НАУКОВО-ПРАКТИЧНІ ЕКОНОМІЧНІ КОНЦЕПЦІЇ ТА ПРОГРАМИ

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TRANSFORMATION OF THE BANKING SYSTEM OF UKRAINE: ELECTRONIC MONEY AND CRYPTOCURRENCY

The article explores the key aspects of the transformation of Ukraine's banking system in the context of economic digitalization and the rapid development of financial technologies. The author emphasizes the emergence of new payment instruments — electronic money and cryptocurrencies — which are reshaping the traditional role of banks and creating new challenges for regulatory policy. The legal status of electronic money is analyzed, along with the operational features of cryptocurrencies, including their advantages and risks. Attention is given to international experience in regulating digital assets, which can be valuable for Ukraine as it adapts its banking system to new realities. The article highlights the importance of establishing a legislative framework and developing strategies for the implementation of central bank digital currencies (CBDCs). It also examines the prospects for coexistence between traditional banking institutions and decentralized financial instruments, and underlines the need to enhance digital literacy among the population. The article concludes with the necessity of deep modernization of the financial infrastructure to ensure the stability and competitiveness of the national banking system.

Key words: *banking system of Ukraine, electronic money, cryptocurrency, digital transformation, financial technologies, regulation of digital assets.*

Problem Statement and Its Relevance. The banking system is a key component of any country's economy. In recent decades, it has undergone significant changes under the influence of digital technologies and innovations. In particular, the spread of electronic money and cryptocurrencies has become an important factor in the transformation of financial markets. In Ukraine, these processes are gaining special relevance in the context of integration into the global economy, the development of digital infrastructure, and the need to enhance the transparency and security of financial operations.

Electronic money and cryptocurrencies open up new opportunities for financial institutions and consumers, particularly in terms of transaction speed, cost reduction, and improved access to financial services. At the same time, their integration into the banking system is accompanied by challenges related to regulation, security, and user trust.

Analysis of Recent Research and Publications. The research employed general scientific and specific methods of analysis, synthesis, comparison, and generalization. In particular:

– analysis of literary sources and legal acts to study modern approaches to the regulation of electronic money and cryptocurrencies;

– statistical analysis to assess the dynamics of electronic payment development in Ukraine;

– comparative analysis to identify international experience in integrating cryptocurrencies into the banking system;

– a systems approach to consider the banking system as a complex structure undergoing transformation under the influence of digital innovations.

Purpose of the Article. The purpose of this article is to analyze the transformation of Ukraine's banking system under the influence of electronic money and cryptocurrencies, as well as to identify key directions for development and regulatory approaches.

The objectives of this article are:

– to identify the main stages in the development of Ukraine's banking system in the context of digitalization;

– to examine the role and functioning of electronic money in the modern financial system;

– to analyze the impact of cryptocurrencies on the banking sector and the prospects for their legalization;

– to consider the issues of regulation and security in the use of electronic money and cryptocurrencies;

– to provide recommendations for adapting the banking system to the new challenges of the digital economy.

Presentation of the Main Research Material. The banking system is a key element of a country's financial infrastructure, ensuring economic stability, the redistribution of financial resources, and the development of market relations. It consists of two levels: the Central Bank and commercial banks.

The Central Bank performs functions such as issuing the national currency, regulating the money supply, managing gold and foreign currency reserves, and supervising the activities of commercial banks. Commercial banks carry out operations related to deposit-taking, lending, foreign exchange transactions, and payment services.

The essence of the banking system lies in the accumulation of temporarily available funds, their transformation into loans and other financial instruments, which contributes to the country's economic growth.

Ukraine's banking system has undergone several stages of transformation — see on fig. 1.

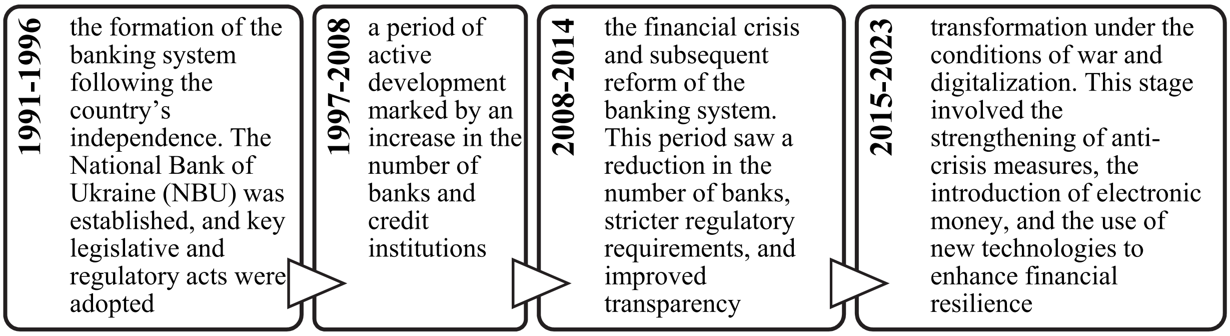

Figure 1. The main stages of Ukraine's banking system transformation

At the current stage, key priorities include integration into the European banking system, the development of financial technologies, and adaptation to international standards.

Globalization significantly influences the development of Ukraine's banking system through the following factors:

1. *Integration with international capital markets*. This ensures the inflow of investments, supports the development of financial technologies, and improves management standards.

2. *Digitalization of banking services*. The emergence of internet banking, mobile applications, and cryptocurrencies is transforming customer service approaches.

3. *Regulatory changes*. The implementation of international standards (Basel III) raises the requirements for bank capitalization and risk management.

4. *Competition and innovation*. Globalization stimulates the development of financial technologies and the emergence of new products such as electronic money, cryptocurrencies, and blockchain.

The digitalization of the banking system is a key stage in the development of the modern financial sector, based on the integration of innovative technologies to enhance efficiency, accessibility, and quality of financial services. Digital technologies include the use of internet banking, mobile applications, payment systems, blockchain technologies, artificial intelligence, and big data.

The primary significance of digital technologies lies in:

– increasing the speed of transaction processing;

– reducing the cost of service delivery;
– enhancing data security and confidentiality;
– expanding access to banking services, especially in remote regions;
– providing personalized financial products and services based on customer data analysis.

Ukraine is witnessing active development in digital financial services, driven by global trends and government initiatives focused on digital transformation. Key trends include:

1. Expansion of mobile and online banking. Leading Ukrainian banks, such as PrivatBank and Monobank, are actively developing multifunctional mobile applications.
2. Implementation of contactless payment technologies, including Apple Pay, Google Pay, and QR codes.
3. Integration of artificial intelligence to automate customer service, such as chatbots for consultations.
4. Use of blockchain technologies to improve the transparency and reliability of transactions.
5. Spread of digital currencies and cryptocurrency services as part of alternative payment systems.

Electronic money has become an important tool for optimizing financial operations and increasing the accessibility of banking services. It is represented as digital records of monetary obligations stored on electronic media or in cloud-based systems. The main forms of electronic money in Ukraine include:

– private electronic wallets (e.g., Portmone, iPay),
– bank cards with contactless payment functionality,
– virtual platforms and mobile apps for money transfers (Apple Pay, Google Pay).

Advantages of using electronic money:

– speed and convenience of payments;
– possibility of remote financial management;
– reduced transaction servicing costs;
– increased level of financial inclusion.

Cryptocurrency is a digital asset that uses cryptography to secure transactions and control the creation of new units. It operates on blockchain technology — a decentralized database that ensures transparency and data security.

Main types of Cryptocurrencies:

1. *Bitcoin* — the first and most popular cryptocurrency, serving as a digital equivalent of money.
2. *Altcoins* — alternatives to Bitcoin, including Ethereum, Ripple, Litecoin, and others.
3. *Stablecoins* — digital assets pegged to the value of fiat currencies (e.g., USDT, USDC), which offer lower volatility.
4. *Tokens* — digital assets used for specific functions, such as in the field of decentralized finance (DeFi).

Ukraine is actively integrating into the global cryptocurrency market. In 2021, the Verkhovna Rada of Ukraine adopted the Law «On Virtual Assets», which defined the legal status of cryptocurrencies and their regulation. This has increased trust in digital assets and stimulated the growth of fintech companies.

Cryptocurrencies serve the following functions in Ukraine's economy:

1. *Investment activity* — citizens use cryptocurrencies as a means of preserving capital.
2. *Money transfers* — cryptocurrencies enable fast and low-cost cross-border transfers.
3. *Innovative financial solutions* — Ukrainian startups are developing platforms for managing digital assets.
4. *Capital protection* — cryptocurrencies have become a popular tool for protecting against inflation and the devaluation of the hryvnia.

Let's consider the advantages and risks of integrating cryptocurrencies into the banking system on fig. 2.

As of 2024, Ukraine's legislative framework for regulating electronic money and cryptocurrencies is still in development. The key legal act is the Law of Ukraine «On Virtual Assets», adopted in 2021, which defines the legal status of virtual assets and sets requirements for their circulation. The law provides for the licensing of service providers related to virtual assets, as well as anti-money laundering (AML) and counter-terrorist financing (CTF) obligations.

The National Bank of Ukraine (NBU) acts as the regulator in the field of electronic money. NBU Resolution No. 705 of 2018 regulates the use of electronic money, setting rules for both issuers and users. Electronic money can only be issued by banks that have obtained the appropriate license.

However, while cryptocurrencies have received limited recognition through legislation, they do not yet have the status of legal tender. Their use is mainly limited to investment and exchange purposes.

Advantages:

- **Transparency and security** – blockchain technologies provide a high level of data protection.
- **Speed and accessibility of transactions** – international transfers are significantly faster and cheaper compared to traditional banking systems.
- **Innovative development** – the integration of cryptocurrencies encourages the development of new financial products and services.
- **Decentralization** – reduces the risks of interference from government authorities or banking institutions.

Risks:

- **Lack of legal regulation** – despite the adoption of certain laws, the regulatory framework still needs improvement.
- **High volatility** – fluctuations in cryptocurrency value can lead to significant financial losses.
- **Cybersecurity risks** – an increase in hacking attacks and fraud cases.
- **Money laundering** – cryptocurrencies can be used in illegal financial operations.

Figure 2. The advantages and risks of integrating cryptocurrencies into the Banking System

International experience shows a variety of approaches to regulating digital financial instruments. In the European Union, the AMLD5 Directive requires identification of cryptocurrency platform users to prevent financial crimes. The European Commission is also working on the Markets in Crypto-Assets Regulation (MiCA), which aims to establish uniform rules for all EU member states.

In the United States, cryptocurrencies are classified as commodities and are regulated by the Commodity Futures Trading Commission (CFTC). Some states, such as Wyoming, have adopted crypto-friendly laws to support the development of blockchain companies.

In Japan, cryptocurrencies have been recognized as legal tender since 2017, and their circulation is overseen by the Financial Services Agency (FSA). This regulatory approach has allowed Japan to become one of the leading global hubs for the crypto industry.

In Ukraine, there are several challenges in the regulation of electronic money and cryptocurrencies:

1. *Lack of clear taxation rules for cryptocurrency transactions*. There is currently no defined approach for taxing income generated from cryptocurrencies.

2. *Insufficient protection for investors and users*. Due to the absence of insurance mechanisms, the risk of asset loss remains high.

3. *The need to align with international standards*. Integration into the European and global financial system requires the harmonization of national legislation with international norms.

Future prospects include:

1. The adoption of additional by-laws for the implementation of the Law «On Virtual Assets».

2. The creation of special regulatory regimes for innovative financial technologies (regulatory sandboxes).

3. Improvement of monitoring and control mechanisms for crypto-asset transactions to prevent illegal financial activities.

The digitalization of the global economy is significantly transforming the functioning of financial markets and banking systems. Ukraine is no exception to this process, as its banking system is also undergoing a phase of deep transformation. The main direction of development is the implementation of innovative technologies that enhance the efficiency, security, and accessibility of banking services.

To ensure the competitiveness and stability of Ukraine's banking system, the following development strategies are necessary:

1. *Digitalization of services* — expanding mobile applications, online banking, and automated customer service systems.

2. *Development of the FinTech sector* — collaborating with fintech companies to create innovative solutions such as payment systems, e-wallets, and asset management platforms.

3. *Enhancing cybersecurity* — investing in modern data protection systems and implementing blockchain technologies to ensure transparency and reliability of operations.

4. *Integration with international standards* — harmonizing regulatory requirements to align with EU and International Monetary Fund (IMF) standards.

5. *Development of open banking infrastructure* — implementing Open Banking standards that enable third parties to integrate financial services via APIs.

Electronic money and cryptocurrencies are playing an increasingly important role in financial transactions, influencing the development of the banking system in the following ways:

1. *Reduction in cash transactions* — the use of electronic money promotes a shift toward cashless payments and enhances financial transparency.

2. *New payment instruments* — cryptocurrencies, particularly Bitcoin and Ethereum, offer opportunities for cross-border transfers with minimal costs and high speed.

3. *Regulatory challenges* — there is a growing need to develop a legal framework to regulate cryptocurrency markets and ensure consumer protection.

4. *Creation of central bank digital currencies (CBDCs)* — the National Bank of Ukraine (NBU) is considering the introduction of its own digital currency — the electronic hryvnia, which would serve as an alternative to private cryptocurrencies and enhance control over financial flows.

5. *Technological integration* — banks are adopting blockchain technology to automate processes, reduce operational costs, and increase trust in financial operations.

To enhance the efficiency of Ukraine's banking system, the following innovative solutions are required:

1. *Big Data and Artificial Intelligence (AI)* — analyzing large datasets and using AI to forecast customer behavior, manage risks, and personalize banking products.

2. *Robotic Process Automation (RPA)* — automating routine tasks to reduce costs and accelerate request processing.

3. *Blockchain and smart contracts* — using distributed ledgers for secure data storage and creating conditions for transparent transactions.

4. *Cloud technologies* — migrating banking systems to cloud platforms to improve scalability and reduce IT infrastructure costs.

5. *Biometric identification systems* — implementing facial recognition, fingerprint scanning, and voice authentication technologies to ensure secure customer verification.

Conclusions. Ukraine's banking system is undergoing significant transformation under the influence of digital technologies and innovations such as electronic money and cryptocurrencies. This aligns with global trends and requires integration into international standards, adaptation of regulatory mechanisms, and development of digital infrastructure.

Electronic money and cryptocurrencies offer substantial potential to enhance the efficiency of the banking system. They contribute to faster transactions, cost reduction, and broader accessibility of financial services. At the same time, their use raises issues related to security, regulation, and user trust.

Cryptocurrencies play an increasingly important role in Ukraine's economy, serving as investment assets, tools for fast international transactions, and instruments for capital protection. However, high volatility, cybersecurity risks, and an insufficient regulatory framework require careful attention.

Ukraine is developing a legal framework to regulate electronic money and cryptocurrencies, but challenges remain in areas such as taxation, investor protection, and alignment with international standards. International experience can serve as a foundation for improving Ukrainian legislation.

The digitalization of financial services and cooperation with FinTech companies are key directions for the development of Ukraine's banking system. Investments in cybersecurity, the implementation of blockchain technologies, and integration with international standards will contribute to the stability and competitiveness of the banking sector.

To ensure the effectiveness and stability of the banking system in the context of digitalization, a comprehensive strategy is needed. This strategy should take into account innovative development, increased transparency and security of operations, and integration into the global financial system.

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Щербатих Д. В., Ремига Ю. С. ТРАНСФОРМАЦІЯ БАНКІВСЬКОЇ СИСТЕМИ УКРАЇНИ: ЕЛЕКТРОННІ ГРОШІ ТА КРИПТОВАЛЮТА

У статті розглядаються ключові аспекти трансформації банківської системи України в умовах цифровізації економіки та активного розвитку фінансових технологій. Автор акцентує увагу на появі нових платіжних інструментів — електронних грошей та криптовалют, які змінюють традиційну роль банків та створюють нові виклики для регуляторної політики. Аналізується правовий статус електронних грошей, а також особливості функціонування криптовалют, включаючи їх переваги та ризики. Увага приділяється міжнародному досвіду *регулювання цифрових активів, який може бути корисним для України в контексті адаптації банківської системи до нових реалій. Підкреслюється важливість формування законодавчої бази та розробки стратегій впровадження цифрових валют центрального банку (CBDC). У статті також розглядаються перспективи співіснування традиційних банківських установ із децентралізованими фінансовими інструментами та підкреслюється потреба у підвищенні цифрової грамотності серед населення. Зроблено висновок про необхідність глибокої модернізації фінансової інфраструктури для забезпечення стабільності та конкурентоспроможності національної банківської системи.*

Ключові слова: *банківська система України, електронні гроші, криптовалюта, цифрова трансформація, фінансові технології, регулювання цифрових активів.*