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STATE REGULATOR'S ROLE IN THE COUNTRY'S BANKING SYSTEM DURING WARTIME

ABSTRACT

Armed aggression and its negative impact on the exogenous and endogenous environ-ment of economic agents aggravate the problems of the sectors of the national econ-omy, in particular, the banking sector. In this context, the state acquires a key role in managing the processes of the banking sector at both the micro and macro levels. The aim of the article is to determine the key characteristics of the state's influence on the banking sector in Ukraine during the active phase of the war. The method of synthesis, the method of economic and statistical analysis, and the case method were applied for the analysis. The methodological framework of the research is the method of strategic analysis. The key task of balancing the operational work of the banking sector, main-taining a stable macroeconomic condition and state security is emphasized. As a result, emphasis is placed on the need to define a system of key indicators for management by the regulator and central authorities during the war. Accordingly, the analysis of these indicators showed that the banking sector of Ukraine did not experience cata-strophic losses in 2022, which indicates the success of the state in this area. In partic-ular, the number of operating banks in Ukraine slightly decreased by -5.7% in 2022 to 67 banks. Moreover, it was recorded that the banking sector of Ukraine maintained a positive financial result at the level of UAH 12 billion net profit in Q3 2022. Prospects for future research consist of an in-depth study of factors influencing the complex of state actions at the micro- and macro-levels in terms of meeting the needs of the main groups of stakeholders.

Keywords: risks of the banking sector, post-war recovery, operational efficiency, net profit of the banking sector, state regulator, the digitized national currency

JEL Classification: H56, E50, E58, E59

INTRODUCTION

Armed aggression causes significant challenges to the exogenous and endogenous en-vironment of numerous groups of economic agents, including the banking sector. The state plays a key role in this context, exerting direct and indirect influence on the bank-ing sector in conditions of considerable turbulence. This urges the issue of studying the influence of the state regulator on the banking sector in the context of planning and implementation of anti-crisis measures aimed at reducing the level of damage to the national economy and groups of economic agents.

It should be emphasized that the challenges of the exogenous and endogenous envi-ronment of the banking sector during the war are complex in nature and multidirectional in their effect. Accordingly, is particularly difficult to build an adequate state approach to monitoring, control, and active steps in the banking sector. The need to observe the interests of many groups of stakeholders at the micro- and macro-level both in the short and long run represents additional difficulties in this context.

In general, the aforementioned reflects a significant benefit from the planning and im-plementation of an adequate set of actions by the state in the banking sector in the conditions of armed aggression. However, this task faces significant theoretical and practical challenges in terms of the needs for its stability and consistency with a view to significant uncertainty in the turbulent state during the war. All this entails a significant need to study the specifics of the influence of the state regulator on the banking sector at the micro- and macro-levels in the conditions of armed aggression.

LITERATURE REVIEW

There is a significant number of studies on the issue of the role of the state regulator in the banking system in the context of armed aggression and other significant challenges to national security. Some researchers examine the system of early prevention of the banking sector crisis as one of the key foundations of the effective work of the state. In this context, Wang et al. [1] study the issues of the development and application of systems of early prevention of a crisis in the financial market, in particular, in the context of the banking system, through a system of decision trees at the micro- and macro-level based on a set of indicators. In turn, the OECD [2] studies advanced analytics tools (in particular, *Artificial Intelligence*, *Big Data*, *Machine Learning*) in the context of selecting tools for responding to the crisis in the financial system, including the banking system, with a special focus on the work of public authorities. Peng and Yan [3] develop some issues in this area, analysing *Deep Learning* tools in early forecasting of the financial crisis in the national economy in the context of environmental uncertainty and lack of reliable data. Besides, Li [4] examines the early prevention of the financial system crisis in the context of a number of indicators (innovation potential, ability to generate cash flows, profitability, operational efficiency, solvency, capital structure). In this regard, Aljawazneh et al. [5] consider the tools of *Deep Learning Methods* in the context of analysing the performance of the corporate sector in terms of financial insolvency in view of exogenous and endogenous challenges. Theoretical and practical developments in this area are used in this study for selecting a set of key indicators for the analysis of the banking sector in conditions of significant turbulence during the period of armed aggression.

Other studies focus on the issues of the factor of macroeconomic stability in terms of the role of the state regulator and other governmental offices in the banking sector in a period of significant exogenous turbulence, in particular, armed aggression. In this context, Sousa et al. [6] study the issue of the impact of bankruptcies on the macroeconomic stability of the state with a special focus on risks and threats in the context of priority sectors of the national economy. In turn, Adam [7] works on the issue of ensuring macroeconomic stability in terms of key indicators of the financial system in terms of adequate attraction of direct foreign investment and stimulation of socio-economic development in a volatile exogenous environment (using the example of Sudan). Osabuohien-Irabor and Drapkin [8] develop this issue, analysing the problem of ensuring the stability of the country's financial system (in terms of attracting foreign direct investment) in conditions of significant macroeconomic instability at the level of the national economy. Naa Amua Dodoo et al. [9] examine the set of micro- and macro-level drivers of a developing country (using the example of Ghana) in the context of stimulating the development of national companies with a special focus on the driver of macroeconomic stability. In turn, Hassan et al. [10] study the impact of macroeconomic shocks in light of the coronavirus pandemic on the banking system of Middle East countries. In the context of this problem, Czeczeli et al. [11] consider the problem of ensuring the stability of the financial system to exogenous shocks in the context of the coronavirus pandemic in the EU countries. The findings in this area were used in this research when studying the factor of macroeconomic stability in the context of the work of public authorities in Ukraine in the direction of stabilizing the banking sector during the war.

There are also works that deal with the analysis of the problems of the influence of micro-level factors in the sphere of government work in the banking sector during the crisis period, in particular, during the war. In particular, Tuzcuoğlu [12] studies the problems of financial instability at the micro-level in a volatile environment in terms of the involvement of companies in the real sector of bank lending in the short and long run. In this context, Bernardi et al. [13] analyse the behaviour of companies during turbulence in the financial system using the example of Italy. Additionally, Cındık and Armutlulu [14] consider the impact of financial system turbulence on the state of companies, in particular, in terms of bankruptcy risk, using the example of Turkey. In turn, Achou et al. [15] study the impact of exogenous environmental challenges on the state of the financial system in terms of micro-level economic agents using the example of Canada. The theoretical and practical results of the above-mentioned studies are used in this work when determining priorities of the government work in the banking sector at the micro-level during the war in Ukraine.

Some of the researchers analyse the role of the state in the banking sector during the crisis period through the prism of the political stability factor. In this regard, Abdullah et al. [16] investigate the role of the political stability factor in ensuring the adequate functioning of the national economy, in particular, the banking system in the short and long run using the example of Bangladesh. In turn, Liu et al. [17] study the issue of modernization of the national economy from the perspective of the political stability factor. Reza Abbaszadeh et al. [18] investigate financial market instability under the influence of exogenous and endogenous factors using the example of Iran. This direction is developed by Dureab et al. [19], who analyse the factor of political stability in supporting the socio-economic development of the state during significant exogenous shocks using the example of Yemen. These results were used in this article when studying the peculiarities of the exogenous environment in the context of the role of the state in the banking sector during the war.

There are works that deal with the problems of regulation of the banking sector in terms of the role of the state during the war. In this context, Taşkın and Sarıyer [20] analyse the problems of planning and implementation of adequate regulation of the financial and banking sector in terms of derivative financial instruments in the conditions of significant macroeconomic turbulence (using the example of Turkey). Kuznyetsova et al. [21] determine the following areas of purposeful changes in the business architecture of the banking sector in the economy of Ukraine: 1) decrease in credit activity of banks with retail, corporate and universal business models; 2) stimulation of credit activity of banks with a corporate business model with retail financing and a business model of limited credit intermediation. In turn, Bortnikov et al. [22] focus on the problems of the regulator's comprehensive approach to managing the banking sector during the war in terms of the interaction of banks with clients, infrastructure availability, stabilization of the situation with non-payments on credit obligations due to the volatility of the exogenous situation. The results from the above-mentioned works were used in this study when identifying a set of government actions in the banking sector during the war.

A number of studies focus on the issue of national priorities in the context of the role of the state regulator in the banking sector during wartime. In particular, Krysachenko [23] analyses the national development priorities of Ukraine through the prism of complexity and singles out socio-economic and financial-economic priorities as key foundations for activating the transformation of the state within the paradigm of developed democracies. In turn, Ilyash et al. [24] examine the strategic priorities of the national development of Ukraine in terms of a set of micro- and macro-level goals with a focus on building an adequate financial system as a prerequisite for long-term growth. Aleksin [25] singles out the theoretical and practical problem of the lack of funding for the modernization of the national economy as one of the key priorities for Ukraine in a turbulent environment. The works referred to above were used in this study to form a coherent system of state priorities in the banking sector during armed aggression.

A number of works examine the issues of post-war reconstruction of the national economy from the perspective of the banking sector. In particular, Moayedi and Aminfard [26] analyse the features of the post-war recovery of the Iranian financial system. In turn, Queralt [27] investigates the issue of ensuring the stability of the financial system by balancing the sources of financing the state budget during armed aggression in terms of foreign borrowing and tax revenues. This issue is developed by Kern and Schnyder [28], who study the factor of corporate network connections in the banking sector in the context of attracting financing by real sector companies during post-war recovery using the example of Great Britain. Chang [29] examines the issue of stimulating socioeconomic development and achieving development goals in the context of financing military operations using the example of the United States. The works referred to above were used in this study in the context of focusing the priorities of the state's work in the banking sector in the context of post-war recovery.

However, the problems of the influence of the state on the banking sector during the war in the context of the current complex of factors of the exogenous and endogenous environment have not been sufficiently studied.
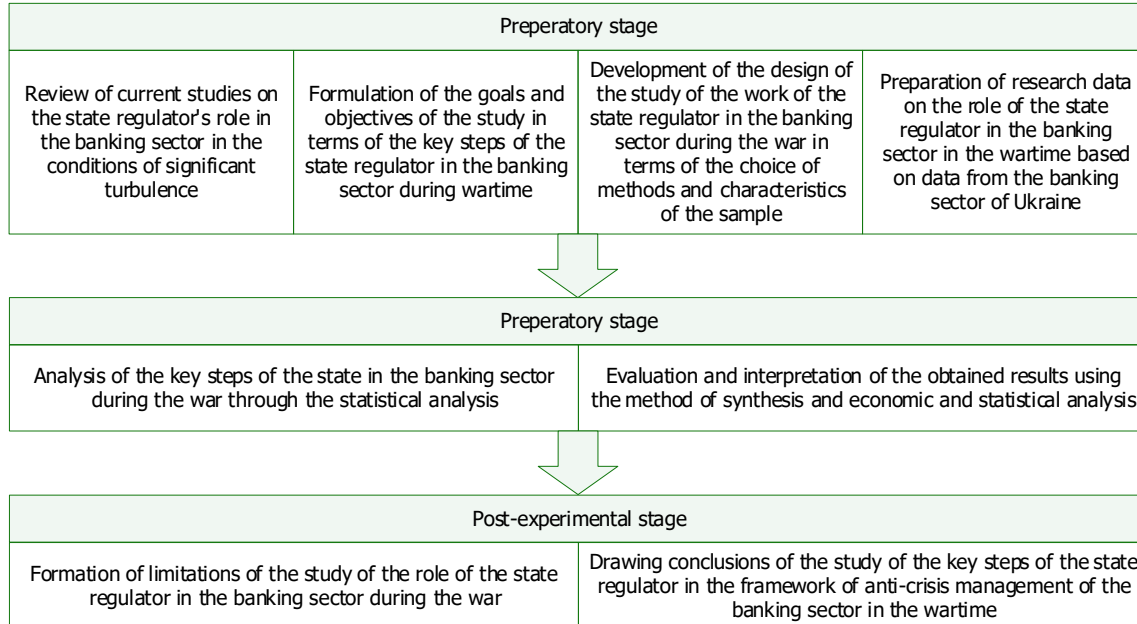
AIMS AND OBJECTIVES

The aim of the research is to identify the peculiarities of the influence of the state regulator on the banking sector of Ukraine during armed aggression in the context of key anti-crisis measures in priority areas. The aim involved the following research *objectives*:

1. Identify the key aspects of the state regulator's influence on the banking sector of Ukraine in the conditions of armed aggression;
2. Study the peculiarities of the state regulator's influence on the banking sector of Ukraine during the war according to the main indicators of its condition;
3. Provide theoretical and practical recommendations at the state level focused on minimizing the harmful effects of crisis phenomena in the banking sector as a result of armed aggression.

METHODS

Research Design

Figure 1 presents the main stages of the research.

Preperatory stage			
Review of current studies on the state regulator's role in the banking sector in the conditions of significant turbulence	Formulation of the goals and objectives of the study in terms of the key steps of the state regulator in the banking sector during wartime	Development of the design of the study of the work of the state regulator in the banking sector during the war in terms of the choice of methods and characteristics of the sample	Preparation of research data on the role of the state regulator in the banking sector in the wartime based on data from the banking sector of Ukraine

Preperatory stage	
Analysis of the key steps of the state in the banking sector during the war through the statistical analysis	Evaluation and interpretation of the obtained results using the method of synthesis and economic and statistical analysis

Post-experimental stage	
Formation of limitations of the study of the role of the state regulator in the banking sector during the war	Drawing conclusions of the study of the key steps of the state regulator in the framework of anti-crisis management of the banking sector in the wartime

Figure 1. Visualised research design.

The first, preparatory stage involved the development of the research design regarding the choice of methods and characteristics of the sample in order to study the work of the state regulator in the banking sector during the war. It was followed by the collection of data on the banking sector of Ukraine further processing and use in the study of the key steps of the state in this sector in the conditions of armed aggression.

The second stage of the research consists of studying the role of the state regulator in the banking sector during the war through statistical analysis. The stage also includes the interpretation of the obtained results using the synthesis method in terms of drivers of changes in the state's approach to anti-crisis management in the banking sector in the conditions of armed aggression. The case method was also used at this stage to describe the theoretical and practical experience of the state's response to the crisis phenomena of the banking sector in the conditions of armed aggression. The final stage of the study involves the identification of limitations in terms of the methodology and implementation of the conducted study of the state's role in the banking sector during the war, as well as drawing the conclusions of the conducted research of the key actions of the state with a focus on minimizing the harmful impact of the crisis in the banking sector as a result of armed aggression.

Methods

The following methods were used in this research in order to study the theoretical and practical problems of the state's influence on the banking sector in the conditions of armed aggression: synthesis – to identify trends in the banking sector of Ukraine during the war; statistical analysis – to determine and evaluate key changes in the banking sector under the state's influence during wartime; case method – to describe the theoretical and practical experience of the state's response to crisis phenomena in the banking sector in the conditions of armed aggression. In particular, an analysis of key indicators determining the state of the banking sector; a trend analysis of key indicators of the state of the banking sector; analysis of changes in the structure of the banking sector in key areas during the war were carried out as part of the statistical analysis in this research. In turn, a case method is a tool for studying various situations by groups of economic agents (in particular, banks and the state), which have developed under the influence of specific conditions of the exogenous and endogenous environment. A special focus in the case method was on the aspect of uncertainty in terms of planning and implementation of decisions by economic agents. The case method is one of the key blocks of strategic analysis. In this context, Harvard Business School [30] identifies the leading role of the case method in the study of uncertainty and the formation of relevant theoretical and practical recommendations.

The methodological framework of the analysis is the method of strategic analysis. Strategic analysis is a set of quantitative and qualitative tools for researching the state of an economic agent in the context of the specifics of the exogenous and endogenous environment for the purpose of developing and implementing a micro- and macro-level strategy.

The sample is formed from the data of five key indicators of the state of the banking sector of Ukraine, which reflect its state during the armed aggression, namely: Net assets of the banking sector; Liabilities of the banking sector; NBU funds in the structure of banks' liabilities; Profitability of bank stock; Number of structural subdivisions of banks. The choice of these indicators is determined by their depth, comprehensiveness, reliability, and high quality of data in open sources, which is important in terms of the aim and objectives of this study. The selection of these indicators for the sample is based on the best practices of regulators and international financial institutions, as well as on the methodology. European Central Bank [31], NBU [32], Bank for International Settlements [33].

The results of the state's actions in the banking sector of Ukraine during the war were studied using the analysis of official NBU statistics. The analysis was carried out for 2022 in comparison with the data of previous periods. Table 1 presents the description of the variables. *Open Data bank.gov.ua* and *MS Excel* were used in the research to analyse the sample data.

Table 1. Indicators that were used as part of the static analysis of the influence of the state on the banking sector of Ukraine during wartime.

| Indicator	Comment
Net assets of the banking sector, UAH billion	The amount of assets of the banking system after deducting liabilities for the period, UAH billion
Net loans to economic entities, UAH billion	The amount of liabilities of the banking system for the period, UAH billion
Net profit of the banking system, UAH billion	The financial result of the work of the banking sector for the period, UAH billion
Number of solvent banks, units	The number of banks that the regulator considered solvent for the period, units
Number of structural divisions of banks, thousands of units	The number of separate divisions of banks for the period, thousands of units

RESULTS

As of Q3 2022, there were 67 banks operating in Ukraine during wartime (against 71 banks as of 2021, which indicates a slight decrease of -5.7%against the background of the armed aggression). The structure of the banking sector during the war did not undergo significant changes, in particular, state banks with a share of net assets of 50.7% as of the fall of 2022 will still dominate in the system (vs. 48.7% as of the end of 2021 – a growth of + 2.0 p.p.). Despite the ongoing war, the population continues to entrust their savings mainly to state-owned banks. The share of deposits of individuals in state-owned banks in the general structure for Q3 2022 was 59.8% of the total amount of fixed-period deposits of the population in the banking system of Ukraine (vs. 55.9% as of 2021). In general, this indicates the high trust of the population in the banking system of Ukraine in 2022 during the war, which has a positive effect on the state and the national economy at both the micro and macro levels.

At the same time, the war had a certain impact on the state and dynamics of the banking system in Ukraine. The trend of reducing the number of structural divisions of banks during the war stands out in this context. In particular, in 2022 there was a reduction to 5.5 thousand units. (from the level of 6.7 thousand units in 2021, i.e. a decrease of -17.9%). This trend is occurring due to objective restrictions as a result of armed aggression in 2022. This trend also applied to other components of the banking system infrastructure. The number of POS terminals decreased to 355,000 units in 2022. (from 439 thousand units as of 2021, constituting a drop of -19.1%). A similar trend occurred in terms of the number of bank ATMs. In particular, there was a reduction to 28,400 ATMs in 2022 (from 33,600 ATMs as of 2021, constituting a drop of -15.6%). At the same time, the number of active bank payment cards for 2022 did not significantly reduce. As of 2022, this indicator was 45.2 million payment cards – compared to 46.3 million payment cards in 2021 (a reduction of -2.7% in annual terms). The above analysis emphasizes the specific impact of armed aggression on the banking sector in terms of reducing the availability of offline infrastructure for customers because of physical restrictions. At the same time, online channels will continue to function more stably thanks to the spread of the Internet and digital communication tools among the users of financial services in Ukraine.

Accordingly, the above trends influenced the key indicators of the banking sector, which indicate the role of the state during the war. Net assets of the banking system grew to UAH 2,168 billion as of Q3 2022. It should be noted that this trend occurred not only as a result of inflationary processes in the state but also as a result of the state's influence on the banking sector during the war – first of all, due to the NBU deposit certificates. In turn, the Net loans to economic entities also grew during the period of active warfare to UAH 564 billion as of Q3 2022. This trend reflects the active role of the state in the functioning of the banking sector and the real sector of the economy of Ukraine against the background of significant challenges. So, the state stimulates the activity of manufacturing companies, which positively affects both Ukrainian banks and other economic agents. In particular, employment and business activity adequate to the current situation are ensured, and the purchasing power of Ukrainian households is supported. As a result, the effective role of the state during the war ensures positive dynamics in terms of the net profit of the banking system. As of Q3 2022, the banking system has a positive financial result despite the armed aggression, which amounted to UAH 12 billion for the analysed period. The successful work of the state in the banking sector against the background of armed aggression was also reflected in the dynamics of a key indicator – the number of solvent banks. This indicator did not undergo a significant reduction during the war. There were 67 banks operating in Ukraine in Q3 2022 compared to 71 banks in 2021. At the same time, the number of solvent banks continued to steadily reduce until 2022. At the same time, actions at the micro- and macro-level adequate to the current situation are reflected in the dynamics of the number of structural divisions of banks. This indicator also reflects the efforts to improve the operational efficiency of the banking system. Accordingly, the number of structural divisions of banks was reduced to 5,500 units as of Q3 2022 due to objective reasons against the background of the war. The dynamics of key indicators in the context of the work of the state in relation to the banking sector during the war are summarized in Table 2 and Figure 2.

Table 2. Key indicators reflecting the influence of the state regulators' on the banking sector of Ukraine before and during full-scale armed aggression.

Indicator	2018	2019	2020	2021	Q3 2022
Net assets of the banking sector, UAH billion	1.360	1.493	1.823	2.053	2.168
Net loans to economic entities, UAH billion	472	415	432	540	564
Net profit of the banking system, UAH billion	22.3	58.4	39.7	77.4	12.0
Number of solvent banks, units	77	75	73	71	67
Number of structural divisions of banks, thousands of units	8.5	8.0	7.1	6.7	5.5
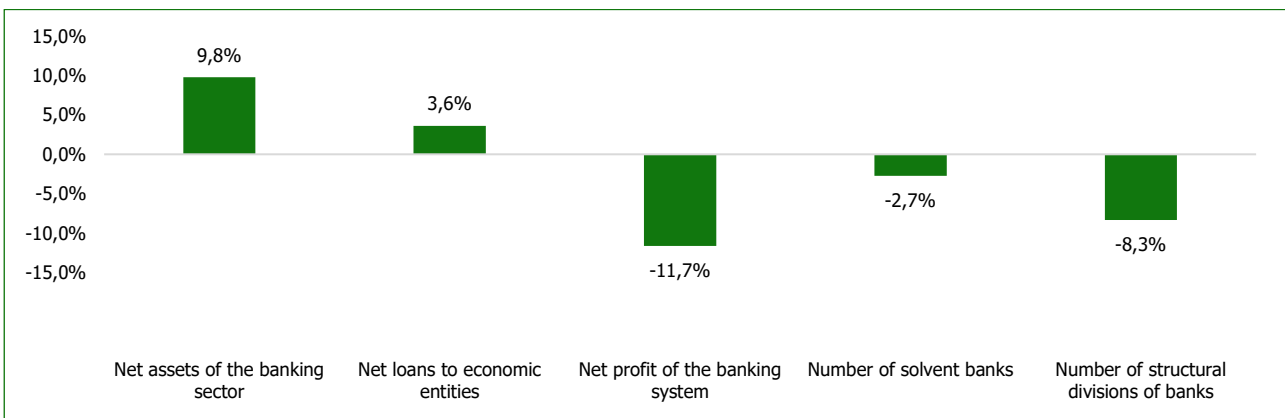
Figure 2. Compound annual growth rate for key indicators of the banking sector under the influence of state's actions in the context of armed aggression. *(Source: prepared by authors based on the [35])*

The actions of the state analysed above and their impact on the key indicators of the banking sector were determined by the need for an adequate response to the key challenges of the exogenous and endogenous environment during wartime. It should be noted that the uncertainty and extraordinary consequences inherent in armed aggression led to the emergence of a number of specific challenges of an exogenous and endogenous nature, which were implemented with varying degrees of complexity and negative impact. Accordingly, the banking sector is affected by a number of exogenous and endogenous crisis factors. The state should take anti-crisis measures in order to reduce the negative impact of these factors during wartime – both directly on the banking sector and stakeholder groups. These measures may vary in their nature and

direction, depending on the available resources and the state's ability to respond to specific exogenous and endogenous general and specific factors. In particular, Ukrainian public authorities faced a number of challenges in 2022, which can be divided into several groups, namely operational risks, cyber security risks, business risks, legal risks, which are schematically presented in Figure 3.

Figure 3. Key risk areas for the state to deal with in terms of the banking sector under armed aggression.

A number of key challenges in terms of the groups identified above will be considered in greater detail, as well as state solutions at the micro- and macro-level in the form of cases using the example of the banking sector of Ukraine in 2022. The *operational risks* to which the state must give an adequate response include mass withdrawal of cash of the population due to panic moods, lack of human resources in banking institutions due to their physical absence at the workplace because of a number of objective and subjective reasons (moving from the place of residence to another region of Ukraine or abroad, the impossibility of visiting the workplace due to physical danger for the bank employee, irregular work schedule, etc.). Exceeding the limits of cash balances can also be attributed to the operational risks realized during the armed aggression. A significant number of untimely transactions in the banking system, which is caused by their excessive number against the background of the crisis and limitations of the bandwidth of the banking infrastructure, can also be mentioned in this area.

There is a significant intensification in terms of *cyber security risks* in the conditions of armed aggression. Accordingly, the state must effectively respond to the threat of intensification of cyber-attacks due to the subversive activities of the aggressor country. Besides, the challenge of fraud by individuals both within the country and from a cross-border environment is growing. The threat of unauthorized access to personal data, the leakage of sensitive information, which poses a danger to individuals and legal entities, as well as the state as a whole, is also significantly aggravated.

Armed aggression leads to the active realization of *business risks*. In particular, the experience of the banking sector of Ukraine in 2022 indicates a significant increase in losses of the banking system (including state-owned banks) on non-performing loans. The tendency to default is exacerbated in times of crisis, especially during the turbulence associated with armed aggression. In turn, this leads to complications not only at the micro-level (an individual bank) but also at the macro-level – in the banking sector and the national economy. In particular, chronic defaults under credit obligations during the crisis lead to a significant reduction in profitability of both individual banks and the banking system as a whole, a decrease in the available resources for banking institutions, a deterioration in the state of financial relations in the national economy, a reduction in the potential capacity of companies in the real sector to attract debt financing in future periods.

As for *legal risks*, war leads to the emergence of specific threats. In 2022, the issue of seizing debtors' bank accounts arose in Ukraine. Besides, the state must provide an adequate response to the challenges of the implementation of prescriptions regarding the sanctions in terms of legal risks. Accordingly, the state should provide banks and other interested parties with adequate tools to implement these decisions at the national and international levels in terms of comprehensive clarifications regarding norms and potential, as well as the creation of an effective regulatory and legal framework that would support those decisions.

The actions of the state in the banking sector during the armed aggression can be considered in two aspects: 1) actions oriented in the short- and long-term perspective; 2) actions aimed at ensuring uninterrupted functioning of the banking

system – as a separate block of actions – and guaranteeing national security and macro-financial stability for the period of armed aggression and the period of post-war restoration – as another separate block in terms of priority areas of work. Accordingly, the role of the state in the banking sector, both during the war and at the stage of post-war reconstruction, can be characterized as focused on achieving a number of multidisciplinary goals in terms of aspects of the banking sector, stakeholder groups, and the fulfilments of state's objectives for a particular period. This, in turn, determines the nature of the appropriate complex of operational or strategic actions, differentiated by measures of a different nature and the short and long run.

Uninterrupted functioning of the banking system at a sufficient level in the short run and its strategic survival, in the long run, can be guaranteed by ensuring the stability of its operation in the conditions of electricity shortage. In the event of a long-term power outage, the NBU and systemically important banks implement their action plan. In particular, it enables them to continue to provide services to the population and businesses for carrying out transactions, making calculations, issuing money and providing other critical financial services. Accordingly, banks need to update their business continuity plans, taking into account the results of modelling various scenarios in the field of operational risks. In light of the electricity shortage, the NBU and key banks have identified more than 750 branches in Kyiv and more than 270 branches in the regions that must be on duty during emergency power outages in order to ensure the uninterrupted provision of financial services to clients. The state, represented by the regulator, assumes that these on-duty branches will provide uninterrupted financial services in the conditions of prolonged emergency power outages.

In this context, it is also important for the state to create prerequisites for *ensuring communication of an adequate quality level* – for on-duty departments during long-term emergency power outages. This task can be implemented through a complex approach, which consists in combining two sources. First, it is the creation of conditions for the uninterrupted operation of conventional means of communication thanks to the installation of generators at mobile communication base stations, as well as the installation of batteries and generators directly in the departments for uninterrupted power supply of communication cables. Second, it is the provision of a stable connection to the on-duty departments by using the latest systems, in particular, Starlink wireless Internet communication stations or their analogues.

From the perspective of restrictions caused by insufficient quality of communication, in particular, by unstable Internet connection, the NBU also recommended banks to *temporarily review the usual work procedure*. First of all, it was recommended not to re-identify the client, to extend the validity period of bank cards, and to postpone the regular updating of client documents. Besides, the NBU recommended banks to arrange effective operation of their contact centres both through the telephone and online. This decision should contribute to:

- increasing the effectiveness of informing the population about the state of the banking system;
- improving the quality of services provided to clients under significant restrictions due to armed aggression;
- improving the quality of consultations provided to bank clients during a period of significantly limited access to information both online (for example, on the bank's website during emergency power outages) and offline (for example, in a bank branch that may have limited working hours due to potential danger for employees and customers).

It should be noted that a critically important task for the state in the banking sector during wartime is to ensure the resumption of the work of banks in the liberated territories and the provision of financial services to the population and businesses. In particular, after the liberation of Kherson in the fall of 2022, the work of a number of branches of a number of state banks was urgently resumed. This, in turn, ensured the population's stable access to high-quality and safe financial services in terms of making transactions and receiving funds, as well as making transactions and receipt of funds. So, financial inclusion is ensured at an adequate level in liberated territories, which is critically important both in the short and long run.

In the medium term, the NBU project on the full *introduction of the electronic national currency (e-hryvnia) into circulation* is strategic both during wartime and during the post-war recovery. This project is designed to modernize money circulation in Ukraine and bring the operation of the Ukrainian market of virtual assets in line with current standards. The key driving force of this task is the full digitization of the national currency, which involves the creation and effective functioning of both cash and non-cash forms with the full performance of all functions of the national currency. In particular, the regulator foresees the distribution of e-hryvnia to all groups of stakeholders (households, non-financial corporations, the state, financial corporations, and others). Accordingly, this causes the need to fulfil a wide range of tasks. In this context, PwC [34] foresees a number of potential areas of application of the digitalized national currency, which are presented in Table 3.

Table 3. Directions of use of digitalized national currency in Ukraine during the war and during the post-war restoration. *(Source: prepared by authors based on the [35])*

Potential areas of use of e-hryvnia	Comment
Retail non-cash payments and other transactions of the population	E-hryvnia can take a strong position in the field of retail non-cash payments of the population, in particular, implementation of targeted social transfer solutions, reduction of costs for making payments to budgets of various levels, etc.
Circulation of virtual assets	The digitalized national currency can be used in the sphere of circulation of virtual assets in such potential directions as facilitating emission, concluding smart contracts, increasing the transparency of transactions with virtual assets backed by currency values or securities, etc.
Cross-border payments	E-hryvnia can help improve the state of cross-border payments in terms of transaction transparency, their ease and speed, normalization of relations with counterparties abroad, etc.

So, the full-fledged introduction of the digitalized national currency into circulation will contribute to the activation of the banking sector and the development of the national economy in both the short and long run. The results of the effective introduction of e-hryvnia include accelerated digitalization of the national economy, improved transparency, reduced expenses, and increased level of trust of the population and other groups of economic agents in the national currency. In turn, this contributes to the work of the state in the banking sector during wartime and during post-war restoration. In particular, in terms of enabling better work of the NBU in maintaining price and macro-financial stability, and ensuring economic security at the national level, Ukraine will increase the attractiveness of foreign and domestic investors at the stage of post-war restoration.

DISCUSSION

Therefore, the peculiarities of the influence of the state on the banking sector during wartime at the micro- and macro-levels were established in terms of a number of key development tasks. The results of this study are confirmed by previously obtained results. The obtained results are presented below in greater detail.

This study indicates that the turbulent working environment of the banking sector – especially in the conditions of armed aggression – requires an adequate system of early prevention of crisis phenomena. This system is a cornerstone in the government decisions for the banking sector in the conditions of armed aggression if we take into account the level of threats to the banking sector and the national economy during wartime, as well as the needs of post-war restoration. This is confirmed by the previously obtained results in a number of studies. In particular, Wang et al. [1] indicate the need to develop and implement a system for early prevention of crises in the banking sector through the system of micro- and macro-level decision trees, which is based on a complex of key indicators of the prognostic state of the banking sector. This thesis is confirmed by the results of Peng and Yan [3], who emphasize the need to use advanced analytics tools as part of the early prevention of a financial crisis in the uncertain socio-economic environment of the national and global economy. Additional confirmation of the results obtained in this study is the earlier work of Li [4], which is focused on building a system for early prevention of a crisis at the micro-level through the use of a set of indicators of the exogenous and endogenous environment, in particular, profitability, operational efficiency, capital structure.

This study identifies the key role of the post-war recovery of the banking sector. This solution is critically important in view of the specifics of the crisis and the post-crisis state of banks caused by the war. This result is confirmed by the earlier work of Moayedi and Aminfard [26] regarding the key role of an integrated approach to the recovery of the banking system at the national level in the post-war period. In terms of the complexity of the solution regarding the post-war recovery of the banking sector, this thesis is confirmed by the previously obtained results of Kern and Schnyder [28] on network connections between the financial sector and the real sector of the national economy in the context of attracting financing as part of the post-war recovery of the state. This study develops the previously obtained result of Chang [29] on the need to take into account the strategic task of balancing development goals as regards different stakeholder groups in relation to the operation of the banking system during wartime and during the post-war period.

This study proposes to improve the regulation of the banking sector with due regard to the challenges of environmental turbulence, in particular, in the conditions of armed aggression. This thesis is confirmed in the earlier work of Taşkın and Sarıyer [20], which focuses on improving the regulation of the derivatives market in a highly inflationary environment. Additional confirmation of this thesis is provided by the findings of Kuznyetsova [21] on the introduction of modern financial technologies into the regulatory field in the banking sector in a turbulent environment. The obtained result is supported

by an earlier study by Bortnikov et al. [22] on the need for a comprehensive approach to the work of the banking sector regulator during the war with due regard to the multidirectional aspects of the banking sector.

This study emphasizes the need to balance micro- and macro-level measures in the framework of the government decisions in the banking sector during the crisis period, including the period of armed aggression. This result is confirmed in an earlier study by Sousa et al. [6] on the need to distinguish key sectors of the national economy for priority financing in the national banking sector as part of the country's post-war recovery. This thesis is confirmed by the previously obtained results of Adam [7] on the need for optimal attraction of direct foreign investment during the recovery of the national economy as a result of armed aggression. This result is supported by Tuzcuoğlu [12], which indicates the need for an adequate mechanism at the level of real sector companies to attract financing in the context of the recovery of the national economy.

However, in contrast to the existing earlier works, the results of this study separately focus on the need to combine exogenous and endogenous environmental factors at both the micro- and macro-level. A single set of measures undertaken by the state can guarantee adequate results in the banking sector in a period of significant challenges, such as armed aggression. In particular, it is shown that the state authorities need to solve the problems of both the shortage of labour resources and the limitations of the banking infrastructure, as well as ensure the stability of the financial sector on the example of the role of the state in the banking sector of Ukraine during 2022. This results in the need to develop and implement a comprehensive management system based on a number of micro- and macro-level indicators, which must be adopted by the regulator, central authorities and other stakeholders. A separate focus in terms of the proposed changes is the need to apply an interdisciplinary approach, covering various areas of social sciences, not being reduced to the financial and economic direction. The relevant scientific and practical developments in the field of strategic planning, management, mass psychology, and other social sciences should be applied. This study emphasizes the importance of mutual agreement of the directions of the state's work in the banking sector in various aspects. Accordingly, the urgent need to establish an adequate system of strategic management at the level of public authorities in the banking sector, which is characterized by taking into account the features of the current crisis situation, is emphasized. In particular, this study emphasizes the key need to set future goals for the development of the national economy at the stage of coping with the crisis. This will facilitate the transition from the crisis stage to the post-crisis stage with the relevant tasks of post-war recovery.

CONCLUSIONS

In the conclusion, the peculiarities of the influence of the state on the banking sector during wartime were determined in terms of a number of key directions at the micro- and macro-level. Taking into account the level of threats to the banking sector and the national economy as a whole during wartime, as well as the need for post-war reconstruction, such a system is key in a set of government decisions in the conditions of armed aggression.

The role of the state in the banking sector during the period of armed aggression is to provide a comprehensive solution in the context of the urgent tasks of anti-crisis management and to create a background for post-war recovery. The 2022 experience of the banking sector of Ukraine shows the need to solve both narrow specific problems at the micro-level (shortage of human resources and limited banking infrastructure) and general problems at the macro-level (stability of the financial sector, ensuring national security). Accordingly, there is a need to develop and implement a comprehensive management system based on a number of micro- and macro-level indicators, which must be adopted by the regulator, central authorities and other interested parties.

In 2022, the banking sector of Ukraine faced significant challenges against the background of military aggression. However, the successful work of the state reduced the negative influence of the exogenous environment during the war. In particular, there were 67 banks operating in Ukraine as of Q3 2022, (compared to 71 operating banks in 2021), which is a slight decrease of -5.7%. According to the results of Q3 2022, the banking sector of Ukraine maintained a positive financial result in the conditions of armed aggression. The banking sector of Ukraine received a net profit of UAH 12 billion for 9 months of 2022. In general, this indicates the success of the state's actions in the banking sector during the war.

A promising direction of further research is an in-depth study of the key factors influencing the actions of the state in the banking sector in terms of balanced satisfaction of the needs of stakeholder groups, taking into account the goals of national security and macro-financial stability. An additional area of future research is the study of scientific and practical issues of planning and implementation of comprehensive state policy in the banking sector during armed aggression at the micro and macro levels.

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РОЛЬ ДЕРЖАВНОГО РЕГУЛЯТОРА В БАНКІВСЬКІЙ СИСТЕМІ КРАЇНИ В УМОВАХ ВОЄННОГО ЧАСУ

В умовах збройної агресії та її негативного впливу на екзогенне й ендогенне середовище економічних агентів заго-стрюється проблематика роботи секторів національної економіки, зокрема банківського сектора. У цьому контексті держава набуває ключової ролі в управлінні процесами банківського сектора й на мікро-, і на макрорівні. Метою дослідження є визначення ключових характеристик упливу держави на банківський сектор в Україні під час активної фази війни. У межах аналізу застосовано метод синтезу, метод економіко-статистичного аналізу, а також кейс-метод. Методологічною основою дослідження є метод стратегічного аналізу. Наголошено на ключовому завданні збалансування забезпечення операційної роботи банківського сектора, підтримання стабільного макроекономічного стану та безпеки держави. У результаті акцентовано на необхідності визначення системи ключових показників для

управління в особі регулятора та органів центральної влади під час війни. Відповідно, у розрізі цих показників аналіз показав, що банківський сектор України у 2022 році не зазнав катастрофічних утрат, що свідчить про успішність роботи держави в цій площині. Зокрема кількість працюючих банків в Україні трохи скоротилася – на 5,7% у 2022 р. (до 67 банків). Додатково зафіксовано, що банківський сектор України зберігав позитивний фінансовий результат на рівні 12 млрд грн чистого прибутку в 3 кв. 2022 р. Перспективи майбутніх досліджень полягають у поглибленому вивченні факторів упливу на комплекс дій держави на мікро- та макрорівні в площині задоволення потреб основних груп стейкхолдерів.

Ключові слова: ризики банківського сектора, поствоєнне відновлення, операційна ефективність, чистий прибуток банківського сектора, державний регулятор, цифровізована національна валюта

JEL Класифікація: H56, E50, E58, E59