit an investment;

– underdeveloped stock market infrastructure, insufficient technical support for trading. Among the key aspects of the implementation of this factor are the insufficient number of effective exchange platforms, weak development of depository, clearing and settlement systems, as well as a limited level of automation and digitalization of trading processes. Insufficient technical support for trading complicates the efficiency of transactions, reduces the level of their transparency and increases risks for market participants. There are often delays in settlements, ineffective interaction between exchanges, depositories and banks, which significantly reduces the overall attractiveness of the Ukrainian market for both domestic and foreign investors. Another important limitation is the lack of a single centralized electronic platform for wide access to financial

instruments, which makes it impossible for a wide range of participants to invest quickly and conveniently.

All this factors lead to low market liquidity, high operating costs, and general distrust of the investment infrastructure in Ukraine, which significantly hinders its development;

The fourth group of factors is institutional, and they are representing a set of formal norms (laws, regulations) and informal practices (traditions, level of trust, business culture) that determine the conditions for the functioning of the securities market. These factors include:

- negative expectations of economic agents regarding the results of their activity. Negative expectations of economic agents – businesses, investors and households – have a serious restraining effect on the development of the stock market in Ukraine. When market participants are not confident in the stability of the economic environment, in the predictability of profits or the preservation of capital, their investment activity decreases significantly. The main mechanisms of influence are implemented through: a decrease in the volume of investments (due to fear of losses, economic agents avoid risky investments in securities, preferring to keep funds in cash or in “reliable” tangible assets; a decrease in liquidity in the stock market (less active buying and selling of financial instruments leads to a drop in trading volumes and a deterioration in market conditions); a high risk premium (investors demand significantly higher compensation for possible risks, which makes the cost of capital more expensive for issuers and inhibits the entry of new companies into the market). Expectations of crisis phenomena in themselves provoke a decrease in activity, which can deepen real economic problems;

- transformation of the property institution, its instability and insecurity. The transformation of the property institution in Ukraine after independence had a fundamental impact on the development of the stock market. Privatization processes, which took place quickly and often opaquely, formed not only new property relations, but also numerous contradictions and risks. The main aspects of the impact were as follows:

- instability of property rights: frequent changes in privatization rules, litigation over asset ownership, and cases of raider seizures have undermined economic agents' confidence in the security of investing in corporate rights;

- insecurity of owners' rights: the weakness of the judicial system, corruption, and selective enforcement of law created a situation where formal ownership of assets did not guarantee their preservation;

- formation of oligarchic structures: as a result of mass privatization, a significant part of economically attractive assets fell into the hands of a limited circle of individuals, which reduced the motivation for open trading in shares on exchanges and contributed to the preservation of low liquidity of the stock market;

- lack of corporate culture: companies were often not interested in attracting a wide range of shareholders, which slowed down the development of the secondary securities market;

- understated investment activity: due to fear of losing assets, investors preferred short-term investments or investments outside Ukraine.

All this has created a chronic lack of trust in the mechanisms of the stock market as a tool for accumulating and protecting capital;

- political instability, low level of trust to public institutions. The main mechanisms of influence of this factor are related to: increased risks for investors (political instability increases the risk of loss of investments, so investors demand a higher risk premium or refrain from investing at all); reduction in the volume of domestic and foreign investments (uncertainty forces companies and individuals to invest less in the stock market and look for alternative ways to preserve capital, often outside the country); increased distrust of regulators (weakness of the judicial system, financial supervision and law enforcement agencies reduces trust in the rules of the game in the market and the ability to protect one's rights); restrictions on companies' entry into the stock exchange (due to the instability of the business environment, companies do not want to go public, which reduces the supply of investment assets); increased market volatility: the stock market becomes vulnerable to political news and events, which reduces its attractiveness for long-term investors.

At the same time, the Ukrainian economy still has high development potential, which determines the possibilities of the stock market's recovery and growth.

External factors that influence the Ukrainian stock market can be divided into four groups: global economic factors; global stock market factors; geopolitical factors; global monetary factors, for example (Tataryn et al., Holiuk et al., 2024; Tanklevs'ka and Yarmolenko, 2021; Shulyk, 2024) (Fig. 5.3.8).

Geopolitical factors include:

- the increase in the number and scale of regional military conflicts. World stock markets are very sensitive to military conflicts due to increased global uncertainty, the emergence of new risks to economic growth, disrupting logistics, energy supply and trade, which pushes investors to conservative behavior and increasing demand for “safe havens”. For example, conflicts in the Middle East are always accompanied by rising oil prices and periodic collapses in stock markets. For Ukraine, the war became a challenge that paralyzed the development of the stock market, but at the same time opened up prospects for future recovery on a fundamentally new basis. Globally, the role of protected assets, caution in choosing markets, as well as the strategic stability of investment portfolios is growing;

- Russia's military aggression. We described the effect of this factor above;
- restrictions on global trade flows due to sanctions. The introduction of large-scale sanctions against Russia and certain other countries has led to a significant restriction on global trade flows. For Ukraine, this has a double effect: on the one hand, new opportunities for market substitution appear, and on the other, risks for the stock market increase.

The Ukrainian stock market, especially after 2022, has become extremely vulnerable to changes in global trade. Restrictions on the export of metals, grain, and other products due to military actions and disruptions in logistics reduce the profitability of Ukrainian companies and hinder their recovery on the stock exchange. The decrease in foreign exchange earnings negatively affects the country's investment attractiveness. At the same

time, sanctions against Russia open up new market niches for Ukrainian manufacturers, which can become a driver of growth in the long term. However, in order to fully utilize these opportunities, it is necessary to ensure economic stability, investor protection, and stock market reform;

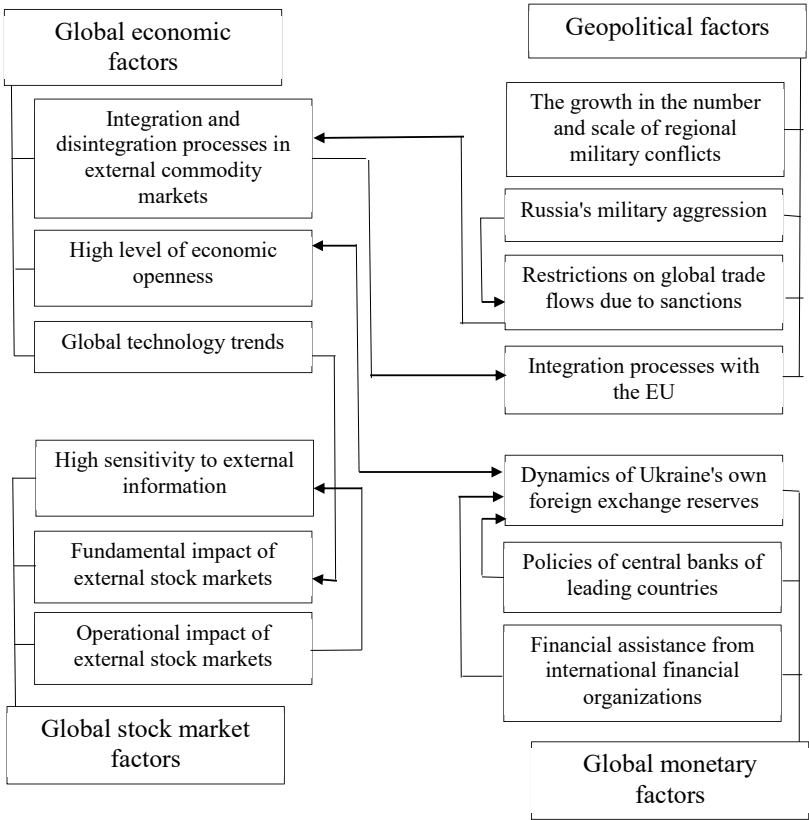


Fig. 5.3.8. External factors influencing the development of the Ukrainian stock market

– integration processes with the EU. Integration processes between Ukraine and the European Union significantly affect the dynamics of the development of the Ukrainian stock market. After signing the Association Agreement in 2014, Ukraine undertook to harmonize its financial legislation with EU standards, which contributed to the gradual approximation of the rules of the stock market to European requirements. One of the key positive effects is increased transparency, protection of investor rights and corporate

governance. The increase in the level of regulatory compliance creates the prerequisites for restoring the trust of foreign investors.

However, the integration process is accompanied by significant challenges: the need to modernize the market infrastructure, reform the judicial system, and ensure effective supervision. The war significantly complicates these processes, but does not stop them. In the long term, integration with the EU has the potential to become a powerful catalyst for the development of the Ukrainian stock market, increasing its liquidity, depth, and international competitiveness.

The group of global economic factors that influence the development of the Ukrainian stock market includes:

- integration and disintegration processes in external commodity markets. As the Ukrainian economy is largely export-oriented, fluctuations in external markets for metals, agricultural products and energy are directly reflected in the profitability of Ukrainian companies and the value of their securities. Integration of global markets, in particular through the conclusion of new trade agreements and simplified access to the markets of the EU and other regions, creates new opportunities for the growth of Ukrainian exporters. This increases the country's investment attractiveness and contributes to the development of the stock market. In contrast, disintegration – disruption of supply chains, the introduction of sanctions, trade wars – worsens access to traditional sales markets, reduces foreign exchange earnings and limits the potential for growth of Ukrainian companies. Such instability increases risks for investors and restrains the development of stock market activity;

- a high level of openness of the economy. The openness of the economy contributes to attracting foreign capital, which increases liquidity and expands opportunities for financing companies through the placement of shares and bonds. At the same time, it stimulates the implementation of international standards of corporate governance, transparency and financial reporting, which is critical for investor confidence. However, a high level of openness makes the stock market vulnerable to external economic shocks, global crises and changes in investment sentiment. Foreign investors can quickly withdraw capital in the event of instability, which causes increased volatility. In addition, competition for investment resources at the global level forces Ukrainian companies to compete for the attention of investors with more stable and developed markets. Thus, the development of the Ukrainian stock market in an open economy depends not only on integration into the global financial system, but also on internal reforms, strengthening institutions, effective regulation and ensuring macroeconomic stability. Without these factors, the benefits of openness may be offset by increased risks;

- global technological trends. The growing popularity of financial technologies (fintech), electronic securities trading and the use of blockchain solutions stimulates the modernization of the exchange infrastructure and increased trading efficiency. Digitalization is increasing the accessibility of the stock market to a wide range of investors, in particular through online platforms and mobile applications. The introduction of artificial intelligence and big data (Big Data) contributes to the development of

algorithmic trading, improving risk analytics and making investment decisions. However, at the same time, there is a growing need to strengthen cybersecurity, as the intensification of online operations increases vulnerability to cyberattacks. Technological trends are also changing the structure of the stock market, focusing investors' attention on companies from the IT sector, startups and high-tech projects. This stimulates Ukrainian companies to introduce innovations and focus on global standards. In general, global technological changes are accelerating the transformation of the Ukrainian stock market, making it more open, flexible, and competitive, but systemic reforms and support for the innovation environment are necessary to fully realize its potential.

The global monetary factors that influence the development of the Ukrainian stock market include:

- Ukraine's own foreign exchange reserves. The dynamics of Ukraine's own foreign exchange reserves significantly affect the development of its stock market, especially in the context of global currency fluctuations. The growth of reserves strengthens investor confidence, as it indicates the state's ability to maintain the stability of the national currency and the financial system as a whole. This reduces currency risks for foreign and domestic market participants, stimulating capital inflows into Ukrainian securities. On the contrary, a decrease in reserves, especially in the context of an unstable global currency market, raises concerns about the potential devaluation of the hryvnia, increased inflation and financial instability, which forces investors to refrain from investing or withdraw funds. In a global context, when major reserve currencies, such as the US dollar or the euro, exhibit significant fluctuations, the presence of sufficient reserves allows Ukraine to intervene and smooth out negative external influences on its stock market. Stable foreign exchange reserves also facilitate Ukraine's access to international financial markets and creditors, which has a positive impact on investor sentiment in the domestic market. Thus, foreign exchange reserves are an important factor of trust, stability, and predictability for the development of the Ukrainian stock market;

- the policies of the central banks of the leading countries. The US Federal Reserve, the European Central Bank and the Bank of England have the greatest influence. Changes in interest rates, quantitative easing programs or the winding down of stimulus measures determine the global cost of capital and the level of liquidity. When the central banks of the leading economies lower rates or inject liquidity, the global supply of capital increases, which stimulates the inflow of investments into emerging markets, including Ukraine. This contributes to the growth of prices for Ukrainian securities and improves companies' access to financing. On the contrary, during periods of tighter monetary policy, when rates rise, investors tend to return capital to more stable and profitable assets of developed countries, which causes an outflow of funds from markets similar to the Ukrainian one. In such an environment, the Ukrainian stock market becomes more vulnerable to external shocks, volatility increases and investor interest decreases;

- financial assistance from international financial organizations. Receiving financial support increases investor confidence in the country, as it signals an external assessment of its macroeconomic policy and reforms. This helps stabilize the national currency,

reduce the risk of default, and facilitates Ukraine's access to international capital markets. The availability of financing programs is often accompanied by the implementation of structural reforms, in particular, improving corporate governance, protecting investor rights, and transparency of financial transactions, which directly strengthens the stock market infrastructure. In addition, some projects are aimed at developing financial services, digitalizing stock exchange processes, and creating new financial instruments. At the same time, dependence on external assistance may create a risk of losing investment attractiveness in the event of delays in reviewing programs or in the event of failure to fulfill creditors' conditions.

The influence of the global market on the Ukrainian stock market is particularly significant, which is realized through:

- high sensitivity to external information. The high sensitivity of the Ukrainian stock market to external information has both positive and negative consequences for its development. On the one hand, this indicates the integration of Ukraine into global financial processes, which increases its investment attractiveness for international participants. The stock market promptly responds to global economic news, the monetary policy of leading central banks, geopolitical events and changes in prices for key raw materials. This stimulates the professionalization of the market, the development of analytics, and increased requirements for the quality of information disclosure by companies. On the other hand, excessive dependence on the external background makes the Ukrainian stock market vulnerable to short-term fluctuations, even if the domestic economic situation remains stable. Negative global news can cause a massive capital outflow, a fall in asset prices and increased volatility. This complicates long-term planning for issuers and investors and reduces the market's resilience to crises;

- the fundamental influence of external stock markets, which is determined by a close dependence on global financial trends and investor sentiment. The growth of leading global indices, such as the S&P 500 or MSCI World, is usually accompanied by an increase in risk appetite, which contributes to the inflow of capital to emerging markets, including Ukraine. This stimulates an increase in the value of Ukrainian assets, improves liquidity and opens up new opportunities for the placement of securities. At the same time, falls on global stock exchanges or periods of financial turbulence cause an outflow of investments, increased volatility and a fall in quotations on the Ukrainian market, even if domestic economic indicators remain stable. The Ukrainian stock market also reacts to changes in the value of assets of major raw materials, such as energy and metals, which directly affect the activities of large Ukrainian companies. Thus, external markets not only determine the level of investment activity, but also form expectations about the economic prospects of Ukraine. The fundamental impact is that without sustainable internal development, the Ukrainian stock market remains highly dependent on global market changes;

- the operational influence of foreign stock markets on the development of the Ukrainian stock market is manifested through technological standards, investment practices and trading mechanisms. The Ukrainian market is actively adopting the

experience of organizing exchange operations, clearing and settlement systems, electronic trading and process automation, which is common for developed stock platforms. Standards for listing, corporate governance and information disclosure are also formed under the influence of international exchange practices, which stimulates increased transparency and investment attractiveness of Ukrainian companies. In addition, changes in the global structure of investors, in particular the active participation of institutional investors and the introduction of algorithmic trading, determine the nature of demand for Ukrainian financial instruments. Foreign markets set the pace for the development of new products, such as exchange-traded funds (ETFs) or derivatives, which are gradually being introduced in Ukraine. Operational integration also means the need to meet international requirements for the speed of transaction processing, security of operations and risk management. Thus, external stock markets act as a source of operational innovations and standards, without which the development of the Ukrainian stock market would be much slower and less competitive.

A vivid example of the informational, fundamental, and operational dependence of the Ukrainian stock market on the global stock market is its dynamics at the beginning of 2025.

The global stock market is one of the sensitive indicators demonstrating the approach of a financial crisis. The most formidable trends are currently manifesting themselves in the US stock market. The first fears about the fall of the US stock market were recorded back in August 2024, when publications appeared about the possible onset of a recession in the US. It was then that the British FTSE 100, FTSE 250, German Dax, Japanese Nikkei 225, South Korean Kospi, Taiwanese Taix indices fell. The situation on the stock markets of France, Portugal, Spain, Singapore, Indonesia, and Thailand worsened. Negative trends in stock indices have persisted to this day. According to Forbes, the total fall in the US stock market over the past nine months was 8%, including 3.5% over the past 10 days.

At the same time, the US stock market is considered overheated due to the dominance of derivatives and futures transactions. A similar situation was observed in the US stock market in 2008, but then the US economy was not so close to recession. For example, US GDP is expected to decrease by 2.8% in the first quarter of 2025. Negative investor expectations are also exacerbated by sharp fluctuations in US technology company stocks, which led to the instability of the S&P 500, Nasdaq, and Dow Jones indices. In general, since January 2025, the S&P 500 index has decreased by 6.4%, the Nasdaq Composite by 11%, and the Dow Jones Industrial Average by 3.6%.

At the same time, there has been an increase in share prices for individual companies and industries. Thus, in the global agricultural market, starting from the fourth quarter of 2024, there has been a gradual but steady increase in prices. Accordingly, the share prices of agricultural companies and agricultural holdings are also increasing.

The latest news about the increase in production volumes in European defense companies has quite naturally determined the growth of their capitalization, by about \$ 30 billion. According to Bloomberg, the Stoxx Europe 600 index grew by 1%, while many defense company stocks showed a sharp increase. Rheinmetall and Dassault Aviation S

shares grew by 19%, and Saab AB – by 15%. The Goldman Sachs Group Inc. defense stock index grew by 16%. Investors' expectations for further growth in European defense companies' stock prices continue to improve. This has led to a capital outflow from the American stock market to the European one. And although the movement of capital is not yet critical, the instability of the US stock market continues to increase, which is facilitated by news about the US tariff policy.

The United States stock market is the largest in the world, and its instability and deterioration of indices negatively affect the activities of stock exchanges in all regions of the world. Signs of a worsening economy are currently observed in the markets of Canada, Mexico, Japan, Hong Kong, etc. For example, Asian indices are declining: Japanese Topix and Nikkei 225 – by 1.5% and 1% respectively, the South Korean Kospi – by 1.1%, and the Australian S&P/ASX 200 – by 0.9%, the Chinese CSI 300 – by 0.6%, and the Hong Kong Hang Seng – by 1%. European stock indices have also begun to decline.

The Ukrainian stock market, starting in 2022, has also been showing a steady decline, but the reasons are certainly not related to the global situation. Russia's war against our country actually led to market stagnation. Trading activity in shares and bonds of real sector enterprises has decreased sharply. Market activity is supported by trading in government bonds, which are currently the second largest domestic source of funds for the State Budget. Since 2022, 1.46 trillion UAH has been raised with the help of government bonds. Due to the high liquidity of government bonds, the volume of trading in them even exceeds the volume of trading in the foreign exchange market.

The full preservation of Ukraine in the global financial space is impossible without the restoration of the stock market. The efforts of the National Securities and Markets Commission to restore the stock market of Ukraine are aimed primarily at the return of investors. In particular, changes have been initiated in the legislation to protect their rights. However, foreign investors, like domestic ones, also most often choose government bonds from all stock market assets. Given the high information dependence of the Ukrainian stock market on the American one, its exit from stagflation is unlikely.

In Ukraine, in the context of global trends, there is also a gradual increase in the share prices of agricultural holdings, the basis for which was the growth of their capitalization. Thus, according to UkrAgroConsult, the capitalization of agricultural holdings MHP, Kernel, Agroton, Astarta-Kyiv, Agrogenation, Milkiland, IMC, KSG Agro, Ukrprodukt, Agroliga increased by 28.4% over the year. An innovation in expanding access of agricultural producers to the capital market was the first issue of an agricultural note with deposit in the Central Depository. Enhanced financing of agricultural production through the use of agricultural notes will also have a positive impact on the share prices of agricultural holdings.

Thus, the development of the Ukrainian stock market is determined primarily by national systemic risks and threats, is currently characterized by stagflation and high volatility, and has a low ability to recover.

5.4. THE IMPACT OF SYSTEMIC RISKS ON THE DEVELOPMENT OF THE UKRAINIAN STOCK MARKET UNDER CONDITIONS OF MULTIDIMENSIONAL UNCERTAINTY

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Systemic risks in the financial sector pose one of the greatest threats to the stability of national and international economies. Their peculiarity lies in their ability to cause a chain reaction that goes beyond individual institutions or market segments, transforming into general economic crises. Unlike individual risks, which are limited to a specific market participant or financial instrument, systemic risks are collective, large-scale and often unpredictable in nature.

There is no single established definition of systemic risk in the scientific literature, but most researchers tend to believe that it is the risk of disruption in the functioning of a significant part of the financial system caused by the failure of one or more key institutions, infrastructure elements or financial markets. In particular, according to the definition of the International Monetary Fund, systemic risk is the risk that a disruption in the functioning of one or more financial intermediaries can lead to serious negative consequences for financial stability as a whole. The Bank for International Settlements (BIS) emphasizes that systemic risks are manifested by a high level of interconnectedness between market participants, which contributes to the emergence of a “domino” effect in the event of shocks. It is important to distinguish between systemic and systematic risks. The latter are part of the market risk associated with movements in market indices and can be taken into account and compensated for through portfolio diversification. Systemic risks, on the other hand, are uncontrollable from the point of view of diversification and require systemic regulation, institutional guarantees and government intervention.

The key characteristics of systemic risks are:

- scale – the ability to affect a large number of financial institutions, sectors of the economy or countries;
- coherence, i.e., the transfer of risk through numerous channels of interaction between institutions and markets;
- unexpectedness – suddenness of manifestation, often after a long-hidden accumulation;
- consequentiality – provoking systemic failures, loss of confidence in the market, panic moods.

Systemic risks are the result of the action of many factors, which can be classified according to various criteria. One of the most common divisions is by the sources of risk. According to this criterion, systemic risks are divided into endogenous - those that are formed within the financial system (for example, excessive lending; overheated financial markets; structural imbalances in the banking sector; liquidity and refinancing risks;

mismatches between the terms of assets and liabilities) and exogenous - caused by external factors (including geopolitical conflicts; global economic crises; epidemics or pandemics; natural disasters; cyberattacks or technological failures).

Another approach is the classification of systemic risks by the nature of their spread:

- Horizontal systemic risks (cross-institutional) – are transmitted between institutions of the same level, for example, between banks or between stock exchanges. Such risks are often spread through interbank lending mechanisms or contracts with derivative financial instruments.

- Vertical systemic risks (cross-sectoral) – are transmitted between different sectors of the financial system, for example, from the banking sector to the insurance or stock market. An example of this is a situation where the bankruptcy of a bank leads to a collapse of indices, which affects pension funds and insurance companies.

Another important classification is by duration and nature of the impact:

- Short-term risks – cause immediate but temporary disruptions in the functioning of financial markets. For example, the instant reaction of the stock market to shocking news or sanctions.

- Long-term risks – are cumulative in nature and lead to a gradual degradation of infrastructure or confidence in the market. These include problems associated with a chronic lack of capital, weak regulatory oversight or demographic trends.

In the context of multidimensional uncertainty, it is also advisable to group systemic risks by the areas in which they arise:

- Political risks are caused by unstable domestic politics, changes in government, corruption or external conflicts. For Ukraine, an example is the political crises of 2004, 2014 and 2022.

- Economic risks – macroeconomic instability, inflation, devaluation of the national currency, budget deficit or public debt.

- Social risks - low level of public trust in institutions, labor migration, reduction of the working-age population.

- Technological risks – cyberattacks on key elements of the financial infrastructure, technical obsolescence of trading or settlement systems.

- Environmental risks – the impact of climate change, natural disasters, environmental catastrophes on the economy and finance.

This multi-vector classification allows not only to better understand the nature of systemic risk, but also to form effective approaches to its monitoring, prevention and mitigation. It is especially relevant in the context of an unstable geopolitical environment, the transformation of the global financial order, as well as in the process of digitalization of financial services. In summary, systemic risk is a complex multi-level phenomenon that arises from the interaction of internal and external factors, and requires an interdisciplinary approach to its study. It is important to realize that systemic risks may be invisible under normal conditions, but manifest themselves with extraordinary force during crisis events. Therefore, the main task of modern financial policy is the timely detection of hidden threats, the creation of early warning mechanisms and the formation of a sustainable institutional capacity to respond to them.

In today's conditions of globalization and increased interdependence of financial markets, systemic risks increasingly arise not as a consequence of purely economic processes, but as a result of the complex interaction of political, social, technological and environmental factors. This state of affairs necessitates the study of systemic risks not in isolation, but in connection with multidimensional uncertainty that covers several spheres of social life. In this context, it is important to consider not only direct sources of risk, but also the channels of their spread, as well as the impact on overall financial stability and, specifically, on the stock market.

Political uncertainty is one of the key sources of systemic risks in countries with unstable institutional architecture or in conditions of armed conflict. In Ukrainian realities, this factor is of particular importance. Change of governments, political crises, unpredictability of foreign policy, delays in making key decisions, corruption and weakness of state institutions contribute to the formation of an environment unfavorable for long-term investment. Investors assess political risks as one of the decisive factors when making decisions about participating in the stock market. In the event of increased political tension or exacerbation of conflicts - internal or external - there is a massive withdrawal of capital, a reduction in trading and a decrease in liquidity.

In addition, geopolitical uncertainty (including the participation of the state in international conflicts, the impact of foreign political pressure and sanctions) creates long-term pressure on the stock market. Since 2014, Ukraine has been in a military-political conflict with Russia, and since 2022 it has been in a state of active war, which significantly increases the cost of capital, undermines confidence in the state as an issuer and negatively affects the assessment of sovereign risk. Such influences were especially acute after the start of a full-scale war in 2022, when the stock market actually froze trading in securities, and institutional investors lost the ability to effectively redistribute resources.

Economic uncertainty is closely related to macrofinancial stability. Factors that shape economic uncertainty include GDP volatility, inflationary processes, exchange rate instability, balance of payments deficit, government debt dynamics, investment activity, and employment levels. All of these components affect the fundamental expectations of market participants. For example, high inflation devalues fixed-income financial instruments, and devaluation of the national currency causes losses for non-residents and companies with currency exposure.

An additional factor is the instability of the banking sector, which in a market economy functions as the circulatory system for the stock market. If banks face liquidity or solvency problems, this quickly spreads to other financial sectors, including the securities market, through a domino effect. Crisis phenomena in banks that have significant volumes of corporate bond transactions or are intermediaries in servicing trades can lead to mass defaults and a loss of confidence in the market as a whole.

It is worth highlighting technological uncertainty, which in the era of digitalization plays an increasingly important role in generating new types of systemic risks. The vulnerability of the stock market infrastructure to cyber threats, technological failures, software errors or sabotage is a critical element. The vulnerability of trading systems,

clearing platforms, depositories or information bases to external interference can cause large-scale disruptions in transaction processing, data loss or information compromise, which is extremely risky in the context of maintaining the trust of market participants. For Ukraine, which is subject to regular cyberattacks from aggressor states, this factor becomes even more relevant.

Social uncertainty is caused by demographic changes, migration processes, growing income inequality, lack of human capital, low level of financial literacy of the population and unstable consumer demand. All this forms background factors that limit the possibilities of a domestic investor to participate in the stock market. The weakness of the middle class, the dominance of consumer rather than investment behavior, fear of financial instruments - all this creates a situation where the domestic capital market is unable to independently maintain a sufficient level of liquidity and investment activity. Environmental uncertainty, although less obvious at first glance, also has the potential to transform into systemic risk. Natural disasters, climate change, environmental pollution, deterioration of the environmental situation in regions of concentration of industrial assets or production can affect the value of assets, issuers and industries in general. In particular, the transition to a "green economy" brings both new opportunities and risks for companies that do not adapt to environmental standards. In Ukraine, which is vulnerable to natural disasters and has a high level of dependence on the agricultural sector, this factor can significantly influence investment decisions.

Thus, multidimensional uncertainty forms a complex, intersecting field of risks, in which traditional analytical tools cannot always provide sufficient predictability or adequate management. The sources of risks in the modern world are closely interconnected: political instability can lead to economic losses, which in turn activate social discontent, and the latter threatens with radicalization of sentiments and even greater political turbulence.

As a result, the Ukrainian stock market operates under pressure from systemic risks that arise not only within the financial system, but also from outside - in connection with multidimensional uncertainty. In this context, there is an objective need for a systemic approach to identifying, classifying and managing risks at the macro and micro levels, as well as in developing strategies that can increase the adaptability of the stock market to destructive external factors.

Assessment of systemic risks in the financial system, in particular in the stock market, is a complex and multidimensional task. This is due not only to the specifics of the risks themselves, which have the ability to spread rapidly between sectors and institutions, but also to the peculiarities of financial markets that operate in a dynamic environment vulnerable to external shocks. Therefore, for a full analysis of systemic risks, a comprehensive approach is used that combines quantitative and qualitative methods, micro- and macroeconomic indicators, as well as modeling tools.

One of the basic analysis tools is the indicator approach, which involves building a system of indicators that can signal the likelihood of crisis phenomena. Such indicators may include: the level of volatility of stock indices, the ratio between assets and liabilities of key market players, the volume of interbank lending, the rate of change in interest rates, the level of inflation, exchange rate fluctuations, etc. The use of indicator panels makes it

possible to identify trends at the early stages of risk formation, but requires regular updating of the information base and adaptation to the specifics of the national market.

The second important method is stress testing, or stress scenario modeling. This is a method of analyzing the potential impact of adverse events or shocks on the financial system. Scenarios may include factors such as a sudden decline in security prices, a sharp increase in interest rates, foreign policy escalation, and loss of investor confidence. Stress tests help determine how resilient the financial system or its individual elements (e.g., exchanges, institutional investors, issuers) are to external influences. The peculiarity of this method is that it does not so much predict the future as demonstrate the vulnerability of the system to hypothetical but plausible risks. No less important is network analysis, which studies the relationships between entities in the financial system and identifies potential channels for shock transmission. The stock market is an integrated network in which investors, financial intermediaries, regulators, and exchange platforms interact. In the event of a negative event (for example, the bankruptcy of a large bank or a technological failure on the stock exchange), this impact can spread throughout the network, provoking a “domino effect”. Building financial networks and modeling processes on them allows you to identify “systemically important nodes” – institutions whose malfunction can cause dysfunction of the entire system.

In today’s rapidly developing digital technologies, machine learning methods for predicting systemic risks are becoming increasingly widespread. Thanks to the processing of large data sets (Big Data), it is possible to identify hidden patterns that precede crises. For example, based on historical data on stock quotes, trading volumes, social media, news background and investor behavioral patterns, models are created that are able to predict the occurrence of shocks with a certain probability. At the same time, such approaches require significant computing resources, access to high-quality and representative data, as well as qualified analysts.

VAR modeling (Vector Autoregression) is also used, which allows you to assess the relationships between several economic variables and examine how one shock (for example, inflation growth) affects other variables (market capitalization, investment volume, etc.). VAR models allow you to study the dynamics of the economic system and assess the multiplicative effect of one factor on other market elements.

Within the practice of central banks and regulators, macroprudential analysis is widely used, which focuses on the systemic impact of macroeconomic risks on the financial system. Its tools are financial stability indicators, monitoring of debt burden in sectors of the economy, financial stress indices, and aggregated assessments of financial cycles. For example, the NBU implements regular financial stability analysis, covering both the stock market and the banking sector. The advantage of the macroprudential approach is its systematic nature, but the disadvantage is a certain inertia of response.

It is also necessary to take into account behavioral aspects, because panicked investors, the spread of rumors or fake information can increase systemic risks. In this regard, the studies use elements of behavioral economics and expert assessments, which complement quantitative methods. In particular, investor confidence indices, analysis of

media sentiment, expert surveys allow us to assess the qualitative component of systemic risks.

In addition to the above approaches, it is worth highlighting scenario analysis, which is a logical development of stress testing, but in a broader context. Here, complex macroeconomic scenarios are modeled - both pessimistic (for example, a renewed escalation of hostilities) and optimistic (for example, post-war economic reconstruction), which take into account the interdependence of risks and their cascading effect on the stock market. Thus, effective assessment of systemic risks requires not only the use of modern methods of analysis, but also a combination of an interdisciplinary approach - economic, technological, political, behavioral. For Ukraine, which is in a phase of deep structural transformation, the creation of a comprehensive system for monitoring systemic risks in the stock market is a strategic task. Such a system should be based on a high-quality analytical base, coordination between state bodies (NBU, NSSMC, Ministry of Finance) and increasing market transparency as a tool for crisis prevention.

The infrastructure of the Ukrainian stock market is one of the key components of the national financial system, which determines the level of availability of financial services for market participants, ensures the functioning of securities trading mechanisms, and also promotes the attraction of capital to the market. Given the dynamic processes taking place in the Ukrainian stock market, its infrastructure has undergone significant changes, in particular after 2014, when, due to external and internal factors, a decline in activity in the stock market was observed.

In general, the infrastructure of the Ukrainian stock market includes several main elements: trading platforms, depositories, central regulatory and supervisory bodies, as well as professional market participants. Each of these elements has its own importance and function in ensuring the stability and development of the market.

One of the main elements of the stock market are trading platforms - exchanges and over-the-counter platforms, on which the process of buying and selling securities takes place. Today, two main exchanges operate in Ukraine: the Ukrainian Stock Exchange (UX) and the PFTS (First Stock Trading System).

- The Ukrainian Stock Exchange was founded in 2008 as one of the main exchange platforms for securities trading in Ukraine. It provides a wide range of services to market participants, including trading in stocks, bonds, derivatives and other financial instruments. The Ukrainian Stock Exchange is the main platform for trading corporate securities on the secondary market and has a developed liquidity system that provides participants with fast and efficient execution of trading transactions.

- PFTS is one of the largest over-the-counter trading systems in Ukraine, which provides the opportunity to trade securities outside the exchange. PFTS was created to increase the liquidity of the stock market and provide access to trading for a wide range of investors. Although PFTS is less well-known in terms of its volume compared to the Ukrainian Stock Exchange, it provides access to specific instruments and is an important part of the market for individual participants.

Both exchanges have a similar structure, which includes electronic trading systems to automate the buying and selling processes and tools for price monitoring, which allows investors to effectively carry out transactions. However, despite the importance of

exchange platforms, the Ukrainian stock market still suffers from an insufficient level of liquidity, which limits the attractiveness of this market for institutional and private investors.

Another important element of the stock market infrastructure is the Central Securities Depository (CSD), which plays a key role in the storage and circulation of securities on the market. In Ukraine, the Central Depository is the State Securities Register, which ensures the storage, accounting and re-registration of ownership rights to securities. The CSD performs the following main functions:

- Storage of securities. The Depository ensures the security of storage of securities, which allows avoiding their loss or falsification. All securities accounting operations are carried out through this body, which provides confidence to investors.

- Accounting for ownership rights. The Central Depository registers all changes in ownership rights to securities, which is an important condition for the legal implementation of transactions.

- Re-registration and settlements on transactions. After the completion of transactions on the exchange or over-the-counter platform, the depository ensures the re-registration of ownership rights and the implementation of settlements between counterparties.

The central depository is an important element that ensures the efficiency and transparency of the stock market. However, the Ukrainian market has certain problems with the integration of depository systems with international standards, which limits the attraction of international investors. The stock market supervision system in Ukraine is carried out by the National Securities and Stock Market Commission (NSSMC), which is the main body for regulating and supervising the activities of stock market participants. The NSSMC supervises the activities of stock exchanges, depositories, professional market participants, and also regulates the issuance of securities, trading standards and information disclosure in the stock market. The main functions of the NSSMC:

- Licensing of market participants. The Commission licenses all securities market participants, including brokers, dealers, management companies, investment advisors, depositories, etc.

- Ensuring market transparency. The NSSMC establishes requirements for the disclosure of information by securities issuers, which allows investors to make informed decisions.

- Monitoring compliance with legislation. The Commission has the authority to monitor compliance by market participants with financial standards and regulatory requirements.

In connection with reforms aimed at improving financial transparency and integration with international markets, the NSSMC is actively working to improve supervisory practices, in particular in the field of regulation of primary and secondary markets, derivatives and other financial instruments.

Professional participants of the Ukrainian stock market are companies and institutions that directly participate in trading and transactions with securities, provide consulting services, and manage investors' assets. These include:

- Brokerage companies - act as intermediaries between buyers and sellers on the stock market, carry out trading operations on exchanges and over-the-counter platforms, and also provide investment advice.

- Dealer companies - are engaged in the purchase and sale of securities for their own funds, and may also act as counterparties for brokers or investors.

- Investment companies and funds - manage client assets, collecting funds from investors to invest in financial instruments in order to generate income.

- Pension funds are institutional investors that invest citizens' funds to secure their pensions in the future.

Institutional investors, such as insurance companies and funds, are key players in the Ukrainian stock market. However, against the backdrop of political and economic instability, institutional investors do not always demonstrate high activity, which reduces market liquidity. The infrastructure of the Ukrainian stock market has a number of problems that hinder its development:

- Low market liquidity is one of the main problems of the Ukrainian stock market. The volume of trading on stock exchanges remains limited, and most transactions are concentrated on a few shares of large companies.

- An underdeveloped secondary market, the lack of an active secondary market limits the ability of investors to sell or buy securities after their initial placement.

- An unsatisfactory level of financial literacy, low financial culture among the population, as well as the lack of effective communication with investors by professional market participants, do not contribute to the development of the stock market.

From the very beginning of its development, the Ukrainian stock market has faced a number of problems and barriers that significantly limit its efficiency, stability and ability to attract investments. The problems of the Ukrainian stock market have both historical and structural origins, and are also largely due to the specifics of the economic situation in the country and its integration into global financial markets.

One of the main problems of the Ukrainian stock market is low liquidity. Market liquidity is an important indicator that reflects the market's ability to quickly and without significant changes in prices to carry out transactions with securities. In Ukraine, unfortunately, the level of liquidity is low, which limits the possibilities for effective trading and attracting investments. This barrier is due to several factors:

- The low number of active market participants, including institutional investors, such as pension funds, insurance companies, investment companies. In particular, the lack of a full-fledged corporate bond market limits the possibilities for long-term investments.

- Concentration of trading on a small number of assets. On most trading platforms in the country, activity is concentrated on a few large companies, such as Ukrzaliznytsia, Naftogaz, as well as government securities. This creates a risk of volatility - even minor fluctuations in the prices of these securities can cause significant movements in the market, affecting the overall level of investor confidence.

Also, due to low liquidity and high concentration, the Ukrainian stock market lacks potential investments from foreign investors. Since they usually seek highly developed

and stable markets with great opportunities for diversification, the lack of a sufficient number of financial instruments makes Ukraine less attractive to foreign investors.

Another problem is the lack of an effective secondary market, i.e. a market where investors can sell or buy already issued securities. The secondary market should be an important element for the stock market, as it ensures the liquidity of assets and allows investors to effectively manage their portfolio. In the case of Ukraine, the secondary market is not sufficiently developed, which complicates the work of both institutional and retail investors. The reasons for this can be explained by several factors:

- Underdeveloped infrastructure and insufficient level of technological solutions to ensure fast and convenient trading in securities. In Ukraine, stock exchanges operate in conditions of outdated technologies, which complicates transactions and reduces competitiveness.

- Limited number of market participants, which prevents the formation of active demand and supply. Without a large number of participants, it is difficult to form a stable and deep secondary market.

The lack of a secondary market negatively affects the country's investment attractiveness, as potential investors fear the lack of opportunities to exit investments, which is an important criterion when making an investment decision.

Another important barrier to the development of the stock market is the low level of public confidence in investing in securities. For most Ukrainians, the stock market is still something foreign and risky, which arises due to several key factors:

- Poor experience of the population with investing in stocks and bonds against the background of economic crises, in particular due to lost savings in the 1990s, as well as the fall in stock indices during global financial crises.

- Low level of financial literacy among citizens. Many people do not understand how the stock market works and do not have enough information to make informed investment decisions.

- Unsatisfactory legal framework that does not guarantee proper protection of investors' rights. In case of problems with companies or brokers, citizens are not always able to receive adequate compensation or protection of their rights, which further increases distrust in the market.

Also, in many cases, investors fear that the stock market is corrupt or that their funds may be lost due to manipulation by market participants. Distrust of financial institutions such as banks and brokerage companies is also one of the main reasons for weak activity in the securities market.

Despite the fact that Ukraine has regulatory and legal acts regulating the functioning of the stock market, the legislative framework is still insufficiently coordinated and fragmented. Legislative changes occur frequently, sometimes without sufficient discussion or consultation with market participants, which leads to unpredictable consequences for the market. Among the problems are:

- Uncertainty in the legal status of some financial instruments, in particular derivatives and cryptocurrencies, which creates uncertainty for potential investors.

- Low level of protection of investor rights, which especially concerns small investors. Legislative changes do not always provide effective control over the activities of stock exchanges, brokerage companies and other market participants.

- Uncertainty in tax legislation regarding investments in securities. Investors do not always know how to correctly reflect investment profits in tax reporting, which leads to a decrease in market activity.

Geopolitical instability and military conflicts are among the most destructive factors that can affect economic systems, including stock markets. They are capable of changing not only domestic economic processes, but also global financial mechanisms. In crisis situations caused by military conflicts or geopolitical tensions, stock markets lose their stability, which can lead to serious shocks. It is important to realize that geopolitical threats are becoming an important source of systemic risks, since their consequences have the potential to cause cascading effects in the financial system, which can ultimately affect the entire national and global stock market.

Geopolitical threats are factors that arise due to tensions between countries or between different regions of the world and are of a political, economic or military nature. Such threats include diplomatic conflicts, economic sanctions, confrontation in international forums, as well as military actions. In today's globalized world, geopolitics is one of the main factors influencing investor sentiment, their risk appetite and, accordingly, the general state of financial markets.

One of the main manifestations of a geopolitical threat is the risk of military conflicts or interstate crises, which cause a significant drop in stock market quotes. War not only destroys physical infrastructure, but also reduces investor confidence in the economy, as it is accompanied by a high level of uncertainty. In such conditions, investors tend to avoid risky assets, which leads to a massive outflow of capital from the market. This process leads to a sharp decline in the value of shares of companies, especially those operating in sectors related to the foreign economy or foreign investments.

A well-known example is the impact of conflict on the stock market during global crises. For the Ukrainian stock market, the most striking example is the events after the start of Russian aggression in 2014. The first signs of systemic risk appeared immediately after the annexation of Crimea and the start of the war in Donbas, which led to a fall in Ukrainian stock exchange indices and a decrease in the capitalization of national companies. Key investors, including international ones, were forced to exit the market due to the high level of uncertainty and fear of further escalation of the conflict.

Military conflicts directly affect the economy through several channels. First, war undermines the stability of financial institutions, disrupting their business models, which inevitably affects the stock market. Second, during hostilities, public debt increases sharply, as the country spends huge amounts of money on conducting hostilities, purchasing military equipment, supplying military resources, humanitarian aid, etc. Such costs inevitably put pressure on financial markets, since an increase in debt increases credit risks.

The outbreak of hostilities is also accompanied by political and social changes that disrupt the normal functioning of the labor market, labor force and industry. This, in turn,

leads to a decrease in production activity, which affects the general economic environment and the country's investment attractiveness. Industries dependent on external financing and exports will be particularly hard hit, which leads to increased risks for investors.

For Ukraine, it is important to recognize that military conflicts can have both direct and indirect effects on the stock market. Direct effects include disruption of security and infrastructure, loss of territory and a decline in production performance. Indirect effects include changes in foreign policy, economic sanctions and isolation from international financial institutions. In such conditions, investors often focus on other markets, which can lead to a significant decrease in foreign investment in the Ukrainian economy and stock market. Due to geopolitical conflicts and military actions, countries often impose economic sanctions, which can have both economic and financial consequences. Sanctions can be aimed at various economic and financial aspects, including blocking access to international capital markets, banning investments, freezing assets, and many other measures that negatively affect the stock market.

In Ukraine, sanctions imposed by international partners in response to Russian aggression had a serious impact on the stock market. This not only limited the opportunities for attracting new investments, but also created conditions for isolating Ukraine from the international financial system. As a result, Ukrainian companies lost access to external financing, which became the main factor in reducing their capitalization and liquidity. However, it is worth noting that sanctions can have not only a negative, but also a positive impact on the stock market. For example, they can contribute to the development of domestic production and stimulate the country to develop new financial instruments, which will contribute to the recovery of the economy in the long term.

In conditions of geopolitical instability, international financial institutions, such as the International Monetary Fund (IMF), the World Bank, and the European Central Bank, play an important role in reducing systemic risks. They can act as intermediaries for attracting capital, providing stability and support to countries in crisis situations. The IMF, in particular, provides credit resources and assistance in implementing reforms that can help stabilize the economic situation in the country. In Ukraine, international financial institutions play an important role in ensuring macroeconomic stability during military conflicts and geopolitical crises. Their support is necessary to maintain access to external financing, as well as to ensure the stability of the national currency and support key sectors of the economy.

Macrofinancial instability and currency fluctuations are among the main systemic risks affecting the functioning of the Ukrainian stock market, particularly in conditions of multidimensional uncertainty. In today's conditions, they can have a significant impact on investor behavior, market liquidity, and financial stability in general. Understanding and analyzing these factors is key to formulating effective strategies to minimize risks and maintain market stability.

Macrofinancial instability is defined as a state of the economic system in which there is a high probability of financial crises or significant fluctuations in financial markets, which can lead to serious economic and social consequences. This phenomenon is

associated with excessive changes in key economic indicators - such as GDP, inflation, unemployment, government debt, as well as with the destabilization of financial institutions and the banking system.

Instability can be both internal, caused by incorrect macroeconomic policies or the weakness of national financial institutions, and external - caused by changes in the global economy or geopolitical events. In the case of Ukraine, macrofinancial instability is influenced by numerous factors: the political and economic situation in the country, the actions of international creditors and investors, the dynamics of prices for key export goods (metals, energy), as well as the currency policy of the National Bank.

One of the important elements of macrofinancial instability is currency fluctuations, which can significantly affect the Ukrainian stock market. Currency fluctuations are associated with changes in the exchange rates of the national currency (hryvnia) against other major currencies, such as the US dollar, the euro. These fluctuations can be caused by various factors, including changes in the international economy, political events, the monetary policy of the National Bank of Ukraine, as well as external economic shocks.

Particular attention should be paid to how currency fluctuations can affect the stock market. First of all, changes in the exchange rate can lead to significant changes in the value of assets denominated in foreign currency, which, in turn, changes in the investment decisions of market participants. If the hryvnia devalues, foreign investors may reduce their investments in Ukrainian assets due to a decrease in their value in foreign currency, which leads to a decrease in liquidity in the market.

Changes in exchange rates associated with the unstable situation on international markets also have a serious impact on the stock market. In particular, fluctuations in the exchange rates of major currencies can significantly change the cost of imported goods and services, which in turn affects the country's economy as a whole. For Ukraine, which is dependent on imports, especially energy resources, changes in the exchange rate of oil and gas can lead to significant economic shocks.

There are several key factors that determine currency instability in Ukraine. One of them is the high level of dependence of the economy on external factors. Ukraine is an export-oriented economy, and its foreign exchange earnings depend largely on the prices of exported goods, in particular metallurgical products and agricultural products. Changes in world prices for these goods directly affect the demand for the national currency.

On the other hand, negative external shocks, such as economic sanctions or changes in international political relations, can cause a surge in volatility in the foreign exchange market. As a result, the NBU may be forced to intervene in the market to maintain exchange rate stability, which, in turn, may cause certain difficulties for stock market participants.

In addition, the instability of the national economy may be caused by internal factors, such as political risks, corruption, insufficiently effective reforms and lack of trust in state institutions. This may lead to a decrease in foreign investment and an increase in demand for foreign currency, which causes the devaluation of the national currency.

Currency fluctuations have a direct impact on the Ukrainian stock market, and this impact can be twofold. On the one hand, the devaluation of the hryvnia can lead to an increase in the value of shares of Ukrainian companies for foreign investors. If companies have income in foreign currency, then a change in the exchange rate can increase their profitability in hryvnia equivalent, which increases the attractiveness of such companies for investment. This may stimulate demand for their shares. On the other hand, devaluation of the hryvnia may lead to increased inflation, which reduces the real value of savings and investments in the stock market. As a result, investors may start looking for more stable assets, which may lead to capital outflows from the market and reduced liquidity.

It is also important to note that currency fluctuations may affect individual market sectors. For example, companies with large import costs may suffer from exchange rate changes, as their costs increase in hryvnia equivalent. On the other hand, export-oriented companies may benefit from exchange rate changes, as their products become cheaper on the international market.

To stabilize the exchange rate, the National Bank of Ukraine uses several tools, including foreign exchange interventions and changes in the discount rate. Foreign exchange interventions carried out by the NBU on the interbank market are aimed at reducing the volatility of the hryvnia exchange rate and maintaining confidence in the national currency. However, such interventions are not always effective in the long term, as they require large reserves, and their application may not solve the underlying problems of the economy.

At the same time, changes in the discount rate can have both direct and indirect effects on the stock market. An increase in the discount rate can lead to an increase in the cost of loans for businesses, which can have a negative impact on companies that depend on debt financing. A decrease in the rate can stimulate economic activity, but also increases the risk of inflation, which negatively affects the stock market.

Macrofinancial instability and currency fluctuations are important factors of systemic risks for the Ukrainian stock market. They can significantly affect market liquidity, investment attractiveness of assets and investor behavior. Especially in conditions of geopolitical instability and changes in global markets, the Ukrainian stock market remains vulnerable to such fluctuations. Therefore, the development of effective strategies to reduce currency risks is an important part of the policy of the National Bank and other financial institutions. In the modern world, the digitalization of financial markets is an inevitable process. The Ukrainian stock market, like other financial systems, is increasingly dependent on technology, in particular on information and digital infrastructures that ensure the operation of exchanges, depositories, payment systems and exchange platforms. However, along with the development of new technologies, a number of technological risks arise that can lead to serious market shocks and affect its stability. These risks mainly concern cybersecurity, technical obsolescence of infrastructure and vulnerability to digital attacks.

Technological risks in the context of the rapid development of digital technologies are significant and can have not only a short-term impact, but also long-term consequences

for the functioning of financial markets, in particular for the Ukrainian stock market. Deep digitalization, although it increases the efficiency of the functioning of financial institutions, at the same time opens up new vulnerabilities that become catalysts for systemic risks that can go beyond individual market participants and cover the entire financial system.

One of the most important aspects of technological risks is cyber threats. Cybercriminals are actively looking for vulnerabilities in financial systems in order to manipulate market processes, steal valuable data or cause chaos in the market. Cyberattacks on financial institutions can include various forms of attacks, such as:

1. Attacks on information infrastructure – attackers can carry out attacks on information systems of stock exchanges, depositories, trading platforms and other market infrastructure elements. Such attacks can lead to temporary unavailability of systems or manipulation of information distributed on the market. As a result, situations may arise when investors receive incorrect information that destabilizes the market.

2. Phishing and social engineering – such attacks are aimed at gaining access to confidential information from users or employees of financial institutions. Attackers can use various manipulation methods in order to forge access to the personal accounts of traders, brokers or investment managers. As a result, illegal transactions or stolen funds may be carried out.

3. Denial of Service (DDoS) Attacks – One of the most common forms of cyberattacks is DDoS attacks, which can temporarily cause financial platforms to fail. This can have serious consequences for the market, including halting trading, disrupting access to stock quotes, and even uncontrolled fluctuations in stock prices.

4. Malicious software (including malware) – the use of malware to penetrate the stock market infrastructure can lead to the mass distribution of false data, as well as manipulation of market processes.

In Ukraine, as in other countries, it is necessary to significantly strengthen security measures to protect against cyber threats. It is extremely important to modernize the cybersecurity of financial institutions, create national strategies for protection against cyber threats, and ensure a high level of protection of personal and financial data of stock market clients.

Another serious technological risk is the technical obsolescence of the infrastructure, which can lead to significant problems in the functioning of the Ukrainian stock market. Many financial institutions in the country use outdated equipment and software that does not meet modern requirements for security and speed of operations. This creates additional risks for the stability of the stock market, since:

1. Low data processing speed - due to the limitations of old technologies, the processing of large volumes of data is significantly slowed down. This can negatively affect the reaction time of stock exchanges to important market events, which creates additional risks for investors, especially in fast-moving markets.

2. Vulnerability to external attacks – old systems usually have numerous vulnerabilities through which attackers can penetrate the infrastructure. This can lead to disruption of the stock market or theft of important financial information.

3. Lack of integration with the latest technologies – an outdated technical base may be incompatible with the latest digital tools, which limits opportunities for development and investment. An important task for financial institutions is to modernize their technologies to provide innovative opportunities for market participants.

4. Scalability difficulties – with the development of digital markets, there is a need to quickly scale the infrastructure to process a larger number of transactions. In the case of technical obsolescence, it is difficult to implement such upgrades, which can negatively affect market liquidity.

When eliminating the problem of outdated infrastructure, it is important to consider the potential destabilization of the entire stock market in the event of serious technological failures. Software problems, technical malfunctions or lack of interoperability between different technological platforms can lead to a number of negative consequences:

1. Loss of investor confidence – any delay or error in operations on the stock market causes increased distrust in the market infrastructure and can lead to capital outflows. Investors, not being confident in the safety of their assets, may seek alternatives in other financial systems.

2. Unjustified market fluctuations - if technologies are unable to provide proper monitoring or processing of data in real time, this can lead to an ineffective response to important market events, which causes waves of volatility. This is especially critical for the stock market, where even minor fluctuations can lead to significant financial losses.

3. Complicated regulatory processes – outdated technical infrastructure complicates not only the operational activities of financial institutions, but also their monitoring by regulatory authorities. This can create conditions for abuse and lack of proper control over compliance with legal norms.

Technological risks are one of the main factors that can affect the stability of the Ukrainian stock market. Cyber threats, technical obsolescence of infrastructure and market destabilization due to technological failures are real threats to the development of the Ukrainian stock market in the context of globalization. Given these factors, it is important to strengthen cybersecurity measures, upgrade the technological infrastructure of financial institutions, and integrate the latest digital solutions to ensure stability and trust in the market.

One of the main factors determining the effectiveness of the stock market and its resilience to systemic risks is the adequacy and strength of regulatory policy. In the case of Ukraine, the stock market is in constant transformation, undergoing numerous economic, political and social changes, which requires constant updating and improvement of the regulatory framework to maintain market stability. The stock market regulation system in Ukraine should be guided by international standards, take into account global financial trends, and also have the flexibility to adapt to specific national conditions.

The first task facing state regulatory authorities is the integration of the Ukrainian stock market into the international financial space. Ukraine has significant potential for attracting foreign investment, but for this it is necessary to create a stable and predictable

regulatory environment. Modern international financial markets operate according to clearly defined standards, in particular, taking into account the requirements of international organizations such as the International Monetary Fund (IMF), the World Bank, the International Organization of Securities Commissions (IOSCO), as well as the European Union, which establishes regulatory norms for stock markets.

In this context, an important component of regulatory policy is the approximation of Ukrainian legislation to European standards. In particular, this applies to EU directives and regulations, such as MiFID II (European Union Markets in Financial Instruments Directive) and EMIR (EU Central Counterparties and Derivatives Regulation), which establish rules to ensure transparency, investor protection and market stability. Compliance with these standards is a guarantee not only of the stable development of the Ukrainian stock market, but also of its integration into global financial processes. One of the main tasks of the regulator is to ensure financial transparency in the market. In an environment of systemic risks, when financial shocks can spread through a network of interdependent participants, it is important to have a clear understanding of the financial condition of companies entering the stock market. This requires strengthening the requirements for the publication of financial statements and internal control at enterprises. The regulator should require companies to disclose information about their activities in more detail and in a timely manner, including information on the amount of profits and losses, financial obligations, as well as forecasts for the future.

In Ukraine, it is necessary to strengthen the requirements for public reporting on the stock market, which includes the disclosure of information about corporate governance structures, strategic decisions, the volume of market transactions, as well as the impact of external economic and political factors on the activities of enterprises. Such a practice will allow investors to obtain a more accurate picture of the financial condition of the enterprise and make informed investment decisions.

Regulation of corporate governance in the stock market is also an important component of the strategy for strengthening regulatory policy. Since many companies on the Ukrainian stock market are public joint-stock companies, it is very important that they meet high standards of management transparency, accountability and efficiency. Improving corporate governance will help reduce the risks associated with unfair practices, asset manipulation, as well as internal corruption, which can significantly affect the stability of the stock market. One of the important steps towards improving the effectiveness of corporate governance is the introduction of clear standards and requirements for the activities of supervisory boards and auditors. State regulators should ensure proper control over the implementation of these standards, including the introduction of independent external audits and ensuring the correct representation of shareholder interests.

The Ukrainian stock market requires constant improvement of existing trading platforms and exchange infrastructures. The presence of functioning and effective platforms allows to ensure market transparency and stability, and also reduces the risks associated with market manipulation. The regulator should pay attention to the issues of security of trading systems, protection from external attacks, as well as the efficiency of work with investors and counterparties.

The institutional structure of the Ukrainian stock market should be aimed at the development and support of such trading platforms that provide a high level of protection of investors' rights, have a developed infrastructure for exchanging securities, and are also integrated with international markets to improve access to global financial flows. A particularly important component of regulatory policy is proper management of currency risks. In Ukraine, there is a high level of volatility in currency markets, which creates additional systemic risks for the stock market. The regulator should take measures to create effective mechanisms for hedging currency risks, which will allow investors to protect their investments from adverse currency fluctuations. These mechanisms may include currency futures contracts, options, as well as the use of derivatives to reduce the risk of currency fluctuations. Providing access to such instruments for investors will reduce uncertainty and make the stock market more attractive to foreign and local investors.

The National Securities and Stock Market Commission of Ukraine (NSSMC) is the main regulatory body for the stock market in Ukraine. Its role in the process of strengthening regulatory policy is key. It should contribute to the development and implementation of new regulatory and legal acts that ensure market stability and protect investor rights. In addition, the NSSMC should coordinate its work with other state bodies, international financial institutions and market participants to ensure a comprehensive approach to the regulation and development of the stock market.

Institutional reform and infrastructure development are key areas for ensuring the stability and efficiency of the Ukrainian stock market in the face of multidimensional uncertainty. In the context of modern globalization and significant economic and political risks, it is necessary to create favorable conditions for the development of the stock market by improving the institutional structure, strengthening market confidence, improving technological infrastructure and implementing international standards. In this context, important stages are the reform of financial institutions, adaptation to international standards, expanding the range of financial instruments, as well as improving regulatory and supervisory mechanisms.

One of the main aspects of institutional reform is the reorganization and modernization of financial institutions participating in the functioning of the stock market. This includes improving the activities of exchanges, depositories, investment companies, as well as strengthening the role of central bodies that regulate the market.

First of all, it is necessary to ensure the independence and transparency of financial institutions. In Ukraine, the role of financial institutions as participants in the stock market is extremely important, therefore, it is the market institutions that must meet international standards in terms of transparency, risk management and corporate governance. In particular, the role of the National Securities and Stock Market Commission (NSSMC), which ensures regulation and supervision of the stock market, is important. To enhance the effectiveness of the NSSMC, it is necessary to increase its independence from political influence and introduce new mechanisms for monitoring and analyzing market risks. The development of financial institutions should include strengthening corporate governance, creating conditions for increasing the efficiency of their activities. This requires creating a favorable climate for attracting investors by improving mechanisms for protecting their rights, in particular by ensuring access to reliable information about issuers and their

financial results. Given global trends, it is also important to develop financial instruments that meet the requirements of international standards, in particular bonds, shares, derivatives and other instruments that allow creating a flexible and effective mechanism for attracting capital and managing risks.

Adaptation of the Ukrainian stock market to international standards is an important step to ensure the integration of the national financial system into global financial markets. Ukraine, as a country striving for European and international integration, must ensure that its stock market complies with the principles, standards and norms adopted in other countries. One of the main areas of adaptation is the harmonization of legislation on financial markets with EU legislation and other international norms. This includes the adoption of relevant regulatory acts that will ensure the protection of investor rights, transparency of financial transactions, as well as fair competition in the market. In particular, Ukraine must improve legislation in the field of corporate governance, accounting and auditing, which will become the basis for the introduction of international financial reporting standards.

The continuation of the integration process into international financial markets also involves creating conditions for attracting foreign investment, which will not only improve the liquidity of the Ukrainian stock market, but also ensure its accessibility for global investors. Integration into international markets involves the creation of instruments to protect investors, increase the efficiency of the decision-making process in the market, as well as improving the system of supervision and regulation.

The development and diversification of financial instruments is one of the key factors for the development of the Ukrainian stock market. Today, the market is limited to certain traditional instruments, such as stocks and bonds. However, in order to attract additional capital, ensure liquidity and reduce risks, it is necessary to significantly expand the range of financial instruments.

Among the most promising areas for development is the derivatives market. Financial instruments, such as futures and options, can become important tools for risk management and hedging in the Ukrainian stock market. The introduction of such instruments will allow investors to diversify their portfolios, as well as create additional opportunities for hedging currency and interest rate risks.

It is also necessary to develop the over-the-counter (OTC) securities market, which will allow enterprises to raise capital outside of official exchanges. This can be useful for small and medium-sized enterprises that do not have the opportunity to place shares on large stock exchanges, but want to gain access to capital.

Regulation and supervision of the stock market is the basis of market stability and efficiency. Today, Ukraine has certain problems in this area, in particular, insufficient market transparency, the absence of an adequate mechanism for controlling financial institutions, as well as a high level of corruption in the sector.

To address these problems, it is necessary to strengthen the role of the National Securities and Stock Market Commission, as well as ensure its effective cooperation with other state bodies and international financial institutions. An important aspect is the implementation of effective mechanisms for monitoring and analyzing risks, as well as ensuring market transparency and openness for investors. In addition, it is necessary to

develop electronic accounting and reporting systems that allow for real-time monitoring of financial transactions and reduce the possibilities for market manipulation.

Institutional reform and development of the infrastructure of the Ukrainian stock market are important conditions for ensuring its sustainable development in conditions of multidimensional uncertainty. To achieve this goal, it is necessary to focus on improving the institutional structure, strengthening the efficiency of financial institutions, adapting to international standards, expanding the range of financial instruments and improving regulatory and supervisory mechanisms. Only under such conditions will the Ukrainian stock market be able to ensure sustainable development, improve its liquidity and attract foreign investments, which is necessary for the country's stable economic growth.

Integration of the Ukrainian stock market into the international financial space is one of the key conditions for ensuring its sustainable development, reducing the impact of systemic risks and increasing its attractiveness for foreign investors. In the context of globalization and the development of international financial relations, the Ukrainian stock market must not only adapt to modern trends, but also actively attract investments, which will contribute to its modernization and strengthening the country's economic stability.

International integration of the stock market involves not only participation in global financial processes, but also the creation of conditions for the free movement of capital through various financial instruments and trading platforms. This allows Ukraine to attract foreign investments that contribute to economic development, expand access to financing, and reduce the cost of capital for national enterprises. In addition, such integration opens up opportunities for Ukrainian companies to attract international capital through the issuance of Eurobonds, shares, and other securities that have high liquidity in global markets.

The process of integrating the Ukrainian stock market into the international financial space is associated with serious challenges, including the need to harmonize national legislation with international standards, develop financial market infrastructure, strengthen regulatory mechanisms, and improve the corporate governance system and market transparency.

One of the key stages of the integration of the Ukrainian stock market into the international financial space is active cooperation with international financial organizations, such as the International Monetary Fund (IMF), the World Bank, the European Bank for Reconstruction and Development (EBRD), as well as with international trading platforms and regulators. These organizations contribute to the reform of the Ukrainian stock market by providing technical and advisory assistance, as well as attracting international investors.

In particular, the IMF and the World Bank have extensive experience in countries undergoing economic transformation and can provide recommendations on improving financial and investment policies. These institutions also actively contribute to financial stability and market resilience, especially in conditions of increased risks, such as currency volatility, inflation and political instability.

In addition, an important component of international integration is cooperation with international financial exchanges, such as the New York Stock Exchange (NYSE), the

London Stock Exchange (LSE) and others, where Ukrainian companies can enter the primary market through public offerings of securities (IPO). This allows Ukraine to attract additional investments, increase the transparency of national companies and stimulate the development of innovations in the economy. One of the important stages of the integration of the Ukrainian stock market into the international financial space is the harmonization of national legislation with international standards. This is necessary to ensure that the Ukrainian market complies with global requirements for transparency, investor protection, corporate governance and financial reporting. The Ukrainian stock market needs to adapt to international standards such as International Financial Reporting Standards (IFRS), which provide a single methodology for assessing financial indicators and reporting of companies.

Legislative changes should cover not only financial and corporate aspects, but also aspects of market infrastructure, such as the development of a system of depositories, clearing and settlement systems that meet international requirements for safety and efficiency. The stock market supervision system should be built in such a way as to guarantee the protection of investor rights and ensure transparency of market operations.

No less important is the development of regulatory and legal acts that will contribute to the creation of mechanisms for combating money laundering and terrorist financing, as well as ensuring national standards for personal data protection that meet the requirements of the European Union (GDPR) and other international agreements.

For the successful integration of the Ukrainian stock market into the international financial space, the attraction of foreign investors plays an important role. Investors from other countries can become the main drivers of market development, since their investments provide additional liquidity, contribute to the creation of new financial instruments and improve the overall investment climate. Attracting international investors requires Ukraine to create a transparent and stable investment policy, which will include the protection of investors' interests, guarantees against political and economic risks, as well as a clear tax policy. Investors should be able to assess the risks and opportunities that arise on the Ukrainian market and be confident in the reliability of the legal environment. Transparency and accountability are also important for market development, as international investors often pay attention to the level of openness of companies' financial statements, the availability of independent audits, and the general state of corporate governance in the country.

An important part of the integration of the Ukrainian stock market into the international financial space is the development and availability of financial instruments that are attractive to foreign investors. In particular, this applies to bond issues (Eurobonds), shares of large Ukrainian companies, as well as new financial products, such as derivatives, funds, and other investment instruments.

To do this, it is necessary to create a stable and reliable infrastructure for the issuance and circulation of such instruments. In particular, it is necessary to reform and improve the system of depositories, clearing and settlement mechanisms, as well as ensure international standardization of procedures for issuing and trading securities.

CONCLUSIONS

The accomplished research on accounting, financial, and economic support for sustainable development of the agricultural sector led to the following theoretical inferences, scientific outcomes and practical recommendations.

1. Among the main factors of a farm's success is the production and sale of competitive dairy products, the pricing of which should be carried out through targeted costing. Targeted pricing in milk processing provides for a cost reduction strategy and ensures the implementation of the functions of planning the production of new types of dairy products. With the use of target costing, processing activities are coordinated and controlled in accordance with an important strategic benchmark – the target cost.

2. The introduction of non-financial reporting is an important step in the process of business management in the context of sustainable development and social responsibility. Enterprises in the agricultural sector of the economy that effectively integrate these principles into their activities have much greater chances of success, both in the national and international contexts. However, to ensure efficiency, it is necessary to develop standards and methodology for compiling such reports, which will ensure unity and transparency in the business environment.

3. To manage the solvency of FG “Vpered-Agro”, it is important to implement automated systems (ERP, CRM), big data analytics for forecasting and adapted budgets. Testing diagnostic methods using binary SWOT analysis showed that none of the 10-point thresholds were met, highlighting the need for new approaches. The revised method should consider the time factor, cash flow and liquidity to ensure an accurate assessment of insolvency.

4. The introduction of martial law has significantly affected the normal accounting procedures. The largest segment of business, namely small and medium-sized businesses, is very vulnerable to the impact of such significant economic changes. Therefore, the government introduced a number of easements to support them during the martial law period. An analysis of financial and economic activities is possible in several cases: 1) for the needs of the company's management – operational, current and strategic analysis; and 2) during an audit to determine the correctness and reliability of accounting indicators in the reporting documents.

5. The conceptual model developed in the study is aimed at improving the use of IFRS in the agricultural sector, strengthening the role of audit and digitalization of accounting processes. The integration of modern IT technologies, such as blockchain and Business Intelligence, provides transparency and reliability of accounting information. Increasing the level of corporate governance helps to strengthen the financial stability of agricultural enterprises. The proposed measures meet the requirements of international and domestic users. Further research should be aimed at practical adaptation of the model

to the features of different sub-sectors of the agro-industrial complex. The implementation of the model will promote the integration of the agricultural sector of Ukraine into the world economic system.

6. In the municipal sphere, where they often face financial difficulties, high level of depreciation of fixed assets and the need to attract investments, accounting contributes to the planning, forecasting and increase of confidence by the community, investors and state bodies. Qualitatively organized accounting in public utilities is the basis for the stable development of enterprises, improving the quality of services and meeting the needs of the population.

7. The study found that sustainable development requires comprehensive approach to resource management, environmental risks, social responsibility and economic efficiency. The practical importance of the study is the development of a structured algorithm for the introduction of an integrated accounting and analytical system of monitoring of sustainable development and determining the complex expected effects of the implementation of such a system.

8. On the basis of the study, the functioning of the accounting and analytical support for receivables of the economy is optimized. Theoretical-methodical and practical aspects of control procedures of receivables are also investigated. In particular, the problematic aspects of control of settlements with debtors of the economy are identified and allocated to individual segments; the priority tasks of controlling the settlements of the economy with debtors are outlined; the key tasks of monitoring settlements with debtors are indicated.

9. We believe it is advisable to analyze marketing activities by determining the optimal ratio among the key indicators, in particular, financial result before tax, net income, balance sheet currency and sales expenses. Moreover, the growth rate of sales expenses should not exceed the growth rate of all other indicators, which leads to an increase in production and sales volumes, which generally leads to the maximization of the financial result before tax.

10. The formation of a separate strategy for ensuring the financial and economic security of an agricultural enterprise is critical for stable and sustainable business development. The formation of a system of accounting and analytical support for the management of the financial and economic security of an agrarian enterprise is an important process and should take into account specific aspects of activity, providing adaptation to the conditions of seasonality, weather conditions, technological innovations and changes in the legislative and economic situation.

11. The formation of financial results and profit of the enterprise is inextricably linked to the level of its economic security. The stability and efficiency of financial activity are possible only if the systematic control and harmonious development of all

security components. It is proved that each element – from financial stability to information security – directly affects the profitability of the enterprise. Enterprises that identify threats and take into account security factors, provide a steady increase in profit, reduce the risk of losses and create preconditions for long-term development, even in the conditions of unstable market environment.

12. The optimization of the information support system enhances the financial and economic security of the enterprise by ensuring the accuracy and timeliness of management decisions. The reduction of information risks is achieved through effective mechanisms for data collection, processing, and storage, automation, and monitoring, enabling prompt responses to changes in the external and internal environment. The implementation of modern IT and data protection from unauthorized access ensures the stability of the enterprise in the market.

13. Modern technologies significantly increase the efficiency of staff selection. They minimize the risks associated with personnel errors and internal threats. Automation ensures the objectivity and transparency of the hiring process. Artificial intelligence allows you to evaluate the candidates more deeply. Quality selection of staff is an important element of economic security of the enterprise. The integration of the latest decisions requires professional support and strategy.

14. The existing approaches to defining the essence of the concept of "economic security of an enterprise" are considered and its generalized definition is formed. The importance of understanding each element of the organization of the economic security system of an enterprise is substantiated and an algorithm of actions for implementing the process of its organization and types of strategies for its provision that can be applied depending on the existing conditions is proposed.

15. FinTech is a field that encompasses innovative approaches to providing financial services through the use of advanced technologies. They are fundamentally transforming the credit and banking system, contributing to increasing its efficiency, accessibility and level of security of financial services. Thanks to these changes, the global banking industry will continue to evolve, ensuring wider financial inclusion, reducing costs and improving comfort for users.

16. Financial support for Ukraine's agrarian sector includes budgetary funding, bank lending, and other instruments. Its effectiveness depends on the optimal combination of public and market-based tools. International experience suggests applying public-private partnerships and credit guarantees. Strengthening access to finance for small and medium agribusinesses is especially critical. A balanced, coordinated approach is key to sustainable agrarian development

17. Innovative activities in the AIC significantly enhance production efficiency but are accompanied by high financial risks. To minimize these risks, a comprehensive

approach combining modern analytical methods, financial instruments, and digital technologies should be applied. An important factor is the improvement of farmers' financial literacy and the implementation of systematic risk management. Successful risk management will strengthen enterprise resilience, improve competitiveness, and promote the sustainable development of the agricultural sector in the face of global challenges.

18. Modeling is a powerful tool in agricultural economics that enables innovative development in Ukrainian farming. With a systematic framework, AI-driven software and online services, and the engagement of human capital, models of agricultural economics are especially effective in addressing contemporary challenges including climate change and global market fluctuations. Models of farming from the EU countries and beyond empower Ukrainian agricultural economics with comprehensive insights focused on ensuring food security and propelling sustainable development.

19. Ukraine's insurance sector is adapting to wartime challenges by expanding war risk coverage and strengthening regulations. International cooperation enhances financial security, while digital innovations improve accessibility and efficiency. Aligning insurance standards with EU requirements supports integration and fosters investment growth. Improving financial literacy and investor trust ensures long-term market stability and resilience.

20. The research showed a significant potential for the development of Ukrainian stock exchanges, provided that state regulation, formation of stock exchange culture and attracting foreign investors. Exchanges play a key role in ensuring liquidity and risk management through advanced infrastructure and derivatives. Improvement of these tools contributes to the financial stability and integration of Ukraine into global markets.

21. The current trends in the development of the Ukrainian stock market are downward, and their destructive nature was formed even before the start of the full-scale Russian invasion in 2022. The worst trends are demonstrated by the capital market, which emphasizes the non-investment nature of the development of the stock market. The money market, especially the debt market, demonstrates a slight decline and the ability to recover. However, the combination of internal and external systemic risks and threats determines the lack of optimistic prospects for the development of the Ukrainian stock market without a significant infusion of external capital and the cessation of the action of destructive factors.

22. The development of the Ukrainian stock market is heavily influenced by various systemic risks arising from multidimensional uncertainty. Effective risk management strategies are crucial for ensuring market stability and attracting investments. Addressing these risks will require a comprehensive approach involving regulatory measures, market reforms, and increased resilience to external shocks.

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