

виконавчої влади, що спричинило ряд заходів з вирішення цієї проблеми. Тому для підвищення ефективності капіталізації банківських установ України необхідно передусім поглибити сам процес капіталізації, розробити ефективну стратегію в цьому напрямку, забезпечити стабільність нормативної бази Національного банку України, покращити діяльність валютного та фондового ринків, удосконалити процес оподаткування банківських установ та спрямувати діяльність банків на покращення їх фінансової діяльності.

Саме впровадження комплексного підходу до стратегічного управління банківським капіталом дозволить ефективно оцінювати всі сфери стратегічної політики кредитної установи щодо банківського капіталу та його складових у динамічній

системі економічних і політичних умов. Це сформує підставу для прийняття менеджерами різних рівнів доцільних управлінських рішень.

Удосконалення корпоративного управління та його вплив на процеси капіталізації банківських установ в Україні повинно здійснюватися в напрямі розкриття структури власності та нарощення статутного капіталу банків, активізації діяльності фондового ринку, зменшення ризику репутації та підвищення рівня довіри населення до банків. Розв'язання цих питань сприятиме підвищенню рівня капіталізації банків, дасть змогу вирішити проблему економічної безпеки банківської системи країни, її надійності, фінансової стійкості та ефективності функціонування.

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#### Summary

The common trends in the domestic banking sector at the stage of post crisis stabilization. Defined the requirements for supervisors of financial regulation. The measures stabilize the banking system in terms of strategic approach to managing capitalization of banks.

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## INSTRUMENTAL TOOLS OF MODELING OF MANAGING SYSTEM THE COMMERCIAL BANK'S ECONOMIC SECURITY

*The article suggests conceptual scheme of management improvement the commercial bank's economic security which ensures all management functions by using modern economic-mathematical tools that are supported by implementation of the proposed complex models. It provides effective management of commercial bank's economic security and improves its management system as a whole.*

*Key words: commercial bank, dynamic processes, economic security, economic-mathematical tools, indicators, information scale, management system, space and dynamic evaluating, strategic alternatives.*

**Introduction.** The modern conditions of the development of Ukrainian economy are characterized by many factors of an uncertain and destabilizing

character. As a result of the unstable environment and occurrence of extreme operating conditions the banks face the necessity of acquiring an ability for survival and resistance to negative influences. Such influences make a threat of destruction of the bank's resource potential, increase risks of administrative

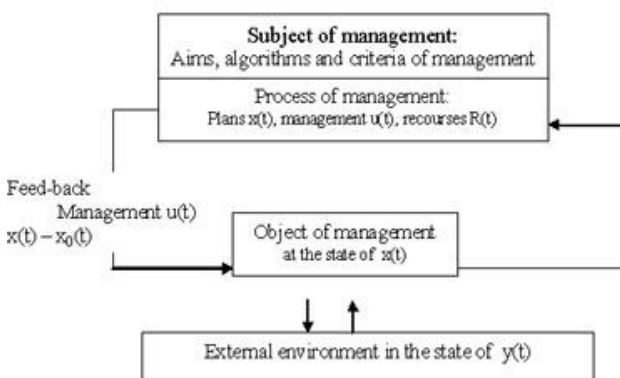
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decisions and, thus, are threats to the bank's economic security (ES) [3, 4].

Unpredictability and aggressiveness of the external environment create the necessity of developing a complex of effective instruments for management, for both individual subjects and institutions and the banking system as a whole [11]. Developing complex of economic-mathematical models of managing bank economic security is an urgent task which requires various approaches and methods of decision.

The urgency of the problem of providing economic security, insufficiency of research of this problem in the conditions of the unstable economic environment, the necessity of the complex solution of tasks using a wide range of economic-mathematical methods have determined the purpose and tasks of the research. Purpose of the research is to design a complex of economic and mathematical models of the bank economic security on the basis of estimating and analyzing the environment level state and basic parameters of the activities of the commercial bank, which will enable forecasting a possibility of crisis situations and improving the quality of decisions, as for providing its economic security and efficiency of functioning as a whole.

**Main body.** For adequate management of economic security a clear formulation and formalization of the tasks and functions of different nature and different time horizons are required. Formalization begins with selecting a subject and an object of management, and an environment and interface of interaction between the environment and the object of management [1, 7]. A general scheme of commercial bank management is presented in Fig. 1.



**Figure 1 – Basic components of the system of a bank control**

The subject of bank management is its shareholders and administration who form the strategy, tactics and operative management of the bank. In order to describe a management object it is necessary to have a quantitative model of the bank which

presents all descriptions (variables) of the bank and connections between them at any moment of time. Thus, the state of the bank economic security is described by the set of  $n$  variables:

$$X(t) = \{x_1, x_2, \dots, x_n\}(t).$$

The description of the system is considered complete if its state at any moment of time can be simply set with these variable values. Basic description is a minimum set of variables which determines the state of the system.

The next object to be defined is an external environment. The state of the external environment is described by  $m$  variables:

$$Y(t) = \{y_1, y_2, \dots, y_m\}(t).$$

Obviously, complete description of the state of external environment is a complicated task, however, for the aims of management it is enough to have a description only those factors which have a direct influence on the bank, i.e. the factors which determine the interface of interaction between the "bank and the external environment". In the process of management the state of the bank as an integral system changes in time, that is why for describing these changes it is necessary to have a proper dynamic model. At the level of an individual bank to create complex quantitative model of its dynamics is impossible because of the changeability and vagueness of the terms of the task. Symbolically we'll write down the task of a bank management as a system of ordinary differential equations to emphasize its dynamics and obviously present the variables which are significant for the task:

$$\frac{dx_i}{dt} = F_i(x_1, x_2, \dots, x_n, y_1, y_2, \dots, y_m, t, u_1, u_2, \dots, u_k, \xi),$$

$$i = 1, 2, \dots, n$$

where  $F_i()$ ,  $i = 1, 2, \dots, n$  are the known (found during the analysis systems of the management of the object and the external environment) functions which describe the interactions between the external environment and the bank;  $u(t, x, \xi) = \{u_1, u_2, \dots, u_k\}$  are actions (management) which the management of the bank hopes to attain the aims, management  $u(t, x, \xi)$  the depends on combination of resources which the bank has at its disposal;  $\xi$  – vector of disturbance of the external and internal environment of the enterprise.

In the process of gaining its aim the bank outlays different resources, the main of which are temporal and financial which are limited:

$$R_t \leq R_t^{\max}, \quad R_M \leq R_M^{\max}.$$

Temporal limitations depend of the bank's need to synchronize its actions with the events in the external environment, to prevent an unfavorable event or to soften its consequences. Resource potential is presented by different types of resources, which are needed for normal activity of the bank, and providing its economic security. Resource limitations are complemented by phase limitations.

The commercial bank's system of managing its economic security should promote a reasonable increase of structural units independence in decision-making, reduce time for data flows, widen involvement of the staff in the bank's management, that is more effective management process in accordance with the purposes of the commercial bank.

In this paper the management methods is proposed to be improved by creating an economic security conceptual models for the commercial bank. This conception should improve the work of the commercial bank's structural units in making management decisions, increase the efficiency of management process in accordance with the selected set of strategic alternatives. The main purpose of the safety of banking is to achieve stable and most effective functioning of the commercial bank at the current period of time taking into account the perspective of development dynamics, that can be achieved by realizing the tasks and functions by the bank's system of managing its economic security [3].

Realizing all functions of the commercial bank's system of managing its economic security should be based on these general principles [7, 12]: systematic character, coordination, variation, continuity, verification and efficiency.

Systematic character in the management of economic security means the interrelationship and subordination to the object, background and elements. By systematic techniques and management models is understood a set of them that makes possible to develop a coherent and effective strategy for the commercial bank.

Coordination in the management of economic security means consistent standard and actual performance of a commercial bank for any time period.

Variation is the development of several alternative management strategies of economic security based on the goal and situation in the whole banking system in view of the competitive environment.

Continuity in the management of the commercial bank economic security is adjusting management (or strategy) when receiving new data of the object management and the state of the environment.

Verification means testing reliability, accuracy and validity of indicators of the bank's economic security.

Efficiency (profitability) of the commercial bank's economic security management determines the need for excessive economic benefit due to the use of the existing control systems over the expenditure on its development, introduction, implementation and improvement.

The commercial bank's managing its economic security is realized on the basis of the following objectives: formation of a set of management decisions on the bank's economic security, identification of the opportunities and benefits of the space-based dynamic analysis, evaluation of the effectiveness of the management models. Organization of the composition and structure of the commercial bank's economic security means definition of the relationship between the system indicators in the process of commercial banks activities.

The control function is implemented via evaluating the quantitative and qualitative characteristics of a commercial bank, checking their targets compliance, including establishing a correct interaction between the system elements, compliance of the alternative development and management scenarios with the common goals and priority directions of the bank's development, taking management decisions to achieve the system targets.

Implementation of management functions aimed at solving local and global problems of the commercial bank's economic security grounds the necessity of building a conceptual model basis of commercial bank's managing its economic security that reflects the continuity of the process, parallel execution of tasks, combining a number of management processes in to one integrated complex, evaluating capacity and performance.

Constructing such conceptual model basis is a prerequisite for effective management of the commercial bank's economic security, the proposed conceptual scheme to improve the system of economic security of commercial bank that implements all the basic functions and tasks management is presented in Fig. 2. Implementation of the developed set of models for managing the commercial bank's economic security should be based on the following principles [1, 4]:

- the principle of precautionary action. Implementation of this principle provides early diagnosis of the commercial bank's economic security and timely use of the opportunities to prevent and neutralize the negative and unforeseen crises. In this case, for managing the commercial bank's economic security management methodology for "weak signals" is used;

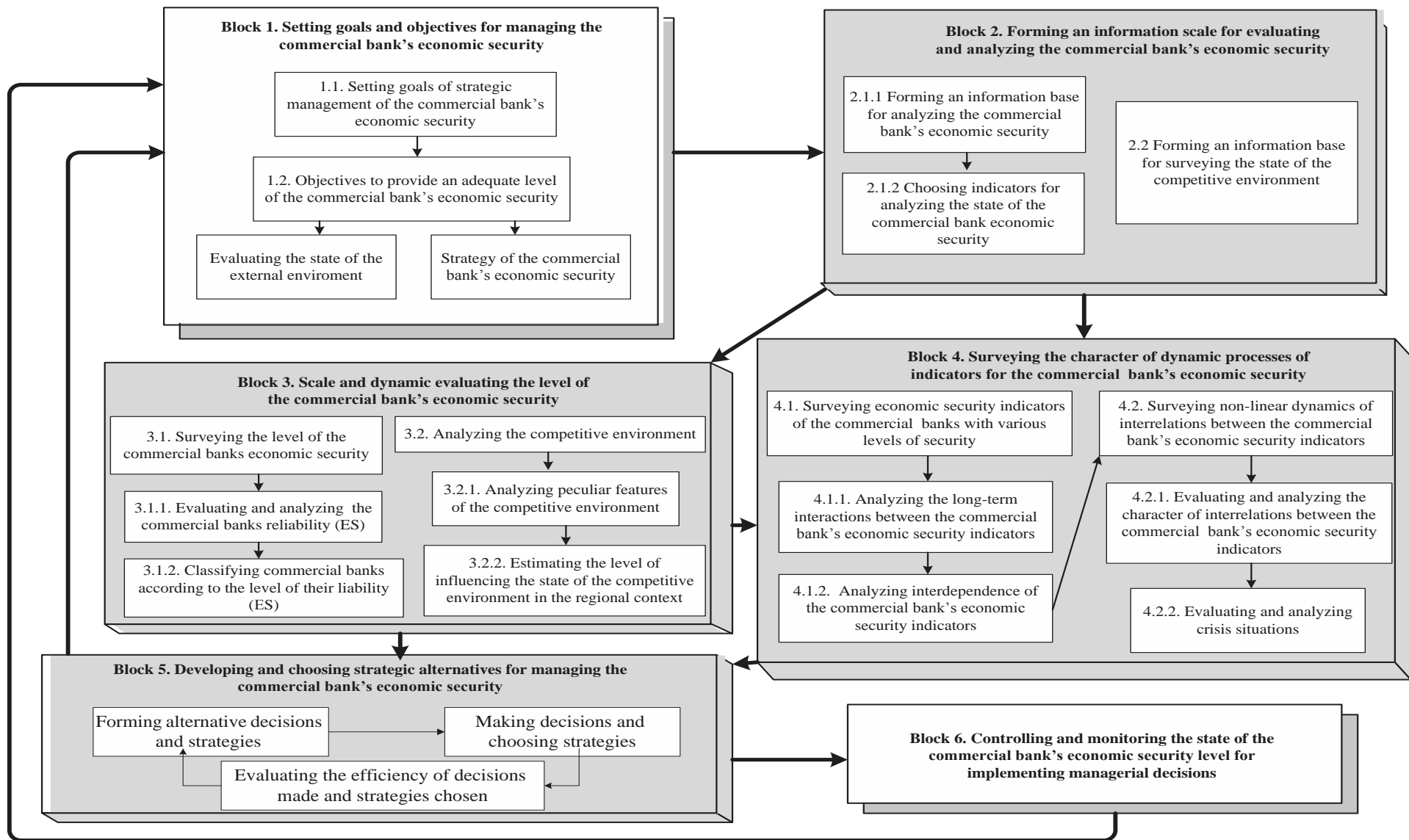


Figure 2 – Conceptual scheme of managing the commercial bank's economic security

- the principle of speedy response. Each of the negative impacts of the external and internal environment does not only have a general tendency to increase, but also creates new related adverse effects, so the sooner the necessary administrative measures are carried out, the more opportunities to restore the broken before equilibrium the commercial bank will have;
- the principle of adequacy of response. System of management decisions related to the cost of the banking resources or the costs of the unrealized possibilities, and the level of expenses and losses is directly dependent on the determination of economic impacts and the extent of their use. Therefore, reorganization of certain activities should be based on the real state of the economic security of the bank and be appropriate for it. If not, or either the expected effect will not be achieved or in the process of the bank's restructuring will bear disproportionately high costs.
- the principle of complex decision-making. The degree of a negative impact of the internal and external environment of a commercial bank on the level of its economic security is of a comprehensive cumulative nature. A similar complex character should also have the system of developed and implemented stabilization measures;
- the principle of alternative actions. This principle implies that each of administrative decisions should be based on considering a maximum possible number of alternative projects with defining level of performance and evaluation costs;
- the principle of adaptability. In the course of a commercial bank's activities the factors that accompany this process have fast dynamic of change that necessitates a high level of flexibility of the commercial bank's economic system, its rapid adaptation to changing conditions of the external and internal environment;
- the principle of priority of using the internal resources. In the early diagnosis of its economic security the bank has to rely on the possibility of internal reorganization changes;
- the principle of efficiency. Implementation of this principle is provided by comparing the effect of introducing alternative changes of reorganization measures and related to implementing banking resources.

Consider the goals and objectives of the proposed conceptual complex of managing the commercial bank's economic security.

Block 1. The first block integrates the task of setting goals, objectives and strategies of economic security. According to the priority of the commercial bank's activities and targeted programs that can

be viewed as management measures of a higher level, taking into account the external factors a complex purposeful strategy of economic security of the commercial bank is formed.

Block 2. The second block provides forming an information scale for evaluating and analyzing the commercial bank's economic security. This unit combines the following objectives:

- forming an information base for analyzing the commercial bank's economic security. The result is a representative system of indicators of commercial banks activities;
- forming an information base for evaluating and analyzing the state of the competitive environment. The result is a comprehensive assessment of the state of the environment of the commercial bank [11].

Block 3. The third block provides space and dynamic evaluating the level of the commercial bank's economic security, according to the prevailing system of indicators, with the following objectives:

- estimating the level of local economic security indicators and further the integrated overall one;
- selecting groups of similar objects when implementing a space – dynamic classification of commercial banks in terms of their reliability (ES) and competitive position, evaluating the stability of cluster structures;
- estimating and analyzing the regional structure of the competitive credit organizations.

Block 4. This block involves surveying the character and interaction of the economic security indicators by solving the following tasks:

- analyzing the long-term interactions between the economic security indicators basing on the cause-effect relationships between their development dynamics and mutual influence;
- evaluating and analyzing crisis situations of the relationship between economic security indicators.

Block 5. This block provides developing and choosing strategic alternatives for managing the commercial bank's economic security by the following tasks:

- forming a matrix of situations due to the external and internal environment;
- forming and selecting possible strategies for economic security of the commercial bank's based on consideration of all possible situations of its activities.

Block 6. This block of the mechanism involves the tasks of controlling over the results of the strategic alternatives of the commercial bank's economic security. They are settled on the basis of the planned information on management decisions concerning banking activities, information on the general priorities of

development directions, target programs and market. The task of monitoring is to check the compliance of the results to the set state of the goals and objectives, resulting in the following situations possible:

- no deviation which means that due to the effective management of economic security of commercial banks local objectives are achieved;
- minor deviations the problems are solved by regulation, that is monitoring the causes of possible deviations in the destabilization of the system;
- significant deviation is an in-depth analysis of the internal and external competitive environment, adjusting goals and objectives of banking, on whose basis the strategy of the commercial bank's economic security is revised.

Thus, the proposed conceptual scheme of commercial bank's managing its economic security that implements all the functions of management enables to increasing quality and efficiency of the decisions taken by improving the management tools [10]. For efficient functioning of the management system economic security of the commercial bank's solving the chosen tasks should be based on using modern highly efficient tools and economic and mathematical methods. In the thesis the modern tools of solving the assigned tasks as the basis of the control scheme based of the management model base and information technologies, presented in Fig. 3.

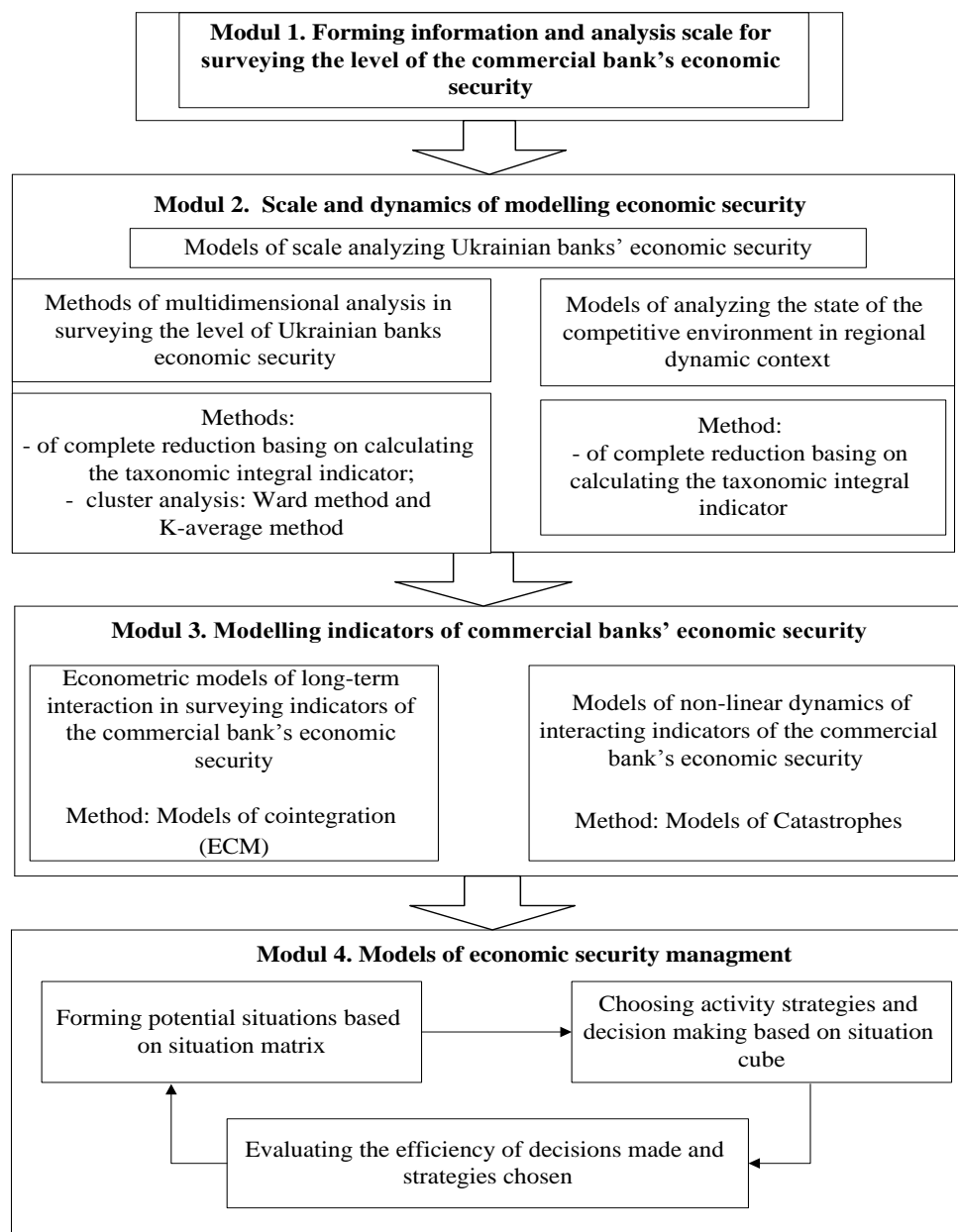


Figure 3 – Complex of models of managing the commercial bank's economic security

Solving problems of spatial and dynamic modeling economic security of commercial banks (module 2) is based on the integrated using methodical tools of complete reduction (calculation of the integral taxonomic indicator) [8] and classification methods (cluster analysis) [6] in the spatial dynamics of the studied commercial banks, which provides enables getting a general integrated level of reliability indicator (ES) and grouping of commercial banks.

Tools of the method of complete reduction [8] are aimed at obtaining an integrated estimation of the objects that are of multifactor nature, as a function that reflects the impact of all the signs and allows to organize the studied objects.

The tasks that could be solved with the methods of cluster analysis [6]:

- conducting spatial dynamic clustering considering the features that reflect the essence and nature of the objects and allow to conduct comprehensive evaluation of set of the classified objects;
- checking the assumptions about the presence of some structure in the studied population of commercial banks, identification of the existing structures;
- establishing the presence of relationships within the population and description of its structure.

For realization of module 3, spatial and dynamic modeling the criteria for the commercial bank's economic security econometric modeling tools based on Cointegration models [5] and nonlinear models of economic dynamics based on the theory of catastrophes are used [2]. The priority of selecting tools for analysis based on ECM – models is caused by the following advantages [5]:

- it combines short- and medium- term analysis of individual time series;
- it allows us simultaneous modeling of several interrelated time series and their current and lagged values;

it makes possible to conduct qualitative interpretation of economic relationships between the studied indicators.

Using the models of catastrophes for analyzing nonlinear dynamics of the interrelation between economic security indicators due to the following features [2]:

- it allows us to find a simplified potential model function dependent only on the essential state variables and control parameters;
- it enables evaluating the structurally stable part of the potential functions, which can determine which process actually takes place;
- it enables determining the type of equation for the system, the values and which way the potential function enters it.

Implementation models of decision making on the commercial bank's system of managing its economic security (module 4) is provided through the development of situations cube [9] based on model matrix for strategy selecting and implementing scenarios for the commercial bank's managing its economic security based on the analysis of the commercial bank's economic security and the banking system, as a whole competitive environment as well.

**Conclusion.** The results of this research is construction of the complex of economic- mathematical models for commercial bank's economic security based on estimating and analyzing the environment and the basic performance of the commercial bank that allows us to diagnose and prevent occurrence of crises and improve the quality of decisions to ensure its economic safety and efficiency of functioning as a whole.

Complex models of managing commercial bank's economic security is developed in this paper on the basis of the tool of multivariate statistical analysis methods, econometric modeling and economic dynamics models by using catastrophe theory to study the level of Ukrainian commercial banks economic security, that makes possible to improve the managing systems of the commercial bank's economic security and the quality of its functioning.

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#### Анотація

У статті запропоновано концептуальну схему вдосконалення управління економічною безпекою комерційного банку, яка забезпечує всі функції управління з використанням сучасних економіко-математичних інструментів, які підтримують реалізацію запропонованого комплексу моделей. Вона забезпечує ефективне управління економічною безпекою комерційного банку, а також покращує систему управління в цілому.

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## OUTLINING OF INVESTMENT BANKING IN THE POST CRISIS EPOCH

*This article seeks to provide the main aspects, associated with the modern practice of the investment banking. Moreover, the research is directed on the analysis of the global financial crisis influence on the activity of investment banks in general. There is the most general effect from the financial crisis on the investment banking sphere: the vast destruction of confidence in banks and of their reputation.*

*Key words: investment banking, world financial crisis, world market of investment banking services, underwriting, M&A, corporate governance.*

**Problem definition.** Three years after the world economic breakdown, banks are recognizing the need to carry out better governance practice in the investment banking sector. No doubt, the banking sector is undergoing considerable changes as a result of the financial collapse. It will become a less “trendy” and even more regulated industry with higher state participation, amplified investor control and substantially greater capital levels. This will lead to lower profits, lower development and volatility for banks.

**Literature review.** Basant Venugopal (2007) investigates that the global investment banking industry is often described as an oligopoly as a relatively few firms dominate the industry. The largest firms are the ones who find their names in the largest size in the tombstones of the public offering announcements also known as the “Special bracket” or “bulge

bracket”. The second-tier of firms are known as “Major bracket” and then come the “Regional” or “Sub-major”. The industry though denominated by a small number of players is characterized by intense competition.

Thuy Vu Nga Hoang & Kamolrat Lapumnuaypon (2007) focuses on the list of ten critical success factors for M&A projects.

Allen N. Berger & Christa H.S. Bouwman (2008) compare the connection between financial crises and bank liquidity creation from two perspectives. Firstly, they examine the aggregate liquidity creation of banks before, during, and after five major financial crises in the U.S. from 1984 to 2008. Secondly, they consider the effect of pre-crisis bank capital ratios on the competitive positions and profitability of individual banks during and after each crisis.

At the same time the issue of the major challenges and features of the investment banking after the crisis period still needs further research.