

FACTORS AFFECTING PROFITABILITY OF COMMERCIAL BANKS AND DIRECTIONS OF ITS IMPROVEMENT

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Factors Affecting Profitability of Commercial Banks and Directions of its Improvement

The aim of the article is to analyze the financial results of commercial banks of Ukraine at the present stage and develop recommendations for ensuring the profitability of their activities. The article analyzes the profitability of commercial banks of Ukraine for 2009-2017. In the paper, there proposed a mechanism for ensuring interaction of bank deposits and indicators of volatility and liquidity, which can change financial costs of banks. The higher the cost of access to alternative liquidity is, the higher the propensity of banks to increase the rates on long-term loan, which, as a result, helps to shorten the period of loan repayment and leads to making less long-term investments and production. It is revealed that one of the several institutional reasons for the lack of long-term finance and investment is the absence of functioning liquidity markets. Further research in the area of increasing profitability of commercial banks and developing the national economy will allow extend the range of results and ensure the further development of management of the optimal profitability policy of commercial banks.

Keywords: income, loan, deposit, liquidity, volatility.

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Халатур С. М., Гуца С. О. Фактори впливу на прибутковість комерційних банків і напрями її підвищення

Метою статті є проведення аналізу фінансових результатів комерційних банків України та розробка рекомендацій щодо забезпечення прибутковості їх діяльності. Проаналізовано прибутковість комерційних банків України за 2009–2017 рр. Запропоновано механізм, за допомогою якого здійснюється взаємодія банківського депозиту з показниками волатильності та ліквідності, що може змінити фінансові витрати банків. Чим вище вартість доступу до альтернативної ліквідності, тим вище схильність банків до підвищення довгострокових ставок по кредитах, що сприяє скороченню строків погашення кредиту, є провідним для менш довгострокових інвестицій та виробництва. Виявлено, що однією з інституційних причин відсутності довгострокових фінансів та інвестицій є нестача функціонуючих ринків ліквідності. Дослідження в галузі підвищення прибутковості комерційних банків і розвитку національної економіки дозволять розширити ці результати та забезпечити подальший розвиток управління оптимальною політикою прибутковості комерційних банків.

Ключові слова: прибуток, кредит, депозит, ліквідність, волатильність.

Рис.: 1. **Табл.:** 1. **Бібл.:** 12.

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Халатур С. М., Гуца С. А. Факторы влияния на доходность коммерческих банков и направления ее повышения

Целью статьи являются проведение анализа финансовых результатов коммерческих банков Украины и разработка рекомендаций по обеспечению прибыльности их деятельности. Проанализирована прибыльность коммерческих банков Украины за 2009–2017 гг. Предложен механизм, с помощью которого осуществляется взаимодействие банковского депозита с показателями волатильности и ликвидности, что может изменить финансовые расходы банков. Чем выше стоимость доступа к альтернативной ликвидности, тем выше склонность банков к повышению долгосрочных ставок по кредитам, что способствует сокращению сроков погашения кредита, является ведущим для менее долгосрочных инвестиций и производства. Определено, что одной из институциональных причин отсутствия долгосрочных финансов и инвестиций является недостаток функционирующих рынков ликвидности. Исследования в области повышения прибыльности коммерческих банков и развития национальной экономики позволят расширить эти результаты и обеспечить дальнейшее развитие управления оптимальной политикой прибыльности коммерческих банков.

Ключевые слова: прибыль, кредит, депозит, ликвидность, волатильность.

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Introduction. Banking profit is one of the most important indicators of efficiency of the functioning of a commercial bank, its stability. It is a matter of concern for all participants in the economic process. Shareholders are worried about the size of profit of the bank, since it is an indicator of income on the capital invested by them. The profit is a guarantee of a sustainable development of investors and their confidence in the future, as the increase in reserves and own funds of the bank testifies to its stability. Borrowers are also interested in profits of the bank, because in this way their own savings increase.

It is necessary to emphasize the importance of commercial banks in promoting long-term investments and possibilities of using technologies in the national economy of Ukraine. Despite the general link between long-term finance and development, today there is an endemic presence of short-term loans.

The article presents an attempt to develop new explanation for the lack of long-term financing based on banking mediation and the role of instability of deposits. The presented mechanism for ensuring profitability of a commercial bank is illustrated through a banking model, with the use of exogenous variability of deposits.

Analysis of recent researches and publications. Problems of providing profitability and financial stability of commercial banks in the national economy are highlighted in works of many leading domestic and foreign scientists, namely: A. Alshatti [1], A. Banerjee, E. Duflo [2], P. Bustos, G. Garber, J. Ponticelli [3], F. Shamim, B. Aktan, M. Abdulla, N. Yaseen Sakhi [4], E. Gilje, E. Loutskina, P. Strahan [5], R. Iyer, M. Puri [6], L. Sloboda, N. Dunas, A. Limański [7], T. Alzoubi, O. Dzubluk [11], Ya. Tchaikovskiy [12], and others.

For example, T. Alzoubi points out that the size of a bank significantly affects its profitability. Larger banks have better opportunities to diversify their investment and asset portfolio. Larger banks can be considered safer, with better opportunities to increase their profitability. The amount of capital and the efficiency of its using have a significant positive impact on a bank's profitability. Capital provides a source of financing which cannot be refused, as opposed to debt capital, i.e., a bank will be able to invest in long-term income generating assets, which will increase its profitability. Loans have little positive impact on profitability of banks. Deposits have a more significant positive impact on profitability of banks, since they represent a cheaper source of financing.

F. Shamim, B. Aktan, M. Abdulla and N. Yaseen Sakhi identify the factors that affect profitability and can be internal (characteristic for the bank itself) or external (macroeconomic). Internal factors can be controlled and managed by the bank's management. Macroeconomic factors affect all banks, and it is beyond the ability of management to control their mitigation. Internal factors are bank size, cost management, capital management, and credit risk. Macroeconomic factors include inflation expectations, interest rates, market growth, market structure, regulatory changes, and changes in business cycles.

L. Sloboda, N. Dunas and A. Limański state that the banking sector plays an important role in the development of the financial sector, economic growth, formation of a business strategy, and enhancement of investment competitiveness. At present, the Ukrainian banking sector faces transformation and systemic risks in all types of banking services. Banking activ-

ity has a significant impact on the future of economic development, environmental situation, and stabilization of the country after the financial crisis. Using the initial regulatory methods for stabilizing the national economy and the banking sector, market participants assess key transformation factors that include increasing consolidation of capital, growing market penetration, finding new channels to meet the needs of clients in financial services, improving risk management methods and increasing business productivity. The main area of banking sector transformation is retail banking, which performs a vital economic function and has a significant impact on consumers, small and medium-sized enterprises within the country.

Thus, searching for ways to increase the profitability of commercial banks is an urgent problem that needs to be addressed.

The aim of the article is to analyze the financial performance of commercial banks of Ukraine at the present stage and develop recommendations for ensuring the profitability of their activities.

Presentation of basic material of the research. At the beginning of 2018, there were 84 deposit corporations in the banking system of Ukraine, including 4 commercial banks and 1 savings bank controlled by the government. According to the National Bank of Ukraine, within the same period, there operated 79 private commercial banks with total assets of UAH611,480.74 million.

The period 2009-2017 is characterized by a high level of banking system risk, reduction in the number of banks and low level of their capitalization, large proportion of problem loans in loan portfolios, insufficient development of banking services, which led to deterioration of the financial status of banks, their insolvency and liquidation. For a more detailed development of the topic, the income and cost structure of Ukrainian banks is analyzed (Tbl. 1)

Analyzing Table 1, we can conclude that in 2017, the income structure of Ukrainian banks was dominated by interest income (69.6 %). Compared to 2009, interest income declined from 84.69 % to 69.6 %. However, other types of income increased in 2017 compared to 2009, in particular, commission income grew from 11.34 % to 20.8 %, result of trade operations — from 2.04 % to 4.1 %, other operating income — 1.47 % to 4.1 %, other income — from 0.41 % to 0.8 %, recoveries of amounts previously written-off — from 0.06 % to 0.6 %.

Within the studying of factors affecting profitability of commercial banks and directions of its increase, an analysis of changes in the net profit of the banking institutions of Ukraine is carried out (Fig. 1).

Analyzing Figure 1, it can be concluded that the banking system of Ukraine was profitable only in 2012 and 2013. The largest amount of losses incurred by banks of Ukraine was recorded in 2016 (UAH159 388 million). In 2017, the losses decreased slightly, which presented a positive trend, and amounted to UAH26472 million. Therefore, the study of factors affecting profitability of commercial banks and directions for its increase is a very topical issue for the national economy of Ukraine.

Profitability is the goal of any business, including banks. Let us consider elements that make up profitability of a bank. Net bank income is the major indicator for measuring performance of a bank. It comprises three sources of income, the first

Table 1

Income and cost structure of banks in Ukraine, %

Indicator	Year								
	2009	2010	2011	2012	2013	2014	2015	2016	2017
INCOME	100.00	100.00	100.0	100.0	100.0	100,0	100.0	100.0	100.0
interest income	84.69	82.82	79.4	78.1	76.9	72.0	67.8	71.2	69.6
commission income	11.34	11.16	12.9	14.1	14.8	13.4	14.3	16.4	20.8
result of trading operations	2.04	1.61	2.8	2.1	2.0	7.4	10.8	4.3	4.1
other operating income	1.47	3.90	4.0	3.9	3.0	4.8	4.8	5.0	4.1
other income	0.41	0.36	0.5	0.7	1.4	1.0	1.4	2.1	0.8
recoveries of amounts previously written-off	0.06	0.14	0.4	1.1	1.9	1.4	0.9	0.9	0.6
COSTS	100.00	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0
interest costs	36.70	40.97	39.6	46.8	48.3	36.9	36.1	26.2	34.7
commission costs	1.65	1.78	2.0	2.1	2.4	1.9	2.2	2.1	4.7
other operating costs	4.89	7.14	10.5	9.1	7.3	5.9	4.9	3.1	5.7
general administrative costs	15.55	19.39	22.8	25.6	24.3	17.0	13.8	11.2	21.6
deductions to reserves	41.58	30.81	24.3	16.1	16.7	39.3	43.1	56.6	24.1
income tax	-0.37	-0.09	0.8	0.3	1.0	-1.0	-0.1	-0.1	1.8

Source: compiled by the authors based on the data of the National Bank of Ukraine [9; 10]

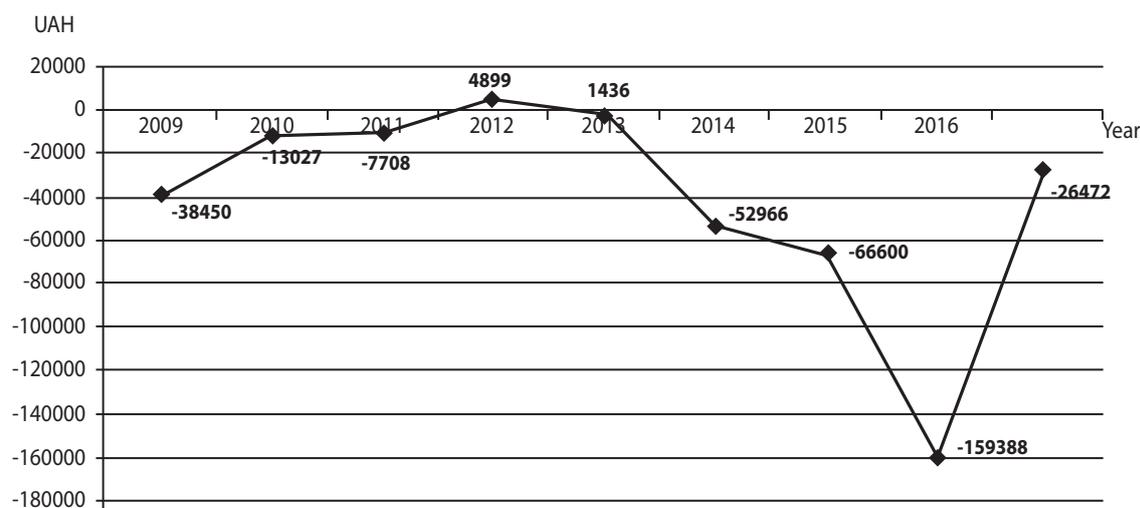


Fig. 1. Changes in the net profit (loss) of commercial banks of Ukraine, UAH mln

Source: compiled by the authors according to the data of the National Bank of Ukraine [9; 10]

of which is interest margin. This element is the basis of a banking system. The bank remains important in the development of the national economy. Business entities use credit for various purposes. This activity has a great influence on evolution of rates. The margin depends on the structure of assets and liabilities of the banking institution. To optimize the interest margin, it is necessary that the interest charged to a borrower be sufficient to cover the cost of resources, wage of management, cost of risk and return on equity. Adjustable savings rates are also a parameter that affects profitability.

The credit crunch was a liquidity crisis that could have led to a global financial equilibrium if central banks had not

interfered. Following these events, one of the first concerns of the regulator has become to strengthen the liquidity ratios of banking institutions.

The main measures to increase profitability of commercial banks can be mentioned the following:

- enhancement of quality, homogeneity, and transparency of capital;
- improvement of coverage of counterparty risk. One of the main lessons of the crisis is the need to increase risk coverage;
- recovery of cyclicity by creating additional sources of capital. This will ensure that banks have suffi-

cient liquid assets to offset the net liquidity needed in implementing the severe short-term scenario (for example, a significant rating downgrade, a bank loan, or a partial withdrawal of deposits).

Banks, as before, automatically shift at least a portion of the cost of a risk to their margin, which results in an increase the interest rate on loans and reduces the access to loans for some businesses and individuals who cannot afford them. This will encourage those who can still take loans to use their savings more efficiently to cover the cost of the loan. But banks seek to create an opposite effect. In fact, the maneuver is limited to growth in GNP and the desire to increase deposits. At this stage, the banking sector is no less competitive than at the expense of loans. Therefore, there expected more promotional offers on savings products in general, and in particular short-term and long-term savings products. These promotional offers will be the main engine for increasing the rate of return for unregulated savings.

Consequently, profitability of a bank depends on a number of factors, risky or less risky, if they are deliberately accepted. Regulation will protect banks from certain risks, so that they can maintain their profitability in the event of a risk, effectively use their resources and potential to take risks, and, consequently, systematically use the methodology to improve their performance.

The cyclical nature of bank loans, in particular, the increase in bank loans during economic expansion, is characterized by deterioration in the quality of bank loans due to excessive optimism, underestimation of risk exposure and non-compliance with lending standards. Asset prices, as a risk factor, will increase as a result of a recession, and banks will suffer losses. As a result, banks reduce the supply of credit and increase cyclical fluctuations in the national economy. In this regard, it can be noted that excessive lending can be taken as a warning signal for financial instability and crisis.

Business activity and activity of Ukrainian banks is substantially determined by the environment in which a separate commercial bank operates and which forces it to use a certain method of behavior and to select specific business goals and ways to achieve them. Most business decisions are made under uncertainty. This means that there is the same uncertainty and contingency in the development of conditions for financial activity. Quantifying the probability of deviation of real processes and the results of the expected level will contribute to risk management. Thus, risk is a quantitative uncertainty in the presence of two elements necessary for the existence of risk. The first is uncertainty concerning potential outcomes, and the second is uncertainty as to significance of the results for ensuring positive effect.

Financial risk is mainly due to movements in financial markets and changes in the attitude of entities to individual financial instruments and transactions. It can also be argued that financial risk exists in various forms. On the one hand, there are external forms of financial risks associated with changes in financial markets; on the other hand, there are sources of financial risks that arise in the internal environment of a commercial bank: financial risk, insolvency risk, and liquidity risk.

So far, the number of deposits has decreased, interest rates on loans have begun to increase, which has a negative impact on the banking sector. The above-mentioned aspects

require banks to enhance the efficiency of their activities, improve methodological approaches to ensuring their financial stability through more full use of banking tools and services, effective management of banking activities in unstable environment, entry of banks into financial and industrial associations of different types, financial rehabilitation on the basis of reorganization: mergers and acquisitions, creation of banking corporations and holdings.

To manage profitability of commercial banks, a three-period model is proposed using three agents (factors): households supplying short-term deposits to a bank; enterprises investing in short-term and long-term projects, as well as a bank converting short-term deposits into short-term and long-term loans. Short-term loans are granted in the first period and repaid in the second period, while long-term loans are granted in the first period and repaid in the third one.

All prices are known, there is perfect competition and knowledge.

Two factors are the key ones. First, depositors deduct a stochastic amount until repaying long-term loans and after returning short-term loans. Secondly, the bank has access to central bank funds to maintain alternative liquidity: if the amount withdrawn is small, the bank covers it with its liquidity, and the additional costs are zero; if the amount withdrawn is large, then it requires a loan from the central bank at the optimal rate. This allows gaining a profit when withdrawing a deposit in the second period, even in case of using a neutral risk model.

The main result of this model is that the rate of long-term loans increases with changes in bank deposits and discount rates. The interaction of these two parameters is the key indicator: the higher the volatility in periods of high discount rates, the higher the additional cost of financing is, which results in an increase in the rate of long-term loans. This encourages an enterprise to abandon a long-term project and a long-term loan to redistribute a short-term project and loan, which reduces costs.

As regards sustainability, this model offers only two repayment periods (short and long), while in a more general model there is a continuum. A multistage environment and a more general state is achieved with the constant volatility of deposits. The article presents the key elements of the proposed model.

Households. A household places deposits in the bank between periods 1 and 2, periods 2 and 3, hence $D_{1,2} = D_{2,3} = 1$. With $t = 2$, the household will receive interest on old deposits, $r_{D_{1,2}}$. Then the household observes the presence of factors of risk ε and can consume more or withdraw some deposits depending on whether ε is positive or negative. Deposits of the second period are described $\tilde{D}_{2,3} = 1 + \varepsilon$, and ε is independent and equally distributed through a uniform set, $\varepsilon \sim U[-\nu, \nu]$. The parameter ν is built in standard deviation of deposits, which is called volatility of deposits.

Enterprises. There is a single continuum of enterprises where each enterprise solves the problem of investment distribution. It is precisely because of indivisibility that each enterprise decides to invest in short-term or long-term projects. Both options are previously studied: short-term investments provide a net profit $p < 1$, and long-term projects provide a heterogeneous return ρ_i uniformly distributed between 0 and 1, ρ_i

$\sim U [0, 1]$. Both variants are defined and known at the time of making an investment decision. Intuitively ρ_i can be considered as the introduction of innovations: some enterprises may receive relatively more productive technologies in the long run than in the short term (their $\rho_i > p$), while other enterprises may receive less productive long-term investments. Given the impact of various factors on the external and internal environment, the company faces a differentiated loan market. A short-term project can be financed only by a short-term loan $L_{1,2}$, withdrawn in period 1 and repaid in period 2 with the interest rate of $r_{L1,2}$, and a long-term loan $L_{1,3}$ is repaid in period 3 with the rate of $r_{L1,3}$. Each company solves this problem and analyzes aggregate requirements for short-term and long-term loans by aggregation over the continuum.

Bank. With $t = 1$ the bank receives deposits $D_{1,2}$ and turns them into assets: short-term and long-term loans $L_{1,2}, L_{1,3}$, liquid and safe assets $A_{1,2}$. With $t = 2$, the bank receives profits from short-term activities, therefore, $r_{L1,2}L_{1,2}$ and $r_A A_{1,2}$, and pays to households a rate of $r_{D1,2}D_{1,2}$ (deposits are withdrawn). New deposits placed $D_{2,3}$ are turned into safe assets $A_{2,3}$ and finance previously issued long-term loans $L_{1,3}$. In the final period, $t = 3$, the bank's assets are paid respectively at a rate of $r_{L1,3}L_{1,3}$ and $r_A A_{2,3}$ and reimburse deposits and interests on them.

However, deposits of the second period $D_{2,3}$ are exposed to the factors of ε after their turning into assets. If the factors of influence are negative, then withdrawal of deposits takes place. For a fairly small negative impact of the factors, the bank covers it with its liquidity, $A_{2,3}$; otherwise it applies for refinancing to the central bank and borrows the difference between the necessary assets and $A_{2,3}$ at $r_{CB} > 0$, which is a premium on the amount of liquidity — the difference between the discount rate and the deposit rate. Thus, during period 2 banks is subject to liquidity restrictions, $D_{2,3} - L_{1,3} > \varepsilon$.

The demand for loans and deposits for each period in a bank can be calculated by solving the function:

$$\max (r_{L1,2}L_{1,2} + r_A A_{1,2} - r_{D1,2}D_{1,2}) + \delta (r_{L1,3}L_{1,3} + r_A A_{2,3} - r_{D2,3}D_{2,3}) + D_{1,2} D_{2,3} L_{1,2} L_{1,3} + \delta r_{CB} \int_{D_{2,3}-L_{1,3}} (D_{2,3} - L_{1,3} - \varepsilon) f(\varepsilon) d\varepsilon.$$

where $\delta \in (0, 1)$ — discount rate, and balance restrictions are applied in each period: respectively $L_{1,2} + L_{1,3} + A_{1,2} = D_{1,2}$ i $L_{1,3} + A_{2,3} = D_{2,3}$. These restrictions indicate that all obligations of the bank (in this case only deposits) must be equal to the sum of assets.

The first two indicators in the formula are earnings in periods 2 and 3, while the last indicator shows the expected value of borrowings from the central bank, simplified through uniform distribution, $[\nu - (D_{2,3} - L_{1,3})]^2 / 4\nu$. If the alternative liquidity is not reliable, then the discount rate is equal to the deposit rate, $r_{CB} = 0$, then the volatility of the deposit does not affect any rate.

The equilibrium rate of lending and deposits arises due to market erosion by equating deposit and loan demand and expenses.

It is suggested that there is a situation for ν i r_{CB} which, with increasing volatility of deposits, ν , generates:

- changes in loan terms, which include: increase in the rate on long-term lending and decrease in the average period of loan repayment;

- changes in the investment profile of enterprises, including: reducing long-term lending and the share of long-term investments and increasing the share of short-term loans and investments;
- subsequent decrease in total production.

All these effects on the role of volatility of deposits increase with the discount rate. However, if the liquidity premium equals zero, so that $r_{CB} = 0$, then the volatility of the deposit will not generate any effect on the period of repayment or rates on loans.

Conclusion. The article analyzes the profitability of commercial banks of Ukraine for 2009-2017. It is established that in 2014 the banking system of Ukraine faced the deepest crisis over the years of the country's independence. The crisis did not develop in itself but was a reflection of the profound economic crisis in the country. It was impossible to overcome the banking crisis with financial leverage. In view of this most banks have already reviewed the structure of their assets and concluded that under crisis it is not advisable to increase the volume of the loan portfolio due to its quality. In order to increase profitability, it is necessary to boost non-interest income by introducing new services and carrying out off-balance-sheet transactions. The main task remains restoring lending and investment activities, boosting the volume of lending to the real economy without increasing the risk of non-repayment of loans.

In the article, there proposed a mechanism for ensuring interaction of bank deposits and indicators of volatility and liquidity, which can change financial costs of banks. The higher the cost of access to alternative liquidity is, the higher the propensity of banks to increase the rates on long-term loan, which, as a result, helps to shorten the period of loan repayment and leads to making less long-term investments and production.

It is revealed that one of the several institutional reasons for the lack of long-term finance and investment is the absence of functioning liquidity markets. Further research in the area of increasing profitability of commercial banks and developing the national economy will allow extend the range of results and ensure the further development of management of the optimal profitability policy of commercial banks.

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