

DOI: [10.55643/fcaptive.5.52.2023.4185](https://doi.org/10.55643/fcaptive.5.52.2023.4185)
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Received: 02/09/2023

Accepted: 20/10/2023

Published: 31/10/2023

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MODELLING OF THE ANTI-CRISIS MANAGEMENT SYSTEM IN THE BANKING SECTOR OF THE UKRAINIAN ECONOMY TO ENSURE ITS FINANCIAL STABILITY

ABSTRACT

In the conditions of great turbulence in the national financial market, caused first by the coronavirus and later by the Russian invasion, a particularly important task today is the stable functioning of the banking system, which is the lifeblood of the economy. In this context, an important task is to accumulate the efforts of the National Bank and commercial banks to improve the system of anti-crisis measures to ensure the stable operation of the banking sector and the economy in general.

The article is devoted to the development of methodological tools for anti-crisis management in the banking sector of the domestic economy. For this purpose, a model of anti-crisis management in the banking sector of the Ukrainian economy is proposed, which is based on forecasting the sustainable development of the banking sector by distinguishing its three main states: unbalanced, minimally organized and maximally organized. The three-dimensional model of anti-crisis management in the banking sector makes it possible to clearly show the cyclical nature of its development.

The study identified and substantiated the main directions of optimization of development and regulation of internal factors of stability of the banking sector of Ukraine. A structural and logical diagram of the anti-crisis management model is proposed, which provides for the implementation of measures of anti-crisis regulation of the banking sector by performing a certain sequence of management actions. The article also defines tasks aimed at implementing a program of measures to increase the competitiveness of the banking sector of Ukraine.

The considered measures for maintaining stability and ensuring stable functioning of the banking sector and increasing trust in it are the most important prerequisites for financial and macroeconomic stabilization.

Keywords: anti-crisis management, banking sector, financial stability, modelling, stability of the banking system, synergy concept

JEL Classification: G01, G21, G28, G32

INTRODUCTION

Prevention of banking crises is one of the priority tasks in bank management, and the awareness of the threats posed by banking crises to the economy became an incentive for the development and improvement of anti-crisis management, which is an important element of bank management and helps to identify internal and external risk factors, symptoms and the causes of crises and the impossibility of transition of some types of risk into a complex, systemic banking crisis.

The COVID-19 pandemic caused a deep global economic crisis. This crisis is significantly different from previous ones. First, it is caused mostly by non-economic factors, primarily quarantine restrictions. And the stimulation of economic activity, which was the main tool in the fight against previous crises, can be ineffective or even counterproductive during the quarantine. Secondly, even before the beginning of the crisis, the central

banks of developed countries (the Fed, the ECB, the Bank of England) and some countries with emerging markets actually exhausted the space for the use of traditional monetary instruments (in particular, their key rates were close to zero or even from 'capacious') (Petruk, 2022).

In order to strengthen the effect of anti-crisis measures in the institutional and budgetary spheres, the central banks of developed countries were forced to widely use a variety of non-traditional instruments in conditions of extremely low-key rates. In particular, quantitative easing (QE), as well as targeted refinancing. Most EM central banks have had somewhat more room for manoeuvre in applying time-tested traditional tools. Therefore, they actively used key rates, bank refinancing and currency interventions to ensure price and financial stability, maintain the necessary level of liquidity in the economy and the smooth functioning of payment systems, and because of this, stimulate the real sector.

As the events of 2022 show, the financial sector, in particular the banking system of Ukraine, was able to successfully withstand the challenges of the war. During this period, there were no spikes in defaults or massive bank failures. This happened due to the combined influence of many factors: the accumulation of safety margins by banks, in particular liquid funds, measures to reform the financial sector in previous years, the adequate response of the NBU to a difficult situation, as well as preparation for crisis scenarios of the development of events, which was started by banks in the fall of 2021. From the first hours of the invasion, the most important task was to ensure the uninterrupted operation of cashless payments, and the banking system successfully coped with this. This was achieved, in particular, thanks to the efforts of the National Bank of Ukraine, because the regulator quickly made the necessary decisions, communicating with all banks essentially online. To support liquidity, the NBU provided access to bank lending. In order to avoid panic in the foreign exchange market, the NBU's decision to introduce the necessary currency restrictions and fix the exchange rate was extremely important and prompt. In order to avoid uncontrolled devaluation and capital outflows, the NBU supported the foreign exchange market with interventions.

The anti-crisis component has always been quite important in the process of managing banks and systems in ensuring and strengthening their financial stability, and recently the objective necessity of anti-crisis management of the banking system has become a real requirement. But if at the macro- and meso-levels the task of the state and central banks is to introduce and ensure the functioning of such a system, then at the micro-level, the task of creating appropriate systems rests with shareholders and managers, and the task of the state is reduced to control and supervision of their functioning.

Anti-crisis management in banking institutions and systems should be daily, continuous, and long-lasting throughout the entire period of their operation, an effective management process, where the subject is state administration bodies, and the object is banks and the banking system (Mihus et al., 2020). A comprehensive approach to the problem of anti-crisis management of the banking system, and high-quality interaction (horizontal and vertical) of all levels of management will allow to obtain a long-term effect.

LITERATURE REVIEW

The problems of the formation and development of the banking system of Ukraine, including anti-crisis management, are devoted to the work of many modern Ukrainian and foreign scientists. Thus, economists V. Kovalenko, O. Korenieva, O. Krukmal (2009), Y. Soni (2008), and S. Manzhos (2014) understand anti-crisis management as a system of measures to prevent bankruptcy, in particular, risk management.

According to the definition of Yu. Rebryk, anti-crisis management is management in which the prediction of the danger of the crisis, the analysis of its symptoms, measures to reduce the negative consequences of the crisis and the use of its factors for further development are set in a certain way (Rebryk, 2009).

A slightly different approach to understanding anti-crisis management is proposed in foreign literature. Thus, the German economist R. Keller gives the following definition of anti-crisis management - "it is a special form of management, the priority task of which is to prevent or overcome all processes that can create a significant threat to the vital activity of the system or even make its functioning impossible" (Keller, 1999).

S. Kreitmair distinguishes anticipatory (preliminary) anti-crisis management, which is carried out in the event of the existence of a potential threat of crisis, preventive - in the presence of symptoms of a latent crisis, and reactive - implemented in conditions of a deep crisis (Kreitmair, 2001).

The problem of the financial stability of the banking system of Ukraine has been studied by individual economists, who consider and single out various important components in it. In their works, O. Baranovskyi (2006), O. Petryk and A. Danylenko (2013) consider financial stability through its general economic significance Kuznyetsova, A., Boiarko, I.,

Rudevska, V. and Maslov, V. (2022) rightly emphasize the importance of a financially stable state in order to ensure the ability of the banking system to perform the function of financial intermediation and describe the effective component of the phenomenon. H. Minsky considers financial stability as an integral component of the growth phase of the business cycle, which gives rise to a financial structure prone to crises (Minsky, 2012).

Worthy of attention is the development applied by I. Diakonova and E. Mordan to the assessment of the financial stability of the banking system, which is based on the combined approach of ratio analysis and the taxonomic method (Diakonova, Mordan, 2015). The assessment of the financial stability of the banking system of Ukraine by N. Prykaziuk and A. Pohybil based on a complex indicator and a taxonomic indicator, taking into account the FSI, made it possible to identify trends in the development of the financial stability of the banking system of Ukraine (Prykaziuk, Pohybil, 2021). At the same time, this approach made it possible to test the very methodology of financial stability assessment, to compare the practical effectiveness of the outlined tools. Given their visibility, data availability and ease of implementation, the proposed assessment methods are convenient and can be used by regulators, individual banks and consumers of banking services.

Researchers A. Kuznetsova, G. Azarenkova and E. Olefir substantiate the feasibility of implementing the "bail-in" mechanism in the banking system of Ukraine (Kuznetsova, Azarenkova, Olefir, 2017). The results of the study showed that the implementation of the "bail-in" mechanism in Ukraine will enable the National Bank of Ukraine to intervene in the activities of banks at the early stages of the emergence of problems and apply all necessary measures to restore their solvency, increase the resilience of banks to the impact of shock phenomena, crises and contribute to ensuring financial stability in the long term.

In foreign economic science, studies of the causes and essence of anti-crisis management in the banking sector were conducted by such economists as Y. Bernstein (2014), R. Glick (1999), P. Green (1992), P. Krugman (1979), G. Lind (2005), I. Mitroff (1994), B. Patterson (1993), Y. Soni (2008) and others.

Despite the sufficient number of publications on the specified subject, with the emergence of new political, economic and social challenges, a large number of specific conditions and restrictions appear, which require constant monitoring, correction and development of existing and the creation of new models of anti-crisis management in the banking sector, a successful implementation which will contribute to ensuring the financial stability of the banking sector of the national economy.

AIMS AND OBJECTIVES

The purpose of this article is to justify and improve approaches to the formation of a model of the anti-crisis management system in the banking sector of the Ukrainian economy.

To achieve this goal, the following tasks were set and solved:

- clarify the essence of the concept of "anti-crisis management" in the banking sector;
- determine the main areas of regulation of internal factors of the stability of the banking sector of Ukraine;
- to develop a model of anti-crisis management in the banking sector of the Ukrainian economy.

METHODS

To achieve the goal of the research and to solve the tasks set in the work, general scientific and empirical methods were used:

- analysis and synthesis, induction and deduction - when studying the theoretical foundations of anti-crisis management in the banking sector of the Ukrainian economy;
- expert assessments - when studying the impact of individual factors on the effectiveness of the functioning of the banking sector of Ukraine;
- scientific abstraction and systemic approach – when developing a system of measures to improve the effectiveness of anti-crisis management in the banking sector of the Ukrainian economy.

RESULTS

In our opinion, the definition of O.I. Baranovskyi most comprehensively reveals the financial stability of the banking system as "the ability to be resistant to internal and external influences, maintaining the ability to perform its inherent functions and operations with the integrity of the system elements, which enables the system to return to a state of equilibrium after the impact of external and internal forces" (Baranovskyi, 2006).

Based on this definition, in our opinion, "anti-crisis management in the banking sector should be understood as a set of measures that give the system the opportunity to neutralize the effect of destabilizing factors and return to a state of equilibrium, provided that fluctuations in the main parameters of the banking system's functioning within the region are observed, and ensure its stability and stability" (Mihus et al., 2020). To exert influence on the banking system in order to maintain its stability, the central bank can use almost the entire available range of methods and instruments of monetary policy (Figure 1).

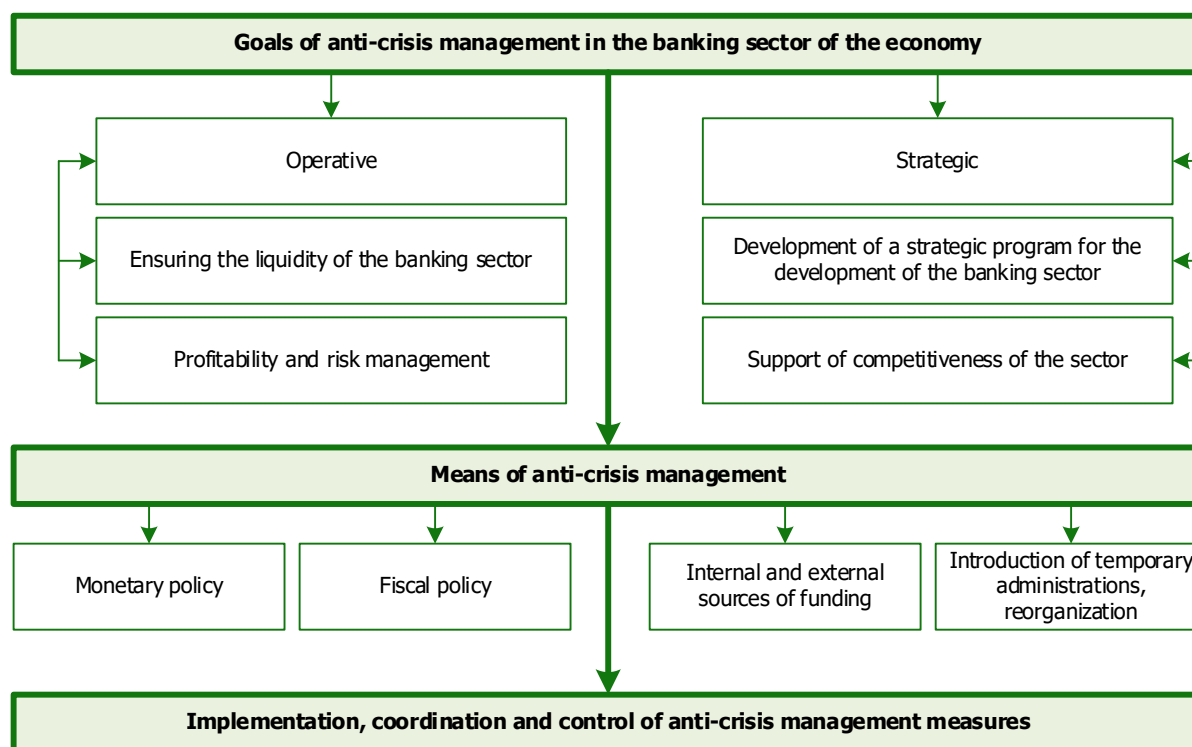


Figure 1. The structure of the anti-crisis management system in the banking sector. (Source: formed by the authors based on Dzhulay, 2008)

The essence of anti-crisis management consists, first of all, in achieving a state of global dynamic equilibrium. Modern banking crises arising in various sectors of the economy are increasingly showing their "integrative" nature, becoming interpenetrating, taking into account the degree of deep interdependence of the world economy.

Under such conditions, overcoming banking crises and avoiding instability in the economy require quick adoption of practical decisions, which should be based on the fundamental principles of maintaining the balance of national finances and regulating the banking sector as a dynamic system.

The discovery and study of patterns of dynamic chaos in economic processes played a key role in creating a synergistic paradigm for the development of controlled systems. The understanding of this phenomenon and the introduction of new terms and concepts led to a new look at dynamic systems, at the mathematical modelling of many phenomena, at the procedure of comparing theory and experiment, and made it possible to rethink a number of previous mathematical results. Further research in this field has shown how typical and common chaotic behaviour appears to be in systems with a small number of degrees of freedom.

Thus, the main ideas and hypotheses of the study of financial and economic systems based on the synergistic paradigm can be formulated as follows:

- there are universal methods that determine the behaviour of complex nonlinear systems, which differ significantly from traditional classical methods of analyzing the functioning of equilibrium systems;
- in open systems, far from a state of equilibrium, coordination effects occur when system elements correlate, and coordinate their behaviour, and as a result of coordinated interaction, processes of ordering and formation of ordered structures occur. The greater the deviation from the state of equilibrium, the stronger the correlations, the higher the consistency of the processes occurring even in remote areas of the controlled space;
- slight inaccuracy in determining the current state of the system leads over time to divergence of possible development trajectories. The system begins to behave chaotically, initial deviations grow over time and minor causes lead to significant destructive consequences (sensitivity to initial conditions);
- it is possible to find a small number of variables (possibly aggregated, transformed, etc.) - "order parameters" that mostly determine the dynamics of the entire system around a special point (bifurcation point), and all other variables depend on them;
- according to the synergistic concept, it will be more effective to manage a complex system by means of minor, but appropriate, resonant influences, which should correspond to the internal trends of the system's development. The main goal of such management is to "push the system" to a new stage of its development by means of a minor resonant influence. Timely resonant influences can reveal significant, powerful internal reserves of the system.

In order to describe the functioning of the self-organization of the banking sector as a controlled system, and to determine the interrelationships between the processes of interaction within the system and its reactions to the management actions of the regulator aimed at ensuring the stability of the system, it is advisable to apply a spatio-temporal three-dimensional model of anti-crisis management in the banking sector, which gives an opportunity to visually show the cyclical nature of its development.

The idea of the model is that the phenomenon of development as a whole can be considered as a struggle between two opposite tendencies - organization and disorganization. At the same time, the development process originating from maximum disorganization can be described as the process of accumulation of structural information, which is defined as the difference between the real and maximum entropy values. Considering the banking sector as a managed system, it is appropriate to consider the process of its development in coordinates related to the concept of information entropy and the possibility of determining the level of organization or disorganization.

The information environment and entropy are related because they characterize reality in terms of order and chaos, and if information is a measure of order, then entropy is a measure of chaos. Entropy and information serve as expressions of two opposite trends in development processes. The alternative and relationship between the concepts of entropy and information is reflected in the formula (Rebryk, 2009):

$$H + J = 1 \text{ (const).}$$

If the system evolves in the direction of order, then its entropy decreases, but this requires purposeful management of its information environment (Figure 2).

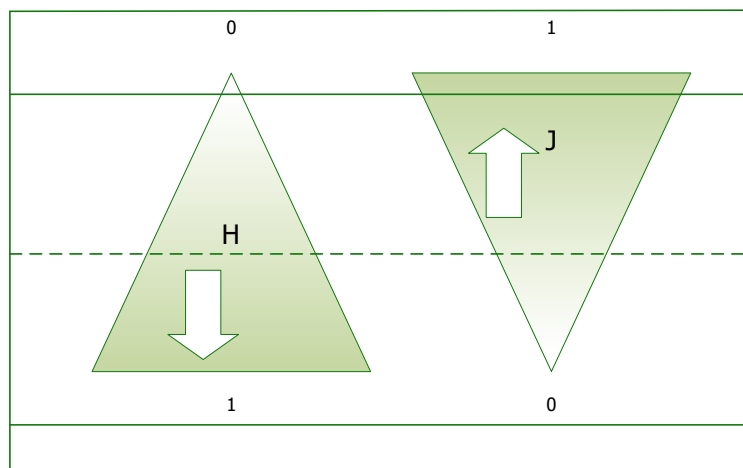


Figure 2. Quantitative relationship between entropy H and information J in a controlled system.

Thus, the model receives its "polar-potential" coordinate system, a three-dimensional space in which disorganization to the extent of managing information flows contributes to the growth of the level of organization to the extent of system development.

Anti-crisis management allows to increase the level of manageability of the banking sector, i.e. ensures its orderliness and ability to resist crisis phenomena. Similarly, the model of the anti-crisis management system is a complex of targeted management measures and actions that ensure the stability of the dynamic system - the banking sector, both in the short and long term.

For the purpose of forecasting the sustainable development of the banking sector, we will highlight four of its main states and mark them with points A_0, A_1, B_1, A_2 :

- A_0 – extremely non-equilibrium state;
- A_1 – minimally organized;
- B_1 – organized as a result of the implementation of management actions (a qualitatively new level);
- A_2 – the most organized state.

Let's note the time intervals between changes in the state of the system at points A_0, A_1, B_1 and A_2 as t_1, t_2, t_3 in the selected scale, and the vector of progress achieved during this time is P_0, P_1, P_2 (Figure 3).

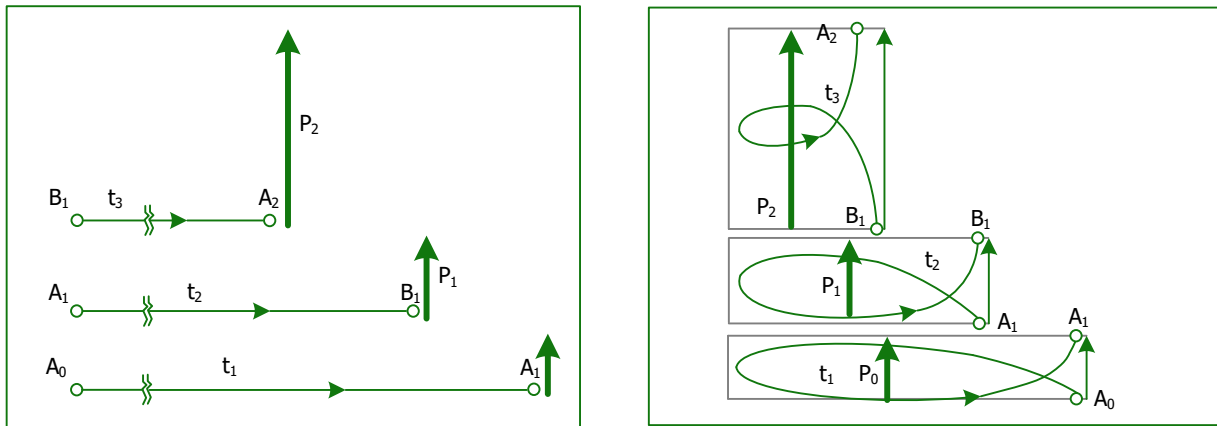


Figure 3. The coordinate system of the anti-crisis management model in the banking sector.

If you take the four states of the system in chronological order, they will form three turns of a spiral of different lengths. As a result of increasing orderliness in the system, the next time interval will be shorter, and the efficiency of the system structure for this state will be higher. By superimposing one turn on another and connecting adjacent turns, we get a spiral with an alternating pitch (Figure 4).

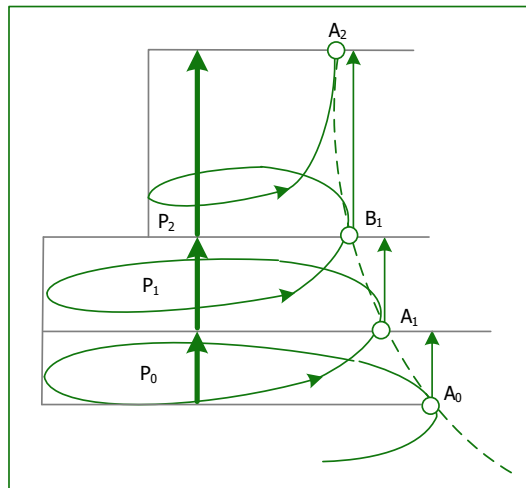


Figure 4. Graphic interpretation of the anti-crisis management model in the banking sector.

Graphically, the model of anti-crisis management in the banking sector is shown in the form of a spiral narrowed to the top around the axis, which reflects economic efficiency as a quantitative expression of system development.

The spiral itself, in fact, is the trajectory of the development of the banking sector over time. The turns of development reflect repeated cyclicity but at a qualitatively higher level. The projection of the turns of the spiral on the plane and the radius of distance from the efficiency axis reflects the quantitative parameters of the system organization for each period under study. The successive reduction of the radius from coil to coil indicates the process of reducing disorganization (entropy) and increasing the organization of the functioning of the system, which reveals the essence and dynamics of the development process. The development process is cyclical. Each cycle corresponds to a state of dynamic equilibrium. In this case, it is the equilibrium state of the first cycle of development ($A_0 - A_1 - A_2$), which passes into the second cycle, that is, into the second equilibrium state ($A_0' - A_1' - A_2'$) accordingly.

In the time period t_4 , which corresponds to the segment A_2A_0 , an active process of transformation takes place - the transition of the accumulated quantitative parameters of the system functioning in the previous cycle to the next.

The main directions of optimization of the development and regulation of the internal stability factors of the banking sector of Ukraine along the trajectory from the state of equilibrium ($A_0 - A_1 - A_2$) to the state of equilibrium ($A_0' - A_1' - A_2'$), which corresponds to the maximum value of entropy $H \approx 0.95$ (or ≤ 1), shown in Figure 5.

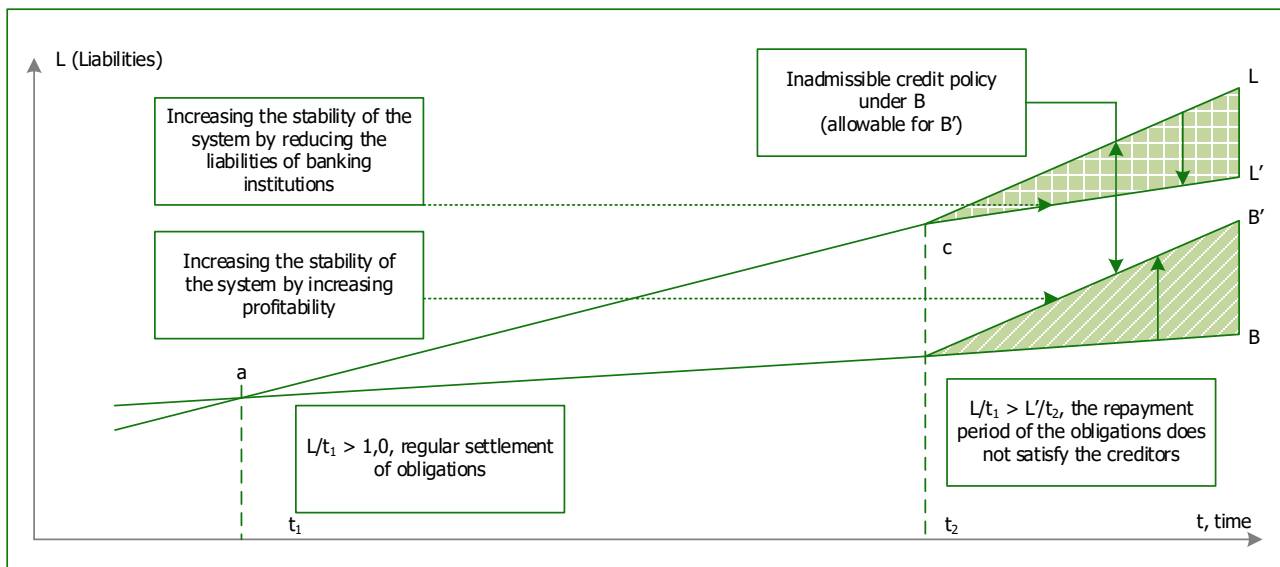


Figure 5. Regulation of internal factors of stability of the banking sector. Note: L – liabilities of banks; B – profitability; L' - increasing the stability of the system by reducing liabilities; B' - increasing the stability of the system by increasing profitability. (Source: authors' own development based on Mihus et al., 2020; Dzhulay, 2008)

When $L/t_1 < 1.0$ – the banking sector has a reserve of liquidity in the form of formed reserves that guarantee sustainability in the future.

At $L/t_1 = 1.0$, the banking sector can cover its obligations in accordance with the indicated level of capital turnover.

When $L/t_2 > L'/t_2 > 1.0$ – the banking sector is in a steady state until the threshold value (L/t_2) is reached when the terms of repayment of liabilities no longer suit counterparties.

When $L/t_1 \leq L/t_2$ – a state of crisis arises, which requires changes in credit policy and restructuring of obligations over time. The given model is relevant to the domestic banking sector.

It is possible to ensure the implementation of the above measures of anti-crisis regulation of the banking sector by performing a certain sequence of management actions, which are given in the structural and logical scheme of the anti-crisis management model (Figure 6).

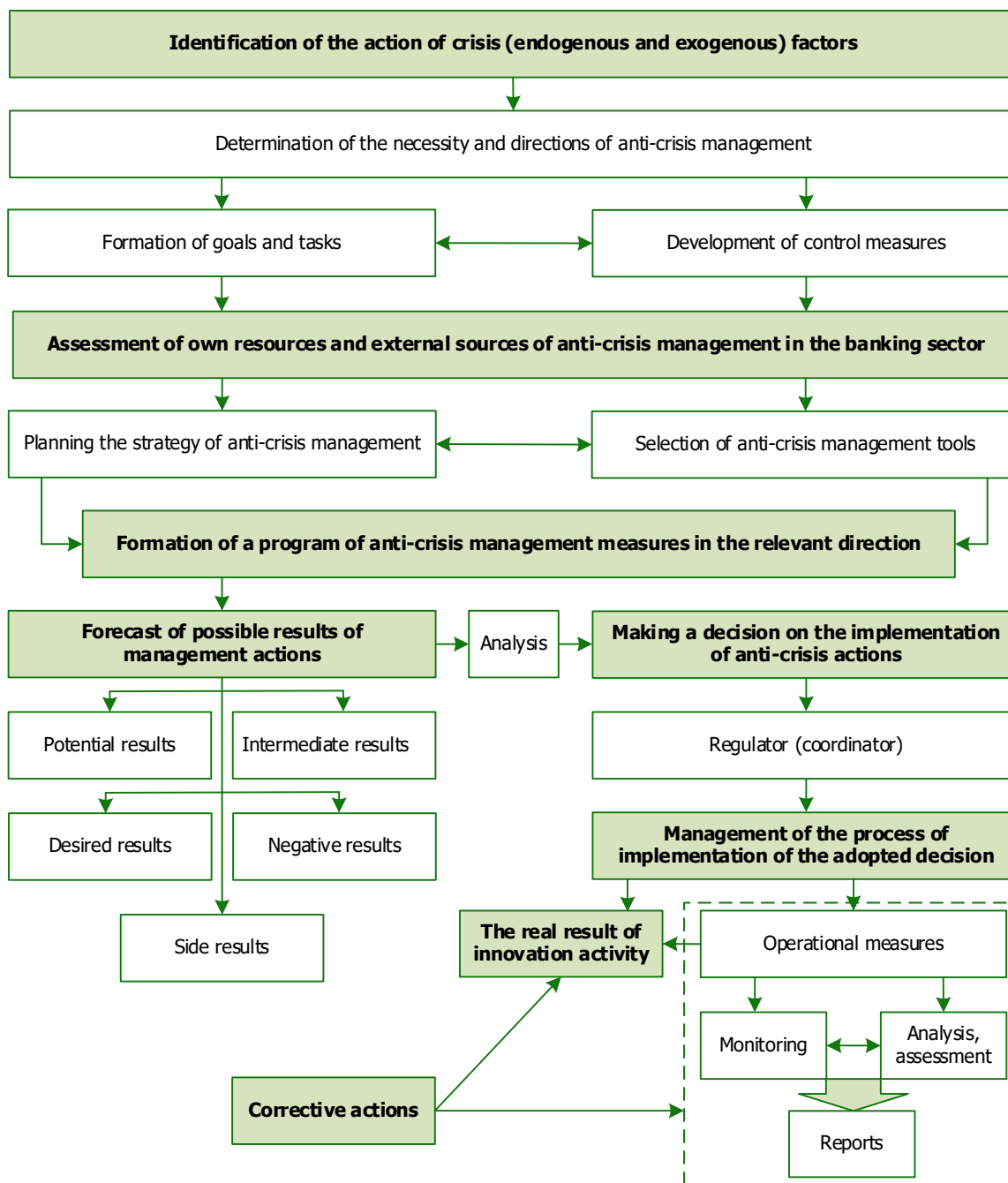


Figure 6. Structural and logical scheme of the anti-crisis management model in the banking sector.

The peculiarity of anti-crisis management is that it combines into a single system the processes of diagnosis, prevention, overcoming the crisis, the formation of a restructuring strategy, the use of non-standard methods in personnel management, etc. From these positions, anti-crisis management can be considered as a constructive reaction to the detection of changes that threaten the stable functioning of the banking sector as a result of diagnostics.

The legitimacy of such an approach can be confirmed by the effectiveness of the results of management decisions by comparing the level of costs and the degree of achievement of goals. At the same time, it should be emphasized that one of the goals of anti-crisis management is to preserve one's own identity and level the disparity between the internal and external parameters of the banking sector. This is a necessary condition for its further development and adaptation to the dynamics of external conditions.

So, in our opinion, based on the importance of the essence of anti-crisis management, an effective model of its organization makes it possible to solve such important tasks as (Mihus et al., 2020; Dzhulay, 2008):

- collection and accumulation of information that reflects the main indicators of the country's economic development in the context of the dynamic development of the banking sector;
- analysis and forecast of indicators of financial stability of the banking sector of the national economy;
- assessment of systemic risks of the banking sector and selection of necessary tools for their neutralization;
- development of a strategy for sustainable development of the banking sector, taking into account and forecasting the destabilizing influence of internal and external factors;
- ensuring an objective assessment of the effectiveness of anti-crisis measures implemented within the framework of adopted anti-crisis programs.

To ensure the effective functioning of the anti-crisis management system in the banking sector, in our opinion, it is necessary to adhere to the following principles:

- *the principle of scientific substantiation* of the use of management methods in the process of anti-crisis actions, which means the need for constant improvement of methodological support of anti-crisis management in the banking sector;
- *the principle of unity* is that anti-crisis management measures should be implemented both at the national and regional levels to ensure a holistic effect from the implementation of the selected anti-crisis management approaches. The specified principle involves taking into account the specific features of the development of regional banking sectors, the specified differences imply uneven influence of external and internal factors on the stability of banking structures in different regions of the country;
- the process of anti-crisis management in the banking sector should be based on *the principle of continuity*, which means that the work related to the collection and assessment of information should be carried out continuously, not periodically, this condition can be fulfilled by the application of the model of the integral dynamic index of the financial stability of the banking sector, which is based on the analysis of dynamic time series of data (Dzhulay, 2008);
- *the principle of comparability of initial data and effective indicators of anti-crisis management*. It means that the initial data, which make up the information base of the anti-crisis management system in the banking sector, should be compared at different periods of time. In addition, it should be possible to unambiguously interpret both the initial data for the development of the anti-crisis management program and the effective indicators that can be used for further forecasts (Mihus et al., 2020);
- *the principle of availability of conclusions and results of anti-crisis management* indicates the need for review and discussion of documented conclusions regarding the implemented anti-crisis measures by all interested users in order to analyze the effectiveness of the actions taken, as well as to identify weaknesses in the implemented anti-crisis management program, which will make it possible to avoid the repetition of erroneous actions and will ensure the implementation of the identified positive experience in the further practice of anti-crisis management in the banking sector of the economy.

As for immediate anti-crisis measures that must be taken to ensure the stable functioning of the banking sector of the Ukrainian economy, then, first of all, the program of measures to increase the competitiveness of the banking sector of Ukraine should be implemented. At the same time, it is advisable to focus the main attention on achieving the following tasks:

- ensuring the financial stability and solvency of the banking sector (this can be achieved by: increasing the level of profitability and capitalization of banks; increasing the long-term resource base; building an adequate system of supporting bank liquidity through improving the refinancing mechanism; developing and improving the banking supervision system);
- stimulating the process of lending to the economy (implementation of the mentioned measure involves solving problems related to legal protection of creditors' rights and increasing the level of solvency of borrowers; limiting the risks of consumer lending, lending to small and medium-sized businesses; constant improvement of the refinancing mechanism for mortgage lending);
- increasing the organizational level of the banking sector of the economy (at the same time, it is expedient to focus the main attention on solving issues related to the growth of public trust in the banking sector; coordinated work of the National Bank of Ukraine with the banking community; redistribution of bank capital between different regions of the country; improvement of banking regulation mechanisms;

- improving the quality of the work of credit institutions (to achieve the outlined goal, it is necessary to: ensure proper implementation and development of national quality standards of corporate governance in banks; stimulate the organization of a proper system of internal control and audit in banking institutions).

The stabilization of the banking sector of Ukraine is connected with the objective need to form the necessary foundations for maintaining the financial stability of banking institutions and their sufficient liquidity as a key condition for their effective performance of their basic functions of financial intermediation, the fulfilment of obligations to depositors and creditors, as well as ensuring the continuity of payments and settlements between market subjects as a fundamental condition for the normal functioning of the entire economy. We will highlight a number of measures that will contribute to the fulfilment of this task.

1. *Guaranteeing the preservation of deposits in banking institutions.* An important institutional measure to stabilize the work of the banking sector is to increase the level of protection of bank deposits. In this case, we are talking about a fundamental change of priorities: from the ban on early withdrawal of deposits to the NBU guaranteeing the return of all depositors' funds. This step has an important psychological effect since the restoration of trust in banks and the confidence of customers in the ability to withdraw their money at any time will contribute to the attraction of deposits, which will have a positive effect on the resource base of banks. The outflow of funds from banks by itself does not determine their more productive use in other assets, because, apart from "keeping at home" or investing in foreign currency, their depositors have no other options for placing deposits withdrawn from banks. Thus, guaranteeing deposits is one of the important factors in favour of economic agents making a decision to return their funds to banks.
2. *Control over the targeted use of refinancing loans.* A serious challenge for the banking sector was the misuse of NBU refinancing loans. It is about the use of funds received by banks for the purpose of currency speculation on the interbank foreign exchange market, as well as for withdrawal of currency abroad. Obviously, the measures taken by the National Bank to control the work of the management bodies of those banks that received the appropriate loans will contribute to maintaining the financial stability of banking institutions. Under such conditions, the possibility of providing refinancing loans without collateral as a more operative instrument of monetary policy should be considered in individual cases. But in this case, it is necessary to take into account the presence of certain risks of disruption of macroeconomic stability in connection with increased inflation due to the increase in the volume of refinancing of commercial banks by the National Bank. However, under current conditions, moderate inflation is less of a problem for the economy compared to a disruption in banking sector liquidity. The restoration of trust in banks and the return of deposits will make it possible to further neutralize the initial negative effect of the increase in the scale of refinancing.
3. *Limitation of debt pressure on borrowers.* The interest rate policy of the National Bank of Ukraine in the process of organizing lending to commercial banks can be aimed at encouraging the latter to restructure debt and reduce the debt burden on borrowers by gradually reducing interest rates. By reducing debt pressure on borrowers, confidence in the banking sector as a whole can be restored. After all, credit support of banks from the National Bank is a significant factor in ensuring their liquidity in the event that loans are not repaid on time, and deposit obligations must be fulfilled.
4. *Improvement of the monitoring system for violations of the stability of the banking sector of the economy.* Regardless of the fact that the forms of manifestation of crisis phenomena can constantly change, the National Bank of Ukraine needs to constantly improve the market monitoring system, with the help of which it would be possible to carefully monitor some general signs of complications that may arise, in particular: a) excess liquidity on the financial market; b) excessive inflow of short-term capital into certain sectors of the economy; c) rapid expansion of the lending sphere, i.e. excessive credit expansion of banks; d) rapid growth of prices for certain types of assets (for example, real estate).
5. *Recapitalization of banks.* An alternative to refinancing loans in the direction of maintaining the solvency and financial stability of commercial banks is the procedure for their further recapitalization. The participation of the state in the capital of system-forming banks, which have the greatest influence on the stability of the entire banking sector and on whose stability macroeconomic stability in the country largely depends, the participation of the state in the management of such banks and decision-making on credit policy priorities can become a powerful means of anti-crisis measures to complement traditional instruments of monetary regulation of the NBU.

6. *Improvement of risk management.* The regulatory mechanism both on the part of the National Bank of Ukraine and on the part of the commercial banks themselves should be aimed at improving the risk management policy of banking institutions - primarily credit and liquidity. For this purpose, the business processes within the banks themselves, the structure of the network of their branches, the mechanisms of timely and comprehensive risk assessment and the creation of the necessary reserves must be optimized. This is due to the complication of the procedure for considering loan applications, the expansion of the system of indicators for assessing the financial stability of the borrower, his income, credit history, reputation and liquidity of the proposed collateral, as well as the revision of the internal control procedure for granting loans to various borrowers.

Therefore, the considered measures to maintain stability and ensure stable functioning of the banking sector and increase trust in it are conditions for financial and macroeconomic stabilization and restoration of economic development of Ukraine in modern conditions.

DISCUSSION

Neglecting the prevention of banking crises can lead to a sharp weakening of the banking system and the financial base of the economy. On the one hand, from the very beginning, banks in Ukraine operated in critical economic conditions in the domestic financial market, which developed spontaneously. On the other hand, the rapid development of the Ukrainian financial market against the background of globalization and internationalization of financial markets makes it more adaptable and similar to modern Western financial markets, which are characterized by other risks and crisis situations, which domestic banks have not yet accumulated experience in overcoming due to their relatively short existence. At the same time, the national banking sector found itself in a situation in which the banking institutions of European countries and the world community had not been for decades or even centuries. The coronavirus and the military invasion of the Russian Federation forced the National Bank and the banking sector to take measures as soon as possible to ensure the financial stability of the national economy.

We agree with the opinion of A. Kuznetsova, G. Azarenkova, and E. Olefir, (2017) who believe that "in order to improve the functioning of the banking system of Ukraine and its adaptation to the requirements and standards of the European Union, one of the important tasks of the National Bank of Ukraine is the implementation of the bail-in mechanism", which will allow to settle the insolvency of banks or the high probability of its occurrence at the expense of internal sources of banks. The foreign experience of implementing "bail-in" shows that with its help, central banks managed to successfully restructure banks' balance sheets and significantly reduce the risks of their activities.

The position of scientists G. Karcheva, and I. Karcheva, 2022, is absolutely correct. O. Petruk, A. Petruk, 2022, who believe that in modern conditions, the formation of a mechanism for the prevention of crisis phenomena in the banking sector and in each individual bank requires a reorientation of the work of the National Bank and the management of banks on the early detection of potential problems and the degree of susceptibility to them from the side of this or that bank. This involves the development and implementation of new approaches to assessing the quality of banks' activities, and the development of trust and cooperation between banking institutions and regulatory bodies. An important element of such a mechanism should be preparatory work, which includes high-quality planning of anti-crisis procedures, improvement of the content of banking supervision, strengthening of market discipline and transparency of the activities of Ukrainian banks.

In modern conditions, full-scale military operations, as V. Kovalenko notes., military aggression is an extraordinary threat, "which brings to the fore the threat of legalization of criminal proceeds and financing of terrorism." Therefore, we support the opinion of the scientist, who claims that the necessity "is the development and implementation of a set of measures aimed at increasing the overall level of financial security of the banking system based on the formation of the latest Comprehensive Program for Ensuring the Financial Security of Ukrainian Banks" (Kovalenko, 2022).

CONCLUSIONS

The three-dimensional structural-logical model of anti-crisis management in the banking sector proposed in the article consists of a set of measures and management actions aimed at ensuring the stability of the banking sector in the short-term and long-term perspectives.

Increasing the effectiveness of anti-crisis measures and the implementation of the anti-crisis management program in the banking sector of the Ukrainian economy requires solving the following tasks: ensuring the financial stability and solvency

of banking institutions, stimulating the process of lending to the economy, improving the organizational structure of the banking sector with the expansion of anti-crisis levers of the regulator, and increasing the level of internal efficiency of banking institutions.

To ensure the effective functioning of the anti-crisis management system in the banking sector, in our opinion, it is necessary to adhere to the following principles: scientific validity of anti-crisis methods; general coverage, which involves taking into account the specific features of the development of the regional banking sector and the uneven impact of external and internal factors on the stability of banking structures in different regions of the country; continuity of anti-crisis management; comparison of initial data and performance indicators of anti-crisis management and availability of conclusions and results for all interested users in order to analyze the effectiveness of the actions taken and identify weak points in the implemented anti-crisis management program.

To ensure the stable functioning of the banking sector of the Ukrainian economy, the following measures are proposed: increasing the level of guaranteeing deposits in banking institutions, strengthening control over the targeted use of refinancing loans provided to commercial banks, limiting debt pressure on borrowers by optimizing the banks' interest policy, providing guarantees for interbank loans and carrying out the recapitalization of banks, as well as improving the monitoring system for signs of instability in the banking sector and improving the risk management system.

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МОДЕЛЮВАННЯ СИСТЕМИ АНТИКРИЗОВОГО УПРАВЛІННЯ В БАНКІВСЬКОМУ СЕКТОРІ ЕКОНОМІКИ УКРАЇНИ ДЛЯ ЗАБЕЗПЕЧЕННЯ ЙОГО ФІНАНСОВОЇ СТАБІЛЬНОСТІ

В умовах великої турбулентності національного фінансового ринку, спричиненої спочатку коронавірусом, а згодом – російським вторгненням, особливо важливим завданням сьогодні є стабільне функціонування банківської системи, яка є кровоносною артерією економіки. У цьому контексті важливим завданням є акумулювання зусиль Національного банку та комерційних банків на вдосконалення системи антикризових заходів для забезпечення стабільної роботи банківського сектора й економіки загалом.

Стаття присвячена розвитку методичного інструментарію антикризового управління в банківському секторі вітчизняної економіки. Із цією метою запропонована модель антикризового управління в банківському секторі економіки України, яка ґрунтується на прогнозуванні стійкого розвитку банківського сектора шляхом виділення трьох основних його станів: нерівноважного, мінімально організованого та максимально організованого. Тривимірний антикризовий управління в банківському секторі дає можливість показати наочно циклічність його розвитку.

У дослідженні визначені та обґрунтовані основні напрями оптимізації розвитку та регулювання внутрішніх чинників стійкості банківського сектора України. Запропоновано структурно-логічну схему моделі антикризового управління,

яка передбачає виконання заходів антикризового регулювання банківського сектора шляхом виконання певної послідовності управлінських дій. У статті також визначені завдання, спрямовані на реалізацію програми заходів щодо підвищення конкурентоспроможності банківського сектора України.

Розглянуті заходи щодо підтримання стійкості та забезпечення стабільного функціонування банківського сектора й підвищення довіри до нього є найважливішими передумовами фінансової й макроекономічної стабілізації.

Ключові слова: антикризове управління, банківський сектор, фінансова стабільність, моделювання, стійкість банківської системи, синергетична концепція

JEL Класифікація: G01, G21, G28, G32