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Development of the banks' risk management system under conditions of uncertainty

Abstract. Due to economic globalization, changes in the regulatory environment, technological shifts and geopolitical events, banks face uncertainty that has a negative impact on their financial stability. It is important for banking institutions to develop an effective risk management system that will help identify, control and mitigate emerging risks. The goal of the study was to substantiate current directions for transforming the banks' risk management system to secure anti-crisis regulation and financial stability. Monitoring of the banking sector financial stability has been carried out based on determining the probability of a financial crisis, applying an indicative method; economic and statistical methods of information collection and analysis, formalization, systematization and modelling have also been applied in the article. The importance of a risk-oriented approach to conducting banking business as a basis for counteracting destabilizing factors of influence has been considered. Securing the bank's financial stability under conditions of uncertainty provides for integration of its risk management system into the structure, linking all other management subsystems at the strategic, tactical and operational levels. Bank risk management has been considered not as a separate independent function of bank management, but as a component of the institution's adaptive management system, integrated with strategic and tactical planning, performance management, internal control and audit. It has been determined that in order to ensure the bank's adaptability and its quick response to changes in the financial market it is necessary to introduce changes into the risk management system in the following directions: establishing the responsibility of the bank's top management and its owners for the bank's performance at the legislative level; improving the corporate governance and promoting its reliability; forming the bank's risk culture. The study is useful for banking specialists who can use recommendations for the development and improvement of the risk management system under conditions of uncertainty. The given material can serve as an important source of information for regulatory bodies, supervisory institutions in policy making and setting standards of the risk management system in banks

Keywords: influence factors, instability, express diagnostics, probability, financial crisis, lines of defence

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INTRODUCTION

The key element of the banking system of Ukraine is commercial banks, through which the mechanism of mobilization, attraction and distribution of financial resources and funds is implemented. Focusing attention on the priority of commercial banks functioning under conditions of financial system uncertainty necessitates the development of directions for improving the banks' risk management

system, which should be characterized by high adaptability and effective coordination with other subsystems of the banking management system and provide for the formation of an end-to-end integrated system of banks' risk management. At the same time, the priority of comprehensive and simultaneous provision of financial stability, liquidity, profitability, competitiveness, as well as financial

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stability of banks based on current scientific and methodical approaches to risk management is a stimulating factor for banks to improve their internal risk management system.

Many studies have been conducted both by Ukrainian and other scientists regarding the impact of the corona crisis on various areas of the economy including the financial and credit sector. The current corona crisis is characterized by uneconomic root causes (in contrast to previous crises), speed of spread and its global nature, which led to significant negative consequences of the COVID-2019 pandemic [1-3] in the country's banking system in particular. B. Danylyshyn and I. Bohdan [4] considered the attempts of the central bank to support commercial banks and their clients, the ways in which monetary policy instruments of the National Bank of Ukraine are updated in the system of stabilization policy measures and anti-crisis regulation to counteract the spread of external shocks in the national economy during the quarantine. After summarizing theoretical foundations of anti-crisis management of the economy under conditions of extreme shocks, identifying the directions of influence and channels of their penetration into the national economy, the authors managed to formulate conceptual provisions and practical measures to counteract crisis. The research focuses on monetary regulation instruments of the central bank during the corona crisis, which may limit the application of the results in other contexts or crisis conditions different from the quarantine, which requires a sound analysis of alternative approaches to counteract crisis. Papers [5-6] substantiated the role of the National Bank of Ukraine in mitigating negative consequences of the corona crisis and the regulator's economic and administrative instruments effectiveness. In particular, V. Kovalenko and N. Radova [5] emphasized the importance of strengthening prudential regulation in the banking system to achieve financial stability not only at the macroeconomic level but also at the micro level. However, researchers have mainly focused on the assessment of macroprudential tools used by the regulator and did not pay enough attention to the determinants of ensuring the financial stability of individual banks, which are the basis for the stability of the entire banking system.

The resolution of the NBU (National Bank of Ukraine) board "On the organization of the risk management system in banks of Ukraine and banking groups" describes in detail financial risks arising in banking activities, as well as situations related to their occurrence [7]. At the same time, principles and recommendations provided by the Basel Committee are taken into account. The regulatory framework establishes requirements for creating the risk management system in banks and determines minimum requirements for the risk management system in banks and banking groups. In the scientific literature, the problems of classification, control, prevention and elimination of banking risks have been studied. In particular, N. Doroshenko, N. Kulyk and A. Pohorelenko gave a detailed classification of financial risks of banking institutions [8] and proved that a skilful risk management in a bank helps to reduce negative consequences, improves its performance efficiency and contributes to profitability growth of a banking institution. However, the research needs to be supplemented with an overview of problems related to ensuring the bank's stability, as well as directions for reducing risks and improving the

institution's risk management methods. In contrast to the above-mentioned work, N. Demchuk and A. Abakhtimova [9] described the risk management process of banking institutions, the most common classical methods and directions for reducing and avoiding risks. However for a successful management of bank risks under modern conditions it is necessary to update the ways of levelling these risks and reducing their negative impact on banking activity. A thorough study of the impact of the bank's risk management mechanism on operational decision-making in the financial market has also been conducted [10], in which the structure of the bank's risk management mechanism has been presented and the characteristics of its elements and the main goals of the management mechanism have been determined. Despite proving the need for monitoring important indicators and making timely operational decisions regarding banking activity as elements of effective bank risk management, specific directions for improving the bank's risk management system depending on different dynamics of assessment indicators have not been substantiated. Thus, the scientists revealed the essence of banking risks, gave their classification and characteristics, determined the causes of risks and presented banks' risk management features, as well as characterized their main methods. However, despite the existing studies the banks' risk management system under conditions of uncertainty remains insufficiently elaborated, therefore the goal of the present study is to determine priority directions for the development of strategic solutions in the risk management system that will help banks cope with the risks arising during crisis situations and ensure their financial stability.

MATERIALS AND METHODS

The research is based on theoretical and methodological provisions of financial stability, financial management and risk management. Analysis and synthesis, classification and comparison have been used to identify features of modern banking activity and to analyse requirements for the banks' risk management system. These methods made it possible to understand characteristic features and requirements for the risk management system, which ensure the financial sustainability and financial stability of banking institutions. Methods of scientific abstraction and theoretical generalization made it possible to formulate features of the modern business model of banks based on risk-taking, to carry out a theoretical analysis and generalization of the concepts underlying the business models of banks, as well as the risks associated with them. Clustering, economic and statistical methods of information collection and analysis, in particular, sample studies have been used to obtain representative samples of data that contributed to information collection and analysis. Generalization and formalization made it possible to obtain representative data and assess comprehensively the probability of a financial crisis. Monitoring of the financial stability of the banking sector has been carried out using the method of express diagnostics proposed by Yu. Rebrik [11], which allows to assess the bank's financial stability quickly and efficiently. The author suggests determining the probability of a financial crisis in the banking sector with the following formula:

$$P_{FC}(t) = \frac{IFS^f(t)}{IFS^c(t)} \times 100\%, \quad (1)$$

where $P_{FC}(t)$ – the probability of a financial crisis in the banking sector in t period; $IFS^f(t)$ – the actual value of the integral indicator of the threat to the financial stability of the banking sector in t period; $IFS^c(t)$ – the critical value of the integral indicator of the threat to the financial stability of the banking sector in t period.

Scientific generalization, systematization and modeling have been used to substantiate main determinants for creating an effective risk management system with a focus on ensuring banks' financial stability. These methods made it possible to identify important aspects of risk management, systematize them and develop models reflecting relationships and factors influencing banks' financial stability. The choice of the above-mentioned methods has been stipulated by their suitability for achieving the research goal. Each method has its own specifics and provides certain advantages in understanding the problem and obtaining necessary data for analysis and generalization. The use of a combination of these methods has provided for a comprehensive approach to the investigated problem and contributed to the achievement of the research goals.

RESULTS AND DISCUSSION

Under the corona crisis conditions of 2019-2020 and the long-term russian aggression on the territory of Ukraine since 2014, maintaining banks' financial stability is of great importance in terms of the socio-economic development of

the country. The banking system is one of the key components of the financial system and its stability has a direct impact on the financial activities of all economic entities. Banks' financial stability is a key to ensuring reliability and trust in the banking system. It ensures functioning of the financial intermediation, credit market and contributes to economic growth, investment activity and the development of entrepreneurship. In order to ensure banking system sustainability and financial stability, the National Bank of Ukraine invests significant efforts in the development and implementation of effective regulatory mechanisms, requirements and policies aimed at reducing risks and maintaining banks' financial stability.

Political and military instability, high level of inflation and general economic destabilization caused by quarantine restrictions connected with the COVID-19 pandemic have led to a significant negative impact on the banking sector. Therefore, it is important to analyse main indicators of banks' financial stability, to assess the influence of external factors on banks' financial condition and their ability to level risks. Table 1 shows the interpretation of the values of the financial crisis probability in the banking sector.

Table 2 contains the results of selecting indicators with prognostic power to determine the probability of a financial crisis in the banking sector during 2017-2021, as well as the dynamics of the indicator, which makes it possible to monitor banks' financial stability.

Table 1. The matrix of probability zones of a financial crisis in the banking sector

Crisis zone	Numeric range PFC (t), %	Gradation names	Banks' operation mode
I	0-24	Zone of an insignificant probability of a financial crisis occurrence	Routine operation mode
II	25-49	Zone of a low probability of a financial crisis occurrence	Routine operation mode
III	50-74	Zone of a significant probability of a financial crisis occurrence	Anti-crisis management mode
IV	75-100	Zone of a high probability of a financial crisis occurrence	Anti-crisis management mode

Source: [12]

Table 2. Probability of a financial crisis in the banking sector of Ukraine during 2017-2021 years, %

Main indicators	01.01. 2017	01.01. 2018	01.01. 2019	01.01. 2020	01.01. 2021	01.09. 2021
Loan portfolio (before provisioning)	1005923	1036745	1118860	1033430	960596	1029799
Cash and funds in the NBU	77337	81800	82834	132799	111049	136566
Total assets	1737272	1839958	1910614	1981594	2205914	2247805
Consumer loans	157385	170774	196859	206737	148619	181753
Fixed assets	36745	35497	37101	46117	48320	47826
Liabilities	1132515	1172723	1204743	1293377	1613380	1677624
Customer deposits	854832	929568	963045	1097081	1377386	1424831
Equity	123784	161108	154960	199921	209459	223353
Authorized capital	414668	495377	465532	470712	479336	480274
Profit/loss	-195658	-28103	17080	58356	39726	45397
Reserves for active operations	484383	511062	556445	492229	383074	346827
Assets (adjusted for reserves)	1256298	1333831	1359703	1493298	1822840	1900978

Table 2. Continued

Main indicators	01.01. 2017	01.01. 2018	01.01. 2019	01.01. 2020	01.01. 2021	01.09. 2021
ROA (net assets)	-15.57	-2.11	1.26	3.91	2.18	2.39
Financial crisis probability, %	67.99	50.61	54.27	46.34	46.95	46.04

Note: ROA – return on assets

Source: calculated by the author based on data [13]

The use of the express diagnosis method of banks' financial stability has made it possible to calculate the probability of a financial crisis in the banking sector of Ukraine from the beginning of 2017 to the middle of 2021. The indicator dynamics suggests an increase in banks' financial stability. The probability of a financial crisis on September 1, 2021 was 46.04%, which corresponds to the zone of a low probability of a financial crisis occurrence and indicates the financial stability of the banking sector. During 2016-2018 the probability of a financial crisis was in the zone of a significant probability of a financial crisis occurrence and ranged from 67.99% to 54.27%.

It can be concluded that the Ukrainian banking sector has become more resistant to crisis during 2019-2021. At the same time, in order to mitigate the pandemic impact on the banking sector and support the financial sector, the National Bank of Ukraine has significantly simplified regulatory requirements for banks by: postponing the introduction of capital buffers; introducing long-term refinancing for a period of 1 to 5 years; implementing an interest rate swap to hedge interest rate risks; cancelling stress testing of banks in 2020 and postponing on-site inspections of banks and non-bank credit institutions by regulatory authorities; introducing the ratio of a net stable financing; increasing the risk weight for unsecured consumer loans to 150%; implementing requirements for assessing the adequacy of internal capital and internal liquidity (ICAAP/ILAAP) [14].

However, not only the NBU's regulatory measures made it possible to ensure banks' financial stability during the crisis. A complex of anti-crisis measures aimed at predicting a crisis, diagnosing its symptoms, eliminating and overcoming it, is also carried out by each bank within the framework of the risk management system. In order to achieve dynamic financial stability of the bank, the risk management system must take into account not only traditional risks (credit, market, operational) that ensure static financial stability but also a wide range of risks that are essential for its activities and stem from the peculiarities of its business model to ensure dynamic financial stability. The comparative analysis of the requirements for the banks' risk management system to ensure financial sustainability and stability conducted by the author [12] has shown that in order to achieve financial stability in particular, it is necessary to pay more attention to the organization of internal business processes with a higher level of their qualitative and quantitative parameters. This is achieved through an effective risk management system, which is the basis for a holistic risk management in the bank.

Taking into account the proposed provisions, author believes that banks' business model under modern conditions is generally focused on the area of risk acceptance and is based on the concept of "three lines of defence", which includes: business units on the first line; risk management

unit, financial unit for ensuring compliance with regulatory requirements, legal unit – as components of the second line; internal audit as a third line.

As of 2021, in accordance with the minimum capital requirements banks must accumulate resources to cover credit risk and partly market risk (in the case of an open currency position). However, starting from 2022 banks will also have to ensure capital adequacy taking into account operational and market risks. Operational risk reflects the probability of losses or the bank's failure to obtain income due to various factors such as: deficiencies or errors in processes, third parties trying to cause loss or intentional damage, disruption in information systems and influence of external factors, for example, quarantine restrictions. That is, banks must be ready to identify, assess and manage various risks arising in their activities in order to ensure an adequate level of capital for their financial stability.

The role of "the first line of defence" is in the reduction of operational risks, which is implemented through the proper implementation of banking procedures aimed at preventing fraud, abuse and avoiding transactions with entities under sanctions, etc. It is also important to have established customer identification rules (Know Your Customer) that help determine whether the customer is desirable for the bank. This means that the bank must have effective mechanisms, procedures and policies that help prevent risky situations and ensure the security of transactions, which may include checking customers for compliance with the law, analysing their financial situation and behaviour, as well as identifying suspicious or unusual transactions. Measures to reduce operational risks are a necessary component of the bank's risk management, as they contribute to maintaining financial stability, asset protection and customer trust. Strengthening the first line of defence is supplemented by the second and third lines of defence, including the internal audit and risk management department, which are aimed at the constant control and risk management within the bank.

Risk management is the main control function of the bank on the so-called "second line". The set of risk management actions should be aimed at achieving the following goals. Understanding and awareness by the bank and its management of the entire set of risks: managers having a clear idea of the institution's risks, their characteristics and potential effects on banking activity. Management must be aware of risks, able to analyse them and make appropriate decisions. Achieving and controlling the acceptable levels of risks defined by the supervisory board: setting boundaries and limits for different types of risks that correspond to strategic goals and risk profile of the bank. This helps to control risks and avoid exceeding acceptable levels. Specificity, clarity and appropriateness of the bank's risk decisions: decision-making processes must be clear and documented, aimed at achieving the bank's strategic goals

and taking into account risk-oriented supervision. Compensation of an acceptable level of risk with the expected profit: the bank must assess the expected profit from risky operations and ensure that the potential benefits exceed the possible losses. Acceptance of risk must be justified and balanced. Appropriateness of capital distribution to the amount of risks the bank is exposed to: adequacy of the bank's capital level in accordance with the risks it is exposed to and the distribution of capital in such a way as to ensure coverage of risks and support of financial sustainability and stability. Correspondence of incentives for achieving high performance to the level of risk tolerance: the established system of incentives and rewards that contribute to achieving high performance under conditions of appropriate risk management. All these goals jointly contribute to ensuring the bank's financial stability and effective risk management under conditions of uncertainty. It is important for a bank to have appropriate procedures, policies and systems to achieve these goals and meet regulatory requirements.

It is important to emphasize that the mechanism of risk management in the bank is not limited only to the risk management unit. To be effective, it should include all bank managers and employees. Each person has their responsibility in the risk management process. The internal organization of risk management can vary depending on the size of the bank, the type of products, the geographical presence and the organizational structure of the business. Therefore, under modern conditions each bank should develop its own risk management system, corresponding to the chosen business model, considering the following typical problems of banks with an ineffective risk management system. First of all, it is an approach to the risk management system as a formal requirement arising from regulatory standards and not as a key function of control and decision-making. In such cases it may be aimed primarily at compliance with established rules and requirements, instead of actively supporting business units in mitigating the impact of risks. The bank's risk management system can also focus mainly on the management of credit and liquidity risks, omitting other types of risks and their integration into the decision-making process due to, for example, limited resources, lack of a holistic approach, inadequate quality of the analytical base. Moreover, problematic aspects of bank risk management are the lack of opportunities and tools for proper risk assessment, conflicts of interest in the organizational structure and the lack of a risk culture built into the general organization of the bank.

Practical implementation of risk management methods on "the third line" may differ from bank to bank. Based on the best global and Ukrainian risk management practices, it is recommended to additionally involve employees of the risk management unit, external experts and stakeholders in the development of internal bank regulations, procedures and control measures. It is also important to develop risk assessment techniques that will provide qualitative and quantitative risk assessment. A crisis management plan should be created in the form of a set of recommendations, available to bank employees, being constantly updated. Moreover, it is necessary to ensure constant training in risk management for the bank's managers and employees. However, this approach to building a risk management

system has its consequences. First, it leads to an increase in the total costs of ensuring banks' financial stability under the influence of crisis factors. Apart from costs borne by individual banks, costs of the central bank to supervise banks' activities are also increasing. Secondly, this approach can lead to an unconscious transfer of responsibility for risk management of an individual bank to the regulator. This can distort economic reality since banks, generating risks in their operation, transfer the consequences of their financial instability to the market and place the responsibility for eliminating these negative consequences on regulators. Thus, it is important to find a balance between banks' responsibilities and regulators in risk management. Banks must be responsible for managing their risks and regulators must ensure effective supervision and control of this process. This is the only way to achieve stability and ensure economic security of the financial sector.

To solve the identified problems or to prevent their influence on the internal environment of financial institutions, it is advisable to single out directions for the transformation of the banks' risk management system in the following sequence. First of all, it is necessary to enshrine at the legislative level the responsibility of the bank's top management and its owners for the results of bank performance: for a failure to provide a comprehensive and adequate risk management system; for the adoption of positive decisions regarding granting loans, gradually turning into non-performing ones; for approving an excessive, economically unreasonable amount of compensation to managers and/or the amount of dividends to bank owners. The second aspect is improving corporate governance and ensuring its reliability. To achieve this, the National Bank has identified the following key aspects in the "Methodical recommendations on the organization of corporate governance in banks of Ukraine" [15]: a clear division of powers and responsibilities, which means each member of the management structure has clearly defined functions and responsibilities for their activities; an appropriate level of accountability, which includes a system of control and reporting to ensure accountability of management bodies to shareholders and regulators; an adequate level of checks and balances, which provides for mechanisms that balance the interests of various stakeholders and prevent conflicts and abuses; qualified board members and bank management who understand their powers and responsibilities and adhere to high professional and ethical standards in their work. At the last stage of the modern risk management transformation system great importance is attached to the formation of a risk culture in the bank as a set of values, ideas, norms, practices and behaviours related to risk management.

When conducting research, it is also important to take into account the experience of researchers and other countries, as this allows to get an objective assessment of the work and determine its applicability. Different countries may have different approaches, methods and resources. The publications analysed in the course of the research call for special attention to risk management in the banking sector under conditions of uncertainty. Uncertainty can be caused by economic changes, political instability, regulatory changes, technological transformations, cyber security risks, etc. Accordingly, banks' risk management

must be flexible and adaptive in order to effectively respond to uncertainty and it is considered by scholars using a variety of approaches.

C. Baum with co-authors described the impact of uncertainty on several aspects of the financial sector [16]. Using a large set of independent panel data at the country level, it is argued that inflation uncertainty reduces the availability of credits to the private sector, harms the efficiency and operational activity of banks, which is evidenced by lower profitability and greater dependence on non-interest-bearing activities and distorts sectoral stability as liquidity, banks' risk appetite and credit risk increase. Uncertainty threatens the overall development of the financial sector. Some studies are also devoted to the impact of uncertainty on banks' management decisions. A. Zhou and X. Liu [17], based on quarterly panel data of thirty listed banks in China, have discovered that uncertainty promotes the development of commercial banks' income diversification strategy and industry competition enhances a positive impact of uncertainty on the diversification level of bank income structure. G. Danisman *et al.* [18] were studying the impact of uncertainty on bank earnings management using data from more than six thousand US banks. Empirical results have shown that banks tend to increase discretionary loan loss provisions for capital management and income equalization in times of high uncertainty. Some researchers have analysed the impact of the COVID-19 pandemic consequences directly on the banking sector and its stability. M. Elnahass *et al.* have proved that the outbreak of COVID-19 had a negative impact on the performance and financial stability of the global banking sector [19]. However, some studies show a significant positive impact of the demand for bank loans in the US at the beginning of the pandemic (for example, L. Li [20]). At the same time, V. Acharya and S. Steffen [21] argued that firms reduced their bank credit lines and increased the level of cash due to uncertainty and increased risk.

Based on the analysis carried out in the paper, it can be stated that COVID-19 has negatively affected the activity and stability of banks. This hypothesis is supported by S. Frost [22], who studied the issue of financial risks in detail, namely: their essence and types in the context of macro- and micro-factors that affect the degree of risk of financial institutions, evaluates the effectiveness of financial risk management and substantiates the directions for its improvement. The relationship between banking risks and regulatory measures implemented by regulatory authorities is described in Y. Altunbaş, J. Thornton and Y. Uymaz's paper [23]. However, most of this scientific research is of no practical use, thus the problem of risk management in banks remains significant. Paying tribute to the considerable number of works devoted to macroeconomic aspects of the impact of the corona crisis on the development of economic systems, it is worth noting that there is a lack of thorough scientific research on modern approaches to the adaptability of banks and their quick response to the

dynamic macroeconomic environment based on the transformation of the risk management system.

CONCLUSION

Monitoring of the banks' financial stability in Ukraine based on the method of express diagnostics for the probability of a financial crisis suggests that the Ukrainian banking sector became more resistant to crisis during 2019-2021. It was achieved through regulatory measures of the National Bank of Ukraine, as well as a complex of anti-crisis measures within the internal risk management system of commercial banks, which made it possible to predict, diagnose, eliminate and overcome financial crises. To ensure dynamic financial stability banks need to take into account a wide range of risks arising from their business model features. At the same time, it is necessary to accumulate sufficient resources to cover credit, market and operational risks in order to ensure an adequate level of capital for financial stability.

The modern business model of banks focuses on risk management and includes the concept of "three lines of defence". Banks must identify, assess and manage various risks, in particular material risk, in order to ensure financial stability. Effective risk management includes understanding risks, controlling their levels, making informed decisions, compensating risks with expected profits, allocating capital in accordance with risks and encouraging the achievement of high performance. Risk management provides for the participation of all bank managers and employees and its organization may differ depending on the bank characteristics. It is recommended to involve experts in the development of standards and procedures, develop methods of risk assessment and ensure continuous staff training in risk management.

This approach to building a risk management system can lead to an increase in the overall costs for ensuring the financial stability of banks and their supervision. Unconscious transfer of responsibility for risk management from banks to regulators can distort economic reality and affect the financial sector. A balance needs to be found between the responsibilities of banks and regulators in risk management, where banks are responsible for managing their risks and regulators provide effective supervision and control. In order to solve problems in the banks' risk management system it is recommended to enshrine the responsibility of the top management and bank owners at the legislative level. Improving corporate governance and ensuring its reliability is an important aspect, encompassing a clear division of powers and responsibilities, an appropriate level of accountability and a system of checks and balances. The key stage of the transformation of the risk management system is the creation of a risk culture in the bank, which provides for establishing values, norms and practices related to risk management. Compared to the previous studies, the development of this aspect and the level of its implementation in banking activity are still at the stage of concept development, which opens perspectives for further researches in this direction.

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Розвиток системи ризик-менеджменту банків в умовах невизначеності

Анотація. У зв'язку з глобалізацією економіки, змінами в регуляторному середовищі, технологічними зрушеннями та геополітичними подіями, банки стикаються з невизначеністю, що негативно позначається на їхній фінансовій стабільності. Важливо, щоб банківські установи розвивали ефективну систему ризик-менеджменту, яка допоможе ідентифікувати, контролювати та нівелювати ризики, що виникають. Метою дослідження було обґрунтування актуальних напрямків трансформації системи ризик-менеджменту банків для їх антикризового регулювання та підтримки фінансової стабільності. Моніторинг фінансової стабільності банківського сектору здійснено на основі визначення ймовірності настання фінансової кризи індикативним методом; у роботі також використані економіко-статистичні методи збору та аналізу інформації, формалізація, систематизація та моделювання. Розглянуто важливість ризик-орієнтованого підходу до ведення банківського бізнесу як основи протидії дестабілізуючим факторам впливу. В умовах невизначеності забезпечення фінансової стабільності банку передбачає, щоб його система управління ризиками була інтегрованою структурою, яка зв'язує всі інші підсистеми управління на стратегічному, тактичному та операційному рівнях. Ризик-менеджмент банку розглянуто не як окрему самостійну функцію банківського менеджменту, а як складову системи адаптивного управління установою, інтегровану зі стратегічним і тактичним плануванням, управлінням ефективністю діяльності, організацією внутрішнього контролю та аудиту. Встановлено, що для забезпечення адаптивності банку та його швидкої реакції на зміни на фінансовому ринку необхідно внести зміни в систему управління ризиками в наступних напрямках: закріплення на законодавчому рівні відповідальності вищого керівництва банку та його власників за результати діяльності банку; вдосконалення корпоративного управління та сприяння його надійності; формування ризик-культури банку. Дослідження корисне фахівцям банківської сфери, які можуть використовувати рекомендації щодо розвитку та вдосконалення системи ризик-менеджменту в умовах невизначеності. Наведений матеріал може слугувати важливим джерелом інформації для регуляторних органів, наглядових установ у формуванні політики та встановленні стандартів системи ризик-менеджменту в банках

Ключові слова: фактори впливу, нестабільність, експрес-діагностування, ймовірність, фінансова криза, лінії оборони

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Economic approach to the formation of strategic vectors for strengthening the country's energy security

Abstract. The relevance of the research on strengthening the country's energy security is stipulated by modern challenges, unstable economic situation in the country and the change in strategic tasks of Ukraine's development in the direction of strengthening its energy independence. The goal of the article was to determine the essence of the country's energy security and strategic vectors of its development on the basis of economic approach. Methods of logical generalization and data systematization, graphic method of data visualization, comparative analysis of statistical data and performance indicators of stations to identify interdependencies between data have been applied to achieve the goal of the study. Scientific approaches to defining the notion of energy security have been analysed. The analysis of economic approach to considering the essence of energy security is presented. The economic approach provides for three tools for the successful and effective development of the energy sector: the development of renewable energy sources, energy efficiency and energy diversification. Analytical data on the implementation of alternative energy sources in Ukraine, their investment attractiveness and operating costs have been studied. The costs of electricity production using various technologies have been considered and it has been discovered that wind and solar power plants are the least expensive and have the potential for effective operation on the territory of Ukraine. It was revealed that the lack of policy on the energy-efficient use of resources and its investment development strategy reduces the level of competitiveness among business representatives. Key directions for strengthening the country's energy security have been formulated based on the obtained data of the analysis. The results of the research will enable energy companies to develop effective solutions for the successful implementation of energy efficiency policies and will serve as key aspects when searching for potential investors and partners

Keywords: alternative energy sources, costs, generation, energy independence, development, stability

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INTRODUCTION

Strengthening energy security and energy availability are key provisions for the transformation of the global energy system. Energy security is a key component in the national security of every country. For countries dependent on the import of raw materials and fuel, the development of renewable energy sources is not solely a way to attract investments but also a factor in reducing dependence and political pressure on importing countries. Renewable energy is quite a wide alternative to energy sources compared to traditional types. The transformation of the sustainable energy system in the direction of renewable energy will contribute to significant socio-economic positive changes,

new economic opportunities for the development and strengthening of national security. Taking into account difficult challenges that Ukraine is facing in the sphere of economy, politics and ecology, one of the most important priorities of the government is to define the main strategic directions for strengthening energy security. This is necessary to ensure a stable and continuous supply of energy resources at the level satisfying the needs of society.

Models of state administration are taken into account in the formation of energy security policy, mechanisms for its implementation and definition of its main goals. This approach is based on the principles of diversi-

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ty, which provides for considering features of the energy supply for critical state needs and functions, society and economy (environmental friendliness, innovation, safety, resource intensity, managerial and administrative aspects, socio-economic factors, etc.). According to the analytical report on "Energy security of Ukraine: System analysis methodology and strategic planning" [1], the role in the field of energy security may change significantly over time due to transformational processes in the energy services market, the development of technological and scientific potential and changes in the socio-economic environment. N.V. Pryshliak, D.M. Tokarchuk and Y.V. Palamarenko [2] point out that the essence of the country's energy independence is determined by the need to find alternative sources of fuel and energy supply. This is due to Ukraine's dependence on the import of oil and natural gas and significant environmental pollution caused by emissions. Energy generated through renewable energy sources will be ecological and will contribute to the country's independence of external supplies of raw materials.

A.Yu. Deina's scientific work [3] represents a comprehensive statistical study of ways to ensure energy independence. The scientist has proved that energy independence can be studied as an object of statistical analysis. He has introduced a quantitative characteristics of the country's energy independence level based on special indicator systems and methods. Moreover, the country's energy independence is interpreted as a complex category, allowing to determine energy security and depending on various conditions (ecological, political, social, economic, etc.), affecting it. Also, from this scientist's perspective, energy independence shows the degree of country's independence as to its ability to resist external and internal destabilizing factors. At the same time, he points out that the formation of the level of energy independence depends on a number of factors, among which are the following: the efficiency of energy resources uses, the amount of investments, the condition of material and technical support, the dependence on raw materials import, the volume of production and consumption of energy resources, etc.

O.O. Okhrimenko and U.V. Bigun [4] suggest interpreting the notion of economic security as the level of protection of enterprises', country's and society's interests at the expense of a sufficient number of resources available to meet basic needs. Considering the fact that energy resources are the driving force of progress, it is energy security that occupies an important place in the system of economic security. In particular, according to S.V. Shcherbyna [5], energy security is defined as the protection of the country as a whole and its citizens from threats of energy resources shortage caused by external and internal threats. Energy security is seen as one of the most important and main components of national security. It is difficult to overestimate its impact on energy system processes and the national economy as a whole. The importance of a gradual transition to alternative energy sources under the conditions of the transition stage of the economy was described in the work of M. David, N. Schulte-Römer [6]. This study once again proves the multidimensional nature of energy security in different countries of the world. Taking into account the scientific potential and meaningfulness of the issue of energy security, the goal of this research is to shape

directions for the strategic development of energy security based on economic approach, to determine its essence and advantages of the policy of energy-efficient use of resources by market entities.

MATERIALS AND METHODS

The following methods of specific and general scientific analysis have been applied in research: methods of logical generalization and data systematization, graphic method of data visualization, analysis and synthesis for information collection, comparison and classification to identify interdependencies between data, method of theoretical generalization for determining the key idea, statistical methods of information collection and processing, a systematic approach and analysis to identify interdependencies between data. Legislative and regulatory documents of Ukraine, methodological documents and regulations, official data of the State Statistics Service of Ukraine, data of the State Agency for Energy Efficiency and Energy Saving of Ukraine, analytical reports, scientific works of Ukrainian and other scientists on the research issue, serve as a basis for scientific research.

RESULTS AND DISCUSSION

Foreign policies of the world's leading countries are increasingly directed at the formation of national security on the basis of energy security. Foreign policy is increasingly aimed at ensuring the sustainable development of the economy with the provision of energy resources. The importance of the research topic is stipulated by the dynamics of threats development in the global and national dimensions, the change of conceptual approaches to the formation of security at different levels [7-8]. The modern national economy ensures its growth primarily by safe energy supply, which meets the principles of reliability, profitability and availability. Moreover, an effective energy policy of each country is a guarantee of an effective policy for the development of foreign trade, industrial production, innovative technologies, and the development of small and medium-sized businesses. The energy component is extremely important for ensuring national security.

Guided by Ukraine energy strategy 2030 [9], energy security is a key requirement for ensuring the existence and successful development of the country. Moreover, energy security is an integral part of national and economic security. Agreeing with the data provided by the energy strategy, it is considered expedient to interpret the energy security of Ukraine as the country's ability to rationally and effectively use fuel and energy potential, by diversifying their supply channels and expanding the sources of obtaining energy carriers. This approach provides for understanding that the country fully supplies its population, economy and business representatives with fuel resources on the everyday basis and when destabilizing factors occur. As noted in "Energy security of Ukraine: System analysis methodology and strategic planning" [1], energy security is aimed at supplying the social and economic spheres of the country with energy resources. This goal is achieved by securing a stable, reliable, environmentally safe and economically profitable energy policy.

Ensuring the country's energy security provides for basic approaches to the formation of strategic vectors for

its strengthening. The assessment of the level of country's energy security is carried out by using different approaches based on certain quantitative indicators. However, when it comes to the formation of strategic vectors for strengthening the country's energy security, basic approaches appear to be unsystematic and ungrouped. This means that they are not clearly defined and are indirect. Therefore, further research is needed to determine more effective basic approaches to ensuring the energy security of the country.

A strategic approach to ensuring the country's energy security is crucial, given the complexity of the energy sector. The Ukrainian energy sector is affected by a number of factors, ranging from limited energy resources and the importance of adhering to environmental standards, to unpredictable factors of external and internal nature. With such a dynamic development of the business environment, the strategy is a key factor that allows us to take into account the forecasting of development and stability of the country's energy system. Basic approaches to the formation of strategic vectors for strengthening the country's energy security are distinguished, taking into account world experience, peculiarities of the interaction between the approaches themselves, the post-war recovery of the country and the attraction of international support. In practice, resource-technological, complex (basic) and risk-oriented approaches are distinguished. In connection with the relationship between the mentioned approaches, it is proposed to investigate in more detail the economic approach that ensures security and creates equal terms for consumers. All development programs and strategies have economic interest and the approach to ensuring energy independence is no exception.

The government actively attracts investors to the energy sector, creates prerequisites for the development of alternative energy sources, contributes to the development of energy-efficient technologies and promotes energy diversification. The main goal of the economic approach is to achieve energy self-sufficiency for the country without dependence on the import of energy resources. This is believed to reduce risks associated with pressure from energy suppliers and ensure the stability of the country's energy sector. Therefore, the economic approach is an important component in the formation of strategic vectors for strengthening the country's energy security.

The country's energy security is based on the economic approach, which provides for applying key tools for the successful and effective development of the energy sector. Such tools include the development of renewable energy sources, energy efficiency and energy diversification. Renewable energy sources are an important tool for the country's energy security in the economic approach as they contribute to reducing dependence on the import of traditional types of fuel and make it possible to reduce greenhouse gas emissions. Ukraine energy strategy 2030 [9] provides for the government encouragement and support of renewable energy development through financial measures such as subsidies and tax incentives or regulatory mechanisms such as limiting carbon emissions and setting targets for the use of renewable energy sources. S.A. Kudrya [10] believes that practical inexhaustibility and environmental friendliness should be mentioned among the advantages of using alternative energy sources. The specified factors

will positively effect the ecological state of the planet and will not entail the change in the energy balance in the biosphere. Also, the implementation of alternative energy in production will result in the reduction of the negative impact of extraction processes, processing and transportation of traditional types of fuel and the elimination of disposal problem connected with a large amount of harmful waste.

Effective activation of the key tools of the economic approach to ensuring the country's energy security will allow Ukraine to realize its energy and investment potential. According to the State Agency on Energy Efficiency and Energy Saving of Ukraine [11], in 2019 3.7 billion euros were invested in 4,500 MW of renewable power generation capacity in Ukraine. In particular, the following were introduced: 3,537 MW (78.5%) of solar power plants (SPP); 637 MW (14.1%) of wind power plants (WPP); 243 MW (5.4%) of solar power plants in households (SPPh); 15 MW (0.33%) of mini hydroelectric power stations (mini-HPS); 73 MW (1.6%) of capacities using biomass/biogas.

The given data suggest the investment attractiveness of Ukraine for the development of alternative energy. Due to investments, business activity, government incentives and the development of the alternative energy sector potential, Ukraine rose to the 8th place in the rating of investment attractiveness of countries developing green energy [9] in 2019. At that time, according to the data released by Bloomberg New Energy Finance, a consulting company that provides in-depth analytical data on changes in the global energy market [12], Ukraine occupied the 63rd place in the rating in 2018. The main reasons for strengthening the rating positions of Ukraine were reforms in the energy sector, attractive "green" tariffs and tax rates.

In general, according to Bloomberg New Energy Finance, 107 GW of renewable energy sources were installed in countries with developing economies in 2018. Solar energy received the first place with the capacity of 66 GW put into operation. Wind energy occupies the second place with a result of 29 GW. The total capacity of small biomass, hydroelectric power stations and geothermal sources makes up 12 GW [12]. On the whole, based on the statistical data of the analytical report [1], the current 6.8 GW of green energy capacities allow the annual production of more than 8.4 billion kWh of electricity (about 5.5% from total production) and supply electricity to more than 3.3 million households. As far as the energy efficiency tool is concerned, according to the report on "Assessment of adequacy of generating capacities" [13] all TPPs (thermal power plants) of Ukraine have exceeded their 40-year projected operation period. Nine TPPs have exceeded 50 years of operation – all of them require urgent equipment renewal.

Negative consequences of excessive wear and tear of TPP equipment include: an increase in unit cost of energy carriers, a decrease in electricity production, an increase in the number of large-scale accidents causing the disruption of power system stability and power outages, possible global disasters. Thus, it is clear that the Ukrainian electricity industry requires urgent equipment renovation. B. Tuchynskyi, S. Kudria, I. Ivanchenko and V. Ivanchuk [14] believe that further delay in solving this problem leads to a significant decrease in electricity production, an increase in the risks of energy and man-made disasters, an increase in air emissions of substances harmful for both human health and the

environment. Modern coal-fired thermal power plants desperately need the introduction of environmentally friendly coal burning technologies, which enormously increases investments in this electricity generation technology.

On the basis of data supplied by the Lazard company [15], specializing in investment banking, Table 1 shows

costs of electricity production using various technologies. According to the results of the research, the costs are the lowest when producing electricity in wind and solar power plants. This indicates the economic expediency of using the above-mentioned alternative energy sources instead of traditional electricity production technologies.

Table 1. Energy generation costs for different technologies

	Capacity	Capital costs	Fixed operating costs	Variable operating costs	IUCR	Cost of fuel	Construction lag	Project implementation period	LCOE
	MW	\$/kW	\$/kW per year	\$/MW per year	%	\$/MMBTU	Month	Year	\$/MW per year
WPP	150	1100-1500	28-36.5	-	55-38	-	12	20	28-54
SPP	100	1100-900	12.0-9.0	-	34-23	-	9	30	32-42
Nuclear power plants	2200	6900-12200	108.5-133	3.5-4.25	91-90	0.85	69	40	118-192
Coal-fired thermal power plants	600	3000-6250	4.75-81.75	2.75-5.00	83-66	1.45	60-66	40	66-152
Gas power plants	240-50	700-950	5.5-20.75	4.75-6.25	10	3.25	12.0-18.0	20	150-199

Note: IUCR – the installed utilization capacity ratio, LCOE – levelized cost of energy, an indicator of the given energy costs

Source: designed by the author based on [15]

Wind and solar power plants are quite prospective in Ukraine as there are significant capacities for their development on the territory of the country. Taking into account high efficiency and economic profitability of using the mentioned technologies, the importance of further development of alternative energy sources in Ukraine can be emphasized.

V. Vartsaba, S. Sivitska and O. Filonych [16] have presented a scientific approach to determining strategic investment priorities in the complex restoration of territories affected by natural and technical accidents. The scientists have introduced a matrix for the selection of strategic priorities with the coordination of investment processes in regional and alternative energy sectors for the introduction of energy-efficient technologies and alternative energy sources. T. Dziuba [17] studied the issue of innovative development management of the construction complex. Scientists emphasize that regional inter-industry complexes are affected by a fairly wide range of factors, threats and dangers of socio-economic life of the region and call for safe operation. Energy, like construction, is a multifactorial industry, that is why the scientists' point of view on the importance of innovative development can be considered relevant for the energy industry.

The second key tool of the economic approach to ensuring energy security is energy efficiency. It consists in reducing energy consumption in the economy through rational use and increasing energy efficiency. The government support for this tool is carried out at the legislative level by regulating the energy efficiency of buildings and energy-saving technologies, as well as by providing subsidies for the installation of energy-saving equipment.

Generally, energy efficiency is an integral component of the country's energy and national security, innovative development and eco-friendly country. The issue of reducing the dependence of countries on the import of energy resources is becoming more and more relevant with every year, considering possible political pressure from importing countries and the deterioration of the ecological situation in the world due to excessive energy consumption. In this context, the issue of energy efficiency is of strategic importance for individuals, enterprises, authorities and the country's independence. V.O. Onyshchenko, S.P. Sivitska, A.V. Chervyak, and V.D. Datsenko, [18] suggest attributing the notion of energy efficiency to the components of economic security and financial institutions. As energy carriers, ensuring the operation of the facility (electricity, water supply, heating, etc.), are becoming more and more expensive with every year, leading to an increase in costs.

In economics there is a notion of energy intensity of the gross domestic product (GDP), which characterizes the ratio of total energy consumption in relation to GDP. The absence of policy on energy-efficient resource consumption leads to negative consequences for the country as a whole. Among such consequences are the following.

Poor enterprise competitiveness – industry without investments in energy efficiency is unable to bring its product to the world market. The higher energy consumption for the produced article is, the higher the market price for this product will be. Moreover, the concept of environmentally friendly business is gaining more and more popularity, which will be one of the criteria for foreign partners when choosing an investment project in the future.

Reduction of investment potential – when choosing a partner for a joint investment policy, those business representatives will be chosen, who monitor and adhere to advanced technologies in the energy-efficient direction and are ready to introduce innovative policies and implement the latest technologies.

The country's constant import of energy resources - high energy intensity of enterprises leads to excessive energy consumption throughout the country. Since the own production of energy will not be enough to meet the needs, the only way out will be to import the energy. The country's dependence on imported energy resources causes political and economic danger. Based on the data of the State Agency on Energy Efficiency and Energy Saving of Ukraine [11], Ukraine imported 36% of all the necessary energy at the end of 2018. Industry consumes 32% of the country's energy with a 40% potential for increasing energy efficiency. That is, if

the energy efficiency policy were introduced and the material and technical base were updated, energy consumption for production would be 40% less. This would have a significant economic effect on both the company and the country.

Climate changes – with the irrational use of traditional energy sources, emissions of greenhouse gases, resulting from their use, create a greenhouse effect and lead to the planet warming. Introduction of efficient environmentally friendly technologies into production will contribute to the reduction of energy consumption and significantly reduce CO₂ emissions, as well as counteract climate change.

According to the State Statistics Service of Ukraine [19] Ukraine's GDP energy intensity is gradually decreasing (Fig. 1), whereas there is evidence for the excess of the total supply of primary energy and final energy intensity. This means that during transportation a significant part of the primary energy gets lost.

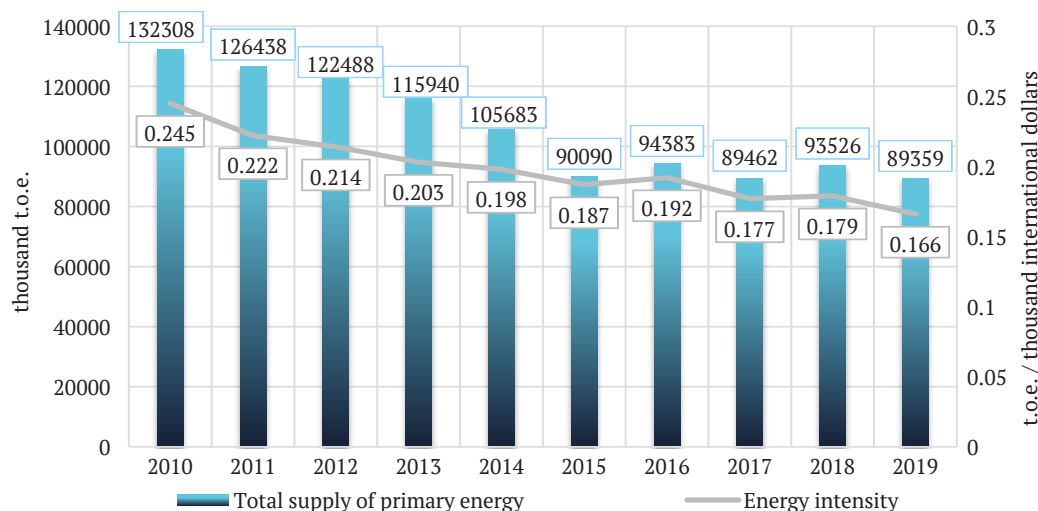


Figure 1. Ukraine's GDP energy intensity during 2010-2019

Note: t.o.e. – tons of oil equivalent

Source: designed by the author based on [19]

According K. Redko & O. Furs [20] Ukraine is one of the most energy-intensive countries in the world and one of the

few European countries with the lack of government support for energy efficiency in industry, which can be seen in Table 2.

Table 2. Indicators of energy consumption throughout the world

Country	GDP (PPP). bln. \$	Fuel consumed. mln. t.o.e.	GDP energy intensity*. t.o.e. /\$1000
Great Britain	1263.39	232.64	0.18
Denmark	137.17	19.46	0.14
France	1356.48	257.13	0.19
Germany	1910.12	339.64	0.18
Italy	1265.97	171.57	0.14
Norway	118.09	25.62	0.22
Spain	719.11	124.88	0.17
Sweden	203.8	47.48	0.23
OECD countries	24624.05	5316.93	0.22
Poland	348.35	89.98	0.26
USA	8986.9	2299.67	0.26
Ukraine	174.64	139.59	0.8
The whole world	41753.21	10109.59	0.24

Note: PPP – purchasing power parity; t.o.e. – tons of oil equivalent

Source: [21]

The lack of an effective energy efficiency policy can lead to significant losses of competitive positions on the world market and a gradual decline in industrial production. This can have a negative impact on the country's economy and result in the economic growth recession. Moreover, lack of energy efficiency contributes to increased dependence on energy imports, which can lead to significant economic costs and create problems for ensuring the country's energy security.

Implementation of an effective energy efficiency policy is an important step to ensure sustainable economic growth. This can help reduce dependence on energy imports and ensure production sustainability for Ukrainian goods and services on the world market. Apart from this, the introduction of energy-efficient technologies can stimulate innovative development and create new markets for products and services. Thus, it can be asserted that an effective energy efficiency policy is important for ensuring sustainable economic development of the country, increasing competitiveness in the world market and ensuring energy security. The third tool of the economic approach to energy security is energy diversification. It consists in the development of infrastructure for import and use of energy resources of various origin, including traditional and non-traditional sources. Energy diversification creates prerequisites for reducing excessive dependence on one type of energy.

In the modern world more and more attention is paid to the production and use of alternative energy sources, which is an important element on the way to sustainable development. In Ukraine there is also a gradual introduction of the latest technologies and the use of energy resources in industry and the utility sector. Energy diversification can become an important step towards strengthening Ukraine's energy independence. Expanding the spectrum of used energy sources will reduce dependence on supplies from other countries and reduce risks for the national economy in the event of a change in the political situation in the international arena. In addition, energy diversification will positively affect the economic development of Ukraine. Expanding the exploitation of alternative energy sources will reduce the cost of importing traditional resources, as well as increase the number of vacancies in the field of production and installation of equipment for the exploitation of new energy sources. The exploitation of alternative energy sources also has a positive environmental impact. Decreasing the use of coal and other types of energy resources pollutants will reduce the level of environmental pollution and improve the health of the population. Other possible tools of the economic approach to ensuring energy security may include supporting national energy companies, increasing competition on the energy market, ensuring energy stability and energy infrastructure security.

Given the growing demand for energy, oil and gas prices instability, reducing energy dependence is becoming an increasingly urgent problem for countries around the world. That is why it is important to consider main directions for reducing the country's energy dependence and supplement them with others. One of the most important directions for reducing the country's energy dependence is the diversification of energy sources. This may include the development of renewable energy sources such as solar,

wind, hydro and geothermal energy, as well as the use of biofuels. This makes it possible to reduce dependence on oil and gas imports and decrease the environmental impact of energy production. Improving the investment climate in the energy sector is also an important step in reducing energy dependence, in particular by creating favourable conditions for investors through improving legislation, reducing bureaucratic obstacles, increasing transparency and supporting new projects in the field of renewable energy and energy efficiency. Another way to reduce energy dependence is to increase energy efficiency through the introduction of innovative technologies. This may include the exploitation of energy-efficient building materials, intelligent energy management systems and the use of energy-efficient devices and equipment.

One of the main directions for reducing energy dependence is the provision of high-quality material and technical equipment for the energy infrastructure. It provides for the modernization and expansion of energy infrastructure, as well as the use of the latest technologies and equipment to ensure high-quality and reliable energy supply to the population and industrial enterprises. An additional important measure is solving environmental problems of energy use and ensuring sustainable development. To do this, it is necessary to make a transition to energy-efficient technologies and the use of renewable energy sources. Moreover, it is important to develop energy-saving programs, in particular, by introducing the latest energy-saving technologies and the production of energy-efficient materials. In general, the economic approach to ensuring the country's energy security can be considered the most appropriate one, as it contributes to stability and independence of the energy sector. The use of economic tools such as support of renewable energy, energy efficiency and energy saving, makes it possible to reduce the costs of energy resources and increase the competitiveness of the national economy. Fuel and energy resources are a key factor of social and economic development for any sphere of production. The country's energy security serves as one of the main characteristics of economic security, given the heavy dependence of the economy on the import of natural resources and the constant increase in their cost. That is why the notion of energy security appears quite often in regulatory documents and scientific studies on energy and energy management.

In the Draft Law of Ukraine "On the Principles of State Policy in the Energy Security of Ukraine" [22] energy independence is defined as the country's ability to independently shape and implement internal and external policy in the field of energy supply. At the same time, it is independent of internal and external influencing factors. In Yu.V. Dziadykevych's scientific research [23] energy independence is treated as the level of country's independence, which is directly related to the fuel and energy complex activity. However, this approach is somewhat narrow as energy is present in all sectors of the economy and this stipulates a more in-depth study of energy independence. S. Sivitska [24] interprets energy efficiency and the use of renewable energy sources as an urgent need of nowadays as it helps to solve not only the issue of energy supply but also many environmental, economic and social problems. Studying the condition and prerequisites for the alternative energy development, the scientist focuses on the world trends

regarding the main obstacles inhibiting the development of alternative energy and its growth factors.

Quite a big number of scientific works is dedicated to the issue of energy security. The author shares O. Semenenko [25] understanding of energy security as the state of economy, allowing for covering the current and future demand of customers for fuel and energy. However, we find this interpretation somewhat narrow, since energy security is not limited only to the demand for fuel or energy. A. Azzuni and C. Breyer [26] present a broader interpretation of the notion of energy security, treating it as a universal issue capable of ensuring a high level of social development by creating its own rules and principles for the energy sector. Energy security is studied by leading Ukrainian and foreign scientists. In particular, interesting views on energy security and energy efficiency under the conditions of energy transition are expressed by B.K. Sovacool [27] and other scientists, who actively study energy security, socio-technological approaches and their role in the implementation of energy transition process [28-31]. The studied scientific works make it possible to determine the multidimensional nature of energy security research and its complexity in different countries.

CONCLUSIONS

In the course of the conducted research, the views of scientists regarding the understanding of the notion of energy security have been summarized and on this basis approaches to the formation of strategic vectors for strengthening energy security have been determined. The expediency of considering energy security both from energy efficiency and economic expediency perspectives has been

substantiated since investment flows are attracted to the energy sector, prerequisites for technological development are created and more attention is paid to promoting the idea of transition to alternative energy. The conducted research made it possible to confirm the role and significance of the economic approach to the formation of strategic vectors for strengthening the country's energy security and to determine key tools for the successful and effective development of the energy sector. It has been proved that due to a rather significant energy intensity of GDP, Ukraine is dependent on energy imports and cannot successfully implement innovative programs for the development of alternative energy. Effective, rational and ecological energy consumption is becoming more and more relevant compared to investing in the import of energy carriers. Threats to energy security affect both all sectors of social production and the interests of all citizens, since the cost of energy resources has a direct impact on the cost of consumer goods and the quality of the environment. Based on the analysis of statistical data, it has been proved that the introduction of energy-efficient technologies and operation programs have a positive effect on the economic development of the country and the formation of its energy independence.

On the basis of the research results, business representatives should develop a strategy for energy-efficient development of the enterprise as it makes the company socially responsible and investment attractive for partners. The research opens perspectives for the further study of the energy security development strategy of Ukraine in the view of ensuring an effective information policy and the development of effective business projects for business representatives in cooperation with government programs.

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Економічний підхід до формування стратегічних векторів зміцнення енергетичної безпеки держави

Анотація. Актуальність дослідження посилення енергетичної безпеки держави обумовлена сучасними викликами, нестабільною економічною ситуацією в країні та зміною стратегічних завдань розвитку України в напрямку зміцнення своєї енергетичної незалежності. Метою статті було визначення суті енергетичної безпеки держави, визначення стратегічних векторів її розвитку через призму економічного підходу. Для досягнення мети дослідження використано методи логічного узагальнення та систематизації даних, графічний метод візуалізації даних, порівняльний аналіз статистичних даних та показників результативності роботи станцій для виявлення взаємозалежностей між даними. Проаналізовано наукові підходи до визначення поняття «енергетична безпека». Представлено аналіз економічного підходу до розгляду суті енергетичної безпеки, який передбачає використання трьох інструментів для успішного та результативного розвитку енергетичного напрямку: розвиток відновлювальних джерел енергії, енергоефективність та енергетична диверсифікація. Проведено дослідження аналітичних даних із впровадження альтернативних видів енергії на території України, їх інвестиційної привабливості та вартості експлуатації. Розглянуто витрати на виробництво електроенергії за різними технологіями та встановлено, що вітрові та сонячні електростанції найменш витратні і мають потенціал до ефективної експлуатації на території України. Визначено, що відсутність політики енергоефективного використання ресурсів та її інвестиційної стратегії розвитку знижує рівень конкурентоспроможності представників бізнесу. Згідно з отриманими даними аналізу сформульовано ключові напрямки зміцнення енергетичної безпеки держави. Результати дослідження дозволять енергетичним компаніям розробляти ефективні рішення для успішного впровадження політики енергоефективності та слугуватимуть ключовими аспектами при дослідженні потенційних інвесторів та партнерів

Ключові слова: альтернативні джерела енергії, витрати, генерація, енергетична незалежність, розвиток, стабільність

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Shadow economy as a threat to economic security of the state

Abstract. The relevance of scientific research is determined by the need to substantiate the specifics of the impact of the shadow economy as a polysystemic phenomenon, inherent in any national economic system, on the economic security of the state. The purpose of the work was to study the size, trends of the shadow economy in Ukraine and its impact on the economic security of the state in order to form the directions of unshadowing the economy as a necessary condition for the accelerated economic growth of Ukraine. The methodical approach used for the implementation of the specified research goal is based on a combination of an integral, indicator, graphic method and a method of comparative analysis of assessments of the shadow economy and the level of economic security of the state. It has been proven that the shadow economy is a real threat to the economic security of the state, the destructive influence of which, in the case of its excessive spread, increases in the conditions of fluctuations in the market situation and economic instability. The problems of the asymmetric influence of the shadow economy on the formation of the business environment in Ukraine are considered. A direct inverse relationship between the level of shadowing of economic activity and the level of economic security of Ukraine was revealed. It has been proven that the scale of the shadowing of the national economy of Ukraine is threatening and particularly dangerous. Emphasis is placed on the need to develop and implement the policy of unshadowing and decriminalising the economy. Recommendations are provided as to unshadowing the economy in the direction of the formation of a favourable security-oriented business environment by overcoming the deep sources of the development of shadowsocio-economic processes in order to minimise threats to the economic security of Ukraine. The results of the scientific work, as well as the conclusions formulated on their basis, can be used in the improvement of the state policy of ensuring the economic security of Ukraine in conditions of the European integration and increasing influence of global challenges

Keywords: informal sector, illegal relations, challenge, stability, security

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INTRODUCTION

The problem of functioning of shadow economy is global and inherent in most countries of the world, since the main factor of its emergence is the economic nature of a human being. In most modern studies of the phenomenon of the shadow economy, it is considered as a negative and potentially dangerous phenomenon that harms the economic and financial systems of the state, as well as threatens the interests of society as a whole. The experience of the scientific understanding of the shadow economy as a socio-economic phenomenon indicates striking contradictions in approaches to its study, forms of interpretation, methods of assessment and forecasting of the impact on the economic security of the state. Scientists and politicians in the developed countries of the

West became aware of the fact that real economic activity is higher than that registered officially in the 1970s and 1980s, which manifested itself in the rapid development of methods for quantitative assessment of the shadow economy. One of the first assessments of the shadow economy was made by the American sociologist E. Feige in the late 70s [1]. He was one of the first to provide its theoretical definition, interpreting the shadow economy as an economic activity that, for any reason, is not taken into account and does not enter the gross domestic product. In the future, E. Feige [1] focuses on the informal shadowing regime from the "economic" point of view and proposes to distinguish the undeclared, unregistered and illegal economy.

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An important source of misunderstandings regarding the definition of the shadow economy is the divergence of research goals among scientists. The economic and statistical understanding of the shadow economy differs significantly. From the economic point of view, the unofficial, hidden, underground economy has a different meaning from the concept of informality used by statisticians in national accounting (in particular, the International Labour Organization). Attempts to reconcile these approaches to the definition were made by some scientists, in particular R. Dell'Anno [2], but a comprehensive approach to its interpretation has not yet been developed.

Despite extensive research of the shadow economy and a large number of works devoted to it, a generally accepted interpretation of this phenomenon, which would fully reflect its essence, has not been defined. The reasons for disputes and discussions are related not only to the interpretation of the shadow economy, but also to the factors that lead to its emergence and existence. As noted by C. Williams [3], the shadowing of the economy is a reaction to high taxes, a corrupt state system, and excessive interference in the free market. This results in workers making a rational economic decision to voluntarily withdraw from the formal economy in order to avoid the costs, time and effort for formal registration. In the work of V. Predborskyi [4], it is noted that the shadow economy is growing rapidly and is caused by crisis phenomena in the economy, when the dysfunction of the main regulatory management processes in the system is clearly expressed, there is a loss of the ability to perform systemic regulatory functions. Most scientists share the belief that a certain economically justified level of shadowing in a period of economic instability plays a positive role in supporting economic activity, however, excessive scales of shadow economic activity can pose a real threat to the economic security of the state.

In Ukraine, at the legislative level, the Methodological recommendations for calculating the level of economic security of Ukraine [5] define the essence of the state's economic security and the sequence of assessing its level using the integral method. Z. Varnalii, S. Onyshchenko, O. Maslii, and O. Filonych [6] note that the shadow economy is a real threat to the economic security of Ukraine and can be a factor in deepening crisis phenomena in the economy or its accelerator. At the same time, L. Medina and F. Schneider [7] prove that a certain influence of the shadow economy on the effective functioning and development of the official economy cannot be denied. But in a situation where the size of the negative impact of this phenomenon and the level of its theoretical and practical study differ significantly, there is a need to increase the number of studies of the shadow economy as a threat to the economic security of the state.

The purpose of the work is to study the trends of the shadow economy in Ukraine, its impact on the economic security of the state and the formation of practical recommendations for overcoming the deep sources of the development of shadow socio-economic processes as a prerequisite for the accelerated economic growth of Ukraine, taking into account their impact on the economic security of the state.

MATERIALS AND METHODS

The methodological basis of this work is a combination of the integral, indicator, graphic method and the

method of comparative analysis of assessments of the shadow economy and the level of economic security of the state. The integral method was used to calculate the indicator of shadowing of the economy by aggregating the results obtained by four econometric methods and methods of national accounting, which are summarized in the work of V. Bashlakova and H. Bashlakov [8]. They cover different areas of the national economy, in which the share of the illegal sector varies, and the aggregation of the results obtained by these methods into an integral indicator of the level of the shadow economy allows for a comprehensive assessment of this phenomenon. It was the results obtained by this method [9] that were used for further study into the shadow economy as a threat to economic security. The advantage of using indirect methods of assessing the level of the shadow economy, in particular extrapolation based on excess demand for cash, trends in the labour market and unreasonable electricity consumption, is the possibility of determining its nominal value, while the Multiple Indicators Multiple Causes method (MIMIC) of the World Bank, being convenient for comparing the level of shadow economy between different countries of the world proposed by F. Schneider [10] is ineffective from this point of view.

The integral method was also used to assess the level of economic security of Ukraine by aggregating the rated values of the corresponding previously selected macroeconomic indicators into a relative value, the range of values of which varies from 0 to 100% of the optimal value. The application of this method makes it possible to obtain an assessment of the level of economic security for further analysis. The assessment of the level of economic security of Ukraine was carried out according to the Methodological recommendations for calculating the level of economic security of Ukraine [5] based on the integral assessment of indicators of nine components of economic security. Using the obtained assessments with the help of a graphic method, the trends of the spread of shadow economy and the dynamics of the level of economic security of Ukraine were determined. The use of the indicator method and comparative analysis made it possible to identify the level of the threat of shadowing the economy by comparing the actual level of the shadow economy with the corresponding characteristic values established by expert way and by the method of analogues [5], and to study its influence on the integral indicator of economic security of the state, as well as to identify the presence of direct economic threats and risks.

RESULTS AND DISCUSSION

In Ukraine, at the legislative level, the Methodological recommendations for calculating the level of economic security of Ukraine [5] define the economic security of the state as the state of the national economy, which ensures resistance to internal and external threats, increases competitiveness in the global economic environment and characterizes the ability of the national economy to sustainable and balanced development. A variety of threats can have a destructive effect on the economic security of the state, which, by their meaningful characteristics, are factors and conditions that prevent the stable functioning of the national economy, create a danger to national economic interests, values and main socio-economic priorities [11]. Threats to the economic security of the state can be

classified according to various characteristics, the most common of which is the division of threats by place of origin into internal and external. Internal threats to the economic security of the state are caused by destructive changes in the national socio-economic system, and external threats arise in the external environment in relation to it.

The authors agree with A. Berdiev and J. Saunoris [12] that the growth of the shadow sector of the economy poses a significant threat to the security of the national economic system, economic stability and is one of the most dangerous internal threats to the economic security of the state. In the mentioned paper [12], the relationship between the financial development of the country and the shadow economy is assessed. It has been proven that the shadow economy acts as a kind of catalyst for other internal threats to the economic security of the state, in financial sphere, in particular. The concept of the shadow economy is ambiguously defined by experts. Combining various aspects and structural components of this phenomenon, Z. Varnalii [6] proposed a complex definition of this concept: "Shadow economy is a complex socio-economic phenomenon represented by a set of uncontrolled and unregulated both illegal and legal, but immoral, economic relations between subjects of economic activity in order to obtain excess profit due to concealment of income and tax evasion". The authors agree with the given rather extensive definition, which emphasizes the regulatory function of the state. The possibility of an adequate assessment of the moral component of the actions of the subject of shadow relations raises certain questions.

The emergence and spread of this phenomenon occur under the conditions of conscious or unconscious support from the state through the adoption of such regulatory acts, which ultimately provide the necessary foundations for the existence of the shadow sector of the economy. The work of U. Mazhar and P. Méon [13] empirically proved the connection between the taxation system and the level of shadowing of the economy by building a canonical model. Despite the fact that it is advisable to use artificial intelligence methods to assess such complex and multifaceted processes, the mentioned study confirms the results, obtained by the authors of the article, that in the system of threats to the economic security of the state, such a phenomenon as the shadow economy is an internal threat.

The authors agree with the results of the research by V. Breusch [14], which prove that the shadow economy is present in all countries of the world, but it differs in terms of the scale of incidence, structure and features of development. Shadow economic activity is rightly divided by the scientist into two main groups: activity not prohibited by law, which is carried out in violation of current legislation, and activity prohibited by law. The first group includes the informal economy, that is, all forms of unregistered entrepreneurship (small-scale production, services and trade, tutoring, the household sector, etc.), as well as the semi-legal and illegal economy, which is represented by deliberately hidden partially or fully illegitimate types of economic activity.

The second group of shadow economic activity has a criminal nature, because it includes the illegal business of production and sale of prohibited products, theft, counterfeiting, drug business, human trafficking, corruption,

money laundering, etc. It is the spread of illegal types of activity that has the greatest negative impact on the level of economic security of the state, in connection with which the concept of "economic crime" entered wide scientific circulation, which is understood as a set of various types of intentional encroachments on economic relations, in particular, aimed at disrupting relations of property and existing order of economic activity.

The analysis of modern scientific research allows us to conclude that in different countries the scale of the shadow economy and its consequences differ significantly depending on historical, national, cultural and other features. In the study [15], the experts of the International Monetary Fund assessed the level of shadowing and its main determinants. A dynamic equation model is developed that establishes the relationship between economic growth and the shadow economy for developing and developed countries. It was found that in countries with effective institutional support, with the growth of GDP (gross domestic product) per capita, the size of the shadow economy decreases, and in countries with existing institutional deformations, the growth of GDP per capita does not affect the size of the shadow economy. However, taking into account the impact of the shadow economy on other characteristics of economic security and its integral indicator, not only key macroeconomic indicators, was neglected.

The strategy of economic security of Ukraine for the period until 2025 [16] officially recognizes the shadow economy as one of the main threats to the economic security of Ukraine in the financial sphere. Evidence of the expansion of the shadow sector of the economy is the increase in the level of registered unemployment, which indicates an overflow of labour resources. As a result of the strengthening of this threat, the foundations of social protection of the population are being undermined, and its economic activity is decreasing. At the same time, due to the outflow of a significant amount of financial resources from the official accounting at the macro level, there is a significant decrease in the rate of economic growth. The level of shadowing of the economy significantly affects the size and structure of GDP, therefore it should not exceed 30% of GDP. This is the most important macro indicator reflecting the scale of shadow economic activity and is an important indicator of the economic security of the state.

In Ukraine, at the official level, since 2009, the assessment of the level of the shadow economy has been carried out by the Ministry of Economy of Ukraine on a permanent basis, once a quarter, in accordance with the improved Methodological recommendations for calculating the level of the shadow economy, approved by the order of the Ministry of Economy of Ukraine [9]. Methodological recommendations provide for the calculation of the integral indicator of the level of the shadow economy as an averaged value using four methods: "expenditure of the population - retail turnover and services", electrical, unprofitable enterprises, monetary. According to the calculations of the Ministry of Economy of Ukraine in January-September 2021, the level of the shadow economy in Ukraine was 31% of the size of official GDP (Fig. 1). The analysis was based on annual data from 2010-2020, and the latest available data for 9 months of 2021 was compared with the corresponding data for 9 months of 2020.

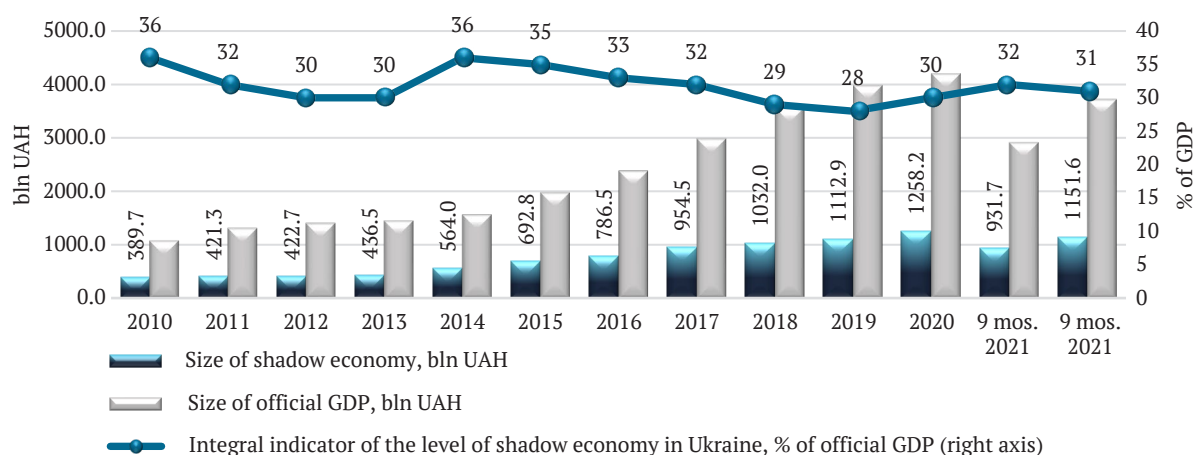


Figure 1. Dynamics of the level of the shadow economy of Ukraine during 2010-2021

Source: built by the author based on [17]

However, according to the assessment of foreign experts, the amount of shadow activity in Ukraine varies from about a third of the GDP, which is recorded by statistics, to the size comparable to the size of the official sector [18]. Differences in assessments are associated with different methodological approaches to assessing the size of the shadow economy. Considering this, the need to improve the method of calculating the level of the shadow economy in Ukraine is undeniable in order to increase the reliability of the obtained results.

Since the shadow economy is a polysystemic phenomenon that includes a set of both legal and illegal connections, it is worth noting its dual impact on the formation of the business environment. As W. Ruzek [19] points out, the informal economy can act as a catalyst for sustainable development. However, the shadow economy, the level of which is not too high, is in the range of 10.0-15.0%. At the initial stage and during an economic crisis, it performs the function of “depreciation” for the corporate sector and households, helping to smooth out fluctuations in the economic situation. But, considering this aspect of shadowing, it should not be forgotten that if the scale of the shadow sector exceeds 30.0%, the further growth of shadow activity in the crisis period can provoke significant macroeconomic disparities and undermine the foundations of the mechanism for ensuring the economic security of the state.

During the beginning of the aggression of the Russian Federation against Ukraine in 2013-2014, in order to preserve production and reduce losses, part of the business adopted a policy of minimizing costs by avoiding paying taxes, which led to an increase in the share of the shadow sector in the economy of Ukraine by more than 6 percentage points and reached 36.0% of GDP only according to official calculations, as shown in Figure 1. Such a high value of this indicator at the limit of 30% of GDP had a destabilizing effect on the economic security of Ukraine, which only worsened the negative trends in the economy [20]. During 2015-2019, in the conditions of the latent phase of the crisis and gradual economic recovery, this share of business returned to the legal sector and the level of the shadow economy at the end of 2019 was the lowest for the analysed period and amounted to 28% of the official

GDP. However, due to the crisis caused by the COVID-19 pandemic, the level of the shadow economy increased again by 2 percentage points in 2020-2021.

The scale of informal activity in different sectors of the economy varies significantly depending on the nature of production and economic activity. For example, the service sector, retail, in particular, providing services at home or agriculture, where there is no need for significant capital expenditure, is characterized by the highest level of shadowing. Whereas activities that require a high level of qualification and significant capital expenditure are usually within the formal sector of the economy. To study the impact of the shadow economy on the level of economic security, calculated by the Ministry of Economy of Ukraine according to the Methodological recommendations for calculating the level of economic security of Ukraine [5], a comparative analysis of the relevant integral indicators was used (Fig. 2). An inverse relationship was revealed, i.e., with the growth of the shadow economy, the level of economic security of Ukraine decreases.

According to the results of the study, it was established that the shadow economy, the level of which significantly exceeds the limits established by the method of analogues and expert assessments, poses a real threat to the economic security of the state with the maximum level of destructive influence on the entire national economic system. In the post-crisis period, when the conditions for reducing the level of shadow economic activity are being formed, there is no significant improvement in the situation in Ukraine. This is due to internal institutional obstacles, among which it is worth noting the bureaucratization of the national economy, the large-scale penetration of corruption into all spheres of public life, high tax pressure, which encourages enterprises to continue operating in the illegal sector, as well as the insufficient effectiveness of the authorities' activities in relation to unshadowing. In this regard, the problem of eliminating the root causes of the significant spread of shadow activities in Ukraine even in the pre-crisis years is receiving special attention, since this threat to economic security provokes an aggravation of the situation in the sphere of production, investment, scientific and technological, social and other components of economic security of the state.

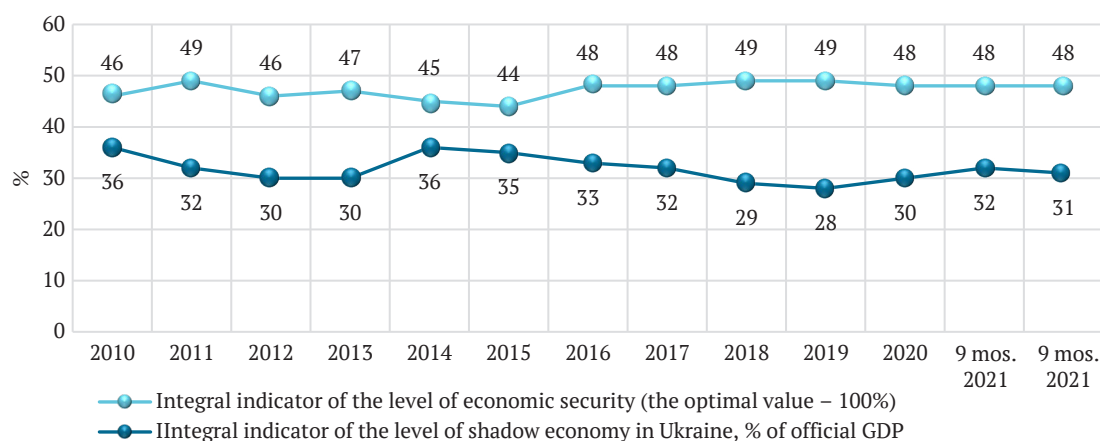


Figure 2. The ratio of the level of shadow economy and the level of economic security of Ukraine during 2010-2021

Source: built by the author based on [17]

The hypothesis that the scale of shadow economic activity has a significant impact on the size and composition of GDP, distorting official statistics as to its size, is confirmed in the work of N. Khuong, M. Shabbir, M. Sial, and T. Khanh [21]. Scientists have proven that a high level of shadowing of the economy has an extremely negative effect on the country's competitiveness and the effectiveness of structural and institutional reforms. In addition, the analysis of the impact of the shadow economy on the level of economic security of the state acquires special importance in the context of the growing number of global challenges.

The shadow economy is a phenomenon that has a negative economic character and affects integration processes. For Ukraine, it is one of the obstacles on the way to joining the EU, because reducing the size of the shadow sector and effective anti-corruption activities are key requirements for establishing close cooperation with EU member states. Therefore, for Ukraine, the formation of priority directions and effective measures aimed at combating the shadow economy in today's conditions is a strategically important national task. This task becomes of primary importance in the conditions of the European integration of Ukraine, because in the conditions of globalization, the priority directions of development associated with the cancellation of the visa regime, the free movement of funds and integration into the global economic space [22] contribute to the implementation of shadow operations that are difficult to monitor, thus accelerating the development of the shadow economy, the scale of which is significant in Ukraine. The work [23] proposed a methodical approach to assessing the risk of legalization of criminal proceeds in terms of economic sectors, partner countries and public administration bodies, however, the tools of committing illegal actions and measures of a preventive, regulatory and control nature to combat them remain neglected. Therefore, reducing the level of Ukraine's shadow economy to 13% of GDP by 2025, which is defined as one of the targets of the Strategy of Economic Security of Ukraine for the period until 2025 [16], is a necessary condition at the stage of accelerated European integration.

The defined strategic priorities of the economic security of Ukraine can be achieved through the development and implementation of the policy of unshadowing and

decriminalization of the economy based on a comprehensive approach. It should be coordinated with all spheres of state policy, taking into account the scale of shadowing processes in Ukraine. A real reduction in the size of the shadow sector of Ukraine's economy can be achieved through the creation of a security-oriented business environment with parity conditions for the functioning of various forms of business. At the same time, the prerequisite of unshadowing should be the state policy aimed at stimulating the innovative development of the real sector of the economy and increasing the efficiency of the legal economy.

It is important to further study the analysis of the mutual influence and interdependence of the shadow economy and corruption, which is a significant prerequisite for shadowing economic relations. The work [24] developed an approach to assessing the impact of corruption on the size of the shadow economy in the country by using a dynamic stochastic general equilibrium model, but the work does not present empirical confirmation of the cause-and-effect relationships between corruption and shadow economy. Active work with the public in the direction of publicizing the facts of corruption and criminalization cases and cooperation not only with domestic, but also with foreign mass media will make it possible not only to increase the level of awareness of the population, but also to establish cooperation between the latter and state authorities, as well as help in investigating cases related to corruption and criminal activity.

Overcoming the deep sources of the development of shadow socio-economic processes in Ukraine as a real threat to the economic security of the state is impossible without the implementation of an effective anti-corruption reform, increasing the level of protection of property rights and the formation of a security-oriented business environment by eliminating barriers, obstacles and risks that change the conditions for the realization of potential business development with increasing influence of global challenges.

CONCLUSIONS

The shadow economy, as a phenomenon objectively determined by the peculiarities of human economic behaviour, which under certain conditions has a positive effect during market fluctuations, exists in all countries of the

world. However, the extent of the spread of informal economic activity differs significantly in different countries, which is related to their national characteristics and conditions of functioning. Control over the spread of shadow economic activity is an important task from the point of view of ensuring economic security of the state, because it has a complex destructive effect on the national economic system when it significantly exceeds the maximum limit of 30% of GDP.

The high level of the shadow economy in Ukraine, which exceeds the maximum permissible limit, gave grounds to classify it as a real threat to the economic security of the state. The shadow economy significantly affects the economic development, competitiveness, well-being and social security of the population and economic security of Ukraine, preventing the latter from being fully achieved, which confirms the direct feedback found between the high level of the shadow economy and the low level of economic security of Ukraine. In connection with the scaling of shadow economic relations, the expansion of shadow flows in Ukraine and the growth of the informal sector even in

the post-crisis period, it is necessary to improve scientific and theoretical approaches to the development of priority directions for unshadowing the economy, aimed at counteracting the deep reasons for its large-scale spread. Unshadowing activity acquires strategic importance in the conditions of globalization and accelerated European integration of Ukraine, because these processes create additional opportunities for the expansion of shadow flows. In view of the presence of significant institutional deformations and the ineffectiveness of the activities of state bodies in the direction of unshadowing, there is a need to form a complex of effective unshadowing measures in order to minimize the impact of this threat to the economic security of Ukraine through the formation of a favourable environment for conducting business with an emphasis on its innovative development, in the anti-corruption direction and increasing publicity in unshadowing activities. The specifics of the manifestation of the shadow economy in the context of transformational processes, identifying and overcoming its destructive impact on the economic security of the state require further in-depth study.

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Тіньова економіка як загроза економічній безпеці держави

Анотація. Актуальність наукового дослідження визначається необхідністю обґрунтування особливостей впливу тіньової економіки як полісистемного явища, притаманного будь-якій національній економічній системі, на економічну безпеку держави. Мета роботи полягала в дослідженні обсягів, тенденцій тіньової економіки в Україні та її впливу на економічну безпеку держави для формування напрямів детінізації економіки як необхідної умови прискореного економічного зростання України. Методичний підхід, що застосовувався для реалізації зазначеної мети дослідження, ґрунтується на поєднанні інтегрального, індикаторного, графічного методу та методу порівняльного аналізу оцінок тіньової економіки та рівня економічної безпеки держави. Доведено, що тіньова економіка є реальною загрозою економічній безпеці держави, деструктивний вплив якої, за умови її надмірного поширення, підсилюється в умовах коливань ринкової кон'юнктури та економічної нестабільності. Розглянуто проблеми асиметричного впливу тіньової економіки на формування бізнес середовища в Україні. Виявлено пряму обернену залежність між рівнем тінізації економічної діяльності та рівнем економічної безпеки України. Доведено, що масштаби тінізації національної економіки України є загрозливими та особливо небезпечними. Акцентовано на необхідності розробки і впровадження політики детінізації й декриміналізації економіки. Надано рекомендації щодо детінізації економіки в напрямі формування сприятливого безпекоорієнтованого бізнес-середовища через подолання глибинних джерел розвитку тіньових соціально-економічних процесів задля мінімізації загроз економічній безпеці України. Результати наукової роботи, а також висновки, сформульовані на їх основі, можуть бути використані при вдосконаленні державної політики забезпечення економічної безпеки України в умовах євроінтеграції та посилення впливу глобальних викликів

Ключові слова: неформальний сектор, нелегальні відносини, виклик, стабільність, захищеність

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