

DOI: [10.55643/fcaptop.5.52.2023.4169](https://doi.org/10.55643/fcaptop.5.52.2023.4169)

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Received: 07/09/2023

Accepted: 20/10/2023

Published: 31/10/2023

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ANTI-CRISIS MANAGEMENT AS A BASIS FOR THE FORMATION OF A FINANCIAL MECHANISM FOR THE SUSTAINABLE DEVELOPMENT OF AGRICULTURAL BUSINESS

ABSTRACT

Crisis management is an important tool for managing modern agricultural businesses, especially in the face of uncertainty and changes in the market. This article examines the role of crisis management as a key element in the formation of a financial mechanism for the sustainable development of the agricultural sector. It analyses the main aspects of crisis management in agricultural business and its impact on the formation of a sustainable financial mechanism. The relationship between crisis management and sustainable development of the agrarian sector is studied. The possibilities of using the principles of crisis management to improve the financial stability and competitiveness of agricultural enterprises are determined. As a result, the article emphasizes the importance of crisis management as a key factor in the formation of a sustainable financial mechanism for achieving sustainable development of agricultural businesses. As follows, the scientific novelty in the article lies in several key aspects: integration of crisis management and sustainable development; application of crisis management principles to agriculture; emphasis on financial mechanisms: the article focuses on the financial aspect of crisis management and sustainable development in agriculture. Thus, the scientific novelty of the article lies in its innovative approach to integrating crisis management principles into the agricultural context, emphasizing the financial mechanism involved in the pursuit of sustainable development in the agricultural sector. The results of the study can be useful for agricultural entrepreneurs, managers, academics, and regulators to improve management strategies and increase the sustainability of the agricultural sector.

Keywords: agriculture, productivity, economy; development; sustainable development challenges, agrarian business

JEL Classification: Q14, M21, O16

INTRODUCTION

The modern agricultural sector is an important component of the country's economy, ensuring not only food security but also contributing to the balanced development of regions and the overall improvement of living standards. However, despite its strong potential, the agricultural business often faces complex challenges and crisis situations that require a competent and balanced approach to management. The relevance of the problem of crisis management in the agricultural sector lies in the need to ensure sustainable business development in the face of uncertainty and change. In the context of global financial fluctuations, changing climate conditions, technological progress, and market conditions, agricultural enterprises must be prepared to respond effectively to challenges and implement strategic measures in a timely manner to ensure the stability and success of their operations.

A central aspect of overcoming crises in agriculture is the creation of an effective financial mechanism that not only prevents financial difficulties but also promotes active development and innovation. Crisis management in this context involves analyzing, planning, and implementing strategies aimed at balancing the use of resources, reducing risks, and minimizing the negative effects of crisis phenomena. This article will discuss

the key aspects of crisis management in the agricultural business and its relationship with the formation of a sustainable financial mechanism.

LITERATURE REVIEW

In today's dynamic economic system, the sustainable development of agricultural business is becoming an urgent task that requires a responsible and comprehensive approach. One of the key aspects of achieving sustainable success in the industry is effective crisis management, as external and internal challenges can significantly undermine its functioning. The problem of forming a financial mechanism that will ensure the sustainable development of the agricultural business under conditions of uncertainty and risk is becoming particularly relevant. In order to study and analyze these complex issues, this article aims to review the literature related to crisis management and the formation of a financial mechanism for the sustainable development of agricultural businesses. In the context of rapid technological development, changes in economic conditions, and global challenges, the issues of sustainability and compliance with the requirements of the times are of particular importance.

Serebrennikov et al. (2020) conducted a systemic review of empirical literature to identify factors influencing the adoption of sustainable farming practices in Europe. They found that various factors, including economic incentives, regulations, knowledge dissemination, and social networks, play a crucial role in promoting sustainability. This research establishes a solid foundation for understanding the multifaceted nature of sustainable farming.

Researchers Bai, C., Quayson, M., and Sarkis, J. (2021) have developed a conceptual framework to facilitate the digital transformation of small and medium-sized enterprises (SMEs) after the COVID-19 pandemic with a focus on sustainability. The researchers emphasize that special emphasis on the digital transformation of SMEs should be placed on the introduction of digital payments, including mobile money. They consider this to be the most important aspect for achieving successful digital transformation in the context of SMEs after the pandemic. The findings of their study recommend that SME leaders and other stakeholders review their strategies to reflect the new reality, including developing crisis scenarios and business continuity plans. This will help them interact with customers virtually, contributing to sustainable development.

Breiki, M., & Nobanee, H. (2019) note that the availability of appropriate financial management models is a prerequisite for increasing productivity while reducing financial risks. The results of the study also show that investing in sustainable development contributes to the competitive advantage of the enterprise and is an effective measure to achieve sustainable development. Researchers Hong, M., Tian, M., & Wang, J. (2022) argue that the introduction of digital financial inclusion can significantly increase the overall productivity of green inputs in agriculture while optimizing the structure of the agricultural industry can lead to a significant "structural growth effect". At the same time, different aspects of digital financial inclusion will also have different impacts on improving overall factor productivity in agriculture.

In their study, Wang, X., Chen, M., He, X., & Zhang, F. (2018) write that rural residents generally face credit constraints, and there are marked differences in the impact of agricultural loans on farmers' incomes depending on their socioeconomic position. Therefore, in order to promote more equitable and sustainable income growth for agricultural workers, it is important to increase the availability of credit to farmers. In addition, it is crucial to support healthy competition among the country's financial institutions and to accelerate the creation of inclusive financial systems.

Orlandi, L., Martino, E., Rossignoli, C., & Bonomi, S. (2019) write that in agriculture, business networks can be used as an effective means to protect and sustainably use common resources. They can also serve as a tool for developing common assets. Both of these aspects are of great strategic importance to an organization. It can benefit greatly from the creation and use of shared resources and from the implementation of this organizational form. In addition, it allows for environmental protection with major positive externalities for the organization and the community. Secinaro, S., Mas, F., Massaro, M., & Calandra, D. (2021) investigate the issues arising from new technologies. To achieve this goal, they examine original patents issued by practitioners instead of using information from the financial press. This approach allows for a deeper understanding of the impact of real-world practices on agricultural entrepreneurs.

Sustainable agriculture has gained prominence in recent years as a response to environmental concerns and the need for long-term food security. This literature review explores the existing research on financial mechanisms that support sustainable agricultural development across several European countries. The studies mentioned in this review contribute to our understanding of the various strategies, challenges, and impacts associated with financing sustainable agriculture in diverse European contexts.

Figueras and Garuz (2019) investigated competitive strategies within agricultural cooperatives, focusing on a rice cooperative in Catalonia, Spain. Their study sheds light on how cooperative structures can support sustainable practices, emphasizing the importance of collective action. This insight is valuable for understanding the role of cooperatives in sustainable agricultural business development. Jensen's M. B. (2017) research delves into Denmark's sustainable financing models for agricultural businesses, shedding light on how financial strategies contribute to sustainable agriculture in this Nordic country.

Nastis et al. (2019) examined farmers' behavior towards sustainable practices and their perceptions of risk. Their findings provide insights into the psychological aspects of sustainability adoption. This understanding is crucial for designing effective policies and financial mechanisms that align with farmers' attitudes and concerns. Manikas et al. (2019) proposed a community-based agro-food hub model for sustainable farming. This research highlights the significance of community-driven approaches in agricultural sustainability. It underscores the potential for grassroots initiatives to contribute to the development of sustainable agriculture, which can be supported by financial mechanisms. Kijek et al. (2019) investigated productivity and its convergence in agriculture across new and old European Union member states. Their study reveals variations in agricultural productivity and convergence, which have implications for designing financial mechanisms to promote sustainability. Ziolo, Bak, and Cheba (2021) explored the role of sustainable finance in achieving Sustainable Development Goals. This research focuses on the financial aspects of sustainability, demonstrating the need for financial mechanisms that align with broader sustainability goals. Havemann, Negra, and Werneck (2022) discuss blended finance for agriculture and the possibilities of combining financial instruments for sustainable transitions. Their work emphasizes the importance of innovative financing solutions for agriculture and sustainable development. Bobitan et al. (2023) conducted a benchmarking analysis of financial performance in agriculture, using Data Envelopment Analysis and the Malmquist Index. This study demonstrates the importance of financial efficiency in promoting agricultural sustainability. Yasin, Ahmad, and Chaudhary (2020) explored the impact of financial development, political institutions, and urbanization on environmental degradation. This research highlights the interconnectedness of financial systems and environmental sustainability. Ullah et al. (2023) investigated the asymmetric effects of economic complexity, renewable electricity, and foreign direct investment on environmental sustainability in BRICS-T countries. This research underscores the role of economic and financial factors in environmental sustainability. Pham and Smith (2014) conducted a review of drivers of agricultural sustainability in developing countries. Their research provides valuable insights into the foundational factors that drive sustainability in agriculture.

Peres, Ameer, and Xu (2018) investigated the impact of institutional quality on FDI inflows in both developed and developing countries. Their findings suggest that sound institutional quality positively influences FDI, fostering economic growth and stability. This relationship between institutional quality and FDI is an essential aspect of anti-crisis management, as increased FDI can support agricultural development through investment and technology transfer. Lio and Liu (2008) explored the connection between governance and agricultural productivity. They found that effective governance positively affects agricultural productivity, which is crucial for sustainable agricultural development. Good governance can lead to efficient resource allocation, reduced corruption, and improved agricultural policies, contributing to crisis prevention and recovery. Guru and Yadav (2019) conducted a panel study on BRICS countries to examine the relationship between financial development and economic growth. Their results demonstrate that a well-developed financial sector is associated with higher economic growth. For agricultural businesses, a developed financial sector can provide access to credit and investment opportunities, essential elements in crisis management and sustainable development.

Bos, Economidou, and Zhang (2020) investigated the impact of specialization in the presence of trade and financial openness. Their study highlights how specialization can enhance the efficiency and competitiveness of agricultural businesses in the global market. Anti-crisis management strategies should consider trade openness as a means to diversify and protect against market shocks. Ang and Kerstens (2020) proposed a superlative indicator for productivity measurement. Such indicators can help agricultural businesses monitor their efficiency and identify areas for improvement. Monitoring productivity is essential for effective crisis management and ensuring the long-term sustainability of agricultural operations. Ciaian, Fałkowski, and Kancs (2012) examined the relationship between credit access and farm productivity in transition economies. Their findings emphasize that access to credit positively influences agricultural productivity. Adequate credit availability is a key element in anti-crisis management, as it allows farmers to invest in their businesses, mitigate risks, and adapt to changing market conditions.

Brenya, Akomea-Frimpong, Ofosu, and Adeabah (2023) conducted a systematic review of barriers to sustainable agribusiness. Their work provides a comprehensive overview of the challenges faced by the agricultural sector and suggests that overcoming these barriers requires the development of a financial mechanism that addresses credit access, governance, and financial inclusion. Several studies, including those by Achugamonu et al. (2020), Gopalan and Rajan (2018), and Quechtati (2020), investigate the impact of financial inclusion on economic growth, financial development, and poverty

reduction. These findings underscore the importance of financial inclusion in ensuring that the benefits of economic growth are distributed across society. For agricultural businesses, financial inclusion can provide access to financial services, insurance, and savings, contributing to resilience and sustainable development.

In summary, the reviewed literature reflects the growing importance of sustainable agriculture in Europe and the diverse financial mechanisms and strategies employed to support it. Each study contributes valuable insights into the unique challenges and opportunities faced by European countries in their pursuit of agricultural sustainability.

AIMS AND OBJECTIVES

The purpose of the article is to study the role of crisis management in the process of forming an effective financial mechanism to ensure sustainable development of the agricultural business sector. By analyzing theoretical approaches, empirical studies, and best practices, the key principles and tools of crisis management aimed at ensuring financial stability and development of agricultural enterprises will be identified. The results of the study will contribute to an in-depth understanding of the relationship between crisis management and sustainable development of the agricultural sector, which can serve as a basis for developing effective management strategies for enterprises in this sector.

METHODS

The following scientific methods are used in the article:

- *Data collection and analysis.* Collect statistical data on economic indicators (GDP, agricultural production, exports and imports of agricultural products, etc.), financial indicators (investments, loans, profitability, market share of the agricultural sector), social indicators, and environmental indicators (resource use, pollutant emissions, impact on biodiversity). Data available on the World Bank website and other authoritative sources were used.
- *Regression analysis.* Conduct a regression analysis to identify which indicators have the greatest impact on the financial condition of the agricultural business. Build regression models for different aspects of the financial mechanism of development.
- *System analysis.* Analyze the interaction between economic, financial, social, and environmental aspects of the agricultural sector. Determine how crisis management can influence this interaction.
- *Expected results.* It is expected that crisis management will have a significant impact on the efficiency of the financial mechanism for the development of agricultural business through resource optimization, sustainability, and risk reduction.

RESULTS

The concept of a financial mechanism for the sustainable development of agricultural business encompasses several critical elements, including stability, resilience, and effective crisis management. This article delves into the components that constitute such a mechanism, emphasizing the role of anti-crisis management in ensuring the long-term viability of agricultural enterprises.

A financial mechanism for the sustainable development of agricultural business refers to a structured approach that combines financial strategies, policies, and practices to ensure the continual growth and stability of farming operations. This mechanism seeks to address the unique challenges faced by the agricultural sector while promoting economic, environmental, and social sustainability.

Stable development in the context of agricultural business signifies a state where farms and related enterprises can consistently generate income, adapt to changing market conditions and endure external shocks without compromising their core objectives. Stability is not limited to financial aspects but also includes environmental sustainability and social responsibility.

Anti-crisis management is a fundamental component of the financial mechanism for sustainable agricultural development. Its primary role is to identify potential crises, mitigate their impact, and develop strategies to cover adverse events. The significance of anti-crisis management lies in its ability to safeguard the business against unforeseen challenges, ensuring its continuous operation.

Key Aspects of Anti-Crisis Management:

- **Risk Assessment:** The foundation of anti-crisis management is a thorough risk assessment. This involves identifying both internal and external risks that could threaten the stability of the agricultural business. These risks can range from market volatility and natural disasters to financial mismanagement and supply chain disruptions.
- **Strategic Planning:** Anti-crisis management entails the development of comprehensive crisis response plans. These plans outline specific actions to be taken in the event of a crisis, including resource allocation, communication strategies, and risk mitigation measures.
- **Financial Preparedness:** Adequate financial preparation is crucial to navigating crises successfully. This involves maintaining an emergency fund, securing insurance coverage, and diversifying income sources to reduce vulnerability to market fluctuations.
- **Continuous Monitoring:** Effective anti-crisis management requires ongoing monitoring of key performance indicators and risk factors. This allows for the early detection of warning signs and the adjustment of strategies as needed.
- **Communication and Stakeholder Engagement:** Open and transparent communication with stakeholders, including employees, suppliers, and customers, is essential during a crisis. Maintaining trust and cooperation can help mitigate the impact of adverse events.
- **Adaptability and Innovation:** Agricultural businesses must be adaptable and open to innovation to thrive in changing circumstances. Anti-crisis management encourages the exploration of new technologies and practices to enhance resilience.

Table 1 shows the key principles and tools of crisis management.

Table 1. Key principles and tools of crisis management. (Source: adapted by the authors)

Key Principle	Tool	Description
Risk Assessment and Planning	SWOT Analysis	Conduct a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to identify internal and external factors affecting the business.
	Risk Management Plan	Develop a comprehensive plan to mitigate and manage identified risks, including financial, operational, and market risks.
Communication and Transparency	Crisis Communication Plan	Establish a clear plan for communication with stakeholders, including employees, investors, and the public, during a crisis.
	Stakeholder Engagement	Engage with key stakeholders to build trust, share information, and gather support for crisis management efforts.
Financial Resilience and Resource Allocation	Cash Flow Forecasting	Create cash flow projections to ensure adequate liquidity during a crisis and allocate resources effectively.
	Contingency Budgeting	Develop a budget that accounts for unexpected expenses and changes in revenue during a crisis.
Crisis Response and Recovery	Crisis Response Team	Form a dedicated team with defined roles and responsibilities to handle crisis situations promptly and effectively.
	Business Continuity Plan	Develop a plan outlining steps to resume normal operations as quickly as possible after a crisis.
Learning and Adaptation	Post-Crisis Analysis	Conduct a thorough post-crisis analysis to identify lessons learned and areas for improvement in crisis management.
	Continuous Monitoring	Implement ongoing monitoring of the business environment to detect potential crises early and adjust strategies accordingly.

These principles and tools can serve as a foundation for effective crisis management in the context of sustainable agricultural business development. Thus, a financial mechanism for the sustainable development of agricultural businesses relies heavily on effective anti-crisis management. This approach helps businesses proactively address risks, respond to crises, and ultimately achieve stability and long-term success. By assessing risks, developing strategic plans, and prioritizing financial preparedness, agricultural enterprises can navigate challenges and contribute to the resilience of the entire agricultural sector.

On Figure 1 it is shown the conceptual diagram of a financial mechanism for the sustainable development of agricultural business.

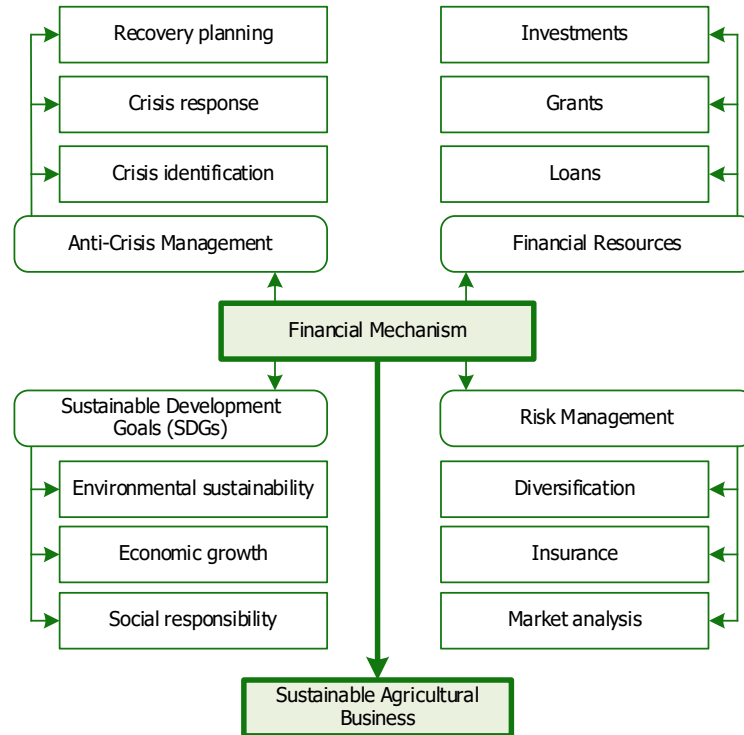


Figure 1. The financial mechanism for sustainable development of agricultural business.

This conceptual diagram visually represents how the financial mechanism for sustainable development of agricultural business is structured and how anti-crisis management plays a central role within it.

The modern agricultural sector is a key element of the economy in many countries, contributing to sustainable development and food security. Therefore, effective crisis management is an important factor in ensuring the stability and growth of the agricultural business. This study analyzes the interconnections between various economic, financial, social, and ecological indicators of the agricultural sector with the aim of determining the impact of crisis management on the formation of a sustainable financial mechanism for development. In the context of studying crisis management as the foundation for forming the financial mechanism of sustainable agricultural business development worldwide, it is advisable to analyze the following:

- macroeconomic indicators of countries (allowing for the comparison of the degree of sustainable agricultural business development across different countries);
- size and structure of the agricultural sector (enabling a comparison of the weight of the agricultural sector in each country's economy, distribution of production, and export of agricultural products);
- investment activity;
- past crisis management strategies;
- government support policies; Favorable business environment;
- innovation and technological development;
- social aspects;
- international cooperation.

To develop a model for studying these relationships, it is necessary to identify key variables and indicators that will help analyze this topic. The following variables and indicators are proposed for consideration:

1. *Economic indicators:*

- Agricultural raw materials exports (% of merchandise exports).
- Agricultural raw materials imports (% of merchandise imports).
- Agriculture, forestry, and fishing, value added (% of GDP).

Crop production index (2014-2016 = 100). (The crop production index measures agricultural output for each year in comparison to the reference period of 2014-2016. This index encompasses all crops except for fodder crops. The FAO calculates regional and income group aggregates for its production indexes based on international USD values that have been adjusted to match the reference period of 2014-2016).

Food production index (2014-2016 = 100) (The food production index encompasses edible crops rich in nutrients. Coffee and tea are excluded from this category because, despite being edible, they lack nutritional value.)

Land under cereal production (hectares).

Livestock production index (2014-2016 = 100) (The livestock production index encompasses meat and milk from all sources, as well as dairy products like cheese, eggs, honey, raw silk, wool, hides, and skins).

Cereal production (metric tons).

2. *Financial indicators:*

- Foreign direct investment, net inflows (% of GDP).
- Foreign direct investment, net outflows (% of GDP).
- Net investment in nonfinancial assets (% of GDP).
- Depth of credit information index (0=low to 8=high).
- Taxes on income, profits and capital gains (% of revenue).
- Tax payments (number).
- Taxes less subsidies on products (current USD).

3. *Social indicators:*

- Employment in agriculture (% of total employment) (modelled ILO estimate).
- Employment in agriculture, female (% of female employment) (modelled ILO estimate).
- Employment in agriculture, male (% of male employment) (modelled ILO estimate).

4. *Environmental indicators:*

- Alternative and nuclear energy (% of total energy use).
- Agricultural irrigated land (% of total agricultural land).
- Agricultural methane emissions (% of total).
- Agricultural nitrous oxide emissions (% of total).

For a more detailed disclosure of the research topic, 10 European countries were selected, in which the share of Agricultural land in % of land area is 50% or higher. These are such countries as Ukraine, Denmark, Ireland, Hungary, Romania, Greece, Netherlands, Spain, Luxembourg, and Poland (Figure 2).

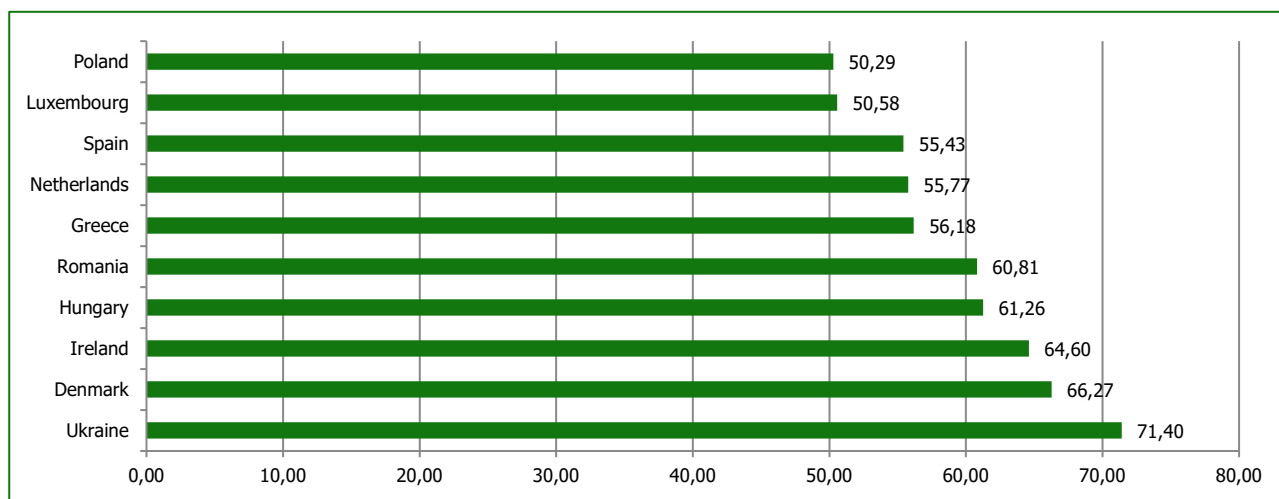


Figure 2. Agricultural land, % of land area, on average for the years 2000-2022.

The percentage of agricultural land indicates what portion of the total land area is used for agricultural purposes in the analyzed countries. Ukraine, with a high percentage of agricultural land, boasts a strong agrarian sector and a significant domestic market for agricultural products. Denmark and Ireland, despite having a smaller percentage of agricultural land, are renowned for their high-quality production and agricultural efficiency, owing to their advanced technological development and research efforts. Other countries such as Hungary, Romania, Greece, the Netherlands, Spain, Luxembourg, and Poland also have a substantial share of agricultural land. This is influenced by historical, geographical, and economic factors that impact the development of the agricultural sector in these countries.

It's worth noting that a large percentage of agricultural land underscores the importance of agriculture for the domestic economy and ensuring food supply for the population. However, this also poses challenges in terms of preserving natural resources and practising sustainable land use. In a broader context, this landscape enables the comparison of the level of agricultural activity in different countries and understanding how it affects their economy and society. Table 2 provides a comparative description of agriculture in the analyzed countries.

Table 2. Comparative characteristics of agriculture in the analyzed countries. (Source: adapted by the authors)

Country	Agricultural land area	Typical crops	Technology usage
Ukraine	A large area of agricultural land, including chernozem soils.	Wheat, corn, sunflower, barley.	Agricultural technology is gradually modernizing, but further development is needed.
Denmark	Limited land area, but high productivity due to intensive technology usage.	Agricultural production, mainly for the domestic market.	High level of automation and use of modern processing methods.
Ireland	A significant portion of land used as pastures for livestock farming.	Beef, milk, barley.	Technology is actively integrated into animal husbandry and agricultural product processing.
Hungary	Diverse agricultural lands.	Wheat, corn, watermelon, pork.	Application of modern processing methods, but further modernization is required.
Romania	A large area of agricultural land, including pastures.	Corn, wheat, potatoes, lamb.	Traditional processing methods combined with attempts to implement modern technologies.
Greece	Mountainous terrain limits the agricultural land area.	Olive, grapes, cheese, vegetables.	Traditional farming practices with some incorporation of modern methods.
The Netherlands	Limited land area, but high productivity due to intensive farming	Tomatoes, carrots, roses, pork.	High level of mechanization and hydroponic technologies.
Spain	Diverse landscapes in different regions of the country.	Tomatoes, oranges, grapes, olives.	Modern technologies are widespread, but intensity varies across regions.
Luxembourg	Limited land area, agriculture mainly for domestic consumption	Potatoes, milk, pork.	Limited use of large-scale technologies due to the small sector size.
Poland	A large area of various types of agricultural land.	Corn, wheat, potatoes, pork.	Significant efforts towards improving technological approaches in agriculture.

The analyzed countries are distinguished by their diversity in terms of agricultural production and approaches to technology utilization. They employ various strategies to ensure high productivity and quality of agricultural products at the national and international levels. Table 3 provides features, benefits, and draw backs of the financial mechanism for sustainable-development of agricultural business in the studied countries.

Table 3. Features, benefits, and drawbacks of the financial mechanism for sustainable development of agricultural business in the researched countries. (Source: adapted by the authors based on the analysis of literature)

Country	Characteristics	Advantages	Disadvantages
Ukraine	Relatively low level of infrastructure and technology development in the agricultural sector.	High potential for production growth. Abundant land resources and favourable natural conditions for agriculture.	Inadequate access to financing for agricultural enterprises. Lack of an effective management and control system.
Denmark	High level of technological advancement and innovation in agriculture.	High productivity due to modern production methods. Well-developed high-quality infrastructure.	Significant land concentration in large agribusinesses, potentially leading to job losses and rural decline.
Ireland	Focus on food production and agricultural product exports.	High quality and demand for Irish products. Effective support system for the agricultural sector.	Dependency on external demand and market fluctuations. Limited land resources.
Hungary.	Developed organic farming system.	Diversified production contributes to market fluctuation resilience. Substantial support for small agricultural enterprises.	Limited cultivated land area. Efficiency issues in some agricultural enterprises
Romania	A large number of small-scale agricultural farms.	Diversity in production supports resistance to market changes. Significant role in regional food supply.	Low profitability of many farms. Insufficient investments.
Greece	Favorable climate conditions for specific crops.	Traditions in producing high-quality olive oil and other products.	Limited expansion possibilities due to physical territory constraints. Outdated infrastructure.
Netherlands	High level of mechanization and technology use in the agricultural sector.	High productivity from efficient land use. Significant agricultural product exports.	Strong competition and dependency on external demand. Negative impact of intensive production on the environment.
Spain.	Diverse climatic zones conducive to various agricultural products.	Large production and export volume of agricultural products. High-quality wines and other products.	Water resource management issues. Uneven land distribution
Luxembourg	High standard of living and consumer activity.	Promotion of organic and sustainable agriculture.	Limited land resources. High farming costs due to a high cost of living.
Poland	Extensive cultivated land area and diverse production types.	Large domestic consumer market. Significant role in grain and other product production.	Environmental pollution challenges. Outdated infrastructure in many farms.

Studying the features and effectiveness of the financial mechanism allows us to identify key factors that influence the sustainability of agricultural enterprises' development. Thus, efficient resource management and investment activities contribute to the sustainable growth of agricultural enterprises. However, in case of crisis situations such as natural disasters or economic changes, crisis management becomes crucial. Table 4 can help identify key aspects of crisis management in agriculture. These aspects may involve providing support to farmers during crisis periods, developing plans to respond to economic challenges, and promoting diversification of agricultural enterprises' activities to reduce risks. Accordingly, strategies can be devised to ensure not only steady growth but also the ability to effectively deal with potential crisis situations.

A well-organized financial mechanism that promotes efficient resource utilization can serve as a preventive measure against crisis situations. Properly utilized investments, balanced budget policies, and sound financial management can aid agricultural enterprises in maintaining stability even in challenging conditions. On the other hand, crisis management can encompass mechanisms aimed at preserving financial stability during crises. This includes developing contingency plans, mobilizing resources in emergency situations, and taking operational measures to safeguard jobs and support agricultural enterprises, which can help mitigate the negative consequences of crises. It's also important to note that effective crisis management can help prevent the adverse impact of crisis situations on the financial health of enterprises. Well-planned actions can reduce risks to financial stability and thereby ensure a more stable long-term development of the agricultural business. Therefore, by considering the shared and interrelated aspects of the financial mechanism for sustainable development and crisis management, it can be concluded that integrating these approaches is essential for achieving successful and sustainable development of the agricultural sector in the studied countries.

Table 4. Features of crisis management in agriculture for the studied countries.

Country	Flexibility and diversification	Rapid response and adaptation	Cooperation and coordination	Innovativeness	Efficient use of resources
Ukraine	Limited flexibility and monoculture cultivation; dependence on foreign markets	Slow bureaucratic system; limited financial opportunities	Insufficient cooperation between producers and state structures	Gradual changes; limited access to innovation	Unsatisfactory use of technology and land resources
Denmark	High flexibility and diversity in agriculture; emphasis on organic and sustainable agriculture	Fast decision-making processes; active implementation of the latest technologies	Effective cooperation between producers, researchers and government bodies	Intensive innovations in the field of agriculture	Rational use of land and resources
Ireland	Agricultural diversity; emphasis on export and animal husbandry	Quick adaptation to changing market conditions; effective risk management	Active cooperation between producers, associations and the state	Investments in research and development of new methods of agriculture	Rational use of water resources and land
Hungary	Flexibility in growing crops; emphasis on traditional methods of agriculture	Quick decision-making at different levels; active response to crisis situations	Cooperation between government bodies, researchers and farmers	Implementation of the latest technologies in production	Rational use of land and pesticides
Romania	Great variety of crops and livestock; low automation	Limited opportunities for rapid response to crisis situations	Weak coordination between different sectors of agriculture	Limited access to innovation	Limited use of modern methods of resource management
Greece	Crop diversity and organic agriculture	Slow in decision-making and response to change	Cooperation within the region and with farmers' associations	Focus on traditional production methods	Limited use of new technologies
The Netherlands	High flexibility and intensive technologies in agriculture	Rapid implementation of the latest solutions and technologies	Integrated management system; active partnership cooperation	Leadership in innovation and research	Efficient use of land and energy resources
Spain	Crop diversity and organic production	Rapid response to market changes; flexibility in cultivation	Cooperation at the regional and national level; limited coordination between different branches of agriculture	Implementation of the latest methods of soil cultivation and cultivation	Rational use of water resources and pesticides
Luxembourg	High level of automation and intensive approach	Rapid decision-making at the state level; limited opportunities of farmers	Cooperation with an emphasis on research and development of new methods	Investments in innovative projects	Efficient use of land and energy resources
Poland	Diversity of crops and livestock; emphasis on traditional farming	Quick response to changes in market conditions; limited coordination between management bodies	Cooperation at the level of industry and region; limited interaction with researchers	Consistent implementation of innovations in production	Rational use of resources and land

In general, the specifics of crisis management in agriculture for the selected countries range from the intensive use of technology and innovation in the Netherlands to a more traditional approach with a focus on organic and sustainable agriculture in Denmark and Ireland. Flexibility, responsiveness, cooperation, and efficient use of resources are key factors in dealing with crises and achieving sustainable agricultural development.

In today's world, the agricultural economy is an important component of national and global economic systems. It not only provides the population with food and raw materials but also has a significant impact on the country's economic development. In order to understand and analyze the state of the agricultural sector in the analyzed countries, it is necessary to carefully examine various economic indicators.

Table 5 provides an overview of some of the economic indicators of agricultural production in European countries for the period from 2000 to 2022. The analysis of these indicators provides an opportunity to assess the impact of the agricultural sector on the economic development of the countries under study, to understand the dynamics of agricultural production and turnover, and to compare economic differences between countries.

Table 5. Economic indicators of agricultural production, on average for the years 2000-2022. (Source: calculated by the authors based on World Bank data)

Country	Agricultural raw materials exports (% of merchandise exports)	Agricultural raw materials imports (% of merchandise imports)	Agriculture, forestry, and fishing, value added (% of GDP)	Crop production index (2014-2016 = 100)	Food production index (2014-2016 = 100)	Land under cereal production (hectares)	Livestock production index (2014-2016 = 100)	Cereal production (metric tons)
Denmark	2.74	2.47	1.33	93.15	98.50	1469020	101.20	9132311
Greece	2.24	1.13	3.83	102.13	101.31	1080757	106.46	4419515
Hungary	0.69	1.13	3.79	89.79	93.77	2721261	102.43	13842310
Ireland	0.47	0.74	1.18	93.29	95.26	289031	95.51	2222155
Luxembourg	1.49	1.66	0.33	106.18	95.94	28403	93.00	161349
Poland	2.86	1.72	2.82	95.74	95.94	7995983	96.21	28137202
Romania	1.24	1.41	6.86	94.68	97.24	5401477	103.25	19326506
Spain	2.15	1.34	2.78	98.84	98.11	6295610	97.05	21615973
Ukraine	1.15	1.15	9.66	80.14	85.16	14276597	100.15	50573023
Netherlands	1.54	1.59	1.80	96.80	92.25	201317	90.47	1636749

The following conclusions can be drawn from the analysis of Table 5 regarding the economic performance of agricultural production in the ten European countries under study during 2000-2022:

- Exports and imports of agricultural inputs, all countries have a certain percentage of exports and imports of agricultural inputs in total merchandise exports and imports. This demonstrates the importance of agricultural activities for international trade.
- Value added of agricultural activities to GDP: The value of agricultural value added relative to GDP shows how important this sector is in the economy. Among the countries represented, the highest values are observed in Ukraine and Romania, which may indicate a significant contribution of the agricultural sector to their economies.
- Agricultural production indices indicate trends in agricultural production. Overall, the vast majority of countries show a stable or growing trend in production.
- Area under crop production: The size of the area used for cereal production indicates the scale of agricultural activity. The table shows that Poland and Ukraine have the largest areas under cereals, which may indicate their important role in grain production.

In general, the analysis of Table 4 shows the importance of the agricultural sector for the economies of the countries under study, as well as some positive trends in the development of this sector during 2000-2022.

Table 6 analyses the financial indicators of the countries studied for the period from 2000 to 2022. This data allows for a deeper analysis of economic trends and the specifics of each country reflected in them. In general, the analysis of this table allows us to identify key economic trends, determine the level of foreign direct investment, assess the efficiency of the credit system, and understand the specifics of taxation in different countries. This data can serve as a basis for further detailed research on the economic situation in different regions.

Table 6. Financial indicators, on average for the years 2000-2022. (Source: calculated by the authors based on World Bank data)

Country	Foreign direct investment, net inflows (% of GDP)	Foreign direct investment, net outflows (% of GDP)	Net investment in non-financial assets (% of GDP)	Depth of credit information index (0=low to 8=high)	Taxes on income, profits and capital gains (% of revenue)	Tax payments (number)	Taxes less subsidies on products (current USD)
Denmark	2.06	3.44	1.68	6.00	41.35	10	41233859373
Greece	1.06	0.48	3.95	7.00	18.98	10	26949900701
Hungary	16.15	13.89	2.44	5.43	18.25	12	18695345867
Ireland	19.72	14.81	1.31	7.00	39.01	9	21747718637
Luxembourg	23.21	32.86	2.48	0.00	29.30	23	5227074659
Poland	3.50	1.00	1.94	8.00	13.13	24	52213900513
Romania	3.60	0.22	2.80	7.00	18.19	63	16940463218
Spain	3.14	4.21	1.14	7.00	19.45	9	109949774187
Ukraine	3.48	0.21	0.77	7.00	13.24	73	15717644032
Netherlands	18.75	22.49	1.55	6.43	26.26	10	81205312828

Table 6 shows the diversity of countries' financial performance over the period from 2000 to 2022. Important characteristics of economic activity and financial position demonstrate differences between countries, which may be the result of different economic strategies, political decisions, and global factors. First of all, the investment attractiveness of countries, measured by net foreign direct investment inflows as a percentage of GDP, is considered against a background of different values. For example, Luxembourg and Ireland demonstrate high attractiveness for foreign investors, which may be due to favourable business conditions and tax regimes. At the same time, Greece and Denmark have a lower rate of foreign investment inflows. In terms of investment outflows, Hungary and Luxembourg stand out with large net investment outflows as a percentage of GDP. This may indicate that these countries are actively investing abroad. Assessment of the depth of information on credit history indicates the level of information availability for creditors and debtors. Countries in this table have different scores, which may indicate different levels of credit infrastructure development.

An important aspect is the indicator "Net investment in non-financial assets". The low level of this indicator in countries such as Ukraine and Spain may indicate the limited ability of these countries to expand production and modernize their economies. The depth of credit information and taxation also reflect the economic structure of countries. High credit information depth in countries such as Ireland may facilitate financial sector development and access to credit. Taxation is an important aspect of a country's financial stability. A high level of taxation of income, profits, and capital investment may indicate a significant amount of fiscal resources, but it may also raise legitimate questions about tax policy. In general, these indicators indicate the diversity of economic strategies and domestic realities in each of the countries studied. They provide a basis for further research into the structure and dynamics of economies and can serve as a basis for political and economic decision-making.

Table 7 shows social indicators of agricultural development by country, calculated on average for the period from 2000 to 2022. These data allow us to compare the structure of employment in agriculture and identify differences between countries in their level of agricultural sector development. Such indicators are an important tool for analyzing and assessing the state of agriculture in different countries and can also be used to identify trends in agricultural employment.

Table 7. Social indicators of agricultural development, on average for 2000-2022. (Source: calculated by the authors based on World Bank data)

Country	Employment in agriculture (% of total employment)	Employment in agriculture, female (% of female employment)	Employment in agriculture, male (% of male employment)
Denmark	2.78	1.28	4.11
Greece	13.01	13.45	12.77
Hungary	5.05	2.76	6.97
Ireland	5.81	1.63	9.11
Luxembourg	1.55	0.98	1.97
Poland	14.08	13.31	14.71
Romania	30.52	31.62	29.60
Spain	4.76	2.90	6.15
Ukraine	20.34	19.41	21.21
Netherlands	2.83	1.81	3.67

Analyzing the data in Table 7, it can be concluded that employment in agriculture varies greatly between countries. For example, the low employment in Danish agriculture (2.78%) and Dutch agriculture (2.83%) indicates the dominance of other sectors of the economy. In comparison, countries with higher figures, such as Romania (30.52%) and Ukraine (20.34%), indicate the important role of agriculture in employment. The difference in the distribution of employment by gender is noteworthy. In most countries, women account for a smaller percentage of agricultural employment than men. This inequality is evident in countries with high overall employment rates in this sector, such as Greece (13.45% of women vs. 12.77% of men) and Poland (13.31% of women vs. 14.71% of men). In the context of the indicators reviewed, the social aspect of agricultural development is complex and is determined by many factors, such as economic conditions, cultural traditions, and gender equality.

Table 8 shows the environmental indicators of agricultural development for the studied European countries on average for the period from 2000 to 2022. By examining these indicators, it is possible to analyze the environmental impact of agriculture and determine the level of sustainable development of these countries. Important aspects of environmental sustainability, such as the use of alternative and nuclear energy sources, the use of irrigated land in agriculture, and methane and nitrogen oxide emissions from agricultural activities, are shown in this table for individual countries. These indicators

are important for understanding the environmental impact of the agricultural sector on the planet and can serve as a basis for developing policies and strategies for sustainable development. By analyzing the differences between countries, we can highlight the positive trends and challenges faced by different national economies in their efforts to ensure environmental sustainability in agriculture.

Table 8. Environmental indicators of agricultural development, on average for the years 2000-2022. (Source: calculated by the authors based on World Bank data)

Country	Alternative and nuclear energy (% of total energy use)	Agricultural irrigated land (% of total agricultural land)	Agricultural methane emissions (% of total)	Agricultural nitrous oxide emissions (% of total)
Denmark	5.74	8.91	76.63	77.73
Greece	2.89	18.93	42.59	67.60
Hungary	15.76	1.86	31.66	70.69
Ireland	2.08	-	90.51	92.55
Luxembourg	1.86	-	72.57	72.38
Poland	0.41	0.54	29.43	69.74
Romania	8.96	1.77	31.05	64.61
Spain	16.33	12.89	62.06	75.39
Ukraine	17.79	1.05	19.22	76.45
Netherlands	2.29	9.94	54.82	57.88

After analyzing the environmental indicators of agricultural development presented in Table 8, some observations and conclusions can be drawn. Depending on the country, the ratio of alternative and nuclear energy to total energy consumption in agriculture varies from 0.41% to 17.79%. It should be noted that countries with higher rates of alternative and nuclear energy may be more environmentally conscious in terms of resource use. The percentage of agricultural irrigated land in the total agricultural land area ranges from 0.54% to 18.93%. This indicates different levels of use of irrigation systems to improve yields. An important aspect is the emission of methane and nitrogen oxide into the atmosphere. As a percentage of total emissions, these figures range from 19.22% to 90.51% for methane and from 57.88% to 92.55% for nitrogen oxide. This indicates different levels of efficiency in managing emissions and emission reduction practices. Some countries show great potential to increase the use of alternative and nuclear energy, as well as to improve irrigation systems and reduce methane and nitrogen oxide emissions. Overall, the analysis of environmental indicators of agricultural development for the period from 2000 to 2022 shows a variety of approaches and the level of awareness of countries regarding environmental challenges.

It should be noted that countries with higher rates of use of alternative energy sources may have advantages in reducing dependence on fossil fuels and contribute to reducing greenhouse gas emissions. The development of such energy sources can contribute to the sustainable development of agriculture and environmental safety. Differences in the use of irrigation on agricultural land may also reflect the presence or absence of adequate irrigation infrastructure. Irrigation can be an important practice for increasing yields, especially in the face of climate change. Emissions of methane and nitrogen oxide are serious concerns, as these gases contribute significantly to the greenhouse effect and climate change. Countries should pay due attention to the development and implementation of strategies to reduce these emissions, such as the introduction of effective wastewater management systems. The results of the analysis of agricultural development show that there is a need to change approaches to addressing environmental issues in agriculture. Innovations in energy use, irrigation, and emissions management can contribute to a more sustainable and environmentally balanced agricultural sector.

A multiplicative regression model can be used to conduct an economic and mathematical study of the dependencies between the above variables and indicators. It presents the general formula of the model:

$$Y = a_0 + a_1X_1 + a_2X_2 + \dots + a_nX_n + \varepsilon,$$

Where: Y – dependent variable, which can be one of the economic, financial, social indicators; X_1, X_2, \dots, X_n – independent variables that reflect economic, financial, social and environmental performance; $a_0, a_1, a_2, \dots, a_n$ – Regression coefficients to be selected based on data analysis; ε – model error, which reflects unaccounted-for factors and random influences.

To perform the analysis, there can be used statistical methods, such as the least squares method, to find the optimal values of the coefficients $a_0, a_1, a_2, \dots, a_n$.

The regression analysis formula includes the dependent variable Agriculture, Forestry, and Fishing, value added (% of GDP) and 8 independent variables: Agricultural raw materials exports (% of merchandise exports), Agricultural raw materials imports (% of merchandise imports), Foreign direct investment, net inflows (% of GDP), Foreign direct investment, net outflows (% of GDP), Net investment in nonfinancial assets (% of GDP), Taxes on income, profits and capital gains (% of revenue), Tax payments (number), Employment in agriculture (% of total employment) based on indicators from the analysed Tables 5-8.

Thus, the formula for regression analysis, where "Y" represents the dependent variable "Agriculture, Forestry, and Fishing, value added (% of GDP)" and "X₁" to "X₈" represent the independent variables, is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

Where: Y - Agriculture, forestry, and fishing, value added (% of GDP); X₁ - Agricultural raw materials exports (% of merchandise exports); X₂ - Agricultural raw materials imports (% of merchandise imports); X₃ - Foreign direct investment, net inflows (% of GDP); X₄ - Foreign direct investment, net outflows (% of GDP); X₅ - Net investment in nonfinancial assets (% of GDP); X₆ - Taxes on income, profits and capital gains (% of revenue); X₇ - Tax payments (number); X₈ - Employment in agriculture (% of total employment); β_0 - β_8 - regression coefficients; ε - regression error.

To perform a regression analysis, we need to build a model that reflects the relationship between the dependent variable "Agriculture, forestry, and fishing, value added (% of GDP)" (denoted as Y) and the independent variables. The data processing package used is Python with the NumPy and stats models libraries. After performing the regression analysis, you can estimate the value of each coefficient ($\beta_1, \beta_2, \dots, \beta_{10}$), which will help you figure out how each variable affects the dependent variable. The magnitude of each coefficient will show how much the dependent variable changes for a unit change in the corresponding independent variable, holding all other variables constant. The least squares method was used to find the regression coefficients. The coefficient values are calculated based on the data provided:

$$Y = 5.1007 + 0.2189X_1 - 0.3277X_2 - 0.0441X_3 + 0.0899X_4 - 0.3291X_5 - 0.0388X_6 - 0.0013X_7 + 0.2051X_8.$$

Thus, it is obtained a regression equation for predicting the value of "Agriculture, forestry, and fishing, value added (% of GDP)" based on the independent variables. It is considered each of them separately to analyze their impact on the dependent variable.

X₁ - Agricultural raw materials exports (% of merchandise exports).

Coefficient: 0.2189. It shows that an increase in the percentage of agricultural raw materials exports can lead to an increase in "Agriculture, forestry, and fishing, value added (% of GDP)".

X₂ - Agricultural raw materials imports (% of merchandise imports).

Coefficient: -0.3277. A negative value of the coefficient indicates that an increase in imports of agricultural raw materials may lead to a decrease in "Agriculture, forestry, and fishing, value added (% of GDP)".

X₃ - Foreign direct investment, net inflows (% of GDP).

Coefficient: -0.0441. A negative value of the coefficient shows that an increase in incoming foreign direct investment (% of GDP) may lead to a decrease in "Agriculture, forestry, and fishing, value added (% of GDP)".

X₄ - Foreign direct investment, net outflows (% of GDP).

Coefficient: 0.0899. A positive value of the coefficient indicates that an increase in the outflow of foreign direct investment (% of GDP) may affect the growth of "Agriculture, forestry, and fishing, value added (% of GDP)".

X₅ - Net investment in non-financial assets (% of GDP).

Coefficient: -0.3291. A negative value of the coefficient indicates that an increase in net investment in non-monetary assets (% of GDP) may lead to a decrease in "Agriculture, forestry, and fishing, value added (% of GDP)".

X₆ - Taxes on income, profits and capital gains (% of revenue).

Coefficient: -0.0388. A negative value of the coefficient indicates that an increase in taxes on income, profits and capital gains (% of revenue) may lead to a decrease in "Agriculture, forestry, and fishing, value added (% of GDP)".

X₇ - Tax payments (number).

Coefficient: -0.0013. A negative value of the coefficient indicates that an increase in the number of tax payments may lead to a decrease in "Agriculture, forestry, and fishing, value added (% of GDP)".

X_8 - Employment in agriculture (% of total employment).

Coefficient: 0.2051. A positive value of the coefficient indicates that an increase in employment in agriculture (% of total employment) can affect the growth of "Agriculture, forestry, and fishing, value added (% of GDP)".

Therefore, using this regression equation, we can analyze how the independent variables affect the value of "Agriculture, forestry, and fishing, value added (% of GDP)". This analysis helps to reveal the key factors that can facilitate or limit the development of agriculture in different countries. In particular, it can be concluded that an increase in the percentage of exports of agricultural raw materials, an increase in the outflow of foreign direct investment, and an increase in employment in agriculture can contribute to the growth of this sector as a percentage of GDP. On the other hand, an increase in imports of agricultural inputs, FDI outflows, growth in investment in non-monetary assets, and the tax burden could lead to a decline in the contribution of the agricultural sector to GDP. Therefore, this analysis can be used to develop strategies and recommendations for supporting and developing agriculture in different countries, depending on specific factors and conditions. Understanding the impact of various factors on agriculture can play an important role in shaping economic and policy strategies for countries.

An increase in the percentage of exports of agricultural raw materials may indicate an increase in the competitiveness of producers of these goods on the world market. This may indicate high product quality or the reliability of partners from other countries. However, it is important to be cautious, as too much export of raw materials can lead to excessive dependence on external demand. As for foreign direct investment, it is important to balance outflows and inflows. A large number of inward investments may indicate that the country is attractive for business, which can stimulate the development of the industry. On the other hand, a large amount of outward investment can reduce domestic growth potential.

It is also important to consider the contribution of taxes and tax payments to the industry. Reducing the tax burden can stimulate the development of agriculture and increase its contribution to GDP. However, it is important to ensure that tax cuts do not lead to a loss of funding for other sectors of the economy. All of these aspects are important when making decisions about supporting and developing agriculture. Regression analysis allows for a reasonable assessment and prediction of the impact of various factors, which helps to make better decisions for the sustainable development of the economy and society.

DISCUSSION

In this article, it is explored the concept of anti-crisis management and its role in establishing a financial mechanism for sustainable development within the agricultural sector. This discussion aims to highlight the similarities and points of agreement between the authors' work and the research conducted by other scholars in the field of sustainable agricultural finance and development.

The study by Ozili (2022) emphasizes the importance of financial inclusion in fostering sustainable development. Financial inclusion ensures that all members of society, including those in the agricultural sector, have access to financial services and resources. In the context of agricultural businesses, this can be critical for investments in technology, infrastructure, and sustainable farming practices. The article underlines the empirical association between financial inclusion and sustainable development, which aligns with the broader argument that anti-crisis management should include efforts to improve access to financial resources within the agricultural sector.

Paoloni et al. (2023) delve into the financing of innovation within agri-food industries, with a focus on micro, small, and medium enterprises (MSMEs) in Italy. Their research highlights the crucial role that financial mechanisms play in enabling innovation and development in the agricultural sector. The study found that effective financing strategies are essential for ensuring the growth and sustainability of these businesses. This is particularly relevant in the context of anti-crisis management, as innovative practices can help agricultural businesses adapt to changing circumstances and challenges.

The work of El Bilali and Allahyari (2018) introduces the role of information and communication technologies (ICTs) in the transition towards sustainability in agriculture and food systems. The adoption of ICTs can enhance the efficiency and sustainability of agricultural practices, contributing to anti-crisis management. These technologies enable better resource management, precision farming, and supply chain optimization, all of which can mitigate the impact of crises and support long-term sustainability in the sector.

The sources mentioned contribute valuable insights to the broader discussion of anti-crisis management and financial mechanisms for sustainable development in agricultural business. Collectively, they emphasize the significance of financial inclusion, innovation financing, and the role of ICTs in fostering sustainable practices.

Anti-crisis management strategies should prioritize financial inclusion to ensure that all stakeholders in the agricultural sector have access to essential financial resources. This inclusivity is crucial for small and medium enterprises, which are often the backbone of agricultural activities.

Furthermore, the financing of innovation, as highlighted by Paoloni et al. (2023), is essential for agricultural businesses to adapt to changing circumstances and remain competitive. It is an integral part of anti-crisis management as it helps these businesses diversify and develop resilient strategies.

The adoption of ICTs, as proposed by El Bilali and Allahyari (2018), aligns with the concept of anti-crisis management by enhancing the efficiency and sustainability of agricultural systems. These technologies provide tools for real-time monitoring, data-driven decision-making, and improving resource allocation.

The studied research articles collectively offer a wealth of knowledge on sustainable agricultural finance and development. The authors had benefited from drawing on these insights to enrich their own research, by comparing and contrasting operating environments, evaluating their impact, and identifying best practices for promoting sustainability in agricultural business.

Our article delves into a critical aspect of modern agriculture, which is the development of a financial mechanism to ensure sustainability amidst crises. This discussion aims to analyze the key concepts, findings, and implications of the article while drawing insights from related research in the field of agricultural finance and sustainability.

1. Importance of Sustainable Agricultural Development. The article rightly emphasizes the significance of sustainable agricultural development in the face of various challenges. Sustainable agriculture not only ensures the long-term viability of the agricultural sector but also plays a pivotal role in food security and environmental conservation.
2. Financial Mechanisms for Sustainable Agriculture. The article highlights the need for a robust financial mechanism to support sustainable agricultural development.
3. International Comparisons. Drawing comparisons between the financial mechanisms and anti-crisis strategies employed in different countries, as evidenced in the cited articles, could offer a broader perspective. It may reveal best practices that can be adapted to suit the specific needs and challenges faced by the agricultural sector in the article's focus area.
4. Policy Considerations. Policy frameworks and government support are critical elements in shaping the financial mechanisms for sustainable agriculture.

In conclusion, the article underscores the critical need for financial mechanisms to ensure the sustainability of the agricultural sector. Drawing from the insights and findings of the cited articles, this discussion has highlighted various aspects that could enhance the comprehensiveness and applicability of the article's key concepts.

CONCLUSIONS

This article emphasizes the importance of crisis management as a basis for the formation of an effective financial mechanism aimed at ensuring the sustainable development of agricultural business. Through the analysis of theoretical approaches, empirical research, and best practices, the article identifies key principles and tools of crisis management aimed at achieving financial stability and sustainable growth of enterprises in the agricultural business sector. The results of the study indicate a close relationship between crisis management and sustainable development of the agricultural sector. This connection becomes a key factor in the development of effective management strategies for agricultural enterprises. Crisis management helps to provide reliable protection against economic stresses and unforeseen situations that may arise in the current business environment. The application of crisis management principles allows the agricultural sector not only to survive the crisis but also to develop actively, using opportunities for innovation, market expansion, and the introduction of new approaches to production. This enhances the competitiveness of the sector and contributes to the sustainable growth of the economy as a whole.

Crisis management is a key factor in the sustainable development of agricultural businesses: the results of the study indicate the importance of crisis management for ensuring financial stability and sustainable development of the agricultural business sector. Proactive response to crises and the use of adequate tools and strategies can help to avoid serious financial difficulties and ensure sustainable operations. The relationship between crisis management and sustainable development: The study confirms that effective crisis management contributes to the sustainable development of agricultural businesses. Protection from financial risks allows enterprises to plan and invest in innovations for a longer period of time, which in turn contributes to growth and competitiveness.

As follows, the scientific novelty in the article lies in several key aspects:

1. Integration of crisis management and sustainable development: the article brings together two critical concepts - crisis management and sustainable development - and explores their interconnection within the context of agricultural businesses. While both topics have been studied individually, the article's novelty lies in their integration, highlighting how crisis management can directly contribute to sustainable development in the agricultural sector.
2. Application of crisis management principles to agriculture: the article applies crisis management principles, which are typically associated with risk and emergency response in various industries, to the agricultural sector. This adaptation and application of crisis management concepts specifically to agriculture represent a novel approach.
3. Emphasis on financial mechanisms: the article focuses on the financial aspect of crisis management and sustainable development in agriculture. It underscores the importance of an effective financial mechanism and its role in ensuring the sector's sustainability. This financial perspective adds a unique dimension to the study of crisis management in agriculture.

In summary, the scientific novelty of the article lies in its innovative approach to integrating crisis management principles into the agricultural context, emphasizing the financial mechanisms involved in the pursuit of sustainable development in the agricultural sector.

Prospects for further research. In conclusion, the article opens up broad prospects for future research in this area. It is important to investigate the impact of crisis management on social and environmental aspects of sustainable development of the agricultural sector, to develop more detailed methods of implementing crisis management strategies, and to explore the relationship between crisis management and other aspects of agricultural business management.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

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АНТИКРИЗОВЕ УПРАВЛІННЯ ЯК ОСНОВА ФОРМУВАННЯ ФІНАНСОВОГО МЕХАНІЗМУ СТАЛОГО РОЗВИТКУ АГРАРНОГО БІЗНЕСУ

Антикризове управління є важливим інструментом управління сучасним аграрним бізнесом, особливо в умовах невизначеності та змін на ринку. У статті досліджено роль антикризового управління як ключового елемента у формуванні фінансового механізму сталого розвитку аграрного сектора. Проаналізовано основні аспекти антикризового управління в аграрному бізнесі та його вплив на формування стійкого фінансового механізму. Досліджено взаємозв'язок між антикризовим управлінням та сталим розвитком аграрного сектора. Визначено можливості використання принципів антикризового управління для підвищення фінансової стійкості та конкурентоспроможності сільськогосподарських підприємств. Як результат, у статті підкреслено важливість антикризового управління як ключового чинника формування стійкого фінансового механізму досягнення сталого розвитку аграрного бізнесу. Наукова новизна статті полягає в декількох ключових аспектах: інтеграція антикризового управління та сталого розвитку; застосування принципів антикризового управління в сільському господарстві; акцент на фінансових механізмах: у статті зосереджено увагу на фінансовому аспекті антикризового управління та сталого розвитку в сільському господарстві. Таким чином, наукова новизна статті полягає в інноваційному підході до інтеграції принципів антикризового управління в сільськогосподарський контекст із акцентом на фінансовий механізм, задіяний у досягненні сталого розвитку в аграрному секторі. Результати дослідження можуть бути корисними для сільськогосподарських підприємств, менеджерів, науковців та регуляторних органів для вдосконалення стратегій управління та підвищення стійкості аграрного сектора.

Ключові слова: сільське господарство, продуктивність, економіка; розробка; виклики сталого розвитку, аграрний бізнес

JEL Класифікація: Q14, M21, O16