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METHODICAL TOOLS FOR INTEGRATED ASSESSMENT OF THE ECONOMIC SECURITY OF UKRAINE'S BANKS

Abstract. The article offers methodical tools for integrated assessment of the economic security of banks. It is based on 59 indicators and takes into account such components of security as resource, asset-forming (transformational), risk-forming, stabilization and functional, productive. The resource component of banks' economic security reflects the sufficiency of their own, involved and borrowed financial resources for stable and efficient operation to make a profit and protect the interests of shareholders, depositors, and creditors. The asset-forming (transformational) component of economic security is one of the most important, as it represents not only the degree of use of the banking system's potential in economic development but also the credit and investment direction of assets, their quality, the degree of problematcity, and the impact on the economic security of the banking sector. Assessing the impact of risk on economic security involves the use of the indicators of prudential banking supervision, namely basic economic standards and several coefficients that reflect the risk of active banking transactions. The stabilization and functional component of economic security shows the impact of macroeconomic indicators on the state of the monetary and credit market and inflation rate. Profit (loss) as a result of the functioning of the banking system is one of the key indicators of security and a necessary prerequisite for the implementation of development strategies. This approach allowed determining the level of the economic security of Ukrainian banks based on the calculated value of the integral indicator. The differentiation of the quantitative value of the indicator within the proposed values allows assessing the level of banks' security as high, satisfactory, low, critical. The practical significance of this approach is that it allowed identifying risks, threats, and dangers to banks and defining the most significant of them.

Keywords: banks, economic security of banks, integrated assessment, risks, threats, dangers.

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МЕТОДИЧНИЙ ІНСТРУМЕНТАРІЙ КОМПЛЕКСНОЇ ОЦІНКИ ЕКОНОМІЧНОЇ БЕЗПЕКИ БАНКІВ УКРАЇНИ

Анотація. Запропоновано методичний інструментарій до інтегрального оцінювання економічної безпеки банків. Базується на 59 показниках та враховує такі складові безпеки, як: ресурсна, активоформувальна (трансформаційна), ризикоформувальна, стабілізаційно-функціональна, результативна. Ресурсна складова економічної безпеки банків відображає достатність власних, залучених і запозичених фінансових ресурсів для стабільного та ефективного здійснення операційної діяльності з метою одержання прибутку й захисту інтересів акціонерів, вкладників і кредиторів. Активоформувальна (трансформаційна) складова економічної безпеки є однією з найбільш вагомих, оскільки представляє не лише міру задіяння потенціалу банківської системи в розвиток економіки, а й кредитну та інвестиційну спрямованість активів, їхню якість, ступінь проблемності й вплив на рівень економічної безпеки банківського сектору економіки. Оцінювання впливу ризику на економічну безпеку передбачає використання показників пруденційного банківського нагляду, а саме основних економічних нормативів і низки коефіцієнтів, які відображають ризик здійснення активних банківських операцій. Стабілізаційно-функціональна складова економічної безпеки показує вплив макроекономічних показників на стан грошово-кредитного ринку та рівень інфляції. Прибуток (збиток) як результат функціонування банківської системи є одним із ключових індикаторів безпеки й необхідною передумовою для реалізації стратегій розвитку. Цей підхід дозволив визначити на основі розрахункового значення інтегрального індикатора рівень економічної безпеки банків України. Диференціація кількісного значення індикатора в межах запропонованих значень дозволяє оцінювати рівень безпеки банків як високий, задовільний, низький, критичний. Прикладне значення підходу в тому, що він дозволив ідентифікувати ризики, загрози і небезпеки функціонування банків та визначити найбільш значимі з них.

Ключові слова: банки, економічна безпека банків, інтегральна оцінка, ризики, загрози, небезпеки.

Формул: 5; рис.: 1; табл.: 0; бібл.: 11.

Introduction. The systemic banking crisis of 2014—2016 was accompanied not only by a record reduction in the number of banks in Ukraine, but also by the negative results of their activities, which led to the largest losses of 66 billion UAH, 159 billion UAH, and 26 billion UAH in 2015—2017. The gradual revival of positive trends in the functioning of the banking system and its profit of 59.6 billion UAH in 2019 and 41.3 billion UAH in 2020 did not eliminate key dangers, threats, and risks associated with poor asset quality, insufficient capitalization, and a significant excess of authorized capital over equity capital [1]. This situation has exacerbated the problems of economic security in the banking sector and necessitated the development of modern methodical tools for assessing security by key components of the banking business using integral indicators to determine its level. Thus, the issue of developing a methodology for assessing the level of the economic security of banks remains unresolved and requires an integrated approach that would not only determine the existing level of security but also identify destructive factors in terms of its key components.

Analysis of research and problem statement. The theoretical-organizational and economic principles of security in banks are covered in the scientific works of such domestic and foreign scientists as O. Baranovskyi, M. Barilyuk, A. Kuznietsova, V. Kovalenko, I. Mihus, Yu. Kharazashvili, O. Shtaier, S. Yaremenko, G. Benston, J. Koleoenik, M. Ławrynowicz, J. Meyrick, D. Yılmaz, R. Aktas and others. At the same time, the methodical tools for assessing the level of the economic security of Ukrainian banks taking into account risks, threats, and dangers need further scientific substantiation.

The purpose of the article is to develop methodical tools for assessing the level of the economic security of banks based on the definition of the integral indicator and its main components.

Research results. In the conditions of post-crisis functioning of Ukrainian banks, the research on the issues of the formation of security systems at the macro- and microlevels and the search for appropriate methods for assessing its level has become especially relevant. There are no established approaches to the definition of «economic security of banks» in the scientific literature. In a general sense, economic security is defined as a state of the economy in which proper protection of the interests of the country's development from internal and external risks and threats is provided. According to the Methodic Recommendations for calculating the level of the economic security of Ukraine as of October 29, 2013, № 1277, banking security is considered a component of a financial one and is a level of the financial stability of banking institutions, which allows ensuring the efficiency of the country's banking system and protection from external and internal destabilizing factors regardless of the conditions of its operation [2].

In foreign practice, the term «bank security» is common, which is considered mainly through the prism of the implementation of banks' functions in the country's economic system and its integration into the global economic space.

The European Central Bank considers economic security from the standpoint of the macro-prudential policy, regulation, and supervision of banking institutions, according to which economic security must ensure resilience to shocks, the balance of the financial system and its institutions [3].

Several foreign scholars interpret the security of banks through the prism of trust in the banking system by stakeholders [4].

There is a scientific approach that considers security as a key area of supervision by regulators. In particular, M. Lavrynovych argues that bank security is a key category for regulatory and supervisory institutions of the financial system [5].

Some foreign studies emphasize that the economic security of banks is primarily related to ensuring the security of its information component and the protection of confidentiality and unauthorized access to databases. In particular, J. Meyrik argues that the future of security in banking lies in the development and implementation of systems of cognitive security measures, which are based not only on the use of a large data array but also cover financial flows and processes of their circulation and the progress of activity with high speed. Cognitive security can put banks at risk from external actors in terms of speed, collaboration, and access to databases [6].

There is a view of banking security from the standpoint of guaranteeing the reliability of deposits for depositors and creditors and existing insurance systems. In particular, according to J. Benston's approach, the concept of «safety net» is used in the banking sector, which refers to government guarantees to depositors and creditors of banks [7].

According to many scientists, banking security can be ensured through the smooth operation of its infrastructure. In particular, D. Yulmas considers security as a complex concept that covers a payment system, a technological infrastructure, as well as regulatory and control bases [8].

Based on the theoretical generalization, it can be stated that the definition of «economic security of banks» is based on many parameters, such as state, capacity, financial stability, characteristics, the process and principles of provision taking into account stability, balance, efficiency, and the continuity of activity, corporate and personal security. It should be noted that in modern conditions there are no common approaches to assessing the level of the economic security of banks, which would reflect the existing risks and threats and contribute to the further adoption of sound management decisions.

The domestic scientists O. I. Baranovskyi and M. R. Baryliuk emphasize the need to use an integrated approach to assessing the financial security of banks and propose a step-by-step algorithm for implementing a multi-level model for assessing its level based on the indicator approach [9, p. 34].

The research of a group of Turkish scientists identifies microeconomic variables as criteria for bank security: ROA, liquidity, a net interest margin, and risks that are statistically significant for the formation of the values of solvency ratios of banks in Euro regions [10]. Such indicators are important for the functioning of banks at the macro and micro levels but do not reflect the problems of bank capitalization and the adequacy of financial results to solve operational and strategic problems of functioning security.

In the authors' opinion, the methodical approach to assessing the level of economic security should be based on systemic principles and include a sequence of such stages.

1. Identification of external and internal risks, threats, and dangers to the economic security of banks. At this stage, the hazards that pose threats and turn into risks of banking activities are identified.

2. Formation of key indicators of the economic security of banks in terms of functional components that by rationing and using the indicator method of analysis are transformed into a cumulative integral indicator. Indicators allow displaying the process or state of the observation object, its qualitative and quantitative characteristics. These are indicators of the state of the economic security of banks, the value of which reflects the degree of impact of a particular threat on the functional components of banking. Regarding the justification of the choice of indicators, it should be noted that each indicator should be an economic value with clear limits of fluctuations and stimulating or disincentive direction of influence.

When forming a system of indicators of the economic security of banks, it is necessary to take into account their preventive and diagnostic direction. The system should be designed in such a way that each of the indicators included in its composition allows identifying a threat in a particular functional area. Especially, at the macro level, the economic security of banks should be based on indicators that signal the presence (or state their absence) of risks, threats, and dangers with an emphasis on the specifics of the economic potential of banks as financial intermediaries in the economy.

The developed methodical approach to the integrated assessment of the economic security of banks is based on 59 indicators and takes into account the following main components:

1) resource, which contains the indicators of security of the formation of equity capital and liabilities;

2) asset-forming (transformational), which takes into account the indicators of credit, investment activity, quality, and liquidity;

3) risk-forming, which reflects the adequacy of formed reserves for non-performing assets and the overall riskiness of banking activity;

4) stabilization and functional, which is based on the indicators of monetary and inflationary security;

5) productive, which reflects the indicators of profitability and viability of banks in the context of their further development and ensuring the requirements of economic security.

3. Quantitative and qualitative assessment of the indicators of the economic security of banks. The separation of this stage is due to the different impacts of certain indicators on the security of banks. Some of them, as their values increase, have a positive effect on the functioning of the banking system, i.e. are stimulants in ensuring its security, the others — negatively, i.e. are disincentives and create threats and reduce its level. This stage is based on the standardization (rationing) of indicators to unify them. One such method is standardization through the average value. Given this, the authors propose to determine the maximum allowable level of the indicator of economic security by the formula:

$$\Gamma 3_i = \frac{\sum_{t=1}^n I_{xt}}{n}, \quad (1)$$

where $\Gamma 3_i$ — is the maximum allowable level of the i -indicator; I_{xt} is the value of the i -indicator in the year t ; n is the number of years during which the arithmetic average value of the i -indicator is determined.

The determination of individual normalized ratios is carried out taking into account their impact on the economic security of banks according to the formulas:

a) for stimulants:

$$k_{ij} = \frac{I_{xj}}{\Gamma 3_i}, \quad (2)$$

b) for disincentives:

$$k_{ij} = \frac{\Gamma 3_i}{I_{xj}}, \quad (3)$$

where I_{xj} is the value of the i -indicator of the economic security of banks; $\Gamma 3_i$ is the maximum allowable level of the i -indicator;

4. Calculation of integral indicators for certain functional components. At this stage, the quantitative assessment of the state of the economic security of banks in terms of the main 5 components is formed. The calculation of integral indicators is carried out according to the formula:

$$S_{mj} = \frac{\sum_i^m k_{ij}}{z_m}, \quad (4)$$

where S_{mj} is an integral indicator of the functional component;

m is a number of the economic security block (1—5);

z_m is the number of indicators of economic security in block m .

5. The calculation of the integral level of the economic security of banks is carried out according to the formula:

$$I_j = \frac{S_{1j}+S_{2j}+S_{3j}+S_{4j}+S_{5j}}{5}, \quad (5)$$

where 5 is the number of functional components of the economic security of banks.

6. Determining the level of the economic security of Ukrainian banks based on differentiation depending on the quantitative value of the integral indicator. The authors believe that this level can be high, satisfactory, low, critical depending on the quantitative value of the integral indicator of the economic security of banks, namely: high — 1.51 and more; satisfactory — 1—1.50; low — 0.50—0.99; critical — less than 0.50.

7. Development of recommendations for ensuring and improving the level of the economic security of banks. Depending on the determined numerical value of the integral indicator of the level of economic security, it is necessary to develop proposals to ensure economic security at different hierarchical levels of management of the banking system.

The approbation of the methodology involves the analysis and evaluation of indicators within 5 defined components: resource, asset-forming, risk-forming, stabilization and functional, and productive from 2016 to 2020.

Indicators that form the security of equity capital and liabilities have identified positive and negative aspects of the capitalization of the banking system. According to the calculations, the level of the economic security of banks was negatively affected by:

1) a small share of equity capital relative to GDP, which amounted to 5.19% in 2016, and 5.90% in 2020, and a slow increase in authorized capital, which accounted for 17.38% and 13.46% as to GDP, respectively. The dynamics of these indicators confirmed significant disparities in the capitalization of banks and its insufficiency concerning GDP;

2) high dependence of institutions on shareholders, which grew annually and amounted to 334.99% in 2016, 307.48% in 2017, 300.42% in 2018, 234.36% in 2019, 227.84% in 2020. This trend causes a constant increase in the statutory component of capital and does not provide its optimal structure;

3) a significant share of foreign in the authorized capital of banks, which amounted to 52.1% in 2016, 35.8%, in 2017, 28.2% in 2018, 28.7% in 2019, 28.4% in 2020, i.e. for the last 3 years this indicator has been within the permissible values from the standpoint of security (30%);

4) a significant number of losses of the previous years, which led to the excess of the authorized capital over equity capital;

5) an annual decrease in the ratio of banks' liabilities to GDP, which amounted to only 45.17% in 2020. The decrease in this indicator signals a reduction in the resource capacity of the banking system in the context of a significant reduction in banking institutions and a slight increase in banking liabilities;

6) insufficient guarantees for reimbursement of the deposits of individuals, as only half of the deposits invested in the banking system are subject to possible reimbursement by the DGF (Deposit Guarantee Fund for Individuals). This situation is threatening, as it does not ensure the security of investments, and the sum of possible compensation of 200,000UAH does not stimulate the accumulation of funds in the banking system and an increase in confidence.

As for the assets, the following things harmed the level of the economic security of banks:

1) a decrease in the ratio of banks' assets to GDP from 52.67% in 2016 up to 51.07% in 2020;
2) a reduction in lending volumes and a reduction in the ratio of loans to GDP from 42.17% in 2016 up to 27% in 2020. Negative manifestations in lending activity led to a reduction in the lending ratio. If in 2016 80% of the assets of the banking system were formed at the expense of loans, in 2020 only 53%;

3) a significant share of non-performing assets in their volume, which amounted to 45% in 2020;

4) the imbalance of loans and deposits by terms and sums, as the coefficient of their ratio was 4.13 in 2016 and 3.72 in 2020;

5) the non-conformity of loans and deposits by type of currency, as in 2016 foreign currency loans exceeded deposits by 34%, and only in 2020 foreign currency deposits exceeded the corresponding loans by 34%;

6) the volatility of the dynamics of the ratio of the systemic importance of banks, which amounted to 47% in 2016, 50% in 2017, 49% in 2018, 82% in 2019, and increased to 85% in 2020, confirmed the monopoly influence of government agencies on the level of security of the banking system.

In the context of assessing the impact of existing risks on the economic security of banks it can be noted:

1) an insignificant reduction in the risk of basic banking transactions, which confirms the ratio of formed reserves by active operations to GDP, which was characterized by volatility and amounted to 20.31% in 2016, and showed a decrease in 2017—2020 from 17.13% to 10.52%.

2) insufficiency of formed reserves by active transactions of banks to cover the aggregate risk of their activities;

3) a reduction of aggregate risk, which was reflected by the capital multiplier, the value of which decreased from 10.15 in 2016 up to 8.65 times in 2020;

4) a gradual reduction in risks due to asset diversification, which confirmed the value of the asset risk ratio in the range from 0.69 in 2016 to 0.41 in 2020.

The level of stabilization and functional component of the economic security of banks was decisively influenced by:

1) a gradual decrease in the level of monetization of the economy from 46.2% in 2016 up to 45.5% in 2020, which causes to some extent a lack of funds to meet the needs of the economy;

2) a decrease in the dollarization of the money supply from 34% in 2016 up to 28% in 2020;

3) a decrease in the consumer price index from 12.4% in 2016 up to 5% in 2020 and core inflation from 5.8% to 4.5%, which stabilized inflation expectations and the security of inflation processes.

The productive component of the economic security of banks confirmed that:

1) in 2016—2017 banks were operating at a loss, in 2018—2020 — returned profitability;

2) the return on assets fluctuated during 2016—2020 from —12.60% to 2.27%, the return on equity capital from — 116.74% to 19.61%, the return on the authorized capital — from — 38.44% to 8.61%;

3) the net interest margin for 2016—2020 increased from 3.52% to 4.63%, net spread from 2.17% to 10.74%, which had a positive impact on the level of security and the balance of assets and liabilities;

4) the capacity of banks is being gradually restored, and the threats of 2016—2017, which were accompanied by the excess of costs over their income are being neutralized;

The main dangers and threats in terms of the productive component of banking security are a lack of profits of the banking system, low values of the return on capital and assets, a significant increase in staff costs, which reduces the level of economic security.

Based on the actual values of indicators and taking into account their impact on the level of economic security (stimulator/disincentive), the maximum allowable levels of each of the proposed indicators and their normalized values are determined based on which 5 integral indicators of the main components of the economic security of Ukrainian banks for 2016—2020 are calculated, which are presented in *Fig.*

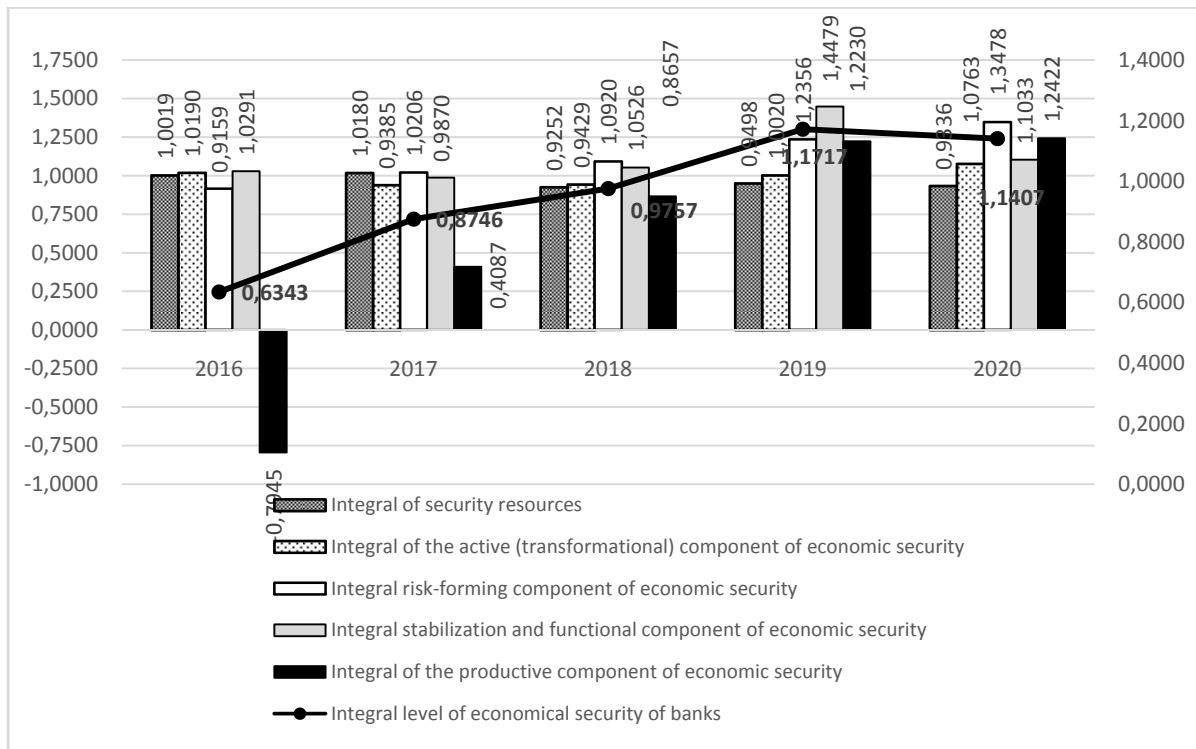


Fig. Dynamics of the integral indicators of the economic security of Ukrainian banks for 2016—2020

Source: authors' own calculations.

According to these calculations, the integral indicator of the level of the economic security of Ukrainian banks was 0.6343 in 2016, 0.8746 in 2017, 0.9756 in 2018, 1.1717 in 2019, and 1.1407 in 2020. The security of banks can be assessed as low during 2016—2018 and satisfactory in 2019—2020. The productive component had the most negative impact on the value of the integral level of the economic security of banks in 2016, in 2017—2018 — asset-forming and resource, in 2019—2020 — resource in terms of the formation of liabilities of banks.

Conclusion. Thus, in today's conditions, there is no single method of assessing the economic security of banks. The proposed approach is comprehensive and covers the main indicators that reflect the state of banking security.

Based on the research, it can be stated that to achieve a high level of economic security it is necessary to neutralize dangers in terms of the proposed components, as for 5 years the negative impact on security has been observed in all the identified areas: resource both in terms of capital and liabilities, asset-forming, risk-forming, productive, and stabilization and functional.

To increase the level of security of the resource component, it is necessary to increase the level of the capitalization of banks relative to GDP and optimize the capital structure and liabilities of banks, to develop approaches to the security of deposit guarantee in Ukraine under the international principles of the formation of effective systems of deposit insurance (IADI) [11]. In

terms of the asset-forming component, it is advisable to develop effective mechanisms for intensifying bank lending and increase the share of loans in GDP, provide effective mechanisms for managing problem assets and reducing bad debts, to justify the demonopolization of the market of banking products and services by reducing the share of systemically important government and other institutions. The risk-forming component requires not only the introduction of methods for monitoring and assessing the level of risks but also the development of ways to reduce the riskiness of assets, which will reduce the number of provisions for them. The stabilization and functional component reflected positive trends in the stabilization of the consumer price index and the levels of monetization and dollarization of the economy. The productive component remains a basis of commercial activity and of ensuring a sufficient amount of profit for the implementation of programs for the development of the banking sector of the economy.

Further research in this direction should substantiate the methodical tools for assessing the level of the economic security of banks at the micro-level with the identification of threats and dangers, as well as competitive positions and opportunities to ensure their stable and dynamic development.

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