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IMPLEMENTATION OF A MECHANISM FOR ENSURING THE SECURITY OF THE BANKING SYSTEM BASED ON INNOVATIVE METASPACE TECHNOLOGIES

The modern development of the global financial system is accompanied by the rapid digitalization of banking services, the active implementation of cloud services, Blockchain technologies, Big Data and other innovative metaspace platforms. Banking institutions are increasingly integrating digital ecosystems into their own activities, providing remote customer service, virtual financial services, digital identification and automation of financial transactions. In such conditions, there is a need to form a new mechanism for ensuring the security of the banking system, which would allow for an effective response to cyber threats, risks of information interference, fraud and destabilization of the financial environment. The problem of ensuring the security of the banking system becomes particularly relevant in conditions of martial law, economic instability and the growth of hybrid threats.

The need to develop a modern mechanism for ensuring the security of the banking system based on innovative metaspace technologies is also due to the transformation of the structure of financial risks. Traditional banking supervision tools no longer provide the proper level of protection in the digital economy, which requires the formation of a comprehensive stabilization system focused on the integration of digital platforms, intelligent data management systems, cyber defense and adaptive regulation. In this regard, a relevant scientific direction is the development of a modern mechanism for ensuring the security of the banking system based on metaspace technologies, taking into account risks, threats and stabilization tools.

The security of the banking system is one of the important components of the financial security of the state and determines the level of resilience of the financial sector to internal and external threats. In modern conditions, the security of the banking system is considered as a comprehensive state of protection of financial institutions from the risks of destabilization, which ensures the continuity of the functioning of banks, the stability of the payment system, the protection of customer funds and the efficiency of financial intermediation. Under martial law, the risks of destabilization of the banking system increase significantly due to the information and psychological impact on the population. The spread of panic can cause mass withdrawal of deposits, currency fluctuations and deterioration of bank liquidity.

The net profit of the banking system also had positive dynamics, with the exception of 2022, when the profitability of banks significantly decreased due to military risks and the deterioration of the economic situation. In 2023-2025, the profitability of the banking sector was restored. The share of problem loans (NPL) in 2018 exceeded 52%, in 2025 it decreased to 28.1%, which indicates an improvement in the quality of the bank's loan portfolio and the effectiveness of financial recovery measures [9; 10]. A positive trend is also the increase in the level of capital adequacy of banks [9; 10]. In 2025, the indicator exceeded 23%, which is significantly higher than regulatory requirements and indicates a sufficient margin of financial stability of the banking system. An important factor in stabilizing the banking system from 2018-2025 was the introduction of digital technologies. The active use of remote banking, mobile financial services, digital platforms and electronic identification allowed to ensure the continuity of banking operations even under martial law.

In 2023-2025, Ukrainian banks significantly intensified the implementation of digital technologies and automated risk monitoring systems, which contributed to reducing the level of fraud, increasing the speed of processing financial transactions and optimizing liquidity management. A significant role in ensuring the stability of the banking system was played by the NBU policy on supporting bank liquidity, currency regulation and conducting stress testing. Regular assessments of the stability of the banking system allowed for timely identification of potential risks and development of mechanisms to minimize them [9; 10].

The effectiveness of the functioning of the digital ecosystem is achieved provided that banking institutions adapt to the dynamic risks of the metaspace and the formation of long-term stability of the financial market through tools for preventing hybrid cyber threats, which is implemented through an integrated mechanism for ensuring the security of the banking system on the basis of the development of digital technologies of the metaspace.

A comprehensive approach to the development and implementation of an integrated mechanism for ensuring the security of the banking system in the conditions of the digital ecosystem of metaspace technologies has a structural structure and logic of the relationship between sources of threats, methods of influence of hybrid cyberattacks and tools for their elimination in order to stabilize the financial sector. The central idea of developing the mechanism is that modern banking security can no longer be ensured exclusively by traditional financial or regulatory methods, but requires the integration of digital technologies, cyber protection, institutional regulation and intelligent risk analysis systems.

The proposed integrated mechanism is formed from a structure of four interrelated instruments: financial, organizational, technological and institutional. Financial instruments include supporting bank liquidity, forming reserves, capitalizing financial institutions, diversifying funding sources and conducting stress testing. Their main function is to ensure the financial stability of the banking system and minimize the risk of crisis events. Organizational tools are focused on forming a risk management system, ensuring the continuity of business processes, conducting internal audits and increasing the level of digital literacy of personnel. In modern conditions, the human factor is one of the elements of cybersecurity, since a significant part of cyberattacks is implemented through social engineering and manipulation by bank employees. The technological block of the mechanism is the basis of the digital stability of the banking system, which takes into account biometric authentication and cloud technologies. It is these tools that provide automation of financial monitoring processes, prompt detection of suspicious transactions, forecasting crisis events and the formation of an adaptive cyber defense system. Institutional tools include state regulation, international coordination in the field of cybersecurity, harmonization of legislation with international standards, as well as interaction between the central bank, law enforcement agencies and international financial organizations.

In modern conditions, ensuring the security of the banking system is impossible without integration into global cyber defense systems and international exchange of information about cyber incidents. Therefore, the role of digital metaspace technologies in the process of monitoring, analyzing and forecasting risks based on the use of Big Data, Blockchain and FinTech technologies allows banks to analyze large amounts of financial information in real time, identify anomalous transactions and predict liquidity risks and model scenarios for the development of crisis situations. Automation of financial monitoring ensures the promptness of response to threats and increases the adaptability of the banking system to external shocks. The implementation of an integrated mechanism for ensuring the security of the banking system is based on the results of financial stability, continuity of banking operations, protection of assets and personal data of clients, increasing public confidence in financial institutions, resilience to external and internal shocks, as well as supporting the digital transformation of the financial market.

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