

DOI: [10.55643/fcaptive.3.50.2023.3993](https://doi.org/10.55643/fcaptive.3.50.2023.3993)
Andrii Meshcheriakov

D.Sc. in Economics, Professor of the Department of Finance, Banking and Insurance, University of Customs and Finance, Dnipro, Ukraine;
 e-mail: andrei-andrei-70@ukr.net
 ORCID: [0000-0002-6643-2418](https://orcid.org/0000-0002-6643-2418)
 (Corresponding author)

Lilia Bodenchuk

PhD in Economics, Associate Professor, Danube branch of the Private Joint-Stock Company "Interregional Academy of Personnel Management", Izmail, Ukraine;
 ORCID: [0000-0003-3892-3823](https://orcid.org/0000-0003-3892-3823)

Iryna Liganenko

PhD in Economics, Associate Professor, Danube branch of the Private Joint-Stock Company "Interregional Academy of Personnel Management", Izmail, Ukraine;
 ORCID: [0000-0003-0716-289X](https://orcid.org/0000-0003-0716-289X)

Olena Rybak

PhD in Economics, Assistant Professor of the Department of Finance, Accounting and Taxation, National Aviation University, Kyiv, Ukraine;
 ORCID: [0000-0002-1576-7189](https://orcid.org/0000-0002-1576-7189)

Tetiana Lobunets

PhD in Economics, Associate Professor of the Department of Production and Investment Management, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine;
 ORCID: [0000-0002-1973-4181](https://orcid.org/0000-0002-1973-4181)

Received: 24/02/2023

Accepted: 09/04/2023

Published: 30/06/2023

© Copyright
 2023 by the author(s)



This is an Open Access article distributed under the terms of the [Creative Commons CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/)

TRENDS IN THE DEVELOPMENT OF THE BANKING SYSTEM OF UKRAINE UNDER CONDITIONS OF MILITARY ACTIONS AND GLOBALIZATION INFLUENCES

ABSTRACT

The banking system is a key issue for any state, as it provides access to capital for businesses and individuals. The Ukrainian economy forms the mechanism of financial and credit relations primarily through the banking system, which ensures the development of not only the real sector of the economy but also all spheres and sectors. Ukraine takes an active position on the way to European integration and globalization, as a result of which its banking system is undoubtedly subordinated to the trends emerging in the global dimension. However, the beginning and active development of military operations on the territory of Ukraine creates additional challenges for the domestic banks, which certainly should be taken into account and used to ensure national financial security.

The purpose of the research is determined by the need to identify trends in the development of the banking system of Ukraine as the main subject of financial and credit relations and determine further changes in the peculiarities of the model of financial and credit relations under the influence of globalization challenges.

To achieve the goal, the methods of analysis of statistical information, graphic method, cluster analysis, as well as general scientific methods, in particular: generalization, systematization, induction, deduction were used.

As a result of the research, the tendencies of global development of the banking system of the world were established and the globalization challenges that form these tendencies were determined, as well as the directions of development of credit relations in Ukraine after the end of hostilities were determined. The practical value of the received results consists in the formation of recommendations for banking institutions on the further development after the termination of martial law in Ukraine and directions of adaptation to globalization processes.

According to the results of the research, it is possible to state that during the last 5 years, the development of the banking system of Ukraine has been quite stable, which is confirmed by the statistical analysis given in the work, it is also established that the basis of the banking system consists of 5 largest banks, the position in the market of which is quite stable. Consequently, the state should take measures to support these institutions and ensure their stability under martial law.

Keywords: financial and credit relations, banking system, cluster analysis, lending volumes, stability of the banking system

JEL Classification: D53, E44, E69, G19, G23, G28, O12

INTRODUCTION

On the way to globalization, Ukraine is undergoing reforms of the economy in general, and the financial and credit system in particular. Financial and credit relations are implemented through the banking system, which in turn has undergone a long process of formation and improvement after Ukraine gained independence. Undoubtedly, globalization challenges pose new tasks to the domestic financial and credit system, including: reducing the number of inefficient banking institutions, increasing the level of public trust in banks, increasing indicators of stability and reliability of banks, state support of

the banking sector in financing socially and energetically important projects, reduction in the cost of capital, etc. However, in the conditions of a full-scale war on the territory of Ukraine, the issues of internal financial security become the first priority, and globalization challenges take a back seat. In order to understand the transformational trends in the financial and credit system in the state, it is worth following the trends in the development of lending in Ukraine and identifying the key players of the financial and credit market, as well as systematizing the changes that have taken place and are taking place now in the banking sector. In addition, it is worth outlining promising directions for the further transformation of the model of financial and credit relations in Ukraine. Undoubtedly, the state of war in Ukraine will slow down the process of development of the banking and financial sector, but as practice shows, the situation in the banking sector is quite stable, banks continue to provide services and serve businesses and individuals, which is especially important in the current conditions. Moreover, the evolution of the financial system during the last decades shows the emergence of new trends associated with the active position of Ukraine on international markets, as a result of which global trends have a significant impact on the Ukrainian economy. It is important to take into account the following globalization challenges that affect the Ukrainian financial system: the slowdown of economic growth, the weakening of ties between material production and the financial sphere, the need for macro-financial stimulation of the national economy and certain spheres and industries. All these forms a contradiction in the context of the prospects for the development of the national model of financial and credit relations and general trends in the development of the world economy and financial systems.

Research Problem. The research issues are focused on identifying the main globalization challenges facing the national credit and financial system, as well as on understanding the transformational trends characteristic of the Ukrainian credit and financial system. Understanding the specifics of the impact of globalization on internal processes related to financial and credit relations forms the basis of the study, and the analysis of statistical information will allow a better assessment of the current trends in the transformation of the national model of financial and credit relations in Ukraine.

Research Focus. In the process of conducting the research, it is logical to focus on the current state of the financial and credit system of Ukraine, analyzing it with the help of statistical data, as well as to determine the trends of changes in the structure of the leading players in the market of credit services, which will make it possible to specify the current state and prospects for further transformation national financial and credit relations under the influence of European integration and globalization aspirations.

LITERATURE REVIEW

Banking relations form the so-called vascular system of any economy, as a result, they are always in the focus of scientists who study the problems and prospects of development of the financial and credit system at the macroeconomic and interstate levels. After the crisis of 2008-2009, as well as the COVID-19 pandemic, scientists are paying more attention to the financial sector, as it is able to ensure the functioning of all other spheres and sectors of the economy. Since the research is focused on revealing the peculiarities of the transformation of a national model of financial and credit relations under the influence of globalization challenges, it is quite logical to analyze the scientists' views on trends of development of global financial systems, to reveal the peculiarities of formation of financial and credit relations and banking services through the prism of scientific works of leading researchers of the countries.

The peculiarities of the development of banking relations with the emphasis on the fact that the banking sector primarily provides the real economy are considered in many scientific papers (Arefjevs et al., 2020; Cheung et al., 2022). Scholars emphasize that the banking system is the foundation of the financial system and should provide individuals and businesses with affordable capital (Ionescu, 2021; Li et al., 2022), as well as form the prerequisites for innovative business development, investment promotion, etc. (Tian et al., 2022). Researchers express the view that the banking sector is focused primarily on ensuring the development of the banking sector, to provide affordable capital for the development of different areas of the economy.

From this follows another view, which is also actively developed by scholars (Kuznetsova et al., 2017; Ba et al., 2018; Bucci et al., 2019) that banking relations should be primarily focused on innovative development, on the formation of prerequisites for the efficient use of all types of resources. This can be implemented by providing soft loans for the introduction of energy-efficient technologies, the implementation of government programs for the development of housing construction, banking incentives for the modernization of the equipment of companies operating in the real sector of the economy.

In this context, the works of other scientists are interesting (Cornée, 2019; Liao et al., 2019), which justify the great role of the banking and financial and credit sector of the economy in the formation of preconditions for the development of large businesses, large industrial enterprises, because usually the implementation of large-scale projects, for example, in

construction, engineering, the chemical industry may be unattainable for businesses without banking support. In turn, other researchers (Tambovceva et al., 2021) also point to the importance of banking services also for the development of small and medium businesses, which in many countries is the basis of the economy.

A separate area of research in the banking sphere is risk analysis and assessment. Scholars (Ascuí et al., 2021; Buriak et al., 2021) pay considerable attention not only to the diagnosis of risks but also to the development of measures to minimize them. The main regulator that carries out banking supervision and control over compliance with risk requirements in the banking system is the central bank of the state. Scholars (Chakraborty, 2019; Kuznetsova & Pohorelenko, 2021; Liu et al., 2022) are in general agreement that bank supervision should balance the possibility of forming a free market for banking services with compliance to minimize banking risks. Separate attention of scientists (Vagin et al., 2022; Voskolupov et al., 2022) is paid to the problem of insurance of bank risks, and determine that this direction of financial relations is certainly promising and deserves active development. The consequences of ineffective risk management in the financial and credit system are also considered in the scientific literature (Hu et al., 2019; Landi et al., 2022), among the main consequences they highlight significant inflation, significant growth of inefficient banking institutions and loss of confidence in banks. In general, researchers suggest that effective financial risk management requires government regulation and significant government involvement in the development of the banking sector, but there is a balance to be struck here (Morales et al., 2022; Nguyen et al., 2022) that will maximize the use of credit resources, but also provide a stimulating effect of banking services on the real economy. In this context, it can be very productive to use the experience of leading countries of the world in building a system of banking supervision (Xinran et al., 2022; Dunyoh et al., 2022).

It is difficult to imagine the modern world without information technology, given this, the undoubted advantage of banks and the financial and credit system as a whole today is the use of modern digital tools to enrich the range of services provided and also to protect information. Researchers are also actively investigating the implementation of modern information technology in the banking sector (Luo et al., 2022; Luou, 2022).

For many researchers (Kharlanov et al., 2022; Mavlutova et al., 2021; Nandiwardhana et al., 2022) it is now clear that information technology can facilitate the work of banking institutions, increase the efficiency of interaction between bank employees and customers, and provide easier access to information about banking products. In addition, there are researchers (Mavlutova et al., 2023; Wang et al., 2021) who are considering the problems of the need to retrain employees and train them continuously to be able to interact with modern information technology in the banking industry.

The main trends in the market of information products for the financial and credit sector today are data protection technologies, cloud technologies, approaches to the development of financial products using information technology, features of cryptocurrency applications, and the introduction of fintech in the classical banking system.

The problem of banking regulation by the state and determining the optimal directions of stimulation of the banking sector by the central regulator attracts the special attention of scholars (Beltrame et al., 2022; Esmaeili et al., 2021).

Some researchers (Nguyen et al., 2022; Kumar et al., 2022) emphasize that the experience of Asian countries should be used because they have shown to be highly effective in managing the banking system at the state level.

Some scholars (Mejia-Escobar et al., 2020; Murau et al., 2022) argue for greater centralization of banking supervision and argue for stricter banking regulation, while some (Shakharova et al., 2022) argue on the contrary for minimizing government regulation.

Global trends focus on ensuring compliance with banking laws, preventing financial frauds, and creating favourable conditions for the development of the banking sector while maintaining a free market for financial and credit services.

The scientific literature raises a wide range of issues concerning the development and regulation of the financial and credit sector of the economy, as well as the specifics of reforming the banking system under the influence of global trends in different countries of the world.

AIMS AND OBJECTIVES

In view of the substantiated relevance of the research and the literature review, the main purpose of the study is to identify trends in the development of the banking system of Ukraine as the main subject of financial and credit relations and to identify further changes in the specifics of the model of financial and credit relations under the influence of globalization challenges. To achieve the goal, the statistical analysis of trends in credit relations between banks and natural and legal persons should be carried out; trends in the development of the banking sector in Ukraine and further directions of the response of the banking system of Ukraine to the globalization challenges should be identified.

METHODS

General Background

In the modern world, the financial and credit system in general, and the banking sector, in particular, are developing in accordance with the requirements of an economy that strives for globalization. In connection with aspirations of the Ukrainian economy to European integration, business models and concepts of banking sector development are improving. Banking activities go beyond the banking sector and penetrate into the sphere of tangible and intangible services. The analysis of key areas and assessment of domestic banking institutions' capabilities in the transition to a new model points to the emergence of the so-called digital bank, which becomes not only a financial institution but also ensures the use of modern digital technologies to paint the banking service. Under martial law and post-pandemic trends, the financial and credit system is characterized by: a focus on remote services; an increase in the cost of bank capital; investment in artificial intelligence technology, and a desire to ensure risks in dealing with large customers. In this process of change of various kinds, banks are faced with innovations that require the adaptation of many corporate processes. The rapid development of technologies as well as a great variety of changes in the world market led to an intensification of a new process of transformation of the financial and credit relations model under the influence of globalization and other described peculiarities, characteristic of the Ukrainian economy. The ongoing digital transformation and introduction of new technologies raise the question of changes that traditional banks are undergoing. To fit into the market changes, they have to adapt by rethinking and reforming the traditional system of service provision.

Sample / Participants / Group

The researchers of the study are not only financial and credit institutions, but also consumers of banking services, and in the modern Ukrainian economy, they are almost all natural and legal persons.

Instrument and Procedures

The research toolkit consists of methods of working with statistical information, a graphical representation of the material, and an analysis of data sets using clustering.

Data Analysis

In the course of the study were used as general scientific methods, in particular, analysis, synthesis, induction, deduction, graphical representation of the material, generalization, systematization, comparison; and special, in particular, the method of cluster analysis was used to group banking institutions by the criterion of stability of their financial condition.

The method of statistical data analysis was also used, which allowed identifying general trends in the development of the domestic banking system and establishing the problems accompanying its development.

RESULTS

The basis of the financial and credit system of Ukraine is the banking system, which even in conditions of full-scale war is not only functioning but provides a sufficient level of information security and performs all the functions assigned to it. And one of these functions is to provide credit resources to both individuals and businesses. Certainly, with the beginning of the full-scale war in Ukraine the volume of the given-out credits has essentially decreased, however tendencies of development of the domestic financial-credit relations, realized through the bank system, are subordinated to the world changes of vectors of development of bank crediting.

The current state of the banking sector in Ukraine is primarily due to martial law and the need for banking institutions to adapt to military realities. As of the beginning of 2023, 67 banks were operating in Ukraine (Ministry of Finance, 2023). It should also be taken into account that in June 2022 the NBU discount rate was increased from 10 to 25% (Ministry of Finance, 2023), which resulted in the appreciation of capital in the interbank market, which also affected the cost of loans for individuals and legal entities. As a result of the introduction of martial law and extremely high risks, the volume of lending decreased significantly with a significant increase in lending rates.

At the same time, the refinancing rate in 2023 is 27% per annum, which is the result of high inflation and leads to saturation of the Ukrainian market with expensive capital, which could be a significant test for Ukrainian enterprises under martial law.

The analysis of SBU measures aimed at maintaining the liquidity of commercial banks deserves separate attention. Yes, based on Figure 1, we can observe a significant increase in the volume of operations to mobilize funds of banks, which are a tool to support the banking system under martial law and the high cost of capital.

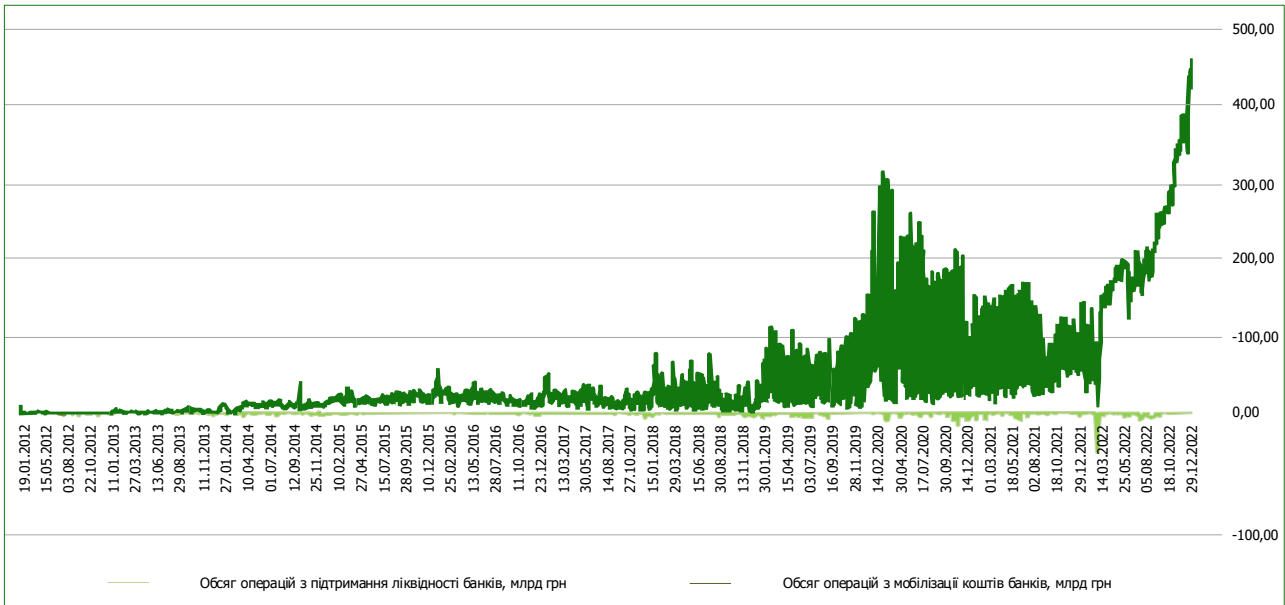


Figure 1. The volume of NBU operations related to the support of the banking sector of Ukraine. (Source: National Bank of Ukraine, 2023)

When spending to maintain bank liquidity, it is important to maintain balance and not spend heavily on government reserves (Figure 2). As the statistics show, most of the spending of reserves took place in the first half of the full-scale war, but by early March 2023, they had been restored almost to the level of February 2022, which is evidence of positive trends in the economic situation in the state even under martial law.

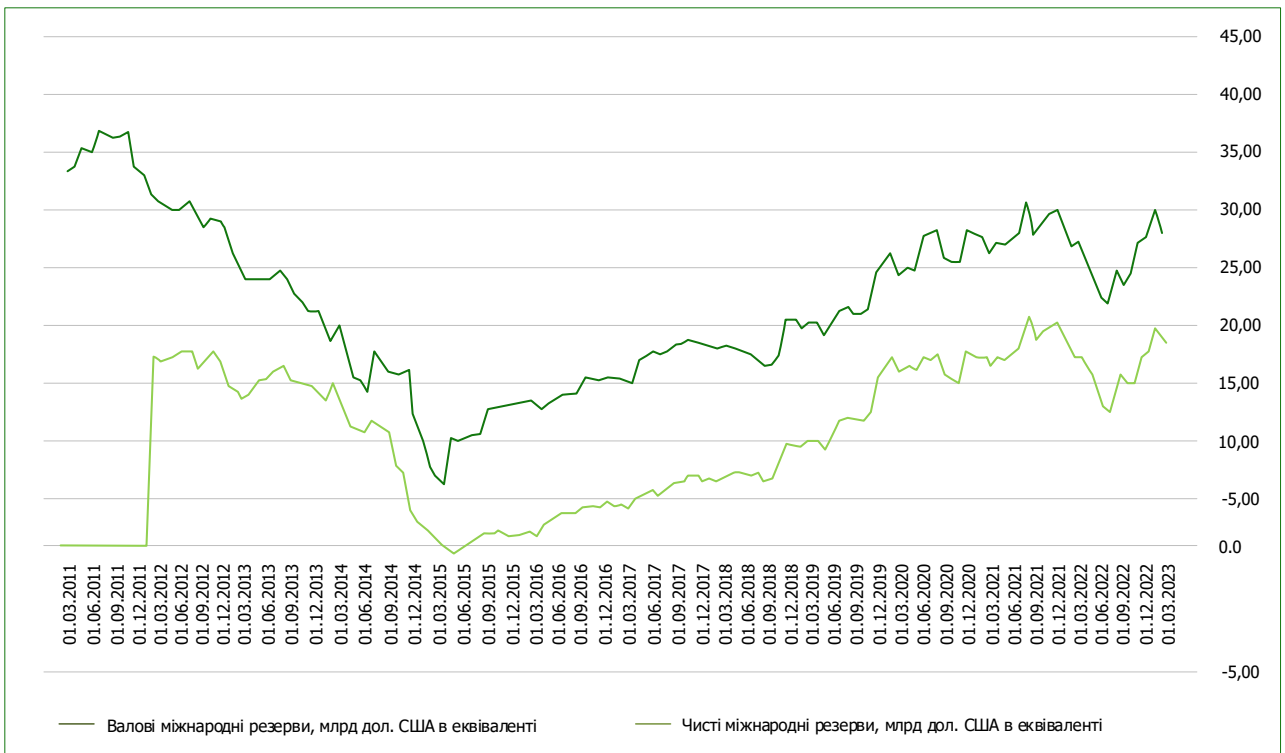


Figure 2. Dynamics of international reserves. (Source: National Bank of Ukraine, 2023)

To understand the peculiarities of domestic lending, it is advisable to turn to the analysis of statistics. Figure 3 shows the dynamics of the amount of loans granted to business entities and funds attracted from them.

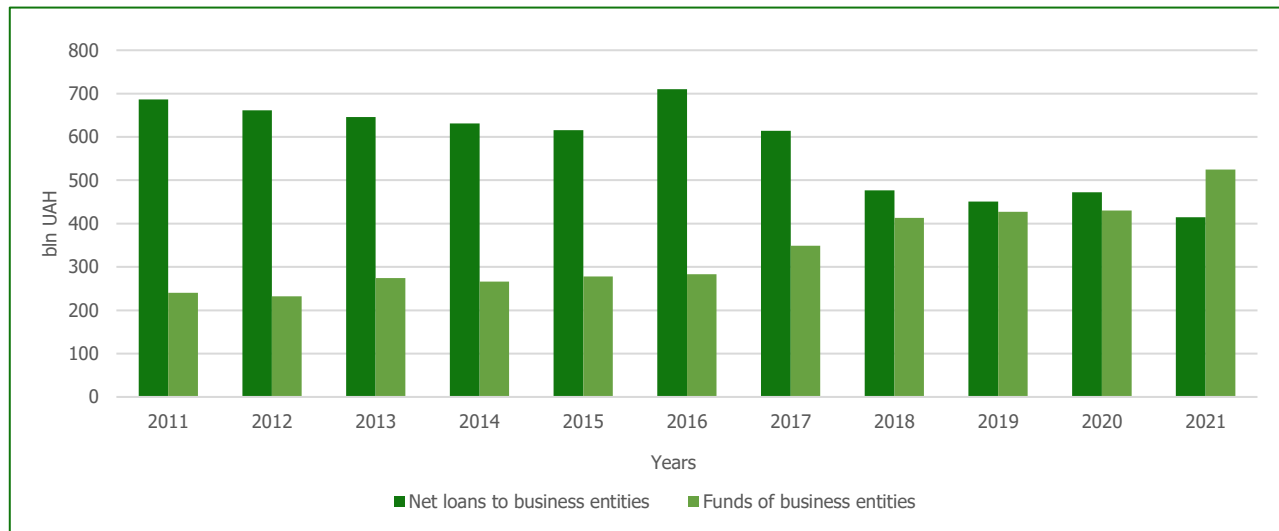


Figure 3. Dynamics of the amounts of loans granted to business entities and funds raised from them in 2016-2021 (Main performance indicators of banks, 2023). (Source: Ministry of Finance, 2023)

According to the statistical data shown in Figure 1, it is clearly possible to trace inverse trends in the processes of lending to the activities of business entities and raising funds from them. Accordingly, the amount of loans decreased from 710 billion UAH in 2016 to 415 billion UAH in 2021. The amounts of attracted funds, on the contrary, increased from 283 billion UAH in 2016 to 525 billion UAH in 2021. This state of the banking services of the business sector influenced the growth of the cost of attracting credit funds in their activities. And the position of capital savings through banking services is the most affordable and safest form of passive income of business entities. It should be taken into account that the cost of capital in Ukraine is one of the highest compared to other European countries. This is due to the high discount rate of the National Bank of Ukraine's high risks that are taken into account both at the state level and at the level of each individual banking institution. This can be considered one of the main reasons for the reduction of lending to business entities. Also, it should be emphasized that even in the period of quarantine restrictions and the slowdown of economic processes as a result of the COVID-19 pandemic, there was no significant reduction in the volume of loans provided to legal entities, which indicates the relative stability of the banking sector of Ukraine but reflects the high risks.

To form a complete picture of the state of credit relations in Ukraine it is necessary to analyze the dynamics of loans to individuals. Figure 4 shows the dynamics of the amounts of loans granted to individuals and the funds attracted from them.

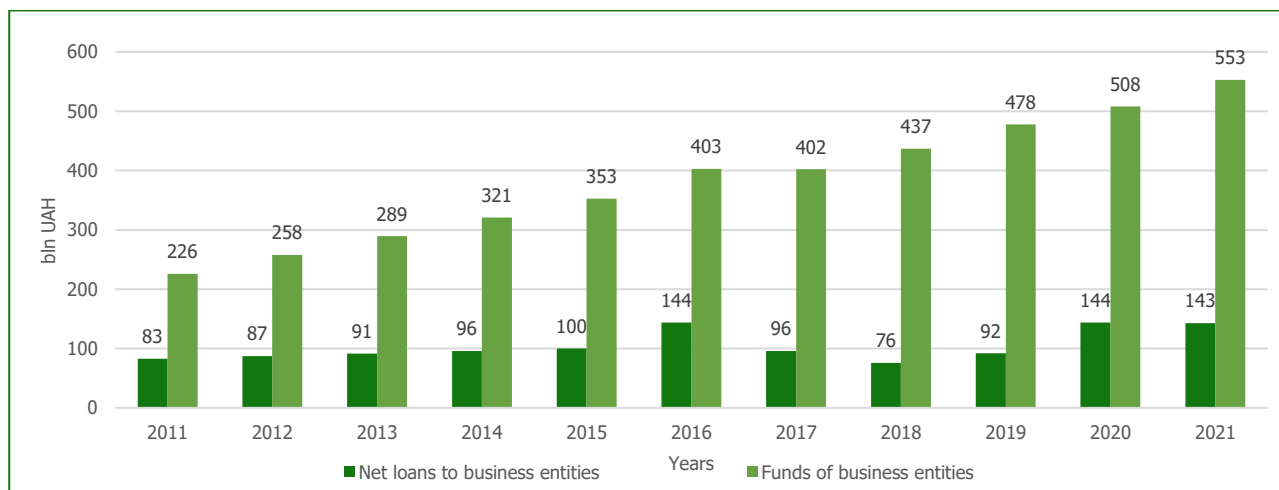


Figure 4. Dynamics of the amounts of loans granted to individuals and funds attracted from them in 2011-2021. (Source: Ministry of Finance, 2023)

The growth rates of individuals' deposit funds also show a positive trend over the period under review. This indicates sufficient confidence of the population in the banking system, as well as the need for credit funds after the COVID-19 pandemic. At the same time, we should pay attention to the volumes of household deposits, which significantly exceed the volume of lending.

After the analysis from the perspective of legal entities and individuals, it is logical to pay attention to the generalizing indicators of the state of the banking system of Ukraine (Table 1).

Table 1. Main indicators of the banking system of Ukraine, 2016-2021. Main performance indicators of banks, 2023. (Source: Ministry of Finance, 2023)

Indicators	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of operating banks	176	176	180	163	163	145	117	96	82	77	75
Total balance sheet figures (billion UAH)											
Total assets	970	1075	1179	1283	1388	1477	1571	1737	1840	1911	1983
Net assets	1028	1068	1109	1149	1190	1290	1254	1256	1334	1360	1494
Shareholders' equity	123.7	163.5	161.0	155.1	199.8	103.7	123.8	163.6	161.1	155.0	199.9
Liabilities	1132.4	1172.10	1172.9	1204.6	1293.3	1150.7	1132.5	1172.8	1172.7	1204.7	1293.4
Financial result	-159.3	-24.3	-25.6	23.1	63.5	-66.6	-159.4	-24.4	-25.7	23.0	63.6
Return on assets, %	-22.27	-19.65	-17.04	-14.43	-11.81	-5.46	-12.60	-1.94	-1.93	1.69	4.26

When analyzing banking statistics, special attention should be paid to the indicator of the number of banks and the efficiency of their activities. We see that after a significant reduction in the number of banks in the period 2016-2019, the total indicators of their losses also decreased so that the banking system was reorganized so that unprofitable banks, whose activities had a negative impact on the reputation of the Ukrainian banking system, left the market. However, even despite the reduction in the number of loss-making banks, the modern lending activity of Ukrainian banks has a major negative feature as an increased risk due to such factors:

- the uncontrolled intensity of capitalization of production relations, which entailed negative socio-economic consequences, and in conditions of the high cost of capital the relevance of the issue of intensification of financial and credit relations is growing;
- insufficient structuring of credit and financial markets (the main mass of credit organizations are the structures that could not define their own professional orientation, i.e., the unified banks);
- aggravation of the solvency crisis of manufacturing enterprises and organizations that are strategic clients and borrowers of banks, and in conditions of martial law and the need to reduce the activities or relocate businesses, this factor becomes especially significant;
- absence of institutional and financial conditions for mortgage lending to individuals and legal entities, which restrains the activity of strategic and financial investors that could provide the market with quality and affordable housing;
- lack of practical experience and professional training of specialists for working in the conditions of functioning of banking institutions during the martial law;
- the significant strain on the material and technical base of the banks as a result of rocket attacks on the energy infrastructure;
- the need to constantly ensure the protection of information under conditions of potential attacks on the information space of the banking sector.

All these factors affecting the credit activity of banks influence the efficiency of their functioning and, respectively, on the contrary, the stable activity of the bank becomes the basis for the realization of its profitable credit activity subject to minimization of risks, which as a result directly affects the efficiency of financial and credit relations to the state. In order to carry out an objective assessment and gradation of levels of efficiency of domestic banks, as well as to determine how exactly the transformation of the financial and credit system took place in the dynamics, it is appropriate to apply economic and mathematical methods of analysis, in particular the method of cluster analysis, which will group the banking institutions, according to the indicators of their financial stability. Clustering is a mathematical procedure of multivariate analysis, which allows on the basis of many indicators (both objective and subjective), characterizing the selected objects, to group them into classes (clusters) so that the objects included in one class, were more homogeneous, similar in comparison with the objects included in other classes.

The main task of cluster analysis is to determine the similarity between the objects of the study and group them into clusters according to a certain criterion. The solution to the problem of cluster analysis is to form groups that satisfy the optimality criterion. Consequently, the generalized stages of cluster analysis in the context of dividing the population of banking institutions into groups can be presented as follows:

1. Formation of initial data, justification of criteria for selecting objects and indicators.
2. Decision-making: determination of the required number of clusters, choice of clustering method, calculation of research volume (whether all observations should be used, whether certain subsamples should be excluded).
3. Analysis of obtained results.

In order to trace the process of transformation of financial and credit relations at the state level, we should pay attention to the analysis of the most powerful banking institutions that directly provide financial and credit services and constitute the basis of the financial system of the state. The seven largest banks of Ukraine were selected for analysis, the volume of assets of which is more than 1 million UAH as of the end of 2021. The list of these banks includes CB PrivatBank JSC, Oshchadbank JSC, Raiffeisen Bank Aval JSC, Procredit Bank JSC, FUIB JSC, UkrSibbank JSC, and OTP Bank JSC. Also, these banks are leaders in the market of lending to both legal entities and individuals.

In order to group the banks, the financial condition indicators, which most fully reflect the situation in the banking sector, were chosen:

- coefficient of reliability (X1) - assessment of independence and sustainability in terms of changes in the market;
- coefficient of credit coverage by own capital (X2) - reflects the risk of insolvency, means the bank's ability to meet its debts and sign of its solvency;
- coefficient of bank's solvency (X3) - reflects the stability of the bank's activity and demonstrates the ratio between its expenditures and income, which characterizes the potential for development and protection of the bank's activity
- the return on equity ratio (X4) reflects the efficiency of the bank's equity capital and indicates the efficiency of its management.

The data for the analysis are formed on the basis of the results of the activity of the group of banks in 2021 and 2011. The input information for the cluster analysis is presented in Table 2.

Table 2. Input information for cluster analysis. (Source: Ministry of Finance, 2023)

Bank name	X1	X2		X3	X4
2021					
JSC CB PrivatBank	0.21	0.24		0.32	0.16
JSC Oshadbank	0.08	0.10		0.97	0.01
JSC Raiffeisen Bank Aval	0.16	0.20		0.48	0.77
JSC Procredit Bank	0.20	0.27		0.46	0.49
JSC FUIB	0.20	0.21		0.58	0.79
JSC UkrSibbank	0.15	0.15		0.59	0.51
JSC OTP Bank	0.21	0.22		0.44	0.41
2011					
JSC CB PrivatBank	0.17	0.21		0.21	0.19
JSC Oshadbank	0.10	0.17		0.83	0.14
JSC Raiffeisen Bank Aval	0.19	0.23		0.36	0.53
JSC Procredit Bank	0.23	0.23		0.49	0.82
JSC FUIB	0.25	0.18		0.64	0.65
JSC UkrSibbank	0.18	0.17		0.83	0.79
JSC OTP Bank	0.19	0.26		0.45	0.59

In this paper, the years 2011 and 2021 are chosen for comparison, because, according to the authors, it was in this decade that the most significant transformations in the banking sector of Ukraine took place. In addition, starting from 2011, the number of banking institutions in Ukraine began to decrease, and the policy of the National Bank of Ukraine was to focus

on intensive rather than extensive development of the banking sector. Therefore, we should assess how the structure and cluster distribution of the most powerful banks in Ukraine has changed.

As a result of the cluster analysis by the agglomerative method of average linkage, first, the distance (similarity) matrix was calculated. After that, on the basis of the calculated distances the objects were grouped into clusters by Ward's method. The result of grouping banks into clusters according to the selected indicators of financial condition assessment in 2021 and 2011 is reflected in the tree diagrams (Figures 5, 6).

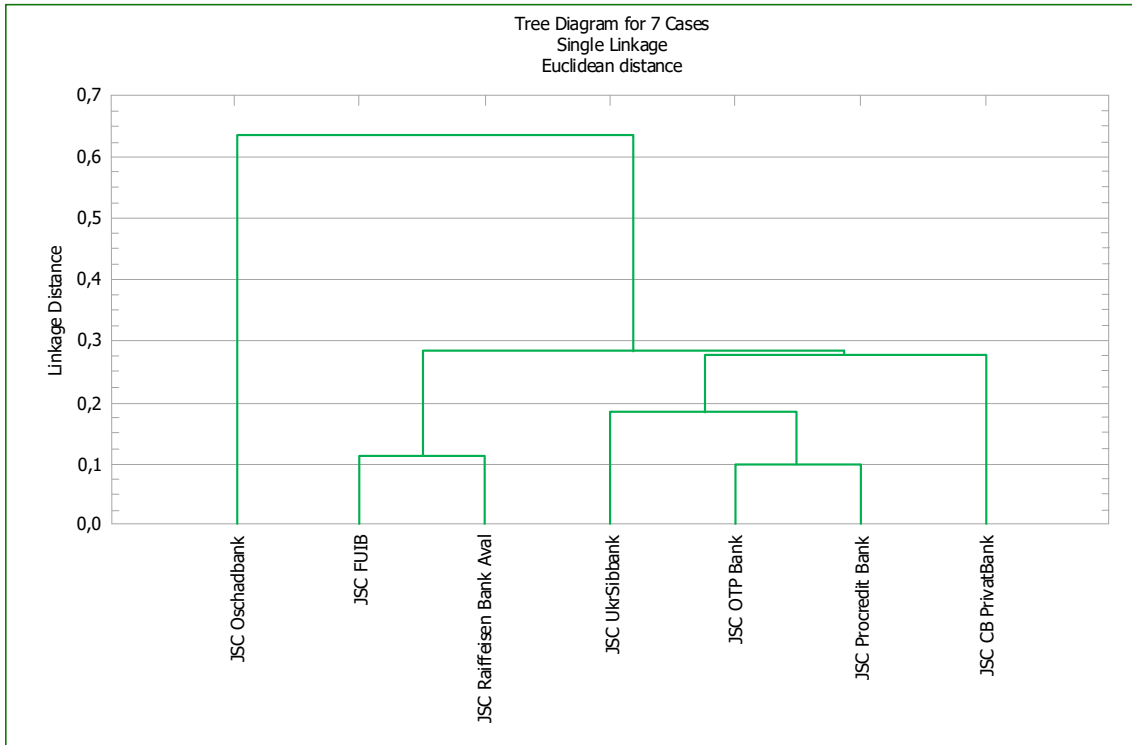


Figure 5. Dendrogram of banks clustering by indicators of assessment of their activity in 2021.

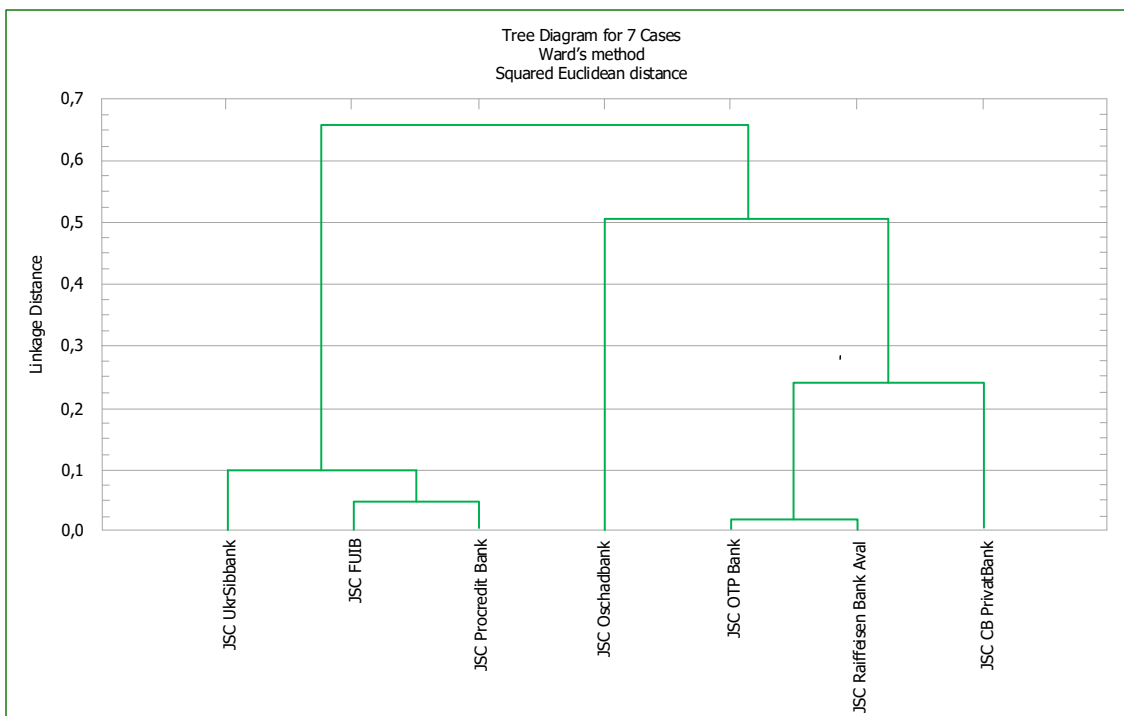


Figure 6. Dendrogram of banks clustering by indicators of assessment of their performance in 2011.

Obviously, according to the presented results of the cluster analysis of banks is that the greatest differences in the state of clusters are noted in accordance with the composition of clusters, but it does not differ significantly. The level of banks' solvency and the state of their reliability are determined approximately at the same level.

So, in 2021 we obtained the following composition of clusters, according to the grouping of banks by the criterion of their financial condition:

- the first cluster - is characterized by the low efficiency of functioning of the banking institution, however, by the presence of significant volumes of reserves, the only bank in the cluster is JSC "Oshchadbank". Since Oshchadbank JSC is a state bank, it can be referred to banks of strategic importance for Ukraine and, taking into account its specifics, it is quite logical to note that this bank forms a separate cluster;
- the second cluster - banks with high indicators of stability and results of the efficiency of functioning of banking institutions. The representatives are JSC Raiffeisen Bank Aval and JSC FUIB. The banks grouped in this cluster can be characterized as stable but too progressive; these are classic banking institutions focused on the strategy of market retention without aggressive actions to strengthen their own position;
- the third cluster - banks with a higher average level of efficiency of functioning, which include CB PrivatBank JSC, Procredit Bank JSC, UkrSibbank JSC and OTP Bank JSC. The banks of this cluster form the basis of the banking system of Ukraine and are the most active players in the market of credit services, have an active strategy for promoting their products in the market and significant prospects for development, with minimal influence of martial law on them.

The results of clustering in 2011 gave a similar result, but the composition of clusters was slightly different:

- the first cluster consists also of one JSC "Oshchadbank";
- the second cluster consists of JSC "Procredit Bank", JSC "UkrSibbank" and JSC "FUIB". These are banks with high indicators of stability, but limited opportunities for active development;
- the third cluster is represented by JSC Raiffeisen Bank Aval, JSC CB PrivatBank, and JSC OTP Bank. In fact, in 2011 these banks were market leaders, and their performance indicators were slightly above average.

If we analyze the dynamics of the structure of clusters, it becomes evident that the basis of the banking system and the provision of financial and credit services are JSC "CB PrivatBank", JSC "Procredit Bank", JSC "UkrSibbank" and JSC "OTP Bank". However, the main transformation processes are more related not to the structure of clusters, but to the positioning of banks in the market and their current state under martial law. In addition, it should be focused on the fact that among the totality of the studied banking institutions JSC "Oshchadbank" formed a separate cluster characterized by low-performance indicators and having certain violations in the financial condition as well, but this bank is strategically expedient for the state. Its further reform with the identification of the peculiarities of the implementation of the bank's lending activities will improve the efficiency of the state's systemic bank management through the introduction of adequate measures to the state and the situation.

So, summarizing the results of the conducted research, it can be stated that the main transformational trends in the model of financial-credit relations are related to the state regulation of the banking system and first undergo considerable changes as a result of martial law and active combat operations in Ukraine, whereas in the last 5 years, the situation in the financial-credit services market was rather stable and even the pandemic had no significant influence on the volumes of granting financial loans.

The globalization challenges facing the Ukrainian economy set the trends of development of the banking system and transformation of the financial and credit system (Popp et al., 2021; Lurie et al., 2021;). In the context of the current situation in Ukraine related to martial law, the global trends will also form a vector of prospective development, within which the main directions of further reforming of the national financial and credit sphere can be defined:

- use in the financial and credit sector and stimulation through the active implementation of energy-saving technologies, which is actualized by the presence of significant destruction in the energy system of Ukraine as a result of rocket attacks;
- strengthening of the role of reliable banks in the banking sector, which was confirmed by the cluster analysis, which proved that even in case of a reduction of the number of banking institutions in the market, the leading banks holding stable positions in the Ukrainian market for a long period of time are of the highest confidence. Obviously, under the influence of global challenges it will be easier for these stable banks (representatives of the third cluster according to 2021 data) to hold their positions, while the task of the state in this context is to provide support to these very banks in the first place;

- supporting public confidence in banking services, in Ukraine the situation with confidence in the banking system is quite positive, which is confirmed by the statistical data presented in the study, so a global challenge can be considered the need to support the trends of increasing public confidence in the banking system;
- reduction of financial risks for banking institutions, but it is very difficult to achieve this task in the conditions of war. The problem of risk minimization will be more relevant to the financial and credit sphere after the end of a full-scale war on the territory of Ukraine.

To understand the globalization challenges facing the Ukrainian financial and credit system, it is necessary to carry out a generalizing assessment of the main trends in the development of the banking systems of the world, as a result of which it becomes possible to specify such trends that have emerged in recent years:

- consolidation of banks and other financial organizations based on the wave of mergers and acquisitions in the world markets, the resulting formation of transnational financial groups, which sets the trend for the merger of Ukrainian banks with major international banking institutions;
- expansion of the range of banking operations and spheres of their activities, diversification of the banking institutions' activities, taking into account new trends and informatization of this sphere, including the application of financial technologies and active promotion of cryptocurrencies in the financial life of foreign countries
- aggravation of competition at the banking service markets due to market saturation;
- the emergence of new banking products in accordance with the conditions of development of the real sector of the economy;
- changes in the territorial structure of the global banking system, the emergence of new big players, e.g., Chinese banks;
- strengthening of the banking supervision and development of the regulatory function of the state under the conditions of crisis (which proved its efficiency as a result of the recovery from the world financial and economic crisis in 2008 - 2009);
- orientation of the world banking system to the development of free competition and the accent and ensuring nature of the financial system for other economic spheres;
- formation of the institutional framework for the functioning of the international banking system, including supranational regulatory institutions (the European Central Bank) and the regulatory framework for the functioning of banks in the international markets;
- strengthening the attention of international financial organizations to the issues of financial monitoring and combating money laundering.

All these tendencies, of course, are also typical for the Ukrainian financial and credit sector, given Ukraine's justified aspirations for European integration.

Certainly, the beginning of the full-scale war on the territory of Ukraine has made its adjustments in the development of the model of financial and credit relations and their present tendency was detailed in the article. In general, the globalization of the economy and, as a consequence, the liberalization of capital flows led to an increase in the dependence of national financial systems on the foreign economic crisis (Ionescu, 2021). This has been facilitated by the influx of monetary innovation in banking technology, which has led to the diversification of monetary services. In the future, globalization challenges and further transformation of national banking systems will lead to the need to adapt to such conditions:

- unification of norms and standards for the development of the banking and financial-credit services market;
- liberalization of the banking sector;
- internationalization of banking capital;
- development of a global virtual market for banking services;
- the tension of banking competition;
- protectionism;
- development of information technology in the banking sector;
- strengthening of the role of banks in the recovery of the Ukrainian economy after the war;
- strengthening of the role of international organizations, transnational banks in the global economy and the economy of Ukraine.

Consequently, states involved in world processes are in one way or another affected by globalization. Its consequences affect all areas of society. The banking sector is one of those areas of national economic development where the impact of globalization is more pronounced with shorter time intervals and all processes occur rather quickly. Considering all positive sides of a such vector of global development, Ukraine must realize the economic policy directed on forming of innovative economy, reduction of dependence on expensive investments, stimulation of development of technologies and innovative goods inside the state. It is necessary to use domestic resources, direct bank capital to the development of industry, agriculture, and transport infrastructure.

DISCUSSION

The modern Ukrainian banking system is characterized by the need to adapt to the difficult economic conditions caused by martial law, however, the banking system has undergone significant transformations in the last decade, as a result of which the number of banks operating in Ukraine has been reduced by almost half, and the strongest and most viable players have remained in the market. The study allowed us to confirm the opinion of many scholars (Beltrame et al., 2022; Dunyoh et al., 2022; Lurie, et al., 2021; Shakharova et al., 2021) that the banking sector is one that supports the production sector and is designed to generate financial resources for business development and increase temporarily free funds.

The literature (Cornée, 2019; Voskolupov et al., 2019) also suggests that the banking sector should be strictly regulated by the state, but this statement is debatable since a market economy is characterized by ensuring the stable development of the banking sector under the influence of free-market laws, while the state performs control and regulatory functions without actively interfering with the activities of banks that do not violate the current legislation.

CONCLUSIONS

Based on the results of the study, it is possible to assert that Ukraine, as a full participant in European economic life, is subject to the trends characteristic of the global financial and credit system, and accordingly, globalization challenges have a significant impact on the formation of the vector of development of the national banking system. The paper proves that the banking system has developed quite steadily over the past 10 years, as evidenced by the analysis of statistical data, and the cluster analysis has shown that the basis of the banking services market is made up of several of the most powerful banks that have won the trust of the population and have been holding their positions for a long period of time. The study also revealed which trends are characteristic of the Ukrainian banking system and which of them will be particularly relevant for the Ukrainian economy after the end of the war in Ukraine. In particular, it is determined that the modern banking system of Ukraine is characterized by the following processes: consolidation of banks and other financial organizations on the basis of a wave of mergers and acquisitions in the world markets; expansion of the range of banking operations and areas of their activities, diversification of banking institutions; intensification of competition in the banking services markets; the emergence of new banking products; change in the territorial structure of the world banking system, emergence of new major players, such as Chinese banks; strengthening of the banking.

The study identified trends in the development of the banking system of Ukraine, in particular, it was found that the number of banks is decreasing, and the banking sector is becoming more stable and implementing approaches to risk management at various levels. To achieve this goal, a statistical analysis of trends in the development of credit relations between banks and individuals and legal entities was conducted; sustainable trends in the development of the banking sector in Ukraine and further directions for the Ukrainian banking system to respond to globalization challenges were identified.

REFERENCES

1. Arefjevs, I., Spilbergs, A., Natrins, A., Verdenhofs, A., Mavlutova, I., and Volkova, T. (2020). Financial sector evolution and competencies development in the context of information and communication technologies. *Res. Rural. Dev.*, 35, 260–267. <http://dx.doi.org/10.22616/rrd.26.2020.038>
2. Ascui, F., Ball, A., Kahn, L., and Rowe, J. (2021). Is operationalizing natural capital risk assessment practicable? *Ecosyst. Serv.*, 52, 101-164. <https://doi.org/10.1016/j.ecoser.2021.101364>
3. Anzhela Kuznetsova, Galyna Azarenkova, and Ievgeniia Olefir (2017). Implementation of the “bail-in” mechanism in the banking system of Ukraine. *Banks and Bank Systems*, 12(3), 269-282. [https://doi.org/10.21511/bbs.12\(3-1\).2017.11](https://doi.org/10.21511/bbs.12(3-1).2017.11)

4. Anzhela Kuznyetsova, and Nataliya Pogorelenko (2018). Assessment of the banking system financial stability based on the differential approach. *Banks and Bank Systems*, 13(3), 120-133. [https://doi.org/10.21511/bbs.13\(3\).2018.12](https://doi.org/10.21511/bbs.13(3).2018.12)
5. Ba, S., Yang, C., and Yao, S. (2018). Review on the Research Progress of China's Green Finance. *J. Financial Serv. Res.*, 6, 3–11.
6. Beltrame, F., Grasseti, L., Bertinetti, G.S., and Scip, A. (2022). Relationship lending, access to credit and entrepreneurial orientation as cornerstones of venture financing. *Journal of Small Business and Enterprise Development*, 17, 89-127. <https://doi.org/10.1108/JSBED-07-2021-0281>
7. Bucci, D., Alberto, M., and Marsiglio, A. (2019). Financial Development and Economic Growth: Long-run Equilibrium and Transitional Dynamics. *Scottish Journal of Political Economy*, 66, 331–59. <https://doi.org/10.1111/sjpe.12182>
8. Buriak, I., & Petchenko, M. (2021). Analysis of the dilemmas of building an accounting system for the needs of future economic management. *Futurity Economics&Law*, 1(1), 17–23. <https://doi.org/10.57125/FEL.2021.03.25.3>
9. Chakraborty, G. (2019). Evolving profiles of financial risk management in the era of digitization: The tomorrow that began in the past. *J. Public Aff.*, 20, 20-34. <https://doi.org/10.1002/pa.2034>
10. Chao, Tian, Xiuqing, Li, Liming, Xiao, & Bangzhu, Zhu. (2022). Exploring the impact of green credit policy on green transformation of heavy polluting industries. *Journal of Cleaner Production*, 335, 130-157, <https://doi.org/10.1016/j.jclepro.2021.130257>
11. Cheung, H., Baumber, A., & Brown, P.J. (2022). Barriers and enablers to sustainable finance: A case study of home loans in an Australian retail bank. *J. Clean. Prod.*, 334, 211-230. <https://doi.org/10.1016/j.jclepro.2021.130211>
12. Cornée, S. (2019). The relevance of soft information for predicting small business credit default: evidence from a social bank. *Journal of Small Business Management*, 57(3), 699-719. <https://doi.org/10.1111/jsbm.12318>
13. Dunyoh, M., Ankamah, E. T., & Kosipa, S. J. K. (2022). The impact of credit risk on financial performance: Evidence from rural and community banks in Ghana. *Hybrid Journal of Business and Finance*, 3(1), 178-214. <https://royalliteglobal.com/hjbf/article/view/740>
14. Esmaeili, P., & Rafei, M. (2021). Dynamics Analysis of Factors Affecting Electricity Consumption Fluctuations Based on Economic Conditions: Application of SVAR and TVP-VAR Models. *Energy*, 226, 120-140. <https://doi.org/10.1016/j.energy.2021.120340>
15. Ha Minh Nguyen, Quan Thai-Thuong Le, Chi Minh Ho, Thang Cong Nguyen, & Duc Hong Vo. (2022). Does financial development matter for economic growth in the emerging markets? *Borsa Istanbul Review*, 22(4), 688-698, <https://doi.org/10.1016/j.bir.2021.10.004>
16. Hu, R., & Zhang, W. (2019). Would the Profitability of Commercial Banks Be Affected Green credit? *Financ. Regul. Res.* 7, 92–110.
17. Ionescu, L. (2021). Corporate Environmental Performance, Climate Change Mitigation, and Green Innovation Behavior in Sustainable Finance. *Econ. Manag. Financ*, 16, 94–106. <https://doi.org/10.22381/emfm.16320216>
18. Ionescu, L. (2021). Transitioning to a Low-Carbon Economy: Green Financial Behavior, Climate Change Mitigation, and Environmental Energy Sustainability. *Geopolit. Hist. Int. Relat*, 13, 86–96. <https://doi.org/10.22381/GHIR13120218>
19. Kharlanov, A.S., Bazhdanova, Y.V., Kemkhashvili, T.A., & Sapozhnikova, N.G. (2022). The Case Experience of Integrating the SDGs into Corporate Strategies for Financial Risk Management Based on Social Responsibility (with the Example of Russian TNCs). *Risks*, 10, 12-48. <https://doi.org/10.3390/risks10010012>
20. Kumar, S., Sharma, D., Rao, S., Lim, W.M., & Mangla, S.K. (2022). Past, present, and future of sustainable finance: Insights from big data analytics through machine learning of scholarly research. *Ann. Oper. Res.*, 12, 1–44. <https://doi.org/10.1007/s10479-021-04410-8>
21. Kuznetsova, A. Y., & Pohorelenko, N. P. (2018). Conceptual provisions of banking system stability ensurance. *Financial and Credit Activity Problems of Theory and Practice*, 3(26), 4–16. <https://doi.org/10.18371/fcaptop.v3i26.143844>
22. Kuznetsova, A. Ya., & Pohorelenko, N. P. (2021). Mechanism of providing financial stability of the banking system of Ukraine. *Financial and Credit Activity Problems of Theory and Practice*, 2(33), 37–47. <https://doi.org/10.18371/fcaptop.v2i33.206396>
23. Landi, G.C., Iandolo, F., Renzi, A., & Rey, A. (2022). Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk. *Corp. Soc.*

- Responsib. Rnviron. Manag, 29, 1096–1107.
<https://doi.org/10.1002/csr.2256>
24. Li, F., & Zhang, S. (2022). Does financial crisis change the relationship between bank development and economic growth? Evidence from US states. *PLoS ONE*, 17(4), 74-93.
<https://doi.org/10.1371/journal.pone.0267394>
25. Liao, J., Hu, W., & Yang, D. (2019). Dynamic Analysis of the Effect of Green credit on Bank Operating Efficiency-Based on Panel VAR Model. *Collect. Essays Financ. Econ*, 2, 57–64.
<http://cjlz.zufe.edu.cn/EN/Y2023/V296/I3/57>
26. Liu, H., & Huang, W. (2022). Sustainable Financing and Financial Risk Management of Financial Institutions—Case Study on Chinese Banks. *Sustainability*, 14, 97-106.
<https://doi.org/10.3390/su14159786>
27. Lurie, N., Keusch, G.T., & Dzau, V.J. (2021). Urgent Lessons from COVID-19: Why the World Needs a Standing, Coordinated System and Sustainable Financing for Global Research and Development. *Lancet*, 397, 1229–1236.
[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)00503-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00503-1/fulltext)
28. Main performance indicators of banks. (2023). Ministry of Finance.
<https://index.minfin.com.ua/ua/banks/stat/>
29. Mavlutova, I., Spilbergs, A., Verdenhofs, A., Natrins, A., Arefjevs, I., & Volkova, T. (2023). Digital Transformation as a Driver of the Financial Sector Sustainable Development: An Impact on Financial Inclusion and Operational Efficiency. *Sustainability*, 15, 189-207. <https://doi.org/10.3390/su15010207>
30. Mavlutova, I., Volkova, T., Spilbergs, A., Natrins, A., Arefjevs, I., & Verdenhofs, A. (2021). The Role of Fintech Firms in Contemporary Financial Sector Development. *WSEAS Trans. Bus. Econ.*, 18, 411–423. <https://doi.org/10.37394/23207.2021.18.42>
31. Mejia-Escobar, J.C., González-Ruiz, J.D., & Duque-Grisales, E. (2020). Sustainable Financial Products in the Latin America Banking Industry: Current Status and Insights. *Sustainability*, 12, 56-78.
<https://doi.org/10.3390/su12145648>
32. Morales, L., Gray, G., & Rajmil, D. (2022). Emerging Risks in the FinTech Industry—Insights from Data Science and Financial Econometrics Analysis. *Econ. Manag. Financ.*, 17, 9–36.
<http://dx.doi.org/10.22381/emfm17220221>
33. Murau, S., & Van 't Klooster, J. (2022). Rethinking Monetary Sovereignty: The Global Credit Money System and the State. *Perspectives on Politics*, 1, 7-18. <https://doi.org/10.1017/S153759272200127X>
34. Nandiwardhana, A.P., & Dan, C. A (2022). Sustainable Development Assessment of Indonesia's State Banks Financing for the Industrial and Non-Industrial Sector. *J. Sustain. Financ. Invest.*, 12, 894–911.
<https://doi.org/10.1080/20430795.2020.1809964>
35. National Bank of Ukraine (2023). Main performance indicators of banks. <https://bank.gov.ua/ua/statistic>
36. Nguyen, Phuc Tran. (2022). The Impact of Banking Sector Development on Economic Growth: The Case of Vietnam's Transitional Economy. *Journal of Risk and Financial Management*, 15, 358-397.
<https://doi.org/10.3390/jrfm15080358>
37. Popp, T.R., Feindt, P.H., & Daedlow, K. (2021). Policy feedback and lock-in effects of new agricultural policy instruments: A qualitative comparative analysis of support for financial risk management tools in OECD countries. *Land Use Policy*, 103, 105-113.
<https://doi.org/10.1016/j.landusepol.2021.105313>
38. Shakharova, A., Beisenova, L., & Amerkhanova, A. (2022). Economic education of the future for the XXI century: challenges, problems, prospects. *Futurity Education*, 2(1), 19–28.
<https://doi.org/10.57125/FED/2022.10.11.21>
39. Si Luo (2022). Digital Finance Development and the Digital Transformation of Enterprises: Based on the Perspective of Financing Constraint and Innovation Drive. *Journal of Mathematics*, 106, 20-32.
<https://doi.org/10.1155/2022/1607020>
40. Sumei Luo, Yongkun Sun, Fan Yang, & Guangyou Zhou (2022). Does fintech innovation promote enterprise transformation? Evidence from China. *Technology in Society*, 68, 101-121.
<https://doi.org/10.1016/j.techsoc.2021.101821>
41. Tambovceva, T., Titko, J., Svirina, A., Atstaja, D., & Tereshina, M. (2021). Evaluation of the Consumer Perception of Sharing Economy: Cases of Latvia, Russia, Ukraine and Belarus. *Sustainability*, 13, 139-141. <https://doi.org/10.3390/su132413911>
42. Vagin, S.G., Kostyukova, E.I., Spiridonova, N.E., & Vorozheykina, T.M. (2022). Financial Risk Management Based on Corporate Social Responsibility in the Interests of Sustainable Development. *Risks*, 10, 49-63.
<https://doi.org/10.3390/risks10020035>
43. Voskolupov, V., Balanovska, T., Gavrish, O., Gogulya, O., & Dragneva, N. (2021). Marketing management as a tool for preventing a crisis state of

- agricultural enterprises. *Financial and Credit Activity Problems of Theory and Practice*, 5(40), 410–417.
<https://doi.org/10.18371/fcaptp.v5i40.245192>
44. Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? An analysis based on big data. *Res. Int. Bus. Financ*, 16, 130–138.
<https://doi.org/10.1016/j.ribaf.2020.101338>
45. Xinran Cao, Boyu Han, Yiping Huang, & Xuanli Xie (2022). Digital Transformation and Risk Differentiation in the Banking Industry: Evidence from Chinese Commercial Banks. *Asian Economic Papers*, 21(3), 11–21.
https://doi.org/10.1162/asep_a_00853

Мещеряков А., Боденчук Л., Ліганенко І., Рибак О., Лобунець Т.

ТЕНДЕНЦІЇ РОЗВИТКУ БАНКІВСЬКОЇ СИСТЕМИ УКРАЇНИ В УМОВАХ ВОЄННИХ ДІЙ ТА ГЛОБАЛІЗАЦІЙНИХ УПЛИВІВ

Проблематика розвитку фінансово-кредитної системи є ключовою для будь-якої держави, оскільки вона забезпечує доступ до капіталу для бізнесу та фізичних осіб. Українська економіка формує механізм фінансово-кредитних відносин у першу чергу через банківську систему, яка забезпечує розвиток не лише реального сектора економіки, але й усіх сфер та галузей. Україна займає активну позицію на шляху до євроінтеграції та глобалізації, у результаті чого її банківська система безумовно підпорядкована тенденціям, що виникають у глобальному вимірі. Проте, безумовно, початок та активний розвиток воєнних дій на території України створює додаткові виклики для вітчизняних банків, які необхідно обов'язково враховувати та використовувати для забезпечення національної фінансової безпеки.

Метою дослідження визначено необхідність виявлення тенденцій розвитку банківської системи України як основного суб'єкта фінансово-кредитних відносин та окреслення подальших змін в особливостях розвитку моделі фінансово-кредитних відносин під дією глобалізаційних викликів.

Для досягнення мети використано метод аналізу статистичної інформації, графічний метод, кластерний аналіз, а також загальнонаукові методи, зокрема: узагальнення, систематизації, індукції, дедукції.

У результаті проведення дослідження встановлено тенденції глобального розвитку фінансово-кредитної системи світу та визначено, які глобалізаційні виклики ці тенденції формують, а також визначено, якими повинні бути напрями розвитку фінансово-кредитних відносин в Україні після закінчення воєнних дій. Практичне значення отриманих результатів полягає у формуванні рекомендацій для банківських установ щодо подальшого розвитку після закінчення воєнного стану в Україні та напрямів адаптації до глобалізаційних процесів.

За результатами дослідження є можливість констатувати, що протягом останніх 5 років розвиток банківської системи України був цілком стабільним, що підтверджено наведеним у роботі статистичним аналізом, також встановлено, що основу банківської системи складають 5 найбільших банків, позиція на ринку яких є досить стабільною, отже, державі слід уживати заходів для підтримки цих установ та забезпечення їхньої стабільності в умовах воєнного стану.

Ключові слова: фінансово-кредитні відносини, банківська система, кластерний аналіз, обсяги кредитування, стабільність банківської системи

JEL Класифікація: D53, E44, E69, G19, G23, G28, O12