

INFRASTRUCTURE PROVISION FOR SUSTAINABLE DEVELOPMENT OF THE UKRAINIAN BANKING (CREDIT) SYSTEMDmytro Tsyhaniuk^{1*}, Alina Yefimenko², Myroslav Ievsienko³¹ Department of Financial Technologies and Entrepreneurship, Sumy State University, Ukraine² Economic Cybernetics Department, Sumy State University, Ukraine³ Department of Finance, Banking and Insurance, National University "Chernihiv Polytechnic"

*corresponding author: Dmytro Tsyhaniuk, d.tsyhaniuk@uabs.sumdu.edu.ua

A modern banking system is an integral part of the economic development of any country, as it ensures the functioning of the financial market, mobilizes resources of business entities, facilitates the expansion of credit opportunities and ensures the sustainability of the financial system as a whole. Ukraine, as a country with a transition economy, has faced numerous challenges and tasks in developing its banking system in recent decades. One of the main aspects is the infrastructure support for the sustainable development of the banking system, which is the country's key financial intermediary. Accordingly, in the era of dynamic economic shifts and global financial transformations, the role of infrastructural support in ensuring the sustainable development of banking systems is of primary importance. This issue is of great practical importance and is relevant for further research, given the impact of socio-political and economic turbulence observed in Ukraine where the banking sector is a key financial intermediary of the national economy. Therefore, for a timely and effective response to the challenges of the financial system and the needs of business entities, the Ukrainian banking system needs a reliable and adaptive infrastructure. In this context, the study aims to analyze the infrastructure support for the sustainable development of the banking (credit) system of Ukraine. The theoretical aspects of the sustainable development of the banking sector, which are highlighted in the eighth goal of the UN Sustainable Development Concept, are defined. The main indicators of payment (number of bank branches, number of ATMs) and monetary (number of bank accounts) infrastructure are allocated and analyzed. The goals and tools for implementing the Strategy for the Development of the Financial Sector of Ukraine until 2025 as a key document in the context of sustainable development of the banking sector are described. The following tools were used in the course of the study: grouping, comparison and generalization, analysis and synthesis, and graphical methods. The results of the study can be a source of information for public authorities, banks and other stakeholders seeking to promote the sustainable development of the banking system in Ukraine.

Keywords: infrastructure, banking system, sustainable development, goals, number of bank branches, number of accounts, strategy

ІНФРАСТРУКТУРНЕ ЗАБЕЗПЕЧЕННЯ СТАЛОГО РОЗВИТКУ БАНКІВСЬКОЇ (КРЕДИТНОЇ) СИСТЕМИ УКРАЇНИДмитро Циганюк^{1*}, Аліна Єфіменко², Мирослав Євсієнко³¹ кафедра фінансових технологій та підприємництва, Сумський державний університет, Україна² кафедра економічної кібернетики, Сумський державний університет, Україна³ кафедра фінансів, банківської справи та страхування, Національний університет «Чернігівська політехніка»

*автор-кореспондент: Дмитро Циганюк, d.tsyhaniuk@uabs.sumdu.edu.ua

Сучасна банківська система є невід'ємною складовою економічного розвитку будь-якої країни, оскільки вона забезпечує функціонування фінансового ринку, мобілізує ресурси суб'єктів господарювання, сприяє розширенню кредитних можливостей та забезпечує сталість фінансової системи в цілому. Україна, як країна з перехідною економікою, впродовж останніх десятиліть стикається з численними викликами та завданнями щодо розвитку своєї банківської системи. Одним із основних аспектів є інфраструктурне забезпечення сталого розвитку саме банківської системи, яка є ключовим фінансовим посередником країни. Це питання має велике практичне значення та є актуальним для подальших досліджень, враховуючи вплив соціально-політичних та економічних турбулентностей, що спостерігаються в Україні, де банківський сектор є ключовим фінансовим посередником національної економіки. Тому для своєчасного та ефективного реагування на виклики фінансової системи та потреби суб'єктів господарювання українська банківська система потребує надійної та адаптивної інфраструктури. У цьому контексті проведено дослідження, метою якого є аналіз інфраструктурного забезпечення сталого розвитку банківської (кредитної) системи України. Визначено теоретичні аспекти сталого розвитку банківського сектору, що висвітлюються у восьмій цілі Концепції сталого розвитку ООН. Виділено та проаналізовано основні індикатори платіжної (кількість відділень банків, кількість банкоматів) та грошової (кількість рахунків у банках) інфраструктури. Охарактеризовано цілі та інструментарій впровадження Стратегії розвитку фінансового сектору України до 2025 року як ключового документу у розрізі сталого розвитку банківського сектору. У ході проведення дослідження були використані такі інструменти: методи групування, порівняння та узагальнення, аналізу та синтезу, графічний. Результати дослідження можуть бути джерелом інформації для органів державної влади, банків та інших зацікавлених сторін, які прагнуть сприяти сталому розвитку банківської системи в Україні.

Ключові слова: інфраструктура, банківська система, сталий розвиток, цілі, кількість відділень банків, кількість рахунків, стратегія.

Cite as: Tsyhaniuk, D., Yefimenko, A. & Ievsienko, M. (2024). Infrastructure provision for sustainable development of the Ukrainian banking (credit) system. *Visnyk of Sumy State University. Economy Series*, 2, 64-71. <https://doi.org/10.21272/1817-9215.2024.2-07>

INTRODUCTION

An important element of the state's prosperity is the provision of effective economic development, which will include various sectors of the country's life cycle. The global financial crisis, which began in September 2008 with the bankruptcy of US financial institutions, confirmed the need for a more detailed analysis of world economic systems, their stability factors and the appropriate strategies development. The crisis provoked a significant reduction in business, an increase in unemployment and a decrease in government revenues. It is worth noting that almost all industrialized and developing countries have announced anti-crisis packages for the economic and financial sectors. One of the measures to balance these spheres of the state was the introduction by UN members in 2015 of the Concept of Sustainable Development for the period until 2030 [1], which includes 14 strategically important goals.

Accordingly, in the era of dynamic economic shifts and global financial transformations, the role of infrastructural support in ensuring the sustainable development of banking systems is of primary importance. This issue is of great practical importance and is relevant for further research, given the impact of socio-political and economic turbulence observed in Ukraine where the banking sector is a key financial intermediary of the national economy. Therefore, for a timely and effective response to the challenges of the financial system and the needs of business entities, the Ukrainian banking system needs a reliable and adaptive infrastructure.

LITERATURE REVIEW

Both foreign and Ukrainian scientists were engaged in the research of infrastructural support for the sustainable development of the banking sector in the context of the introduction of new digital products, the development of customer relationship management vectors (marketing strategies), and the revision of the credit toolkit of banking activity.

Shihadeh F. H. [2] examines the infrastructural support of the sustainable development of the banking sector through the prism of the influence of individual socio-economic characteristics on financial inclusion in Palestine. It is the official banking institutions that have made significant efforts to develop an inclusive financial infrastructure in Palestine, but the country's unstable political climate continues to hinder economic stability and people's motivation to use official financial resources, particularly loans.

Ayo S. et al. [3] note that Nigeria's economy is largely based on cash, which is associated with insufficient infrastructure, trust and instability in the banking sector. However, thanks to the concerted efforts of the government, which is implementing a policy to encourage the use of the electronic platform, there are positive developments in the implementation of electronic payments as one of the channels of infrastructural provision of the banking sector.

Abdul Ghani Azmi I. M. et al. [4] in their work draw attention to the need for information security in terms of its ten critically important sectors of infrastructural support, including national defense and security; banking and finance; information and communications; energy, transport and water supply; government, emergency and medical services; as well as food industry and agriculture.

Among domestic scientists, L.M. Bogrinovtseva and Kozii N.S. [5] deal with the issue of infrastructural support, studying the role and influence of institutional factors on the development of the credit market in Ukraine. The authors note that proper work on the creation of high-quality and understandable legislation will contribute to the formation of legal infrastructure, which will increase confidence in the credit market and increase the amount of financial resources of banks. Khodakevich S.I. [6] noted two vectors of infrastructural support of the banking system of Ukraine: institutional (specialised enterprises, firms focused on servicing banks) and functional (promotion of banking products, protection of the interests of market participants, scientific and methodological support, etc.).

According to the analysis of the publications of foreign and domestic scientists, the issue of infrastructural support for the sustainable development of the banking (credit) system of Ukraine is insufficiently researched through the prism of considering the vectors and channels of the banks'

development directly in the conditions of sustainable development and requires a more in-depth study.

METHODOLOGY AND RESEARCH METHODS

Objective statement. The main goal of the research is the analysis of the infrastructural support for the sustainable development of the banking (credit) system of Ukraine, which is the basis of the sustainability and stability of the banks' activities.

Sustainable development is a general concept of the country's development, which emphasizes the need to establish a balance between meeting the current needs of humanity and protecting the interests of future generations, including their need for a safe and healthy environment [1].

The concept of sustainable development is based on five main principles:

1. Humanity can really give development a sustainable and long-term character so that it meets the needs of people.

2. Limitations that exist in the field of exploitation of natural resources are relative and related to the modern level of technology and social organization.

3. It is necessary to satisfy the elementary needs of all people and give everyone the opportunity to realize their material and non-material goals.

4. It is necessary to reconcile the living conditions of those who use excessive means with the ecological capabilities of the planet, in particular with regard to energy use.

5. The size and rate of population growth must be consistent with the dynamic production potential of the Earth's global ecosystem.

It is worth noting that the eighth goal of the Concept of Sustainable Development is to ensure decent work and economic growth, which are characterized by increasing the level of labor productivity, involving technological innovations in the production process, developing small and medium-sized businesses, increasing their efficiency, reducing gender inequality in income and ensuring proper conditions work and equal opportunities regardless of gender, age, nationality, etc.

The main tasks of the eighth goal are as follows:

- ensuring sustainable growth of GDP on the basis of modernization of production, development of innovations, increase of export potential, access to foreign markets of products with a high share of added value;

- increasing the efficiency of production on the basis of sustainable development and the development of high-tech competitive industries;

- increasing the employment level of the population;

- reduction of the share of youth who do not work, do not study and do not acquire professional skills;

- provision of reliable and safe working conditions for all employees, in particular through the use of innovative technologies in the field of labor protection and industrial safety;

- creation of institutional and financial opportunities for the potential self-realization of the economically active part of the population and the development of the creative economy [1].

RESULTS

One of the key elements of the eighth goal of sustainable economic growth is the expansion of financial opportunities, which can be carried out with the help of banks, which are financial intermediaries and the main settlement centers of any country. Quantitative characteristics of the specified task are the number of commercial bank branches per 100,000 adult population, the number of ATMs per 100,000 adult population, the share of the adult population (15 years and older) who have an account in a bank or other financial institution or with a mobile money service provider. Thus, two vectors of infrastructural support for the sustainable development of the banking system can be distinguished: payment infrastructure (ATMs and bank branches) and monetary infrastructure (bank accounts) in accordance with the methodology of the National Bank of Ukraine [7].

First of all, it is worth considering the dynamics of the main indicators of the payment infrastructure of the sustainable development of the banking sector. Figure 1 shows the dynamics of

the number of branches of commercial banks of Ukraine per 100,000 adult population during 2010-2022.

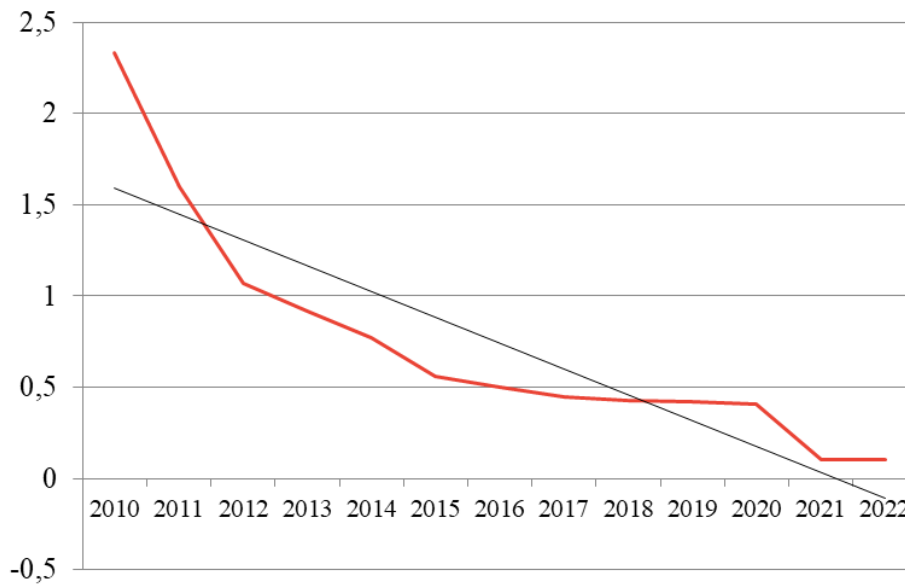


Figure 1. Dynamics of the number of branches of commercial banks per 100,000 adult population in Ukraine during 2010-2022, units.

Source: developed by the author based on [9]

Between 2010 and 2022, there is a 95% decrease in the number of bank branches, as the number of banks has decreased from 176 in 2010 to 67 in 2022 due to the security and economic situation in the country. According to the observations of the National Bank of Ukraine (NBU), the network of banks shrank the most in 2014 (4208), 2015 (3211) and 2009 (2197). A total of 1,349 branches were closed in 2022 [8]. In 2022, the number of banks decreased by four small institutions, including two of them with state-owned Russian capital that were withdrawn from the market in February 2022 in response to a full-scale attack by Russia.

The volatility of the number of ATMs per 100,000 adult population is presented in Figure 2.

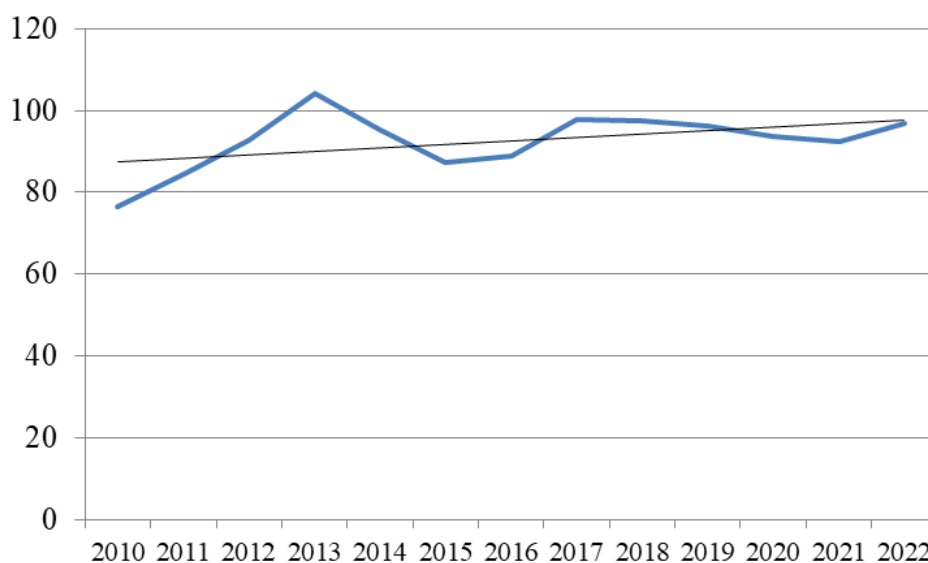


Figure 2. Dynamics of the number of ATMs per 100,000 adult population in Ukraine during 2010-2022, units.

Source: developed by the author based on [9]

During 2010-2022, there was a gradual increase in the number of ATMs by 2.26%. A significant increase was observed at the end of 2013, due to the stable socio-economic environment in Ukraine (core inflation of 0.1%, positive dynamics of monetary aggregates, GDP growth). The fall is observed in 2014, which is associated with the beginning of Russia's military operations against Ukraine (annexation of Crimea, partially Luhansk and Donetsk regions), and in 2021, caused by the COVID-19 pandemic.

The monetary infrastructure for ensuring sustainable development includes the number of bank accounts (Fig. 3). A significant decrease in the number of accounts was observed in 2013, which was provoked by a decrease in interest rates, and at the end of the year, political instability in Ukraine became an additional factor in the outflow.

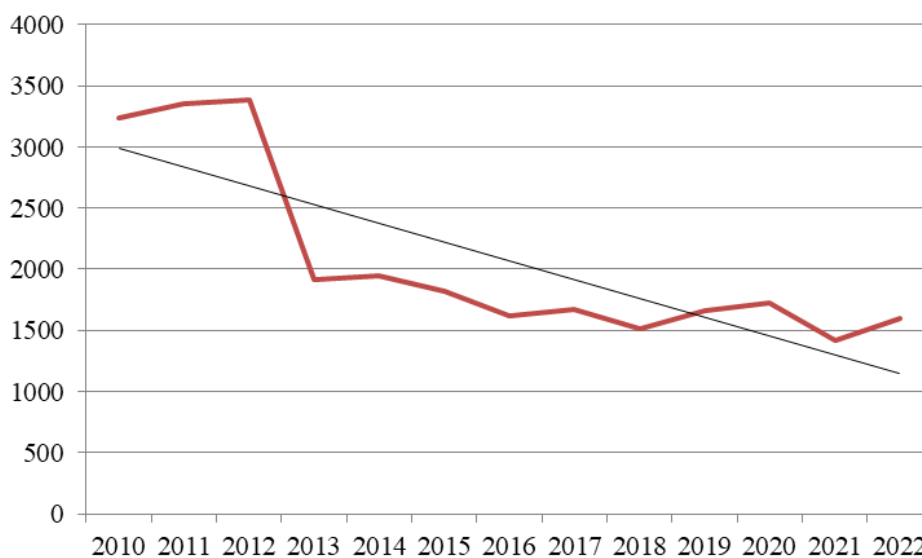


Figure 3. Dynamics of the number of bank accounts per 100,000 adult population in Ukraine during 2010-2022, units

Source: developed by the author based on [9]

Fluctuations in monetary and payment infrastructure indicators for sustainable development can be regulated by implementing regulatory (instruments for regulating the riskiness of banks, implementing liquidity standards, investing, etc.) and supervisory measures. This is accompanied by the implementation of regulatory documents regarding the development of the banking sector of Ukraine.

On December 26, 2019, the National Bank of Ukraine implemented the Financial Sector Development Strategy until 2025 (hereinafter the Strategy), which established priorities and goals for the development of the financial sector in 2020-2023. The purpose of the document is to ensure the further reform and development of the financial sector of Ukraine in accordance with leading international practices and the implementation of measures provided for by the Association Agreement between Ukraine and the EU and other international obligations of Ukraine. The strategy included the following goals: financial stability, macroeconomic development, financial inclusion, development of financial markets and innovative development [10].

It is worth considering in more detail the toolkit for the implementation of the Strategy, which concerns the sustainable development of the banking (credit) sector, and the effectiveness of their implementation, determined by the number of measures, during 2021-2022 (Table 1).

Accordingly, the roadmap for the implementation of the Strategy as of the end of 2022 is 47% completed. There is an increase in the number of implemented measures within the toolkit defined in Table 1 in 2022. It is the strategic direction "Financial Inclusion" that is the channel of infrastructural support for the sustainable development of the banking sector of Ukraine. The main task of the implementation of the specified vector is to increase the availability and level of use of financial

services through the prism of stimulating the development of payment infrastructure for non-cash transactions and creating conditions for the development of remote channels for the sale of financial services (cash infrastructure), including opening accounts remotely.

Table 1. Fluctuations in the number of measures (status “Complete” regarding the implementation of the tools of the Financial Sector Development Strategy of Ukraine during 2021-2022)

Goal	Toolkit	Year	
		2021	2022
Financial stability	Improvement of supervisory approaches	7	10
	Improving the quality of risk management in the financial sector	2	6
Financial inclusion	Increasing the availability and level of use of financial services	5	6
Development of financial markets	Creation of liquid tools for reducing the risks of financial transactions	4	8
Actions fully implemented in accordance with the roadmap of the Strategy		26%	47%

Source: author’s development based on [11-12]

Currently, the Strategy, which was updated in August 2023, is focused on resisting Russian aggression and rebuilding the country and includes the following strategic goals:

- macroeconomic stability;
- financial stability;
- the financial system works to restore the country (providing affordable loans);
- modern financial services (financial inclusion);
- institutional capacity of regulators [10].

The specified goals in the conditions of a full-scale Russian invasion of Ukraine are formed into a corresponding structural and logical scheme (Fig. 4).

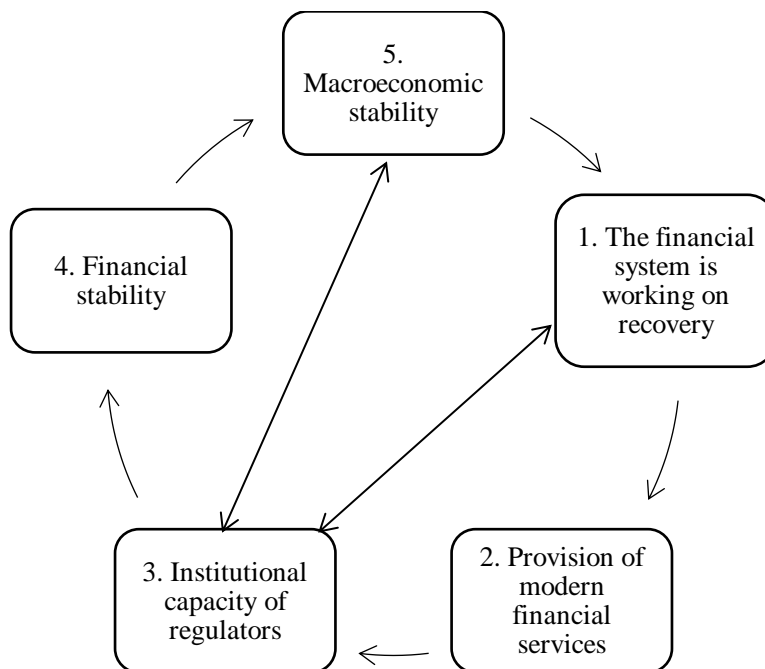


Figure 4. Structural and logical diagram of the goals of the Financial Sector Development Strategy of Ukraine until 2025

Source: author’s development based on [Error! Reference source not found.]

Therefore, the reform of the financial sector of Ukraine, which was implemented with the active support of international financial organizations, contributed to macro-financial stabilization and

strengthening the ability of regulators and financial market participants, in particular, banks, to face socio-economic and political challenges. In particular, in recent years, the NBU together with international partners worked on the development and implementation of new regulatory acts on capital and liquidity, which correspond to the European CRD/CRR system, which are aimed at promoting the financial stability and sustainability of the Ukrainian banking system.

CONCLUSIONS

Consequently, in modern fast-growing global economy, the banking sector plays a key role in stimulating economic growth, promoting investment and ensuring financial stability. In the context of Ukraine, where the banking system is the financial core of the national economy, ensuring a reliable infrastructure is essential for sustainable development and resilience to external shocks. Infrastructure encompasses a wide range of elements, including physical infrastructure such as banking institutions, technological infrastructure including digital banking platforms and cyber security systems, and regulatory and institutional infrastructure governing banking operations and supervision. In accordance with the eighth goal of sustainable development, the payment (branches and ATMs) and money (accounts) infrastructure for the development of the banking sector has been allocated. In Ukraine, the development and support of such infrastructure are indispensable for strengthening trust in the banking system, attracting investments and promoting economic stability.

However, the Ukrainian banking system faces numerous problems in providing infrastructure, which arise due to institutional deficiencies, external pressure and corruption schemes. In order to overcome these challenges and promote sustainable development, strategic decisions are needed regarding the development of the Ukrainian banking sector, in particular, the modernization of physical infrastructure, including the construction of new bank branches, ATMs and banking institutions in underserved regions; modernization of the technological infrastructure through the implementation of digital banking solutions, Fintech innovations and reliable cyber security measures is of paramount importance to increase the efficiency, accessibility and security of banking operations; strengthening the regulatory and institutional infrastructure to ensure sound governance, risk management and compliance in the banking sector, which includes reforms aimed at increasing transparency, accountability and regulatory oversight.

REFERENCES

1. United Nations (2023). Sustainable Development Goals. <https://sdgs.un.org/goals/goal>.
2. Shihadeh, F. H. (2022). Individual's behavior and access to finance: Evidence from Palestine. *Singapore Economic Review*, 67(1), 113-133. <https://doi.org/10.1142/S0217590819420025>.
3. Ayo, C.K., Mac-Eze, C.M., Adebisi, A.A., Oni, A., Okesola, J.O. & Odun-Ayo, I. (2021). Developing a Multi-factor Authentication-based Cardless Electronic Payment System. *IOP Conference Series: Earth and Environmental Science*, 66(1). <https://doi.org/10.1088/1755-1315/665/1/012009>.
4. Abdul Ghani Azmi, I.M., Zulhuda, S. & Sigit Puspito, W. J. (2012). Data breach on the critical information infrastructures: Lessons from the Wikileaks. *Proceedings 2012 International Conference on Cyber Security, Cyber Warfare and Digital Forensic, CyberSec 2012*, 306–311. <https://doi.org/10.1109/CyberSec.2012.6246173>.
5. Bogrinovtseva, L. M. & Koziy, N. S. (2023). The role and influence of institutional factors on the development of the credit market in Ukraine: analysis, challenges and prospects. *Economy and Society*, 54. <https://doi.org/10.32782/2524-0072/2023-54-62>.
6. Khodakevich, S.I. (2013). Banking infrastructure of Ukraine at the modern stage. *Vcheni zapysky*, 15. <https://core.ac.uk/reader/32608570>
7. National Bank of Ukraine (2023). Annual report of the National Bank of Ukraine for 2022. https://bank.gov.ua/admin_uploads/article/annual_report_2022.pdf?v=7
8. National Bank of Ukraine (2022). Annual report of the National Bank of Ukraine for 2021. https://bank.gov.ua/admin_uploads/article/annual_report_2021.pdf?v=7
9. World Bank (2024). Databank. Global Financial Development. <https://databank.worldbank.org/source/global-financial-development#>

10. National Bank of Ukraine (2020). Strategy for the development of the financial sector of Ukraine until 2025. https://bank.gov.ua/admin_uploads/article/Strategy_finsector_NBU.pdf?v=7.
11. National Bank of Ukraine (2022). Strategy for the development of the financial sector of Ukraine until 2025. Implementation report for 2021. https://bank.gov.ua/admin_uploads/article/Strategy_FS_2025_zvit_2021.pdf?v=7.
12. National Bank of Ukraine (2023). Strategy for the development of the financial sector of Ukraine until 2025. Implementation report for 2022. https://bank.gov.ua/admin_uploads/article/Strategy_finsector2025_zvit_2022.pdf?v=7.