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IMPROVEMENT OF THE CONCEPT OF STATE REGULATION OF THE BANKING SYSTEM AND MODELING ITS IMPACT ON THE NATIONAL ECONOMY

ABSTRACT

Modelling the impact of state regulation of the banking system to improve the efficiency of the functioning of the national economy is becoming quite important. In the context of constant geopolitical, social, climatic disturbances, hostilities, the need for immediate management decisions, the question of developing new conceptual approaches to the formation of theoretical and methodological foundations and practical measures of state regulation of the influence of the banking system to financially ensure long-term stable development of the country's economy in the face of increasing crisis phenomena.

The study pays attention to the essence, main provisions and principles of the concept of state regulation of the banking system as a segment of the national economy. The use of the taxonomic approach and functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy is considered.

The introduction of a taxonomic approach to the description of the regulation of the banking system in the form of a procedure for constructing a taxonomic indicator for the analysis of the relevant regulation on selected features during the studied period of time is proposed; procedures for the distribution of the analyzed features of the taxonomic determination of the content of the impact on the regulation of the banking system in separate groups to determine the content of the relevant regulation in separate time intervals or in the context of individual groups of banks.

The study carried out functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy.

Keywords: banking system, state regulation, national economy, functional and legal modelling, taxonomic approach

JEL Classification: C50, C 53, C80, E43, G24

INTRODUCTION

The analysis of the main trends in the development of the national economy, taking into account the formation of the domestic banking system, allows us to state that the harmonious development of the state is properly determined by the stability and continuity of the functioning of its various links, both special business entities and a multitude of separate economic agents that are interconnected in within the limits of various economic relations arising between them. At the same time, significant attention in such interaction is paid to financial issues, because it is financial resources that have the greatest elasticity in terms of transformation into any other resource.

The banking system occupies one of the leading places in the transformation and redistribution of financial resources both between individual business entities and all functional branches of the state, and sectors of the national economy. This transformation of financial resources and the satisfaction of the need for them by various consumers with the help of bank financing is achieved primarily due to the accumulation of free financial resources on the market and their subsequent redistribution based on the development of credit relations and trust management of financial assets.

However, the role and importance of the banking system in the structure of the national economy, and therefore the need to form managerial influences on such a system on the part of the state, are not limited to the need to transform and redistribute financial resources.

LITERATURE REVIEW

The importance of the formation of managerial influences on the banking system by the state is determined by what, for example, O. V. Dzyublyuk, O. V. Vasyurenko, M. M. Yermoshenko, S. A. Yerokhin, O. A. Storozhenko, the essence of state influence on the financial system of the economy as a whole consists in the performance of two key functions [1; 2; 3]: implementation of monetary policy based on control and regulation of monetary and financial indicators of the economy to ensure the stability of the value of the national monetary unit; control and regulation of the activities of financial intermediaries, which allows for the necessary redistribution of free financial resources.

At the same time, the main components of the formation of state influence directly on the effectiveness of the functioning of the banking system, according to well-known foreign experts in the field of banking Rajan R.G., Carney M., Czarnitzki D., can be attributed [4; 5; 6]: ensuring the stability of monetary policy; formation and support of channels for lending and investing in the economy; creation of conditions for the development of competition and implementation of innovative solutions; maintenance of basic conditions for the preservation of private savings, the spread of operation of payment mechanisms.

Many scientists paid attention to the analysis of the existing foundations of the formation of appropriate state influences on the functioning of the banking system, their relevance and compliance with the existing economic realities, taking into account the conditions of development not only of the banking system but of the country in general. In particular: G. Karcheva determines the peculiarities of the functioning of the banking system in the post-crisis period, and therefore the effectiveness of the relevant levers of influence from the regulator's side on events in the banking sphere [7]; A. Kuznetsova and N. Pogorelenko analyze the effectiveness of the mechanisms for ensuring the financial stability of the banking system [8]; M. Kozoriz, I. Dyakonova reveal the content of effective regulation of the domestic banking system in the context of the integration of the Ukrainian economy into the world economy and the liberalization of international capital movements [9; 10].

At the same time, the issue of determining the essence of the formed managerial influences on the effectiveness of the banking system is no less important. In particular, the following issues are raised in relation to: determining the role and importance of the state in ensuring the effectiveness of regulation of the banking system in various areas of banking activity and its impact on various segments of the national economy [11]; disclosure of the content of the conceptual apparatus for determining the essence and content of state regulation of the banking system [12; 13]; analysis of the interrelationship of state regulation of banking relations and state policy in this area of the economy, which allows distinguishing separate levels of regulation of the banking system [14].

Many scientists considered in their works the issue of classification of the principles of state regulation of the banking system. In particular, I. I. Diakonova [14], and S. M. Lobozińska [15] emphasize the following principles in their research: the legality of the formed influences in the sphere of state regulation of the banking system to the existing regulatory and legal framework; objectives of banking regulation; coherence and transparency of decisions made; balance of interests of all participants in the process of conducting banking activities; transparency and adequacy of received and provided information; operational independence regarding the regulation of banking activity; responsibility for decisions made and the consequences of their implementation, violation of established norms.

The economic literature contains many studies on the disclosure of formalized approaches to describing the consequences of regulation of the banking system. For example, T. M. Knysenko, on the basis of fuzzy set methods, determines possible scenarios for the development of the banking system of Ukraine, taking into account the available influences on its regulation [16]. Instead, A. Kuzemin and V. Lyashenko, based on fuzzy set methods, conduct a comparative analysis to determine the effectiveness of the applied regulatory influences for the banking systems of different countries, which can also be interpreted as the introduction of a simulation approach to describing the impact of the applied measures of state regulation of the banking system [17].

Such foreign scientists as P. Rose, J. Sinki, J. Stiglitz, J. Schumpeter and others paid attention to the study of the problems of the development of the national economy and the influence of the banking component system. The fundamental essentials of the theory of economic mechanisms, including regulatory ones, are laid out in the scientific works of the 2007 Nobel laureates in economics, L. Hurvich, R. Myers, and E. Maskin. Jean Tirol's works on the theory of games, contracts,

banks and finance, research on market power and regulation in the economy deserve attention (Nobel Prize in Economics in 2014).

However, the theoretical justifications and applied developments of scientists are designed for countries with a developed market economy system and therefore do not fully correspond to the conditions of development of the Ukrainian economy. At the same time, the adaptation of some provisions of foreign developments to the conditions and specifics of Ukraine is of significant scientific and practical interest and requires special research.

AIMS AND OBJECTIVES

Thus, the main goal of the article is the formation of an effective concept of state regulation of the banking system in order to determine measures for the formation of effective managerial influences on its development to ensure the positive impact of the banking system on the development of the national economy. Accordingly, the following tasks are solved in the article:

- the essence of understanding the meaning of regulation and banking regulation is revealed;
- the concept of state regulation of the banking system in terms of individual structural elements is improved;
- the meaningfulness of the introduction of the taxonomic approach to the description of the regulation of the banking system is substantiated;
- the modelling of the processes of state regulation of the influence of the banking system on the development of the national economy is methodologically described.

METHODS

The work uses general scientific methods: empirical, theoretical generalization, and comparison - to determine the essence of concepts; graphic interpretation - to depict the results of the taxonomic approach; forecasting and functional-legal modelling - for forecasting the processes of state regulation of the influence of the banking system on the development of the national economy.

To analyze the effectiveness of the implemented measures of state regulation of the banking system, the work uses a taxonomic approach to generalize the essence of which the concept of "taxonomic indicator" is applied, which is calculated as follows [18]:

- signs of the taxonomic determination of the content of the effects on the regulation of the banking system are chosen (n - the number of such signs) and signs on which the taxonomic indicator will be calculated (m - the number of such signs);
- a matrix of observations ($n \cdot m$) is built to generalize the content of influences on the regulation of the banking system according to the selected features of the taxonomic definition of the studied influences;
- the elements of the observation matrix are standardized;
- the benchmark vector (of size n) is determined for the analysis of the content of the effects on the regulation of the banking system;
- the distance (R) between the elements of the observation matrix and the reference vector is calculated according to the formula [18]:

$$R_{i0} = \sqrt{\sum_{j=1}^n (b_{ij} - b_{0j})^2} \quad (1)$$

where b_{ij} - are the standardized values of the elements of the observation matrix ($i = \overline{1, m}, j = \overline{1, n}$); b_{0j} - elements of the reference vector.

the taxonomic indicator (Kt) is calculated according to the following formulas [87]:

$$Kt_i = 1 - d_i, \quad (2)$$

where i - is one of the signs by which the taxonomic index is calculated;

$$d_i = R_{i0}/R_0 \tag{3}$$

$$R_0 = \overline{R_0} + 2S_0 \tag{4}$$

$$\overline{R_0} = \frac{1}{m} \sum_{i=1}^m R_{i0} \tag{5}$$

$$S_0 = \sqrt{\frac{1}{m} \cdot \sum_{i=1}^m (R_{i0} - \overline{R_0})^2} \tag{6}$$

RESULTS

It is worth noting that it is different models and categorical apparatus, in particular from the state regulation of the banking system, that determines the basis of the development of the mentioned concept. As for directly touching such a concept as regulation of the banking system, it should be noted that it does not have a clear definition and is constantly used with the definitions "banking supervision" and "banking control". The definition of "regulation" presupposes consideration of state regulation of the banking system as a type of management with feedback. This is determined by the fact that regulation:

- is a type of management that involves subordinating a certain system to certain rules;
- are the subjective-objective relations, where the object of regulation is the activity of economic subjects, and at the same time, the object in some cases turns out to be identical to the subject, and the state in this case is not an exception [19].

In support of the above, the following definition of the concept of "banking regulation" can be given: "It is a system of measures by means of which the state through the central bank (in domestic practice - this is the National Bank of Ukraine) ensures stable and safe functioning of the banking system" [20, p. 139]. Such measures include banking control and banking supervision.

Therefore, the combination of the use of the definitions "banking regulation", "banking supervision" and "banking control" becomes clear. This understanding is determined by the fact that, as determined, in particular, by H. Hegenheimer [21, p. 4]: "banking regulation belongs to legal rules or administrative requirements put forward by authorities; banking supervision means the procedure of constant monitoring of compliance with administrative requirements; banking control allows for determining the need to change the established requirements."

Therefore, one of the key components of the general concept of state regulation of the banking system should be defined as monitoring, which contributes to ensuring this type of management based on tracking compliance or appropriate changes to established rules and regulations (in particular, in the form of a number of different indicative indicators). Banking supervision and banking control based on the monitoring of banking activity can be considered the main structural elements of the implementation of the concept of state regulation of the banking system (Figure 1).

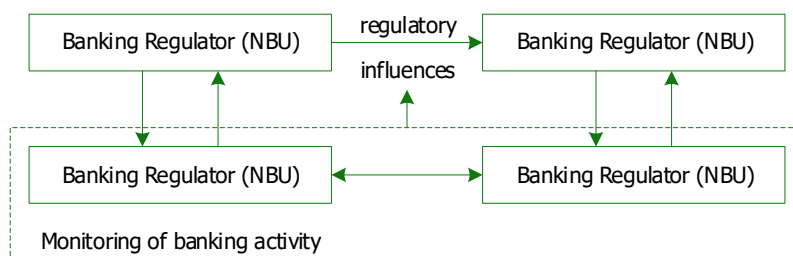


Figure 1. The main structural elements of the implementation of the concept of state regulation of the banking system.

At the same time, the state regulation of the banking system determines the main tasks that rely on the relevant concept, which relate to the functions of state regulation, namely [14; 15; 22]:

- institutional - ensures the development of the institutional environment;
- regulatory - reveals the essence of state regulation of the banking system;
- social - ensures the protection of banking market participants in the process of carrying out banking activities;

- controlling - aimed at preventing the occurrence of undesirable development of the banking system and the impact of such development on the country's economy in general;
- integrational - helps to ensure connections between regulatory state bodies and participants of the banking system, as well as banking systems of other countries.

Disclosure of the functions of state regulation of the banking system makes it necessary to highlight:

- the national level of regulation, which includes general regulation of the financial market as a whole on the basis of monetary and inflationary policy, currency regulation;
- direct regulation of the banking system, which is carried out with the help of banking supervision and bank control over the conduct of banking activities.
- The tasks of the concept of state regulation of the banking system are aimed at key directions:
 - achieving macroeconomic equilibrium based on the coherence and balance of the movement of various financial and material flows of all state entities;
 - ensuring stability and stability of financial market development;
 - development of the market of banking services due to the stability of the functioning of individual banks;
 - protection of the rights of all participants in the market of banking services.

In other words, the tasks of the concept of state regulation of the banking system include:

- macro level - determined on the basis of the integration of the banking system in the national economy;
- meso level - summarizes the interaction in the middle of the banking system itself;
- micro level - refers to the level of individual elements of the banking system of interaction of all participants regarding emerging economic relations.

The structural construction of the concept of state regulation of the banking system can be defined in terms of its individual elements (Figure 2):

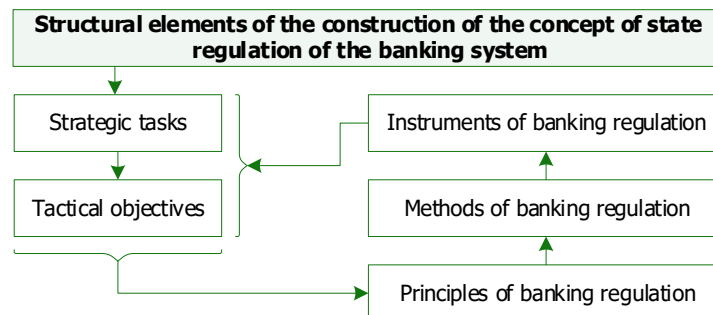


Figure 2. Interrelationship of individual structural elements of the construction of the concept of state regulation of the banking system.

- strategic tasks, which should be understood as the achievement of the regulation of the banking system both in terms of its separate levels of construction and in terms of separate levels of the formation of state regulatory influences;
- tactical goals that correspond to the implementation of a set of various tasks regarding state regulation of the banking system;
- methods of banking regulation, which are structured according to various characteristics, among which it is possible to distinguish: direct and indirect, economic and administrative, normative and corrective methods, etc. [23; 24];
- principles of regulation, which allow to ensure the fulfilment of strategic tasks and tactical goals;
- tools for the formation of state regulatory influences, which are determined thanks to currency regulation, the implementation of banking supervision and banking control.

The concept of state regulation of the banking system should be considered in the short, medium and long term. The effectiveness of the concept is determined both by the conditions (economic, political, social) of banking activity and the development of the banking system, as well as by various areas of demand for banking services.

The main components of the concept of state regulation of the banking system, which determine its overall content, should include:

- implemented models of regulation of the banking system and the categorical apparatus of such regulation;
- monitoring, which allows to ensure the implementation of the mechanism of state regulation of the banking system;
- the mechanism for the implementation of state regulation of the banking system, which defines a set of methods, principles and measures regarding the application of influences for the regulation of the banking system;
- generalization of the functional orientation of banking regulation at its various levels, which allows us to reveal the main tasks of the concept under consideration;
- the horizons of revealing the concept of state regulation of the banking system, which allows taking into account the formed economic, political and social conditions of the country's development and their influence on the formation of relationships in the banking sphere.

An essential issue of the implementation of this concept is the determination of the principles to which it should be subject. In a formalized form, the interdependence of individual structural elements of the construction of the concept of state regulation of the banking system can be presented as follows:

strategic tasks —► *tactical goals* —► *principles of state regulation of the banking system* —► *methods of banking regulation* —► *tools for implementation of state regulation of the banking system* —► *instruments of banking regulation*.

Therefore, the principles of state regulation of the banking system generalize the set of a whole series of necessary financial and economic relations between various economic subjects, which this concept applies to.

It should be noted that, in general, the principles of state regulation of the banking system are determined in accordance with the set of possible considerations of such principles. Such a set of principles usually include

1) *management principles, in particular:*

- purposefulness in the performance of assigned tasks;
- planning, which allows to achieve strategic goals based on the gradual achievement of tactical goals;
- stimulation, which contributes to the achievement of set tasks based on the encouragement of self-development and self-regulation of individual components of the banking system;
- hierarchical coordination, which ensures the fulfilment of strategic tasks by coordinating individual tactical goals;

2) *principles of monitoring, which must include:*

- principles of information transparency, openness, timeliness, dynamism and adequacy of received information;
- principles of comprehensive and responsible consideration of available information;
- principles of systematicity, which allow taking into account the structure of the banking system itself and the multiplicity of areas of banking activity;
- principles of regulation of the financial market and the national economy.

It is important to take into account the principles of hierarchical consistency and transparency of the decisions made, the reliability of the received information [25; 26, p. 46].

The validity of the multiple consideration of various influences regarding the generalization of the principles of state regulation of the banking system is also emphasized from the point of view of the generally recognized Basel agreements on the implementation and regulation of banking activities.

Considering the importance of the Basel agreements for the implementation and regulation of banking activities, some of the researchers adhere primarily to the principles that are determined by such agreements. For example, A. Demirgug-Kunt, E. Detragiache, T. Tressel, J.R. Barth, Jr G. Caprio, and R. Levine consider it appropriate to focus on [27; 28]:

- regulatory restrictions established for banking activity;
- compliance with the provisions of the internal activities of individual banks;
- deposit insurance;
- compliance with reservation standards;
- principles of diversification of banking resources.

Such principles are important for the stable functioning of the banking system, but taking them into account alone is clearly not enough, since the banking system is an integral part of the financial market and a significant institution of the state. In view of the above, to the group of principles of state regulation of the banking system should be added those related to ensuring:

- financial stability not only of the banking system but also of financial markets in general;
- the level of protection of the interests of all participants and consumers of various financial services;
- sustainable development of the state in general.

Among the relevant principles of state regulation of the banking system, the following should be added to the above:

- effective use of financial resources that are freely available on the market;
- transparency of activities in various segments of the financial market;
- the responsibility of the bodies of the financial organization of the movement of various financial flows.

In general, the set of various principles of state regulation of the banking system can be determined by such features as:

- the principles of direct influence on the effectiveness of the banking system, which are based on the formation of influences to ensure the stability of the processes of carrying out banking activities in the context of its individual directions;
- principles that apply directly to other participants in the process of banking activity, and not only to the banking system;
- unifying principles that ensure interaction between different segments of the financial market regarding state regulation of the banking system.

In general, the structuring of the principles of state regulation of the banking system looks like this (Figure 3).

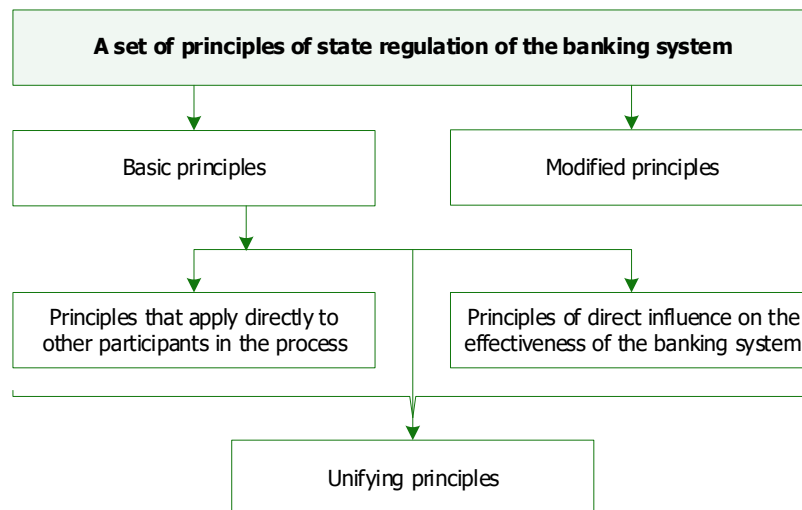


Figure 3. Structuring of a set of principles of state regulation of the banking system.

The introduction and implementation of the concept of state regulation of the banking system are determined not only by the set of principles chosen and laid as a basis for such a concept but also by the set of chosen methods and tools.

In order to reveal the thoroughness of the implementation of various methods and instruments of state regulation of the banking system, it is appropriate to define separate formalized approaches to such implementation. The specified approaches can be considered as a toolkit for the implementation of the scope of implementation of the set tasks of the general concept of state regulation of banking activity. All these approaches can be grouped as follows:

- approaches that are based on the methods of fuzzy set theory and that allow avoiding statistical uncertainty due to the lack of a sufficient and complete amount of primary data [17];
- approaches that use methods of nonlinear analysis of the dynamics of various indicators to reveal the current state of the banking system under study [29];
- approaches based on methods of statistical analysis and econometric modelling [30; 31; 32; 33].

Since the banking system is a set that defines a certain financial infrastructure with existing connections that reveal the emerging economic and financial relationships, when revealing and summarizing the formed regulatory influences on the effectiveness of the banking system, it is necessary to take into account both its (the banking system's) structuredness, as well as the possible structuring of conditions for the implementation of certain areas of banking activity.

It should be noted that banking activity focuses on taking into account the possible prevention of certain risks. Therefore, the disclosure of individual risks when determining the effects on the regulation of the banking system is also evidence of the expediency of structuring the regulation of banking activity. Therefore, we suggest using a dynamic portfolio approach. The methodology of the dynamic portfolio approach allows to define the taxonomic approach as a priority for revealing the description of the consequences of the regulation of the banking system.

To generalize the essence of the taxonomic approach, as a rule, the concept of the "taxonomic index" is used, which is described by formulas (1)-(6). The closer the value of the corresponding taxonomic indicator (Kt) is to one, the more significant the use of the corresponding feature of such an indicator is, and therefore the effectiveness of the corresponding regulation of the banking system is more significant.

In order to implement a taxonomic approach to determine the consequences of regulation of the banking system, one should choose the appropriate characteristics, which will be used to calculate the taxonomic indicator. As signs of the taxonomic definition of the content of influences on the regulation of the banking system, the following set of applied regulations can be chosen [34]:

- the standard of regulatory capital volume;
- the standard of regulatory capital sufficiency (adequacy);
- the standard (coefficient) ratio of regulatory capital to total assets;
- the standard (coefficient) ratio of regulatory capital to liabilities;
- the standard of instant liquidity;
- the standard of current liquidity;
- the standard of short-term liquidity;
- the standard of the maximum amount of credit risk per counterparty;
- the standard of large credit risks;
- the standard of the maximum size of loans, guarantees and sureties provided to one insider;
- the standard of the maximum aggregate size of loans, guarantees and sureties provided to insiders;
- the standard of investment in securities separately for each institution;
- the standard of the total amount of investment.

Such a set of standards can change, which allows expanding the limits of analysis. At the same time, different time periods should be chosen for the features by which the taxonomic indicator will be calculated. This will allow taking into account the impact of the applied regulation on the dynamics of the development of the banking system.

Using the values of the economic norms of domestic banks of Ukraine based on the results of 2015-2022 in the section of individual quarters in accordance with the annual reports of the National Bank of Ukraine and the data of the Ministry of Finance of Ukraine [34; 35; 36], we conducted a corresponding taxonomic analysis of the development of the domestic banking system. The following were chosen as part of such a group of standards:

- the standard of capital sufficiency (adequacy) standard;
- the standard (coefficient) ratio of regulatory capital to total assets;
- the standard (coefficient) ratio of regulatory capital to liabilities;
- the standard of instant liquidity;
- the standard of current liquidity;
- the standard of short-term liquidity.

The validity of such a choice is determined by the fact that it is the indicators of regulatory capital, assets, liabilities, structural characteristics of assets and liabilities, which are summarized in liquidity indicators, that determine the effectiveness of banking activities, and therefore, the effectiveness of the functioning of the studied system of domestic banks.

According to the sequence indicated above and according to formulas (1)-(6) in Figures 4-5 shows the values of taxonomy indicators.

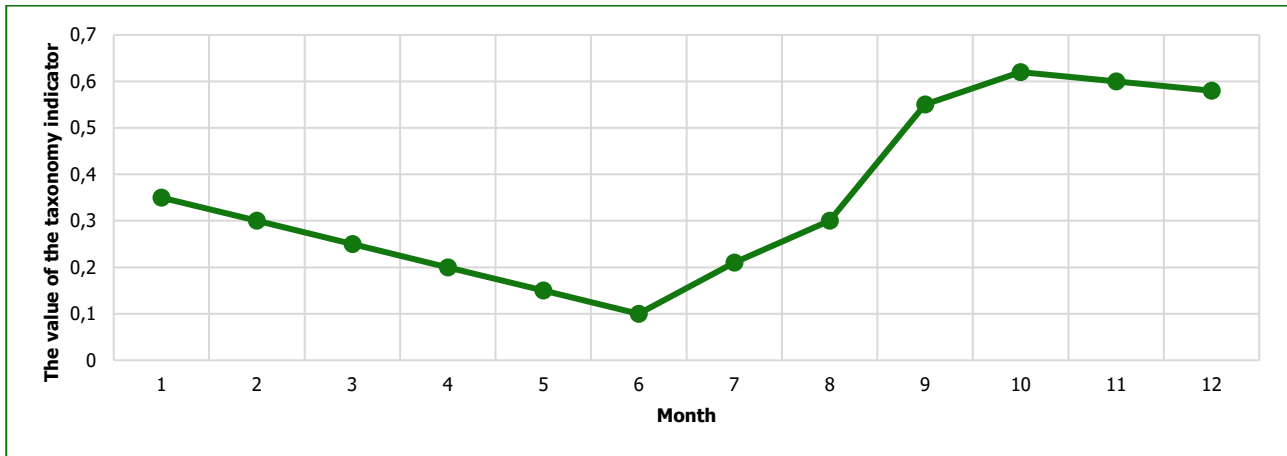


Figure 4. The value of the taxonomy indicator in the section of the selected signs according to the results of 2022.

As can be seen from Figure 4, during 2022, the value of the taxonomy indicator generally has an upward trend. This indicates the presence of positive dynamics from the point of view of the applied effects of state regulation of the domestic banking system, which is evidence of the effectiveness of the implemented effects from the point of view of state regulation.

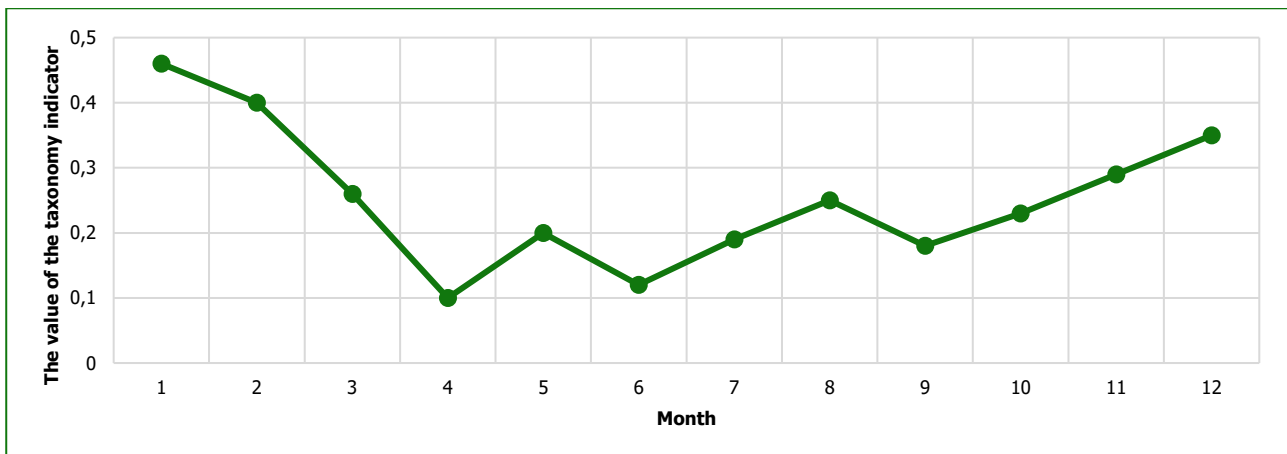


Figure 5. The value of the taxonomy indicator in the section of the selected features according to the results of 2022.

The data in Figure 5 shows that the absolute values of the studied indicator increased. Changing the definition of the meaningfulness of the studied taxonomy indicator allows us to talk about the influence of individual features on the effectiveness of the corresponding regulation. Considering the data of Figures 4, 5, it should be stated that insufficient settlement of bank liabilities, which include public funds, determines the presence of negative consequences from the point of view of the existing system of state regulation of the domestic banking system.

The above-mentioned allows not only to conduct an analysis of the functioning and development of the domestic system from the point of view of the application of various regulatory influences but also to determine the effectiveness of the implementation of such influences. At the same time, in general, the corresponding procedure can be presented in the following way:

- choose a group of signs to reveal the content of the taxonomic indicator in determining the effectiveness of the introduced regulatory influences on the effectiveness of functioning of the banking system;
- in turn, one feature is singled out in order to take into account its impact on the effectiveness of the implemented state regulation of the banking system;
- calculate various values of taxonomic indicators for different groups of features that determine the meaningfulness of the calculated indicator;

- draw up a conclusion on the significance of a specific feature from the point of view of the introduced system of state regulation of the banking system.

At the same time, the examination of the taxonomic definition of the features selected for the study of the effects of the regulation of the banking system contributes to the justification of the differentiation of the dynamics of various regulations on the conduct of banking activities by specific groups. In order to clarify this possibility of structuring the dynamics of various norms of conducting banking activities by specific groups, the following procedure should be applied:

- separate groups of standards for conducting banking activities are selected in pairs, according to which the dynamics of such standards will be demarcated;
- in the phase space of the selected standards, all positions of the dynamic change of such standards are determined (Figure 6, a conditional example, where possible positions of the change of the studied standards are marked with dots);
- the Pareto boundary is constructed for the studied set of the positioning of dynamic changes of standards selected for analysis. Such a limit is defined in the form of a line between the maximum values of the plotted points from the point of view of each of the selected standards;
- the place of the intersection positioning (indicated by the number 2 in Figure 6) of the possible division of the established positioning of the dynamic change of the standards selected for the analysis is calculated. It is defined as the point of intersection of the perpendicular drawn from the point of intersection between the lines of the maximum value of individual standards (indicated by the number 1 in Figure 6) and the Pareto boundary line;
- separate quadrants of the possible distribution of the selected positioning points of the dynamic change of the studied standards are determined. This distribution allows to group the investigated positioning of the selected norms within the limits of the mutual small value of both the first and the second norm (quadrant 1), within the limits of the mutual significant value of both the first and the second norm (quadrant 3), within the limits of variable values of falling or the first, or the second norm (quadrants 2 and 4). So, in general, it is possible to analyze the change in time of the formed regulatory influences on the banking system from the point of view of individual standards. A similar approach can be applied to the analysis of individual groups of banks in the banking system in order to determine the effectiveness of the introduced regulatory influences on the banking system from the point of view of its individual banks and groups of banks.

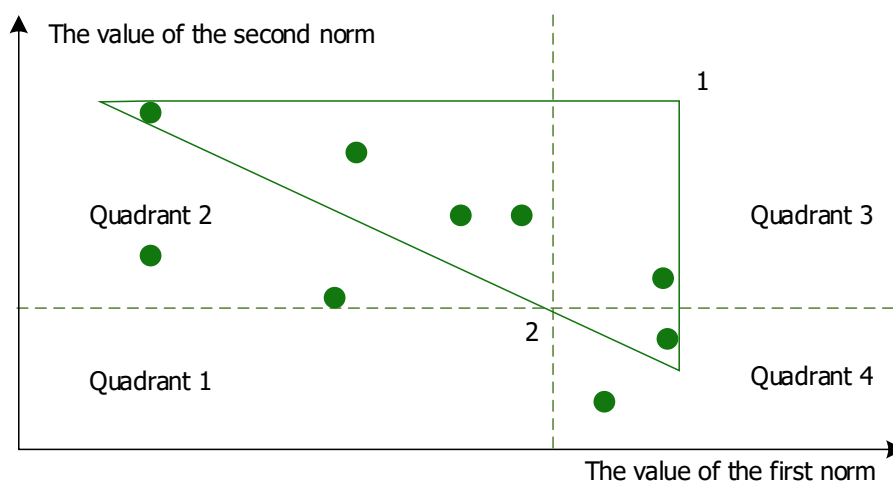


Figure 6. Graphic representation of the procedure for breaking down the dynamics of various standards of conducting banking activities by specific groups.

To take into account the possible consequences of the influence of the implemented measures of state regulation of the banking system on the development of the national economy, it is advisable to carry out functional and legal modelling. Functional and legal modelling allows for a comprehensive approach to solving the issue of revealing the essence of the processes of state regulation of the influence of the banking system on the development of the national economy, in particular:

- the functional component of such modelling helps to take into account the possible directions of influence of the specified type of state regulation;

- the legal component helps, first of all, to determine the forms of state participation in civil legal relations, to prove the legality of state representation in the form of separate regulatory and control bodies regarding the implementation of measures of state regulation of the banking system [37, p. 129].

At the same time, in order to ensure the reliability and validity of the simulation, it is necessary to pay special attention to the properties of the model. First of all, the relevant model must be adequate, operate with reliable and objective information. The combination of the economic and legal components of the process of state regulation of the influence of the banking system on the development of the national economy should be based on the generalization of real researched data.

At the same time, the applied approach in functional and legal modelling should reflect the possible dynamics of changes in various indicators of the functioning of the banking system and sectors of the national economy in accordance with the implemented measures of state regulation of the banking system. The model should take into account a number of static estimates, which reveal the dynamics of the formed effects of state regulation of the banking system on the development of the national economy.

The model can be defined as indicative and informational, which ensures the provision of the entire system of economic information to all subjects involved in modelling the processes of state regulation of the influence of the banking system on the development of the national economy.

The researched model should also be considered economic-parametric since it is aimed at creating new rules and norms of economic behaviour in the form of existing regulatory and legal acts and laws. Such a model allows combining the methods of direct legislative and indirect economic influence on the activities of the studied economic entities [38], which in this case are the banking system and other economic entities, including the state.

In general, the main properties of the studied model are presented in Figure 7.

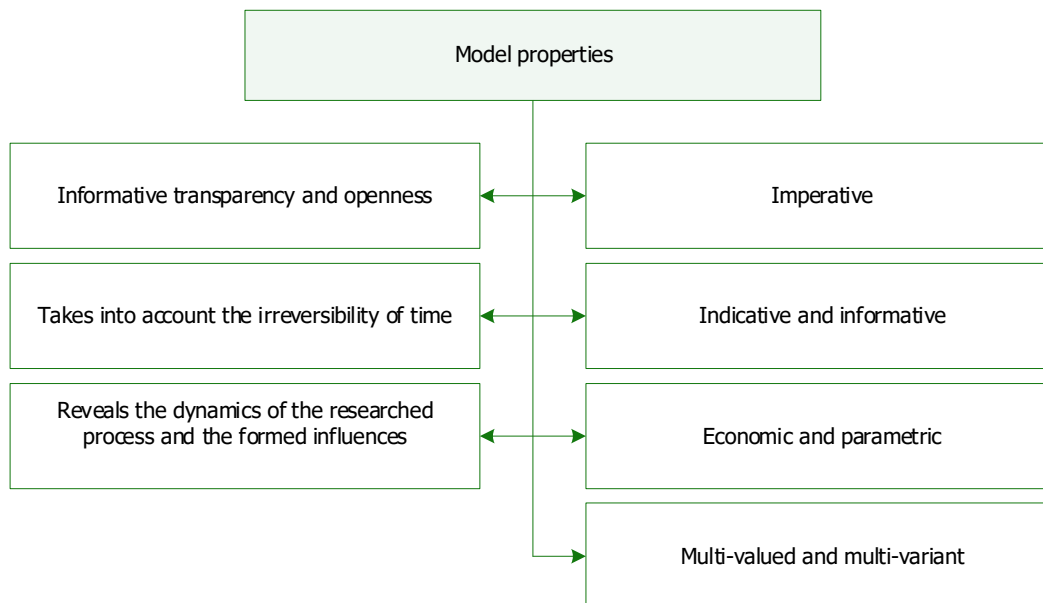


Figure 7. The main properties of the model for revealing the functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy.

In a formalized form, such a model (M) can be described by a set of data that determines its basic properties:

$$M = \langle I, T, B, It, Ii, Ep, P \rangle, \tag{7}$$

where *I* - informative transparency and openness of the model; *T* - takes into account the irreversibility of time; *B* - reveals the dynamics of the researched process and the formed influences; *It* - imperative; *Ii* - indicative and informative; *Ep* - economic and parametric; *P* - multi-valued and multi-variant.

Formula (7) can be perceived as a characteristic of the studied model for the disclosure of the functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy, where it is possible to highlight [38; 39]:

- a structural-legal model that takes into account only one of the predetermined directions of the corresponding modelling;
- a comparative legal model that allows comparative modelling in the chosen direction of economic relations;
- a state-legal model that allows revealing different directions of state influence on the studied subjects, processes, and phenomena;
- a formal and legal model that does not directly connect the researched modelling processes with a specific economic process or phenomenon.

The functional orientation of the corresponding modelling can be considered according to its features, such as:

- separate groups and types of institutional units of the banking system;
- separate areas of banking activity;
- certain types of banking operations.

At the same time, it is worth highlighting:

- groups of banks according to the degree of influence on the current state of functioning and development of the national economy, where state banks headed by the central bank, system banks and other banks are usually distinguished;
- groups of banks in accordance with their definition by the regulator in the field of banking activity;
- types of banks according to the content of their activities (investment, innovation, mortgage and farm banks, etc.);
- banks and credit unions, which are part of the banking system, which allows us to take into account the exclusivity of their influence on the development of the national economy.

The disclosure of the functional focus on the construction of the model can be determined from the point of view of the main constituent components of banking management, where, in particular, the following are highlighted [40]:

- bank liabilities management activity, which determines the possibility of taking into account various influences on the formation of the resource base of banks, which can be considered both as a source of investment resources of the economy and as a basis for the formation of savings;
- the direction related to the management of bank assets, which determines the direction of the application of investment resources, in particular in the form of bank lending or trust management of assets based on the implementation of transactions on the stock market;
- activities related to maintaining the liquidity of banking institutions, which can reveal both the effectiveness of banking activities in general and the ability of the banking system to support the needs of the national economy for certain time intervals;
- management of currency resources, which is able to answer questions about the provision of the national economy with various types of financial resources, the possibility of supporting the competitiveness of the national producer;
- risk management, which makes it possible to form key conditions for ensuring the continuous, stable and sustainable development of both the banking system and the national economy.

The functional orientation of the model can be revealed in more detail by the analysis of certain types of banking operations, where, in particular, attention should be paid to: operations to form the resource base of banks; credit transactions; operations with securities; transactions on the foreign exchange market; foreign economic service operations; transactions for settlement and cash service of payment turnover of clients.

At the same time, the set of directions of the functional orientation of the model of disclosure of functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy can be determined from the point of view of:

- the sectoral principle, where the financial and non-financial sectors, private households and the public sector are distinguished;
- the sectoral division, which considers both branches and individual economic entities of agriculture, engineering, construction, metallurgy, food industry, etc.;

- the territorial principle, which takes into account the territorial-administrative division of the country.

It is in the context of such features that special conditions for the development of the national economy, in general, are taken into account.

DISCUSSION

Taking into account the peculiarities of the studied type of modelling, which are determined by the combination of a number of economic and legal issues from the point of view of public administration, we agree that various principles of public administration should also be taken into account. In general, such principles can be considered as a unifying factor in relation to the disclosure of the studied type of modeling, since they take into account [41]: compliance with the objective laws of social development; compliance with the interests of the people; objectivity from the point of view of compliance with laws; the relationship between power and public administration; legal regulation of managerial activity; separation of powers between subjects of state administration horizontally and vertically; subordinating local goals to the general goal; complementarity of goals and consistency in achieving the entire set of goals; allocation of goals by state administration functions; consolidation of the division of functions by legal norms and compliance of actual activity with established functions; unity of the system of state administration bodies; focus on constant updating; establishing standards for elements of the key research system; taking into account the pace of development of managed objects when forming management decisions.

We also support the opinion [42] that consolidation aimed at preventing the emergence and spread of various risks can be considered another unifying factor of the functional and legal modelling of the processes of state regulation of the influence of the banking system on the development of the national economy.

Therefore, understanding the nature of risks and creating conditions to prevent their occurrence and spread become the basis of state regulation of the influence of the banking system on the development of the national economy. And this is true, because, for example, in order to avoid "a significant threat in the field of finances of the real sector of the economy, which is a discrepancy between the assets and liabilities of enterprises of the real sector of the economy, primarily in the basic sectors of the economy" [43], it is necessary to create appropriate conditions for the management of such resources at the expense of the available capabilities of the banking system.

At the same time, in order to prevent crisis phenomena in the banking sector, it is necessary to implement such a policy, which will be aimed at stimulating the banking sector to direct credit funds, first of all, to the development of the real sector of the economy [43]. At the same time, it is the functional orientation of the corresponding modelling that can help determine the necessary regulatory influences, develop model normative legal acts, and adopt the necessary laws in a short period of time.

CONCLUSIONS

Taking into account the above, it can be stated that, in general, state regulation of the banking system is a set of interrelated various economic relations that arise in connection with the achievement of stable and effective development of the banking system to ensure the general development of the country as a whole, taking into account the needs of each member of society. At the same time, the implementation of the concept of state regulation of the banking system is a complex and multifaceted process aimed at the economic development of the country based on the improvement of its financial market, where the priority direction is the regulation of the banking system.

The structuring of the set of principles of state regulation of the banking system carried out in the article makes it possible to implement various influences in accordance with the definition of individual levels of regulation of the banking system. These types of principles make it possible not only to structure various principles of state regulation of the banking system but also to determine the content of the relevant regulation in terms of the key areas of banking activity both in relation to individual sectors of the general financial market and various institutional entities operating at the state level, branches of the national economy.

The taxonomic approach used in the article makes it possible to build various procedures and carry out: an analysis of the current state of functioning of the banking system from the point of view of the formed influences on its regulation; comparative analysis of the functioning of various banking systems in order to determine the effectiveness of the applied effects of their regulation; comparative analysis of the functioning of the banking system over different time horizons in

order to reveal the effectiveness of selected influences on its regulation; analysis of disclosure of the content and effectiveness of the application of various regulatory influences on the functioning of the banking system; predictive assessments to reveal the formed regulatory influences on the effectiveness of the banking system, taking into account the presence of different groups of banks, areas of banking activity and regional aspects of its implementation, etc.

Functional-legal modelling is an effective tool that helps not only to understand the problematic aspects of the researched issue but also to determine ways to overcome them: at the theoretical level - in the form of substantiated measures of influence on the sustainability of the functioning of the banking system and the national economy; from the point of view of the practical implementation of the proposed measures regarding the regulation of the banking system - in the form of specific normative legal acts and laws.

The results obtained in the article and the recommendations made will allow to expand the spectrum of effective methods of regulatory influence on the banking system, to improve the analysis of the effects of the implemented regulation of the banking system on the functioning of the national economy.

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УДОСКОНАЛЕННЯ КОНЦЕПЦІЇ ДЕРЖАВНОГО РЕГУЛЮВАННЯ БАНКІВСЬКОЇ СИСТЕМИ ТА МОДЕЛЮВАННЯ ЙОГО ВПЛИВУ НА НАЦІОНАЛЬНУ ЕКОНОМІКУ

Моделювання впливу державного регулювання банківської системи для підвищення ефективності функціонування національної економіки набуває досить важливого значення. В умовах постійних геополітичних, соціальних, кліматичних збурень, воєнних дій, необхідності негайного ухвалення управлінських рішень гостро постає питання розробки нових концептуальних підходів до формування теоретико-методологічних засад і практичних заходів державного регулювання впливу банківської системи для фінансового забезпечення довгострокового стабільного розвитку економіки країни в умовах посилення кризових явищ.

У дослідженні увагу приділено сутності, основним положенням і принципам концепції державного регулювання банківської системи як сегмента національної економіки. Розглянуто використання таксономічного підходу та функціонально-правового моделювання процесів державного регулювання впливу банківської системи на розвиток національної економіки.

Запропоновано впровадження таксономічного підходу до опису регулювання банківської системи у вигляді: процедури з побудови таксономічного показника для аналізу відповідного регулювання за обраними ознаками впродовж досліджуваного періоду; процедури з розподілу аналізованих ознак таксономічного визначення змістовності впливів на регулювання банківської системи за окремими групами для визначення змістовності відповідного регулювання в окремі часові інтервали або в розрізі окремих груп банків.

У ході дослідження здійснено функціонально-правове моделювання процесів державного регулювання впливу банківської системи на розвиток національної економіки.

Ключові слова: банківська система, державне регулювання, національна економіка, функціонально-правове моделювання, таксономічний підхід

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