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V.N. KARAZIN KHARKIV NATIONAL UNIVERSITY**

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Department	Banking Business and Financial Technologies
Specialty	072 Finance, Banking, Insurance and Stock Market
Educational program	Financial technologies and banking management
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QUALIFYING MASTER'S THESIS

on the topic:

**ECONOMIC CAPITAL AND ITS ROLE IN ENSURING THE
FINANCIAL STABILITY OF THE BANK**

higher education student **Du Zeyu**

The qualifying master's thesis was accepted for
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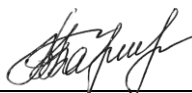
Head of Department

Doctor of Economics, Professor

_____ **Galyna Azarenkova**

Scientific Adviser

Doctor of Economics, Professor

 _____ **Valeriia Baranova**

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

V.N. Karazin Kharkiv National University

Faculty	Karazin Banking Institute
Department	Banking Business and Financial Technologies
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APPROVED

Head of the Department
of Banking Business and Financial Technologies
Doctor of Economics, Professor
Galyna Azarenkova
« 25 » September 2024

TASK FOR THE QUALIFYING MASTER'S THESIS

of Du Zeyu

1. Topic of the work "ECONOMIC CAPITAL AND ITS ROLE IN ENSURING THE FINANCIAL STABILITY OF THE BANK"

Scientific adviser Doctor of Economics, Professor Valeriia Baranova
(surname, first name, patronymic, academic degree, academic title)

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2. Deadline for the student to submit the work November 18, 2024

3. List of issues to be developed:

In Chapter 1: to investigate the theoretical foundations of economic capital to solve the problems of improving the performance of banking institutions, to determine the method of calculating the financial stability of a bank and modern methods of calculating economic capital, to study the factors affecting the financial stability of a banking institution.

In Chapter 2: to provide an organizational and economic characteristic and analyze the main indicators of JSC CB "Privatbank", to determine the degree of practical application of the obtained results.

In Chapter 3: to develop a system of measures to improve and minimize banking risks, to investigate methodological problems of calculating economic capital and propose ways to solve them, to analyze the effectiveness of the economic capital management system.

4. Work plan

No.	Name of work stages
1	The choice of the topic of the qualifying master's thesis
2	Approval of the plan and tasks of the qualifying master's thesis
3	Completion of a qualifying master's thesis
4	Submission of a qualifying master's thesis to the department to check for borrowings from other documents
5	Admission by the head of the department to the defense of a qualifying master's thesis
6	Defense of a qualifying master's thesis

5. Date of the task issue September 25, 2024

Student

Du Zeyu
Signature

Du Zeyu

Initials, surname

Scientific advisor

Valeriia Baranova
Signature

Valeriia BARANOVA

Initials, surname

ABSTRACT
ON THE QUALIFYING MASTER'S THESIS
"ECONOMIC CAPITAL AND ITS ROLE IN ENSURING THE FINANCIAL
STABILITY OF THE BANK"

of Du Zeyu

The qualifying master's thesis comprises 79 pages, 13 tables, 6 figures, and a list of 65 references.

The **object of research** is the process of determining the size of a bank's economic capital.

The **subject of research** includes the theoretical and methodological foundations and applied provisions for improving the organizational and economic mechanism for calculating economic capital.

The **purpose of the qualifying master's thesis** is to theoretically substantiate the concept of "economic capital," determine its role in a bank's operations, and develop practical recommendations for its effective calculation and use.

The **tasks of the qualifying master's thesis** are as follows:

- to investigate the theoretical foundations of economic capital in addressing challenges related to enhancing the effectiveness of banking institutions;
- to determine methods for calculating a bank's financial stability and explore modern techniques for computing economic capital;
- to study the factors influencing the financial stability of banking institutions;
- to provide an organizational and economic characterization of JSC CB "PrivatBank" and analyze its main performance indicators;
- to develop a system of measures aimed at improving risk management and minimizing banking risks;
- to explore methodological challenges in calculating economic capital and propose solutions;
- to analyze the efficiency of economic capital management systems in banking institutions.

According to the results of the study, theoretical and practical provisions were formulated and translated into specific proposals for improving a bank's economic capital management system.

The obtained results can be used to develop methodological principles for calculating economic capital in Ukrainian banks to enhance their financial stability.

Keywords: economic capital, banking risks, financial stability, banking institution, banking supervision.

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INTRODUCTION

Relevance of the research topic. A credit organization usually faces a wide range of risks that can lead to financial losses. Economic capital is capital that is needed to cover market, credit and operational risks. Given the growing popularity of the concept of economic capital in banking risk management, today one of the most difficult problems of its practical implementation is the development of correct methods of aggregation of economic capital for various types of risk. The effect of the aggregation of economic capital largely depends on the completeness of taking into account the close relationships between different types of risks. All this determines the need to analyze the existing approaches to risk aggregation with the aim of taking into account the correlation between credit, market and operational risks of the bank as fully as possible.

Risk management is one of the fundamental areas of bank management. Analysis of trends in the development of banking business in foreign countries shows that over the past half century, risk management has become one of the most competitive, dynamic and high-tech spheres of bank activity. The possibilities of banking business are growing significantly, banking operations are diversifying, the range of services is expanding, banking technologies and means of communication are being improved. International practice shows that an effective risk management system can ensure high competitiveness of the bank in the market environment. Under such conditions, effective functioning of banks is impossible without creating an adequate system of management of the bank's economic capital. Thus, the study of the nature of economic capital and the determination of its role in the bank's activity is an urgent scientific and practical problem.

The degree of study of the problem. Foreign scientists P. Alessandri, J. Byker, J. Bock, M. Drechman, I. Lelyveld, M. Tisset, F. Trussard, I. Falkenstein et al. Among domestic scientists and practicing economists, only a few publications are devoted to the problems of the bank's economic capital, the authors of which are: N. Ivanenko, I. Ivasiv, V. Mishchenko, L. Prymostka, V. Sushko, N. Shulga,

and others.

The aim of the thesis is a theoretical substantiation of the concept of "economic capital" and determination of its place in the bank's activities, as well as the development of practical recommendations for its effective calculation and use.

Achieving the set goal made it necessary to solve the following tasks:

- to investigate the theoretical foundations of economic capital to solve the problems of increasing the effectiveness of the work of banking institutions;
- determine modern methods of calculating economic capital;
- to study the factors influencing the financial stability of a banking institution;
- familiarize yourself with the method of calculating the bank's financial stability;
- to give organizational and economic characteristics of Privatbank CB JSC;
- to analyze the main indicators of JSC CB "Privatbank" activity;
- to carry out an analysis of the process of calculating the economic capital of JSC CB "PrivatBank" and to determine the degree of practical application of the obtained results;
- develop a system of measures to improve and minimize banking risks;
- to investigate the methodological problems of calculating economic capital and propose ways to solve them;
- analyze the efficiency of the economic capital management system and compare it with foreign experience.

The object of research is a process of determining the size of the bank's economic capital.

The subject of research is theoretical and methodological foundations and applied provisions for improving the organizational and economic mechanism of calculating economic capital.

Research methods. The methodological basis of the study was the fundamental provisions of economic science regarding the riskiness of banking

activity, in particular the theory of the banking firm, thorough scientific works of economists, a critical understanding of the works of modern domestic and foreign researchers related to the problems of effective use of economic capital.

In solving the tasks, modern methods of scientific research were used, in particular: qualitative analysis and synthesis (to study the theoretical provisions of the bank's economic capital); method of grouping, structural, factor analysis (when assessing risks characteristic of banking activity).

The information base of the study is legislative and regulatory acts of Ukraine, materials of the National Bank of Ukraine, the Association of Ukrainian Banks, scientific and practical conferences, seminars, periodicals; annual accounting and statistical reports; scientific research and works of domestic and foreign scientists and practitioners.

CHAPTER 1.

THEORETICAL AND METHODOLOGICAL BASIS OF DETERMINING ECONOMIC CAPITAL AND FINANCIAL STABILITY OF THE BANK

1.1. The essence, purpose and sources of economic capital formation

Economic capital of a bank is a fairly new concept in the theory and practice of banking. It appeared as a result of an in-depth study of a wide range of risks that banks face when conducting their activities in the conditions of economic globalization. By its essence, the economic capital of a bank is an economic category that characterizes the degree of riskiness of a banking institution and reflects the amount of capital needed to cover unforeseen losses. The bank must provide a forecast of the amount of capital that it should have if all types of risks occur simultaneously with a certain probability and give an assessment of whether it will be sufficient to continue operations, taking into account also the preservation and maintenance of the rating.

The concept of economic capital began to be widely used in the theory and practice of banking after its adoption by the Basel Committee on Banking Supervision in 2003. new approaches to assessing the adequacy of regulatory capital of commercial banks (the so-called Basel II). Although the principled approach to interpreting the adequacy of regulatory capital of banks, defined as the ratio of its volume to risk-weighted assets, was established by Basel I back in 1988. was not changed, the regulatory capital itself in this calculation underwent significant changes [5].

Previously, and in Ukraine to this day, regulatory capital consisted of 2 elements: the most stable core capital (1st level), which included authorized capital and reserve funds created from distributed profits, and additional (2nd level) capital, which included current and retained earnings, revaluation of fixed assets and securities and a number of other articles. Assets were risk-weighted according

to each asset group. The new Basel II left this approach to determining the adequacy of regulatory capital without significant changes, however, it required banks to calculate the potential risks of their activities more carefully than was provided for by the previous methodology for calculating capital adequacy (H2), in which they were taken into account in a very general way.

Table 1.1

Comparison of the characteristics of regulatory and economic capital

Sign	Regulatory capital	Economic capital
Amount	Must cover all possible losses of the bank	It should cover possible losses of the bank, which have significant and probability of occurrence
Defined by whom	An authorized body	Bank
Limitation	They are applied by the authorized body	Absent, or can be set by the bank
Composition	Basic and additional capital excluding diversions	Risk-adjusted capital and capital that covers losses related to the continuous operation of the bank
Value	A real assessment of the amount of the bank's own capital, focused on possible losses due to risky transactions, and its solvency	Assessment of the amount of the bank's own capital necessary to cover unforeseen risks in order to obtain the desired profit, ensure the appropriate level of solvency, competitiveness and financial stability
Orientation	Protection of the interests of the bank's clients due to compliance with the requirements of supervisory authorities	Determination of the most profitable directions of the institution's activity for investors and bank managers

Source: compiled by the author

Such a need objectively arose as a result of the reaction to the globalization of the world monetary and credit system, increased fluctuations in the world stock and mortgage markets, the need to credit complex innovative investment projects, the growth of operational risks and the unconditional strengthening of competition in the banking market, which affect the riskiness and efficiency of banking activity

[34].

In the new conditions, the list of banking risks expanded and their depth increased due to the rapid increase in the money supply and the volume of securities. For the banking market of Ukraine, the NBU defined the following risk categories: credit risk, liquidity risk, interest rate risk, market risk, currency risk, operational and technological risk, reputation risk, legal risk, and strategic risk [17]. In world practice, the classification of banking risks is even broader and more detailed.

Therefore, when developing a new provision on the regulation of banks' activities, the Basel Committee formulated capital requirements that are as sensitive as possible to risk factors, the definition of which was placed directly on the banks. "A significant innovation of the Agreement is the more active use of intra-bank risk assessments as prerequisites for calculating capital" [5]. And although Basel II itself did not define the concept of economic capital, it created the prerequisites for its introduction and application in banking practice. The US Federal Deposit Insurance Corporation defines economic capital as "an estimate of risk, the possible loss of capital."

Economic capital is based on a predictive assessment of potential losses, and therefore more on a potential decrease in capital adequacy than on a traditional calculation [52].

The concept of economic capital, which developed back in the 90s of the XX century, is aimed at determining the amount of the bank's own capital taking into account the minimization of consolidated banking risks and is based on a statistical model, according to which it is appropriate to consider not only expected and unexpected risks, as well as banking risks with varying degrees of probability of occurrence. In view of this, the economic capital is calculated on the basis of the specific risk levels of banking operations, and the obtained value should not cover all possible costs of the bank, but only those that have a significant probability of occurrence. Therefore, the need to determine the economic capital is determined by the needs to cover the bank's risks, which it faces within the limits of maintaining

the defined solvency standard.

The acquisition of the concept of economic capital of special importance for banks in their activities is explained by the fact that in modern banking practice, the RAROC (Risk-adjusted return on capital) methodology for assessing financial risks and capital needs is increasingly used. The essence of this methodology is to compare the bank's net profit with the amount of risk, and not with the amount of capital, which makes it possible to determine the bank's need for own capital, adjusted for the risk of return on capital. When using this approach, the bank's risk is expressed precisely through "economic capital" - additional capital that is formed to cover unforeseen expenses. Since the mid-90s of the last century, an improved methodology for assessing the effectiveness of the banking business RARORAC (Risk-adjusted return on risk-adjusted capital) was developed and implemented, which was an integrated approach and linked risk, capital and value. This methodology made it possible to determine the current and future value of the bank in accordance with individual areas of activity and types of banking risks, as well as to adequately assess all the risks assumed by the banking institution by determining the economic capital (risk-capital) based on specific risks, taking into account their correlation. It should be noted that the calculation of the RARORAC indicator requires an assessment of the bank's economic capital in accordance with the level of risk of the bank's loan portfolio. This methodology was initially widely used by American banks, and starting in 1999, it was taken as a basis by the Basel Committee on Banking Supervision to develop new requirements for bank capital [48]. It is worth noting that there are different interpretations of the essence of economic capital in foreign economic literature. Their systematization is indicated in table 1.2.

Interpretation of the main approaches to the definition of the concept of
"economic capital"

M. Thiesse, F. Trussard	Economic capital expresses in absolute values or percentages the amount of economic own funds necessary for the banking institution to cover its losses.
R.L. Burns	Economic capital is the absolute amount of capital required to adequately support specific risks taken. Traditional indicators of capital adequacy correlate the existing level of capital with assets or with a certain adjusted amount of them, while the indicator of economic capital shows the ratio of equity capital with the amount of risks regardless of existing assets.
P.I. Toraval	Economic capital is an internal management tool for bank managers who seek to ensure a sufficient level of profit for shareholders and optimal allocation of capital in various areas of business. Economic capital is the amount of capital needed to cover all bank risks.
L.O. Pier	Economic capital is the bank's own funds, sufficient to cover potential losses at a given level of risk tolerance for a specific time horizon.
"KPMG" company	Economic capital is the amount of resources needed to create reliable protection against various types of risks that financial institutions are exposed to.
Joint-stock company Deloitte	Economic capital is a measure of risk that considers the level of unforeseen losses that a financial organization may incur over a certain period of time.

Source: compiled by the author based on scientific research

To determine the essence of the bank's economic capital, it should be noted that the bank's capital must be understood as part of the bank's resources, which is directed into circulation and is a set of own, borrowed and borrowed funds, which are at the disposal of the bank and are used by it to form tangible, intangible and financial assets in monetary form and carrying out its activities with the aim of obtaining profit [57]. The main features of the bank's capital, taking into account its economic essence, are: monetary nature, connection with the market, the ability

to act as a source of funding for banking activities and the complexity of the formation. Bank capital is a risk carrier associated with all forms of its specific functioning in the activity of banks. Using capital as an investment resource for the purpose of obtaining profit, the bank always risks a possible decrease or failure to achieve the expected amount of profit or a possible loss (full or partial) of its own capital. The level of risk of using capital in the bank's active operations is directly dependent on the level of expected profit.

The main component of the bank's capital is its own capital, which has a clearly defined legal basis and functional purpose; is a basic element of the bank's aggregate capital and its further activities, while ensuring the bank's solvency and coverage of the negative consequences of risky operations and contributes to increasing the trust of clients in the bank as a result of the performance of its inherent functions [62].

Thus, the economic capital of the bank is considered an economic category that characterizes the set of economic relations of the banking institution and other counterparties regarding the need for the formation of own capital and the assessment of its value to cover predictable and unpredictable risks in order to obtain the desired profit, ensure the appropriate level of solvency, competitiveness, liquidity and financial stability. That is why economic capital is considered as a tool of choice and risk management.

Economic capital is an effective tool in the bank's risk management system. It is used in a number of directions. A tool for the single measurement of the magnitude of risks. When conducting operations, the bank is exposed to a set of risks, which are divided into measurable and immeasurable. The bank's economic capital acts as a tool for assessing measurable risks, taking into account correlations between them.

The largest American and European banks have introduced the practice of building models of economic capital, which provide for an internal assessment of risks, based on the level of their coverage acceptable to the bank's shareholders. These models help to assess the need for the necessary amount of capital, which

corresponds as much as possible to the specifics of the bank's risks. Pricing tool.

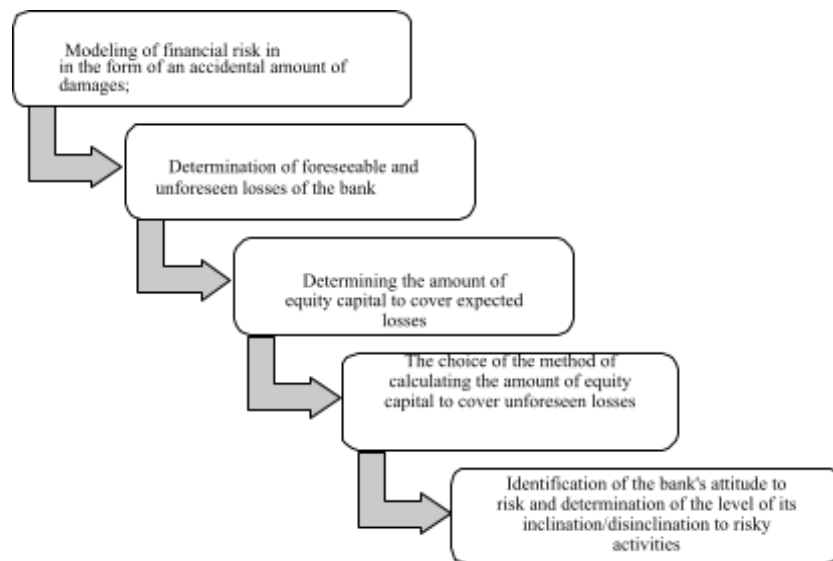


Fig. 1.1. The procedure for determining economic capital

When determining the cost of banking products, domestic and foreign practitioners emphasize the inclusion of expected losses in its composition. At the same time, the possibility of ignoring such an equally important component as unexpected expenses, which arise independently of the bank and are delimited by markets, industries and instruments, etc., should be excluded. The most important element in calculating the size of unexpected losses is determining the level of reliability of their occurrence [70].

Since no line of activity of a banking institution can function without its inherent risks, calculation requires special attention amounts of unexpected costs inherent in them and ultimately have an impact on the overall cost of the banking product.

Summarizing the above, it is possible to draw a conclusion about the great practical importance of economic capital in the bank's activity as a universal tool of the risk management system, strategic planning and budgeting, financial incentives, etc.

1.2. Factors affecting the financial stability of a banking institution and methods of its management

For any country, the banking system is one of the key links of the economic system. By their activities, banks are primarily called to regulate the movement of cash flows and contribute to ensuring the maximum use of financial resources of the economic system and the use of capital in those sectors of the economy where the profit and return on capital investments will be maximum. In modern conditions, the efficiency of the functioning of the modern market economy of Ukraine in general will largely depend on the quality of the banking services market.

Banks feel all the problems that exist in the country's economy. For example, the crisis of 2007-2009. clearly demonstrated the impact of the exchange rate drop on the solvency of clients and their ability to repay loans. Problems in industry caused an outflow of capital belonging to the industrial sector, thereby reducing the liquidity of the bank that lost this capital. In turn, the loss of liquidity caused panic in the financial market and almost led to the collapse of the banking system of Ukraine. This systemic dependence of the banking business on all sectors of the economy, the well-being of citizens, requires the construction of such a financial stability management system that would take into account all factors of banking activity [13].

Despite all the problems and shortcomings, the development of the banking system, which has successfully overcome a number of financial, economic and political crises and continues to overcome them to this day, is the key to the development of the state. In recent years, several important steps towards stabilization have been made in Ukraine, while the stimulating factor for the development of banking activity was the creation of modern banking legislation oriented to EU legislation, the transition of the banking system to international financial reporting standards and, of course, the creation of a powerful national payment system. The introduction of the deposit guarantee system and effective

banking supervision became an important stabilizing factor in banking activity.

As rightly noted by V.M. Kochetkov, the main problem of the stability of banks is related to the instability of the economy of Ukraine, which is only taking the first steps in the direction of an open society [7]. The instability of the external environment is directly reflected in the activities of banks, which are subject to its positive and negative effects. Considering that the market category "financial stability of the bank" reflects the financial condition of the banking institution in the existing environment, scientists have identified the main parameters of this environment that affect the financial stability of the bank. These are, in particular, the general economic condition of the country, the condition of its financial market, the socio-political situation in the country and the internal stability of the bank.

In general, there are quite a lot of classification signs by which the factors affecting the financial stability of the bank are divided, for example, according to the place of occurrence, there are: internal and external; by degree of influence: primary and secondary; by term of validity: permanent and temporary; by consequences of manifestation: general and specific; according to the nature of the action: objective and subjective; according to internal content: quantitative and qualitative, etc. [13].

Internal factors are divided into financial and organizational. Financial ones include the adequacy and size of equity capital, liquidity, size and quality of assets, quality of liabilities, profitability and risk management.

Organizational factors include the professionalism of management and staff, the effectiveness of the planning system, the organizational structure of the bank, the composition and capabilities of shareholders, as well as technological support and the territory of operations.

External factors that directly affect the entire banking system are also divided into two categories: socio-legal and financial-economic.

Financial and economic factors include the level of inflation in the country, the tax burden, monetary policy, the state of the money market, the state of the state's economy, and the state of the world economy.

In turn, the socio-legal group consists of legislation, the system of banking regulation and supervision, interbank competition, social and political stability in the country, as well as the level of corruption and bribery in it.

Internal factors are under the absolute control of the bank itself, so it can not only reduce the level of their negative impact, but also completely eliminate them. Their action is manifested individually and affects the financial stability of an individual bank.

Table 1.3

Factors of financial stability of the bank

Group	Internal component	External component
Economical	- financial condition of the bank: capital, reserves, profit, composition and structure of assets, borrowed funds, liquidity and solvency; - dynamics of financial indicators; - existence of a strategic development program (development of new markets, new types of products, services); - the state of marketing and advertising.	- the general economic condition of the country (GDP, inflation rate, development of real production by economic sector, investments, balance of payments); - state and dynamics of the money market; - state and dynamics of the stock market; - state and dynamics of the foreign exchange market; - the state of the credit and deposit market; - state and dynamics of the insurance market; - the state of the world economy.
Legal	- the completeness of the founding and internal documents of the bank, their compliance with current legislation; - legality of operations carried out by the bank; - abuse of bank owners, management, staff, customers; - the state of claim work.	- legislation, its consistency, sufficiency, completeness, effectiveness; - the effectiveness of the judicial system in defending the interests of banks; - the presence, competence, and effectiveness of state regulatory and control bodies over the activities of banks.

Social	- management style (authoritarian, collegial, partnership); - level of corporate culture; - relations with clients, government bodies, business partners.	- public trust in banks; - image of the bank; - state of education; - demographic situation.
Political	- personnel policy; - development policy; - policy of relations with clients and business partners.	- the country's political system; - corruption of officials; - the level of internal political stability of the country; - the level of political stability on a global scale; - image of the country on the world stage.
Technical - technological	- technical and technological support of banking operations, processes modern equipment, technologies, methods, etc.	- innovations and discoveries; - priority areas of science and technology development; - man-made disasters.

Source: compiled by the author based on scientific research [17]

External factors play a major role during mass bankruptcies and development [33]. The most important threat of their negative impact is that each individual bank is unable to independently influence the situation, and therefore it is necessary to develop the ability to absorb these risks in order to ensure financial stability. Positive manifestations of external factors stimulate the development of the entire banking system.

In general, the financial stability of an individual bank and the banking system as a whole is influenced by a significant number of factors, the place and importance of which cannot be underestimated. Even minor miscalculations, insignificant factors at first glance, can lead to catastrophic consequences, just as large-scale changes in strategic operating conditions do not always cause significant damage if prepared for them in advance. Therefore, it is necessary to thoroughly analyze all factors that affect the financial activity of banks and identify their new trends [49].

So, there are quite a lot of factors influencing the financial stability of banks,

and depending on the method of influence, they are manifested at the micro and macro levels, they can be permanent or temporary. The main internal factors include the adequacy and size of own capital, liquidity, profitability, as well as the professionalism of management and the bank's organizational structure. Determining external factors are the system of banking regulation and supervision, interbank competition and the state of the country's economy.

Taking into account the past experience, it can be noted that in the conditions of a market economy, banks exert a significant influence on the general economic processes of the state, both positively and negatively. Therefore, the issue of ensuring the financial stability of individual banks and the banking system as a whole requires continuous detailed study and improvement. The methods used to manage the financial stability of banks can be divided into internal and external [18].

The internal methods of managing the bank's financial stability include: bank liquidity management, profitability management, personnel management, capital management and a comprehensive approach to risk management (Fig. 1.2).

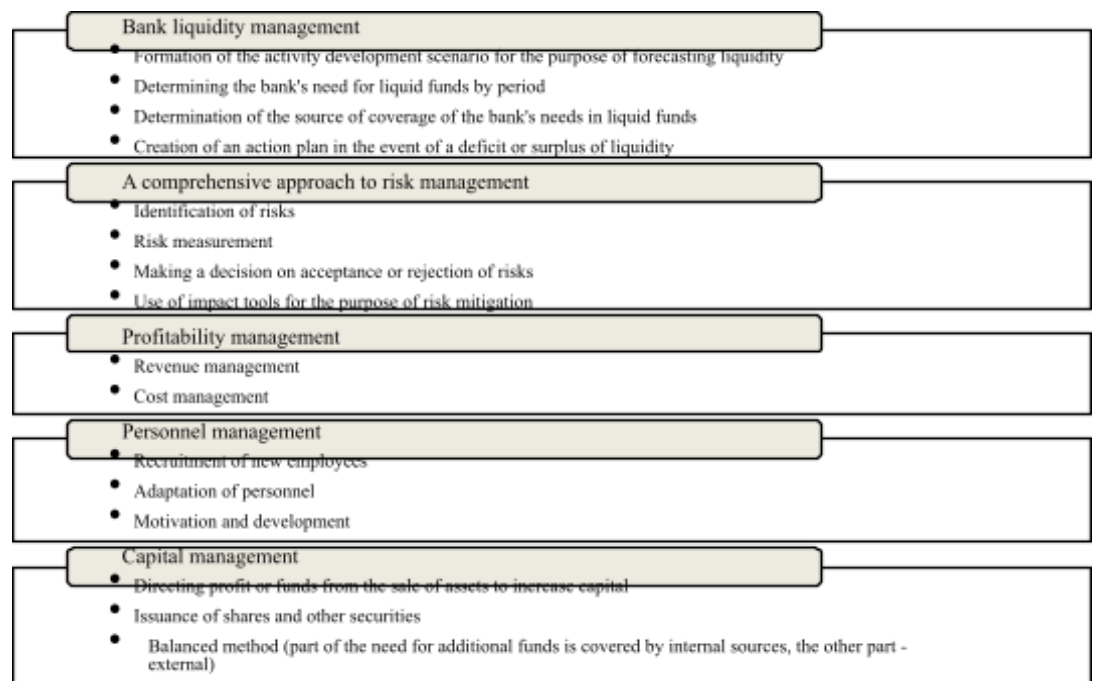


Fig. 1.2. Tools of internal methods of managing the financial stability of a banking institution

As for the integrated management of banking risks, its main measures are: insurance; limitation; formation of collateral and attraction of guarantors for credit transactions; formation of reserves; diversification; signing forward, futures contracts and interest rate options; structural balancing of assets and liabilities; use of a variable (“floating”) interest rate, etc. [40].

External management methods affect the stability of the entire banking system. The legislation defines the basic minimum requirements and restrictions of banking activity. The most important are the following: banks can be established only in the form of a public joint-stock company or a cooperative bank; the minimum amount of the authorized capital of the bank is 75 mln. hryvnias, and the regulatory capital is 120 mln. UAH.; formation and increase of authorized capital can occur exclusively through monetary contributions and only from confirmed sources; the chairman and members of the board, the chief accountant, owners of a significant share in the bank must have an impeccable business reputation; banks are prohibited from investing funds in enterprises and institutions, the charter of which provides for the full responsibility of the owners; banks are prohibited from operating in the sphere of material production, trade and insurance (Fig. 1.6).

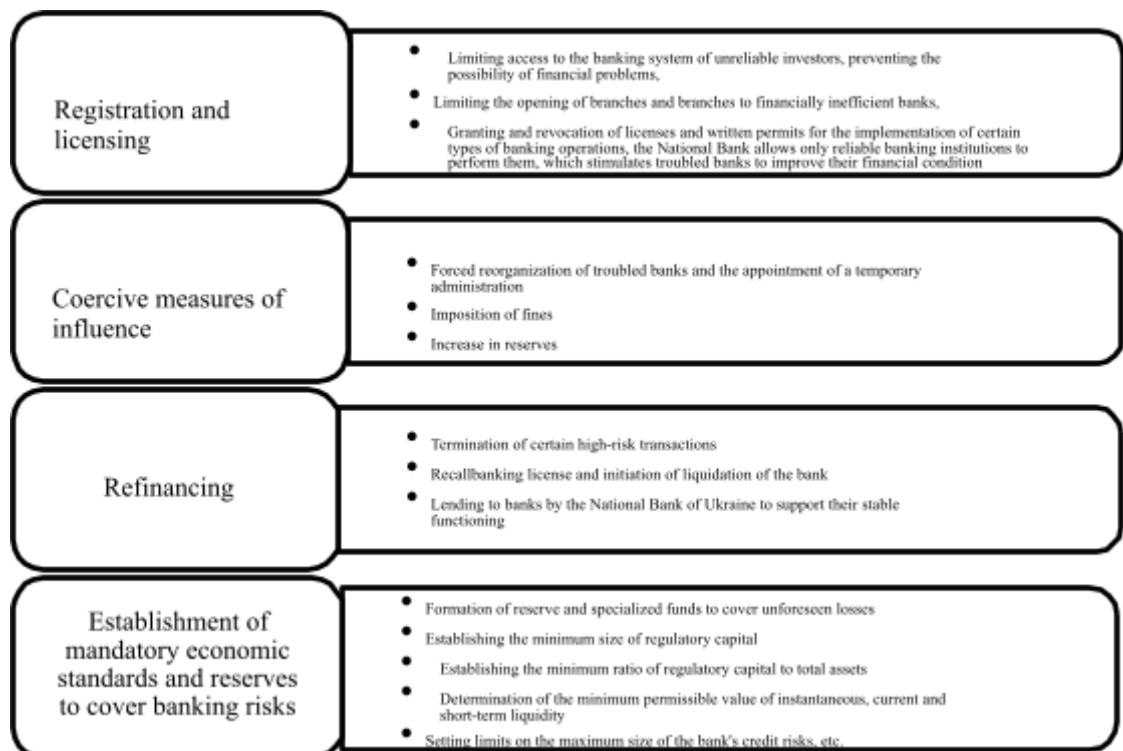


Fig. 1.3. Tools of external methods the financial stability managing of a bank

Along with managing through regulations, refinancing is important. Its action is manifested through the mechanism of lending to banks by the National Bank to support their stable functioning. Every Wednesday, the National Bank holds tenders for liquidity support, which is implemented by refinancing (crediting) banks for up to 14 and up to 90 days. If necessary, banks' liquidity can also be supported for a period of one day - the so-called "overnight" loan. In addition, the NBU carries out currency interventions on the money market, and also provides stabilization loans to problem banks [66].

The state affects the financial stability of the banking system not only through the National Bank, but also through taxation. Tax regulation of banking activity should be carried out especially carefully, since banks do not create a new product and are only intermediaries. Excessive taxation will result in a significant increase in the cost of bank loans and will cause an outflow of funds from the country's financial system, which will have a detrimental effect on other sectors of the economy.

All management methods, despite the magnitude of the influence of each of them, are not of great value by themselves and should be used only in a system with others. It is the systemic approach to managing financial stability that is able to build an effective mechanism of influencing the activities of banks in order to ensure the stable functioning of the entire banking system and the country's economy.

Therefore, the considered methods of managing the financial stability of banks form a single, integrated system of influence on banking activity, which is implemented at the micro and macro levels. At the micro level, the bank's financial stability is determined by the management's ability to establish effective management of liquidity, capital, risks, profitability, personnel, etc. Instead, the macro level requires a reasonable policy of the state, first of all in the person of the National Bank, regarding the establishment of minimum requirements for banking activity, the definition and application of measures of coercive influence and the mechanism of bank refinancing.

The calculation of economic capital is a combination of several methods of managing the bank's financial stability: capital and risk management, setting standards and mandatory reserves, as well as profitability management.

1.3. Methodical approaches to assessing the bank's financial stability

Assessment of the bank's financial stability should include an analysis of all aspects of its activity. As a rule, it is carried out on the basis of well-known methods and tools, but a single defined methodology and evaluation has not been developed to date. Therefore, analysts use several methods that differ significantly from each other and take into account different indicators.

In many scientific sources, the assessment of the bank's stability is presented as an assessment of its financial condition, so in most cases it is difficult to find a difference in the methods of analysis of financial stability, financial stability, solvency, reliability of the bank [41].

In general, the methods for calculating the above indicators are identical, as they relate to the generalized characteristics of a banking institution. But it is worth noting that the existing approaches to assessing the financial stability of banks differ in the composition of the factors that are taken into account, the system of indicators that characterize the components of financial stability and the threshold values of indicators, etc.

If we consider in detail each method of assessing financial stability, then in each of them it is possible to trace both weak and strong sides.

The coefficient method is based on the calculation of a set of economic indicators based on the articles of the financial report of a banking institution. With its help, you can get a significant number of economic indicators, which allows you to use ratio analysis for a complete and comprehensive study. It is the detailed ratio analysis that allows for a detailed study of the stability of the bank and to identify directions for its provision.

In Ukraine, the key tool of macroprudential analysis is the assessment of the

financial stability of banks based on the calculation of the main and additional indicators of financial stability proposed by the International Monetary Fund. According to its recommendations, indicators of financial stability are indicators of the bank's current financial condition and stability, which contain information on capital adequacy, asset quality, profit and profitability, liquidity, sensitivity to market risk, and recommended indicators of financial stability, as well as raw data for their compilation [13].

Therefore, in accordance with the recommendations of the IMF, a method of comprehensive assessment of the stability of the financial sector of our country has been introduced in Ukraine, which includes 12 indicators for daily monitoring (Fig. 1.7). But it should be said that the proposed approach allows solving only part of the problems of financial stability analysis, because the method of relative indicators (coefficient method) has certain disadvantages. First, the large number of coefficients, some of which duplicate each other, complicates calculations. Secondly, there is a lack or insufficient justification of the limit values of most indicators. Thirdly, the bank's public financial statements can be analyzed with the help of a limited number of analytical indicators, because currently Ukraine does not have a system for preparing statistical data for calculating the entire range of indicators proposed by the IMF. Fourthly, the high level of detail in the assessment of financial stability using the coefficient method is a significant drawback when it is necessary to give a generalized assessment of an individual bank and conduct appropriate comparisons. The assessment is especially complicated when, according to one indicator, the bank shows itself to be quite successful, and according to another - as financially unstable, that is, there is a multi-vector direction of changes in the indicators, which makes it impossible to determine the general trend in their dynamics.

It should be added that the assessment of financial stability is most often carried out using the coefficient method, which is quite simple, affordable and easily implemented in practice. And although it is not the optimal methodical approach to solving the problem of complex analysis of the bank's financial

stability, it is "express analysis" acts as an effective tool for assessing the financial situation and enables early recognition of the nature and significance of changes and predicting their likely directions.

Along with the use in international practice of a number of indicators of financial stability, which were discussed above, some countries use their own aggregated indicator of financial stability (Table 1.3). It should be noted that although this indicator can represent a certain value for assessing the state of financial stability, it cannot be used by itself, without the analysis of other indicators and analysis tools.

These methods of determining aggregated indices are characterized by some disadvantages: a significant time lag in the delay of receiving the indicator; they are aggregated on an annual basis and do not reflect the situation in various directions of the functioning of banking institutions. However, the aggregated indicators characterize the situation that has already been realized and act not only as a sign of vulnerability, but also give a broader picture of the stability of development.

Non-parametric analysis involves determining the financial stability of the bank on the basis of new indicators, which are a generalization of the original indicators.

The essence of the signaling approach is to establish an undesirable boundary crossing of the investigated indicators during a certain period of time. However, at the same time, a question arises regarding the justification of the acceptable limit of deviation of the studied indicator of the bank's activity.

Today, it is relevant for banks to carry out stress testing, which is carried out both by the supervisory body - the National Bank of Ukraine, and by specialized auditor companies and the banks themselves. Stress testing is carried out using various methods of analysis, in particular: sensitivity analysis aimed at identifying risks and the most likely reaction of financial sector institutions to shocks (changes in interest rates, exchange rates, asset prices, etc.); scenario analysis aimed at checking the stability of financial institutions and the financial sector to

exceptional but possible economic scenarios; analysis of "contagion", on the basis of which the transmission of shocks transmitted from a separate financial institution (for example, a systemically important one) to the financial sector in general and as a result of which the financial stability of banks is disturbed [74] is detected and evaluated.

Table 1.4

Groups of indicators taken into account during the calculation of the
aggregate
bank financial stability indicator (AIFS)

No	Name	Characteri stic	Weighting factor
Financial stability sub-index (FSI)			
K1	Solvency ratio	Determines the adequacy of equity capital for fulfilling the demands of creditors and ensuring the interests of depositors	0.7
K2	Profitability ratio	It characterizes the size and structure of profit and efficiency of the bank's use of resources	
K3	Liquidity ratio	It characterizes the ability to fulfill obligations to counterparties	
K4	Credit ratio risk	Determines the degree of threat of losing a part resources or lack of profit	
K5	Currency risk factor	Expresses the possible or existing risk to capital or income caused by adverse fluctuations in exchange rates foreign currencies	
Financial Vulnerability Sub-Index (FVI)			
K6	Financial ratio vulnerability	Reflects macroeconomic conditions, including the state of the state budget	0.2
Economic Climate Sub-Index (ECI)			
K7	Coefficient of economic climate	Describes the state of the economy of Ukraine's main counterparties	0.1

Source: compiled based on scientific research data [41]

The recent emergence of a significant number of different approaches and methods of forming stress scenarios and conducting stress testing of banking institutions makes such a problem as the development of criteria for the effectiveness of stress tests at both the macro and micro levels important. According to the Methodological recommendations of the NBU, the bank's stress testing system can be considered effective if it: provides the possibility of

determining the worst scenario of the development of events; establishes the amount of possible losses in the event of the worst-case scenario; identifies vulnerabilities and weak points in the risk protection system; enables management to quickly intervene in processes that threaten the bank, to determine, organize and implement a set of necessary measures aimed at reducing the impact of risks and avoiding financial losses.

A synthetic assessment of almost any characteristic of the bank (creditworthiness, reliability, sustainability, and, in particular, financial stability) can be provided by such an analytical tool as the rating. Most of the methods used in practice to analyze the financial stability of the bank are based on the CAMELS rating system, which is a method used in international practice. The main advantage of this system is that it is a standardized method of evaluating banks; ratings for each indicator indicate the directions of actions for their improvement; the composite score reflects the degree of necessary intervention that should be initiated in relation to the bank by the supervisory authorities.

One of the disadvantages of the CAMELSO method is that it is largely based on expert (subjective) assessments, so the quality of the final result will largely depend on the professionalism of the supervisors. In addition, the received rating of the bank is the property of the National Bank of Ukraine and is confidential information intended for internal use only and is not subject to publication in mass media [40].

Another well-known technique for assessing the financial stability of a bank is the technique developed by a group of experts led by V. Kromonova (Table 1.5).

Advantages of this technique: openness; its constant improvement; reliability and simplicity; logical structure and fundamentality.

However, this technique is quite often criticized for its objectively inherent shortcomings, among which the following can be counted: sufficient controversy of rationing of coefficients; despite the declared openness, the Kromon method cannot be called completely open.

Table 1.5

Criterion coefficients used to determine the bank's financial condition using
the Kromonov method

Marking coefficient	The name of the coefficient
K1	General reliability coefficient
K2	Instant liquidity ratio
K3	Cross-coefficient
K4	General liquidity ratio
K5	Capital protection factor
K6	Stock capitalization ratio of profit

The closed parts, as before, are the calculations of the weighting coefficients of the indicators, in addition, the rating compilers can adjust the place of one or another bank according to the informal information they receive.

Also, the rating methodology must take into account the conditions of the external environment in which the bank operates, and therefore must be sufficiently flexible.

Indicators included in the methodology should not duplicate each other, as this leads to distortion of the evaluation results. The substantiation of the criteria of an ideal bank, on the basis of which the classification of banks and the interpretation of the results of the rating assessment is carried out, is of great importance in the construction of the rating system.

The formation of a rating assessment of a banking institution based on the deviation of indicators of its functioning from the values of the "reference" bank is the task of the axonometric method of research. Thus, on the basis of quasi-distances, the current position of each bank is determined from the point of view of stable activity, which makes it possible to establish tactical and strategic directions of bank development. So, taxonomic assessment methods make it possible to determine the position of the bank taking into account the level of its financial stability, and also take into account potential opportunities within the

framework of the competitive environment in the market of banking services [13].

The basis of the taxonomic method (the Euclidean distance method) is the selection of a benchmark and the comparison of the optimal parameters (coordinates) of its financial stability with the corresponding parameters of the vectors of all other research objects (the determination of the Euclidean distances, according to which the objects are ranked: the smallest distance corresponds to a more stable bank). The fundamental difference of this technique from others used for rating assessment is the presentation of all statistical data according to the selected criteria (indicators) in the form of a matrix, where a separate row is a vector of financial stability, the coordinates of which are the values of the criteria (indicators) [3].

To ensure effective management of the bank's financial stability, it is necessary to use the tools of economic-mathematical modeling, which allows to develop mechanisms for improving the functioning of a stable bank through indirect knowledge of the object of research. At the same time, models that allow justifying management decisions and forecasting the main parameters of the bank's activity are gaining special importance in economic practice. Among the economic and mathematical methods and models used to analyze the level of financial stability of the bank, econometric methods are most often used. They allow determining the impact of changes in the external environment on financial stability, conducting an analysis of cause-and-effect relationships between economic variables, and searching for new and improved alternatives for ensuring financial stability.

During the construction of econometric models, it is necessary to carry out a qualitative analysis of factors that, according to the logic of economic relations, affect the financial stability of the bank. At the same time, it is necessary to select from among them only significant ones that are subject to further processing.

Therefore, the construction of an econometric model requires the implementation of a number of approaches and methods, which requires a significant amount of time, and therefore cannot be used for conducting an

operational analysis of the bank's financial stability. It is also worth emphasizing the need to process a significant amount of information in order to obtain reliable econometric models, which limits their implementation for data that determine the short-term dynamics of the studied indicators of banking activity. A more significant drawback of financial stability analysis based on econometric modeling is the need to apply data selection procedures to determine appropriate models to avoid multicollinearity among such data.

Due to the fact that the taxonomic indicators that characterize the financial stability of the bank differ from each other, it became necessary to rank banks in order to obtain a homogeneous population. As a means of ordering, it is advisable to apply the method of multidimensional classification of objects - cluster analysis [7]. The use of methodological provisions for conducting a cluster analysis of banks' activities contributes to the implementation of methods of qualitative strategic management of stability in order to gain competitive advantages in the market of banking services. The advantage of cluster analysis is also the possibility to use a large number of characteristics of a stable bank. However, cluster analysis is a descriptive procedure, it does not allow to make practically significant statistical conclusions, but it gives an opportunity to conduct a kind of reconnaissance - to study the "structure of the population".

Some researchers [6] suggest determining the weighting factors of bank stability using linear discriminant analysis. This method allows you to determine a set of weights for coefficients that best divide the elements of the population into groups - into financially stable banks and financially unstable banks.

The main goal of discriminant analysis is to find such a linear combination of variables that would optimally separate the considered groups. However, the weighting coefficients are not reliable for assessing the financial stability of domestic banking institutions; discriminant models do not provide answers to the question of which of the factors influenced the change in the level of financial stability; based on the results of using the models, it is not possible to obtain information about the possible further development of the bank [65].

At the same time, no analysis of the bank's financial stability is carried out without graphical display of time series of data and determination of descriptive statistical characteristics of such series. It is possible to determine the advantages of such a research method. Graphical presentation of data is considered to some extent as a qualitative characteristic of determining the financial characteristics of the bank's development. Graphic presentation of data as time series reflects not only the trend of the bank's development, but also reflects quantitative values, which allows for a comparative analysis of financial stability both within the same bank from the point of view of different periods, and between individual banks. Also, the graphic method helps to display the necessary information in a more visual and understandable form for the user, for example, to display the dynamics of changes in the volume of loans granted over different years.

However, this method can only be used to display analyzed data in dynamics. In addition, the graphic display needs to be supplemented with a description of the statistical characteristics of the investigated series of dynamics.

The main drawback is that it is necessary to carry out these studies from the point of view of each indicator of financial stability. However, there can be many such indicators. Therefore, the main issue is to determine the generalized assessment of the analysis of financial stability.

The comprehensive characteristic of a bank's financial stability cannot be limited to a set of quantitative indicators (liquidity, solvency, profitability, etc.), it should be the result of a more comprehensive and detailed analysis, since the financial stability of a bank is not a specific numerical indicator of its activity, it is its qualitative characteristic.

A comprehensive assessment of the financial stability of banks should be carried out using the methods analyzed above and include the following stages:

1. Since the bank is an open dynamic system, the stability of which depends on the influence of factors of the external and internal environment, the first stage of the algorithmic model can be structured according to the directions: forming a hypothesis about the system of indicators that determine the financial

stability of the bank (non-parametric analysis based on the coefficient approach); assessment of the level of significance of indicators (econometric modeling), determination of the system of the most informative indicators (signs).

2. Construction of models for retrospective and prospective diagnostics of the bank's financial stability using an aggregated index.

3. Development of a system of adequate management decisions regarding the choice of a strategy for ensuring the financial stability of a bank operating in conditions of nonlinear development of the macroeconomic environment using the apparatus of probability theory and fuzzy sets [74].

Therefore, the considered methods have become widely used due to the accuracy of the results obtained by them. Each separate banking institution and external auditors independently choose which of them to determine the level of financial stability of the bank. But the most correct conclusion can be obtained by conducting such an analysis not by one, but by several methods.

CHAPTER 2.

PRACTICAL APPROACHES TO THE ANALYSIS AND EVALUATION OF THE ECONOMIC CAPITAL OF UKRAINIAN BANKS

2.1. Organizational and economic characteristics of JSC CB "PrivatBank"

JSC CB "Privatbank" (hereinafter - the Bank) is the largest Ukrainian bank, the leader of the retail banking market of Ukraine, focused primarily on payment operations for the population and legal entities of all forms of ownership.

The bank was originally registered as a commercial bank in the form of a limited liability company and reorganized into a closed joint-stock company in 2000.

In 2009, the Bank changed its organizational and legal form to a public joint-stock company, in which the liability of shareholders is limited to the number of shares they own. In 2016, the State represented by the Cabinet of Ministers of Ukraine became the sole shareholder of the Bank, which owns 100% of the Bank's shares.

As of October 1, 2020, the Bank has 1,750 branches throughout Ukraine.

The Bank provides a wide range of services to individuals and legal entities and is guided by the following regulatory documents in its activities:

Law of Ukraine "On banks and banking activities", the Law of Ukraine "On joint-stock companies", the Law of Ukraine "On securities and the stock market", other current legislation of Ukraine.

The bank's strategy will continue to ensure the maintenance of the highest level of bank knowledge, high reputation and trust among clients and partners through compliance with proper work standards, improvement of quality and improvement of the list of services, optimization of costs and improvement of the efficiency of the bank's network and staff [51].

The bank offers banking services in the following areas:

- corporate business;
- retail business;
- treasury operations and investment banking.

The Bank intends to continue to expand its presence in the country, in particular, through the implementation of the following strategies: using segments with the highest growth rates, strengthening leading positions in the market, maintaining and improving the efficiency of our operational activities.

The bank's information technology strategy:

- maintain a reliable IT infrastructure to ensure planned business growth in all directions.
- further implement the program portfolio of Information Technologies with the aim of reducing efforts and maintenance costs [67].

The organizational structure of the JSC CB "PRIVATBANK" management includes all necessary forms of control to build an effective and coordinated mechanism over various areas of the bank's activities (Appendix B). The distribution of powers, competences and subordination of management bodies, as well as the principles of their interaction, are fixed in the Bank's Charter and regulations on structural divisions. JSC CB "PRIVATBANK" is an interregional universal and systemic bank with an extensive network of branches and offices throughout Ukraine, and has a flexible management organizational structure. OSU Bank is one of the most progressive among the banks of Ukraine and Eastern Europe. In fact, it is combined, because it contains features of the types of OSU widely spread in world practice. The bank constantly improves the bank and personnel management system, increases the efficiency of management, removes barriers between departments and raises the level of cooperation and interaction.

The analysis of the main indicators of the bank's activity should begin with the assessment of its assets and liabilities. The study of the bank's assets consists in the use of analytical techniques aimed at determining the total amount of funds at the disposal of the bank, their structure and dynamics in the analytical period.

As shown by the data in Table 2.1, with the overall rate of growth of assets

by 16%, and the loan portfolio by 15.9%. This means that a commercial bank expands lending activities, while worrying about its reliability, but the bank's financial management pays little attention to liquidity.

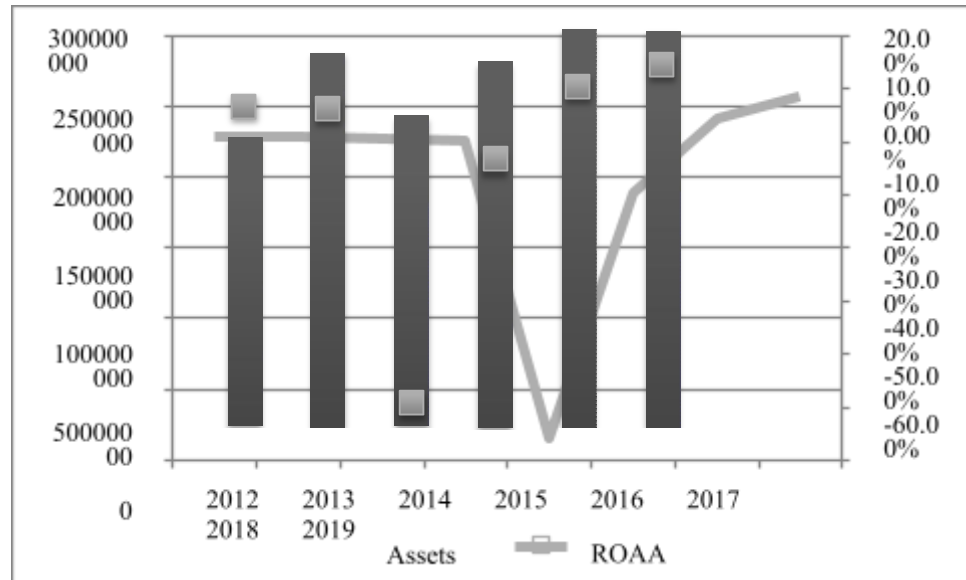


Fig. 2.1. Indicators of assets and their profitability

The decrease in the portfolio of securities both in terms of total assets by absolute volume and specific weight is cause for concern. The investment activity of the bank, which is the main one together with the credit activity, needs special attention.

The decrease in intangible assets of the bank occurred as a result of their wear and tear during the analyzed period, while their increase was not observed.

The growth rate characterizes the dynamics of fixed assets. This may be the result of the development of the bank, the expansion of the network of its branches, an increase in the level of technical support, etc. In this case, the changes can be considered normal.

The significant growth rate of other assets requires careful study. Especially if it was caused by an increase in receivables. Accounts receivable are funds temporarily withdrawn from circulation, therefore it is desirable to reduce or at least stabilize its specific weight in the total (total) assets of the bank. It should be borne in mind that a high specific weight of other assets is the most negative

feature of the bank's activity (Fig. 2.3).

Summing up, we can say that the dynamics, composition and structure of assets correspond to the main principles and directions of the bank's development, but the further development of assets requires their adjustment in the direction of increasing the specific weight of the loan and investment portfolio and slowing down the rate of growth of fixed assets and other assets.

After analyzing the active operations of JSC CB "PrivatBank", we will proceed to the analysis of its obligations. The analysis of the scale of the bank's activities in terms of attracting external sources of financing for its activities begins with the determination of the share occupied by the bank's liabilities in the currency of the balance sheet.

Since the bank is an institution that works mainly with borrowed funds, as a rule, their share in the bank's liabilities is at least 80%. A value less than this value means a higher financial stability of the bank, but negatively characterizes its business activity.

According to the balance sheet of JSC CB "Privatbank" [62], we will analyze its business activity regarding the attraction of financial resources.

The analysis of the bank's liabilities begins with the determination of their amount on the balance sheet through the calculation of account balances on the basis of the bank's balance sheet. At the same stage of the analysis, the characteristics of changes in the amount of the bank's liabilities in dynamics are given in absolute and relative terms.

Thus, from the data in Table 2.2, it can be seen that during the analyzed period the bank significantly expanded the scope of its activities, as evidenced by the increase in the currency of the balance sheet by 24.38 billion. UAH or by 8.77% in 2018 and by 31.5 billion. UAH.. or by 10.18% based on the results of 2019. At the same time, the increase in the resource base occurred both at the expense of the funds raised and thanks to the increase of the bank's own capital. This, of course, positively characterizes the work of the bank. Thus, the capital of the bank increased by 7.8 billion. hryvnias, or by 24.91% in 2018, and by 23

billion hryvnias in 2019, which is 42.2% of the previous indicator, and its liabilities - by 16.5 billion. hryvnias, or by 6.7% in 2018 and by 8.5 billion hryvnias, or 3.33% [17]. The proportional growth of the bank's capital and liabilities did not change the multiplier effect of capital. At the same time, the level of financial stability of the bank remained unchanged. The specific weight of liabilities in the general sources of resources formation decreased from 90.66% to 82.36% during the analyzed period, and the amount of liabilities exceeds the amount of the bank's capital almost 5 times (in the reporting period - 4.66 times) [16]. The given indicators testify to the balanced position of bank managers: the risks caused by the expansion of the funds involved are covered by the increase in the amount of own capital, which is a guarantee of bank obligations [18].

The higher the share of liabilities to the bank's clients (enterprises and organizations) on a long-term basis, the higher the stable part of the commercial bank's resources, which positively affects its liquidity and reduces dependence on interbank loans. However, term deposits are more expensive, which negatively affects the bank's profitability and profitability. At the same time, the increase in the share (more than 30%) of bank loans increases the risk of unbalanced liquidity, as the bank's dependence on external sources of financing increases. It should be noted that, taking into account the deficit of free funds of economic entities, today the share of MBK in the structure of liabilities reaches 30-40%.

Obligations of the bank as of January 1, 2020. amount to 255 billion UAH Compared with liabilities as of January 1, 2019. they increased by 8.5 billion. UAH or by 3.3%. Undoubtedly, the growth of the bank's resource base can be regarded as highly effective work of the deposit department in attracting resources. Moreover, the growth of the deposit base was mainly due to the increase in the funds of individuals and legal entities, and not due to interbank loans, which is a positive trend.

A positive phenomenon can also be considered a decrease in the share of banks' funds in the structure of the bank's liabilities, with a simultaneous decrease in their absolute size. Yes, the funds of other banks as of January 1, 2019.

amounted to 201 million UAH against 196 million UAH as of January 1, 2018, i.e. increased by 5 million. UAH or by 2.49% [62].

In general, summing up the bank's work on attracting resources, it should be noted the correct policy of the bank regarding the attraction of new customers, which leads to the growth of cheap bank resources, and the proper work on the formation of a stable part of the bank's resources due to the attraction of such a promising type of resources as deposits of individuals. Special attention should be paid to the implementation of salary projects using payment cards.

The bank is interested in expanding the volume of deposited funds that are temporarily at its disposal. For this bank, it is necessary to constantly improve the old and introduce new forms and methods of attracting different categories of depositors, namely: conduct research and analytical work, actively use advertising, marketing, and expand business contacts with clients.

2.2. Analysis of the reliability of banking institutions of Ukraine

Currently, the banking system of Ukraine is undergoing serious modifications. The current state of the banking services market cannot be called stable. Many Ukrainian banks are experiencing difficulties with the availability and distribution of financial assets, disruptions in liquidity, and a decrease in public confidence.

The crisis situation in the banking sector came in connection with economic and political circumstances. Let's highlight the main causes of the banking crisis in 2014.

1. The massive revocation of commercial bank licenses has undermined public trust in deposits and banks, which is why many people prefer to keep their savings at home in recent years.
2. In 2014, there was a serious macroeconomic shock - the fall of the national currency - the hryvnia.
3. Stagnation in the real sector of the economy, due to which foreign

investors reduced the amount of investments not only in production, but also in Ukrainian banks [9].

For a more detailed analysis, it is necessary to study the main indicators of the banking market of Ukraine.

Economic and political processes in Ukraine have left their mark on the banking sector as well. Thus, strict control by the state and the creation of new legislative acts resulted in a significant reduction in bank branches and the total number of banks in general.

During the analyzed period, the number of working branches was constantly decreasing. Thus, in 2014, the number of active structural divisions of banks amounted to 19.2 thousand. branches, and as of the end of 2019 it had 8.5 thousand branches. Since the beginning of 2020, large Ukrainian banks have closed almost 90 branches.

The network of state JSC "Oschadbank" shrank the most (by 182 branches). These processes have been going on in Ukraine for several years in a row. For example, in 2017, 980 bank branches were closed, in 2016 - 827.

Most of the "losses" of local offices are accounted for by the same JSC "Oschadbank", as well as the state JSC CB "Privatbank".

It should be noted that bank branches were reduced as a result of Ukraine's loss of part of the territory, the withdrawal of problematic banks from the market, and as a result of the adherence of completely stable banks to their own "austerity" policy.

This led to a decrease in interbank competition, especially in small towns and rural areas. Also, structural subdivisions of banks are closed due to outdated principles of working with its clients, opening new service centers of a new format [32].

Table 2.1

Dynamics of the number of active structural divisions of the top 15 banks of
Ukraine in 2014-2019

Item no.	Name of the bank	Year							Absolute deviation 2020 year/2014 (+/-)
		2014	2015	2016	2017	2018	2019	01.10.2020	
1.	JSC "Ukreximbank"	123	120	102	83	65	61	38	-85
2.	JSC "Ukrsotsbank"	432	318	263	263	231	53	53	-379
3.	JSC "Oschadbank"	5529	4547	4164	3648	3205	2630	2448	-3081
4.	Raiffeisen JSC Bank Aval"	828	698	595	510	503	503	496	-332
5.	JSC CB "Privatbank"	3246	2910	2588	2240	2243	2021	1750	-1496
6.	PJSC "PUMB"	160	125	157	159	165	180	208	+48
7.	JSC "UkrSybbank"	578	492	453	378	325	300	284	-294
8.	PJSC CREDI AGRICOLE BANK"	204	179	168	156	153	150	150	-54
9.	JSC "Alfa-Bank"	96	111	105	103	187	252	257	+161
10.	JSC "Ukrgasbank"	237	175	179	231	243	246	250	+13
11.	JSC "OTP BANK"	137	114	83	84	85	86	88	-49
12.	JSC PRAVEX BANK"	261	236	139	97	52	50	45	-216
13.	STALEMATE "MEGABANK"	177	155	170	182	162	166	158	-19
14.	AB "Pivdenny"	161	166	138	113	104	94	98	-63
15.	STALEMATE "CREDOBANK"	131	108	108	109	101	93	86	-45
	EVERYTHING	19290	15082	11871	10316	9489	8509	6409	-12881

Source: compiled according to the official website of the NBU [5]

In addition to the reduction in the number of bank branches, there is a decrease in banks (Table 2.2). Thus, according to the information of the National Bank of Ukraine, as of August 1, 2019, 76 banks were operating, which is 6 fewer financial institutions compared to the same period of 2018. But the number of banking institutions has been steadily decreasing since 2014. In particular, as of October 1, 2020, the number of operating banks was 74, which is 89 fewer

financial institutions compared to 2014. Since the beginning of 2016, the number of functioning banking institutions has decreased by 43. During 2014-2020, the banking sector of Ukraine has observed a tendency to decrease the number of banks with foreign capital: if in 2014 their number was 49, then in 2019 - 35, and in the beginning of October of the current year - 33.

Table 2.2

The number of operating banks in 2014-2019

Year	Number of active banks	Of them with a foreign one capital	Including with 100% foreign capital
2014	163	51	19
2015	117	41	17
2016	96	38	17
2017	82	38	18
2018	77	37	23
2019	75	35	23
01.10.2020	74	33	21

Source: compiled according to the official website of the NBU [5]

For example, in 2018, three banks surrendered their licenses and voluntarily left the market: BM Bank, which was reorganized into BM-2018 JSC, Divi Bank PJSC, and Venum Bank JSC. Another JSC "VTB Bank" was declared insolvent by the National Bank of Ukraine. In 2018, banks switched to the new IFRS 9 standard, which is why they worsened the assessment of assets that were in their portfolios at the beginning of the year. As a result, the equity capital of the sector decreased by UAH 27 billion, and about 90% of this amount was formed by state banks. However, the net profit received during the year largely compensated for the decrease in capital due to the application of the new standard.

According to the National Bank of Ukraine, solvent Ukrainian banks received UAH 52.9 billion at the end of 2019. net profit. In particular, in 2014 the net profit amounted to UAH 1.4 billion, UAH 33.1 billion. net loss, in 2015 - UAH 66.6 billion, in 2016 - UAH 159.4 billion, in 2017 - UAH 26.5 billion, in 2018

-21.7 billion UAH. Moreover, the majority of market participants managed to finish 2019 with a profit - 69 banks out of 75 operating as of January 1, 2020. Banks with foreign capital (UAH 15 billion) and state JSC CB PrivatBank (UAH 32.6 billion) earned the most last year. But the main loss was generated by banks with Russian capital (11 billion UAH). The main source of interest income continues to be banks' income from lending to legal entities (46% of the total volume), investments in securities (27%) and lending to individuals (26%). At the same time, the strengthening of the role of commission income took place in the context of the development of settlement and cash payments and other accompanying crediting payments - up to 25% in the structure of all incomes [63].

As can be seen from fig. 2.4, the state bank JSC CB "Privatbank" brings the largest share of profit to the banking sector, its profit is more than half of the total profit of all banks (54.5%). The indicators of other banks are much lower and amount to 7.9% in Raiffeisen Bank Aval JSC, PUMB JSC - 4.4%, Ukrsibbank JSC - 4.3%, OTP BANK JSC - 4.2% , JSC "Citibank" - 3.7%, PJSC "CREDI AGRICOLE BANK" - 2.9%, JSC "Alfa-Bank" - 2.7%, JSC "Ukrgasbank" - 2.2%, JSC "Ukreximbank" - 1.7% and other banks -11.2%.

Therefore, JSC CB "Privatbank" continues to occupy a leading position in the banking market, and despite the situation with the transition of the bank in 2016. owned by the state, continues to provide a wide range of services and occupy one of the first positions in the ratings based on the results of its activities.

The bank's economic capital is also an important element that is taken into account when determining the reliability of Ukrainian banks. Therefore, it is advisable to also review the reliability rating of banks (Table 2.5).

Bank reliability should be understood as the financial institution's ability to resist adverse factors, but reliability and probability of default are different concepts. A bank with a high level of reliability may face a strong impact of negative and unpredictable factors that can lead to its bankruptcy, while a bank with a satisfactory rating will continue to operate, because as a result of a combination of circumstances, it will avoid the negative impact of such factors. It

is also necessary to take into account political risks [75].

A universally accepted tool for comprehensive assessment (quite often for assessing reliability or solvency) of banking structures are ratings, which are systematically calculated and published both by firms working professionally in this field and by banks themselves.

Bank ratings make it possible to compare the reliability of existing banks to a certain extent, and when using additional information about their financial condition, to do it sufficiently adequately.

In order to increase the reliability of banking institutions, the latter need to implement strategies aimed at improving the quality and increasing the amount of capital sufficient to cover potential risks in active operations, minimizing risks and optimizing the loan portfolio.

Table 2.3

Reliability rating of banks based on the results of their activities in 2019

No. for p.p.	Name of the bank	Owner
1	Raiffeisen Bank Aval	Raiffeisen Bank, Austria
2	CREDIT AGRICOLE BANK	Credit Agricole, France
3	Ukrsibbank	BNP Paribas Group, France
4	Citibank	Citibank, USA
5	ING Bank Ukraine	ING Group, The Netherlands
6	Savings Bank	State
7	ProCredit Bank	ProCredit Bank, Germany
8	Credobank	PKO Bank Polska, Poland
9	PrivatBank	State
10	Ukreximbank	State
11	Ukrgasbank	State
12	OTP Bank	OTP Bank, Hungary
13	PUMB	SCM Finance, Ukraine
14	Pravex Bank	Intesa Sanpaolo, Italy

15	Alfa Bank	ABH Holdings, Luxembourg
16	Taskombank	Sergey Tyhypko, Ukraine

Among the priority actions within the framework of such strategies, it is possible to distinguish the improvement of the level of corporate management, strategic planning, and improvement of the risk management system. On the part of the state, promoting the implementation of such strategies can take the form of increasing requirements for unconditionally ensuring the transparency of the ownership structure of banking institutions and monitoring their implementation, as well as strengthening control over capital formation, in particular increasing the value of indicators of capital adequacy and sufficiency, introducing new indicators, their differentiation for various homogeneous groups of banking institutions, constant monitoring of the quality of the assets and capital formed [59].

2.3. Peculiarities of calculating the economic capital of JSC CB "PrivatBank"

As part of the internal procedure for assessing the adequacy of capital, the local regulatory legal acts of the bank should provide for the method of determining the amount of economic capital.

In the case when economic capital is defined for a financial and credit institution as the totality of capital to cover all risks, it can be compared or determined on the basis of certain components of regulatory capital. When it comes to insurance against risks for individual operations or businesses, it is appropriate to consider economic capital as a set of capital that contributes to the prevention of such risks, which, in our opinion, makes it possible to eliminate contradictions in the definition of the category of economic capital.

To determine the value of economic capital by significant types of risks, the bank uses a methodology subject to compliance with the requirements for quantitative tools for economic measurement (estimation) [4].

JSC CB "PrivatBank" uses the calculation of the value of economic capital for:

- ensuring the coverage of unforeseen losses as a result of the realization of significant types of risks;
- implementation of risk-based pricing;
- effective allocation of capital, taking into account all types of risks significant for the bank.

The Bank establishes the acceptable level of risk in accordance with the "Regulations on the organization of the risk management system in banks of Ukraine and banking groups". Taking into account the established level of risk, the bank determines risk appetite (risk appetite) in the form of a set of quantitative and qualitative indicators by types of risks, areas of activity, divisions of the bank, ensuring their continuous compliance in the long term, including in stressful situations.

Based on indicators of risk appetite (risk appetite), the bank determines the planned (target) level of capital, the planned capital structure, sources of its formation, the planned (target) level of capital adequacy, the planned (target) levels of risks and the target risk profile of the bank [44].

When the bank implements a set of measures aimed at limiting (reducing) risk, as well as for the purpose of monitoring the adequacy of capital, the bank is obliged to provide in local regulatory legal acts the procedure for distributing capital through a system of limits by types of risks, areas of activity (business lines) , divisions that generate risks. In particular:

- limits must be set according to the types of risks for which capital adequacy requirements are determined, for all areas of activity (Business Lines), divisions of the bank that generate risks;
- when calculating limits, it is necessary to focus on the assessment of the need for capital in relation to significant types of risks, taking into account the profitability of capital, adjusted for risk, using the formulas for calculating the indicator of profitability of capital, adjusted for risk, for the bank as a whole and its

separate business line (subdivision);

- the limit system should have a multi-level structure, including limits:
 1. By significant types of risks, including credit, market, operational risks and liquidity risk;
 2. By subdivisions that generate significant types of risks;
 3. By the volume of transactions (agreements) carried out with one counterparty (counterparties of a separate type of economic activity);
 4. By volume of operations (agreements) carried out with financial instruments;
 5. According to the maximum level of losses by bank divisions that generate significant types of risks.

The size of the bank's economic capital (EK) is calculated by the method of simple summation of the amounts of unforeseen losses by significant types of risks of the bank according to the following formula:

$$EK = NV_{kr} + NV_{rr} + NV_{or} + NV_{ir},$$

where NV_{kr} - the amount of unforeseen losses due to credit risk;

NV_{rr} - the amount of unforeseen losses due to market risk, currency risk;

NV_{or} - the amount of unforeseen losses due to operational risk;

NV_{ir} - the amount of unforeseen losses for other significant types of risks.

In order to calculate the total amount of economic capital, it is necessary to calculate the economic capital for each type of risk separately.

To determine the amount of unforeseen losses due to the credit risk of the loan debt portfolio of borrowers of the non-financial sector, the period from 01.01.2017 to 31.12.2019 was taken for the analysis of historical data on changes in the provisioning level [23-28].

During the analysis, the following credit risk indicators were taken into account:

- estimated or actual reserve level of the loan portfolio as a whole and in terms of activities (by types of clients (legal entities, individuals, credit

organizations);

- the amount of overdue debt in the credit portfolio as a whole and in terms of activities (by types of clients (legal entities, individuals, credit organizations));

- the structure of the loan portfolio by activity (by type of clients (legal entities, individuals, credit organizations));

- the level of reservation of contingent liabilities of a credit nature (guarantees);

- the volume of the portfolio of conditional credit obligations (guarantees).

According to the calculations, the average value of the actual provision level for the loan debt portfolio of non-financial sector borrowers for the period from 01.01.15 to 01.01.20 was 16.33%. The average value among indicators exceeding the average reservation level was 20.42%, which is 0.66 pp. less than last year's data.

Table 2.4

Calculation of the amount of unforeseen losses by credit risk

No p.p.	Indicator	31.12.2019	31.12.2018	31.12.2017
1.	Planned reservation level (%)	79.88	82,83	83,84
2.	The average value among indicators that exceed the average level of reservation (%)	78,11	79.24	80,71
3.	Difference between 1 and 2 (%)	1.77	3.59	3.13
4.	The size of the bank's loan portfolio (million UAH)	296,043	291,936	237 181
5.	The amount of unforeseen losses due to credit risk (million hryvnias)	5,239.96	10,480.5	7,423.76

Source: compiled according to the official website of JSC CB "PrivatBank"

[23-25]

The unexpected level of credit risk losses (Table 2.6.) was calculated by the authors according to the following algorithm:

1. Collection of statistical data for a certain period.
2. Calculation of indicators on the basis of which the volume of unforeseen credit risk losses will be calculated.
3. The average annual level of the value of indicators for the selected period of analysis is determined.
4. Analysis of the value of indicators exceeding the average level, and the average value is determined.
5. The difference between the average value among indicators exceeding the average reservation level and the planned reservation level is determined.
6. The obtained result is multiplied by the planned value of the loan portfolio.

Thus, the amount of capital required to cover unforeseen losses due to credit risk is defined as the actual losses of the credit organization that exceed the forecasted average level of credit losses (the amount of expected losses).

The amount of unforeseen losses due to the market risk of trading positions (Table 2.7) is calculated using the Value-at-Risk methodology.

Table 2.5

A portfolio of debt obligations measured at fair value through profit or loss

Date	Portfolio volume, mln. UAH	Size one-day VaR, hryvnias.	Size ten-day VaR, mln.. hryvnias..
31.12.2017	36,322	303,873	435,951.4
31.12.2018	165,450	1,384,171.34	1,985,801.4
31.12.2019	151,282	1,265,640.42	1,815,715.03

Source: compiled according to the official website of JSC CB "PrivatBank"

[23-25]

Market risk is the risk of losses caused by adverse changes in the value of positions arising as a result of changes in market prices for risk factors related to

goods, credits, capital, currency and interest rates.

The VaR methodology for trading instruments (bonds) is an assessment of risk, that is, potential losses that will not be exceeded with a given probability (97.5%) over a time horizon of 1 year.

Data on the portfolio of debt obligations, which are valued at fair value through profit or loss, as of January 1, 2019, are used to estimate potential losses.

Calculation of the amount of unforeseen losses due to currency risk (Table 2.8).

Currency risk is the probability of currency depreciation, which can negatively affect the value of assets, investments and related interest and dividends, especially securities denominated in foreign currency. The unexpected level of losses due to currency risk is calculated according to the following algorithm:

1. Collection of statistical data for a certain period.
2. The maximum size of open currency positions (hereinafter GDP) is determined for each currency separately for the analyzed period in a monthly breakdown.
3. The average value of the daily fluctuation modules of each currency in which the credit organization has open currency positions is determined.
4. The difference between the modules of the daily fluctuation and the average value specified in point 3 is calculated, from which the maximum value (for each currency) is taken to calculate unforeseen losses due to currency risk.
5. The maximum open position for each currency is established for the period from 01.01.2015 to 01.01.2020 (for the US dollar - on 01.01.20, for the euro - on 01.01.20, for the Chinese yuan - on 01.01.2020).
6. The amount of unforeseen losses on currency risk is calculated as the reproduction of the maximum open position by the maximum deviation from the average daily fluctuation module (for each currency) (taking into account the high volatility of currency rates).

Table 2.6

Calculation of the size of unforeseen losses by currency risk

Currency	The average value of the daily fluctuation modules, hryvnias	The maximum deviation of the day shift module from average for the period, UAH	The maximum size of the open currency position, thousand Acting	Amount of unforeseen losses, thousand UAH..
Euro	0.2211	16,167	91,727	5,673.72
US dollar	0.1513	15,901	77,990	4,904.72

Source: compiled according to the official website of JSC CB "PrivatBank" [23-25]

7. Unforeseen losses due to currency risk are determined by summing up the amounts of unforeseeable losses for all currencies. The analysis of historical exchange rate fluctuation data for the period from 01.01.2015 to 01.01.2020 was used for the calculation.

The cumulative amount of unforeseen losses due to market risk is the sum of unforeseen losses due to market risk of trading positions and currency risk and amounts to $1,815,715.03 + 10,615.04 = 1,826,330.07$ UAH.

3. Calculation of the size of unforeseen losses by operational risk
Operational risk is the risk of losses as a result of unreliability

internal management procedures of the credit organization, dishonesty of employees, failure of information systems or as a result of external events affecting the activities of the credit organization. Inherent in all business processes in the credit organization.

To determine the amount of unforeseen losses on operational risk, the period from 01.01.2015 to 01.01.2020 was taken for the analysis of historical data.

The unforeseen level of operational risk losses (Table 2.9.) is calculated according to the following algorithm:

1. Collection of statistical data for the period.

Table 2.7

Calculation of the size of unforeseen losses by operational risk

No p.p.	Indicators of operational risk	2017	2018	2019
1.	The average value of the growth rate of OR, %	8	10	10
2.	The maximum value of the deviation from the average growth rate, p.p	6	9	9
3.	Predicted value of OR, hryvnias.	350 406	599,982.3	569,628
4.	Forecast value of OR for calculating capital adequacy standards, mln. UAH	730,012.5	833,308.75	791 150
5.	The planned value of OR when calculating the planned standards of capital adequacy for the next year, mln. UAH	720,412.8	822,350.74	780,764.4
6.	Unforeseen operational losses, hryvnias. (points 4-5), mln. UAH	9,600	10,958.01	10,385.6

Source: compiled according to the official website of JSC CB "PrivatBank" [23-25]

2. For the analyzed period, the average rate of growth of operational risk is calculated, the value of which is determined in accordance with the Resolution of the NBU

"On the approval of the Regulation on the procedure for determining the minimum amount of operational risk by banks of Ukraine".

3. The maximum deviation of the growth rate of operational risk from the average is determined.

4. The forecast value of operational risk is calculated by multiplying the value of operational risk as of January 1, 2018 by the maximum deviation from the average growth rate.

The amount of unforeseen losses on operational risk is calculated as the

difference obtained in point 4. the value and size of the operational risk, the value of which was set when planning the sufficiency standards for the next year (in this case, 2019).

Therefore, based on the results of the performed calculations, it is possible to calculate the approximate amount of the economic capital of the bank necessary to cover the analyzed risks:

$$\begin{aligned} EK_{2019} &= NV_{kr} + NV_{rr} + NV_{or} + NV_{ir} = \\ 5,239,960 + 1,826,330.07 + 10,385,600 &= 17,451,890.07 \text{ UAH} \end{aligned}$$

Thus, the conducted research makes it possible to study in more detail the nature of the risks faced by the bank in conducting its activities, to determine their impact on the results of banking operations and to calculate the amount the banking institution will need to cover unforeseen risks.

CHAPTER 3.

WAYS OF IMPROVING THE ECONOMIC CAPITAL MANAGEMENT PROCESS

3.1. Improvement of the management system and minimization of risks related to banking activities

The specificity of bank capital is that it is mainly loan capital borrowed on a temporary basis. On the one hand, the bank takes risks together with the client, on the other hand - as an independent entity, transferring resources that do not belong to him by property rights for temporary use. The risk that banks take on practically doubles. In case of failure, not only the bank loses, but also its clients - individuals and legal entities who have placed their money in it.

In the modern conditions of the development of market relations, banking supervision should be preventive, integrated, permanent and based on the identification of risks in the activities of banks. In addition, it should be more focused not on previously studied financial information, but on calculations of future financial results of a banking institution to assess the financial stability and reliability of banks [10].

In other words, banking supervision should be carried out according to the supervisory model, which should be clearly defined in advance (Fig. 3.1).

In the process of transition to the specified supervisory model, the banking supervisory authorities of many countries of the world implement a set of measures aimed at modernizing all methods of conducting banking supervision and bringing them closer to the basic principles of the Basel Committee on Banking Supervision and Regulation.

Carrying out the above measures leads to the improvement of the following main elements:

- organizational structure and internal regulations regarding banking supervision;

- availability of a regulatory framework for banking supervision;
- improvement of on-site inspection procedures;
- remote supervision and analytical systems;

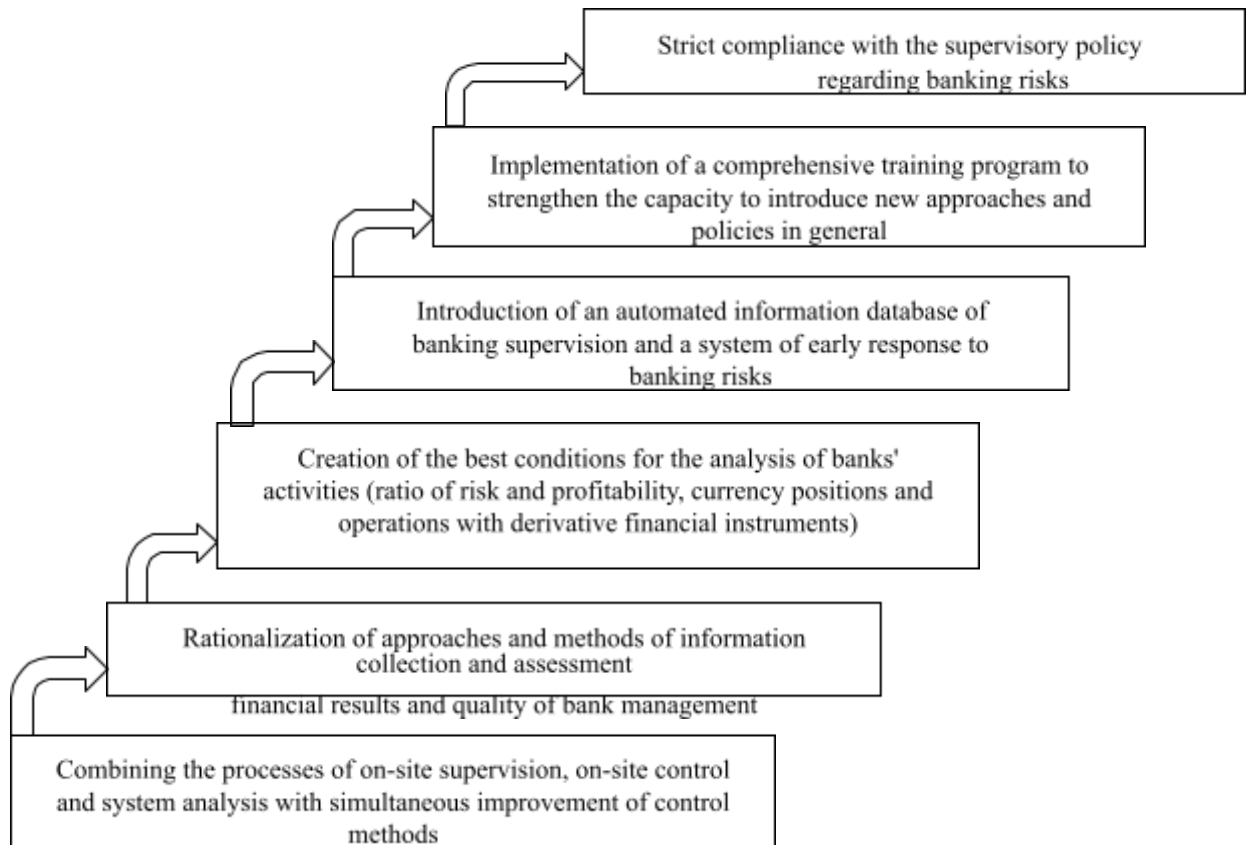


Fig. 3.1. The model of banking supervision for the management of banking risks

- unification and grouping of initial data of all areas of banking supervision for the purpose of taking corrective measures for banks;
- using an automated database and related tools.
- a continuous process of training bank supervision personnel to master new methods and technologies [22].

Bank risk management should be considered and deliberate. Their value is estimated and calculated using statistical and mathematical methods, probability theory, expert assessments and practical experience.

The purpose of the risk management process is to limit or minimize their

level.

The banking risk management system cannot function in isolation. In order for the received information to be as complete and accurate as possible, and the established permissible levels of risks to be objective, other areas of management activity should be taken into account, in particular - management of the bank's profitability. This is explained by the fact that there is a direct relationship between the level of profit and the level of risks: a high level of risks assumed by a banking institution provides an opportunity to obtain increased profits, and at the same time, does not exclude the possibility of sharp losses.

Minimizing the level of risks allows you to get a low but stable profit. Therefore, maintaining a balance between profitability and the level of risks, finding the optimal ratio between them is considered one of the important and difficult tasks facing the bank.

Summarizing the approaches to solving the "risk level-profit level" problem, two main models of bank risk management can be distinguished.

The first approach is aimed at increasing profits under the condition of limiting the level of risks and establishing their maximum permissible value. In this case, unbalanced approaches to managing the bank's liabilities and assets, risk hedging strategies should be used.

The objective function of the second model is risk minimization, and the limitation is the requirement to maintain profitability indicators at a certain level, not lower than the specified one. Such a model is used if the main goal is to stabilize results. This is achieved using balanced methods of asset and liability management and a risk hedging strategy.

The economic regulation of banking risks, which is used in the world experience, has an intermediary nature of influence and is not aimed at establishing limits or direct prohibitions for banking institutions.

In order to reduce banking risks, it is a common practice to set restrictions on certain types of activities of commercial banks, or on certain types of active operations. For example, it is a fairly common practice to set a limit for banks on

the right to inherit real estate due to its low level of liquidity and high level of risk. In some countries, banks are not allowed to hold securities of companies whose value is subject to large fluctuations. There are also restrictions on the rights to guarantee the placement of individual securities or the provision of loans to persons who have access to confidential information [3].

Protective means are a way of defense against an existing threatening situation for a banking institution, the result of which may be loss of solvency or bankruptcy. In other words, these measures protect the bank itself and its clients from possible negative consequences associated with financial difficulties.

The following measures can be attributed to this type of regulation:

- refinancing of commercial banks by the central bank of the state;
- formation of reserves by banks to compensate for possible losses on loans and other assets;
- creation and operation of the Deposit Guarantee Fund of individuals;
- targeted assistance of other state bodies, etc. [45].

Protective measures involve the use of various types of reserves, funds or other means of a targeted nature. Depending on the individual bank and the specific situation, contractual actions may be used, in particular, support by state bodies of individual banks in the form of refinancing, provision of guarantees, purchase of their shares, etc.

The actual effect of preventive measures is implemented by approving mandatory norms. In turn, norms are divided into functional and institutional norms and are designed to regulate banking risks.

Functional norms have a specific numerical value and can be general or selective in nature. Thus, with the help of selective norms, risk coefficients for individual bank operations are determined, and general norms affect the credit market in general.

Institutional norms reflect in relative terms organizational issues, definition of lending goals, operational activities, the procedure for conducting audits, etc.

The above-mentioned methods of regulating banking activity are closely

related and complement each other. Protective measures increase the level of depositors' confidence in the banking system and affect the stability of macroeconomic indicators of the economy. Preventive measures make protective measures more effective [56].

Credit risk management. The most important element of prudential banking supervision is the assessment of the bank's policies, practices and procedures related to granting loans and placement of investments, as well as day-to-day management of loan and investment portfolios.

Banking supervision must be sure that lending and investment processes in specific banks are objective in nature and based on balanced, reasonable principles. The presence of a prudent, written policy of crediting, credit approval and administrative procedures, appropriate credit documentation - all this is necessary for managing the bank's credit operations.

The process of investment and lending must be delivered in accordance with the standards of loan placement guarantees, the approval of which is accepted by the bank's management and brought to the attention of all employees participating in the lending procedure, as well as notified to all the staff of the banking institution. An important point for banking supervision is the conviction that the bank's decision to grant a loan is made in the absence of a conflict of interest and unacceptable pressure from any side.

Each bank should have a well-developed monitoring procedure for established credit relations, including constant supervision of the borrowers' financial situation. The main link of every information system of a banking institution should be a database that contains the full amount of information about the state of the bank's loan portfolio.

Also, one of the important issues in the process of regulation of banking risks is lending by banks to their insiders (natural and legal entities related to the bank), who have the opportunity to influence the general activity of the bank. The existing standard establishes the maximum amount of loans and other obligations that can be granted to one insider.

As practice shows, a significant part of problem loans provided by banks are loans to insiders. Therefore, limiting the number of loans granted to this category of clients is quite logical, but this approach has its drawbacks:

1. The absence of the ability to determine the borrower's exact belonging to the "insider" category both by the banking institution itself and by banking supervision. The instruction "On the procedure for regulating and analyzing the activities of commercial banks" requires that not only direct relationships between the bank and insiders, but also indirect relationships be taken into account. But the lack of an information base and the possibility of making legal changes in the process of conducting business relations with the borrower makes this process unjustified and is considered a waste of time and money.

2. The expediency of the global restriction of lending to insiders. Most often, the risk arises in cases where the relationship is built on preferential terms, in comparison with other clients of the bank. And in the event that the bank analyzed the financial condition of its shareholder, assigned it the status of satisfactory, received as collateral enough highly liquid assets and granted a loan at the usual interest rate for this category of loans, the level of risk for the bank will not exceed the conditional risk, which would be when lending to an ordinary client.

Therefore, if the bank fulfills all prudential norms in relation to such a borrower, both internal and banking supervision requirements, then the "interested" client or insider can be considered as ordinary, and therefore special requirements regarding the volume of lending may not be established [77].

If you combine the above-mentioned problems into one, their implementation will make the calculation of this standard even more difficult. However, if the bank will have the right to independently determine the belonging of this or that client to the group of insiders in the lending process, this will increase the quality of the analytical work of both the banking institution itself and banking supervision.

Currency risk in lending. If the loan is granted in a foreign currency, then in addition to the credit risk (which always exists, regardless of the currency in which

the loan is granted), the bank also assumes the currency risk.

Currency risk is the possibility of losses associated with changes in foreign exchange rates. At the same time, the risk of the loan agreement is determined by the change in the exchange rate on the future flow of payments to repay the loan debt.

Authorized banks, when lending in foreign currency, usually place the currency risk on the borrower. They independently evaluate and make decisions regarding the reduction of currency risk in lending. At the same time, the quality of currency risk assessment depends on the competence and professionalism of bank employees.

In order to minimize the currency risk associated with exchange rate fluctuations, authorized banks must use various methods of currency risk management, that is, their insurance.

The essence of the main methods of currency risk management is that currency exchange transactions should be carried out before an adverse change in the exchange rate occurs, or compensation for losses from such a change is necessary at the expense of transactions with a currency whose exchange rate will change in the opposite direction. Commercial banks can do this through forward agreements, swap operations, option agreements, financial futures, structural balancing (assets and liabilities, payables and receivables, which will cover losses from exchange rate changes with profit), etc.

In light of the recent worsening of the situation on the money and credit market, the National Bank of Ukraine has introduced a number of preventive measures that make it possible to maintain the liquidity of banks and reduce currency risks arising from lending.

Among such measures are the establishment of restrictions on crediting in foreign currency by authorized banks of business entities by purchasing only critical imported goods (which were included in the list approved by the Resolution of the Cabinet of Ministers of Ukraine dated 27.07. 98 No. 1145), reducing the total amount of loans in foreign currency by which are less than 20%

of the bank's loan portfolio. Also, commercial banks were given recommendations to refrain from active operations, especially those related to the growth of credit investments and the provision of interbank loans.

Risk in foreign economic activity. 10.09.1998 The National Bank of Ukraine and the CMU adopted joint resolution No. 1413, which approved anti-crisis measures for financial stabilization. This regulatory document was created and adopted to take urgent measures regarding social. protection of the population, prevention of uncontrolled development of the situation on the financial market of Ukraine and reduction of the direct impact of the Ukrainian financial crisis. The implementation of these measures contributed to the increase and concentration of foreign currency inflows to the currency market of Ukraine, the expansion of importers' opportunities to purchase foreign currency [78].

Taking into account the fact that a significant part of the calculations of subjects of foreign economic activity of Ukraine with the countries of the West is carried out in the Central Bank of Ukraine, the protection of such calculations from various risks was ensured through the optimal combination of currency, financial and price conditions of the foreign economic contract.

Currency risk, which arises as a result of changes in exchange rates in the current period, can occur not only in relation to sellers, but also to buyers. The importer or the debtor incurs losses if the contract currency rate rises, because he has to pay a larger amount of the national currency to buy it. The exporter or creditor will lose if the contract currency falls because he will receive a smaller amount in the national currency.

In order to prevent the specified risks, banks include in agreements with foreign counterparties such conditions that allowed them to avoid losses in connection with a drop in the value of foreign exchange earnings when exporting goods abroad or an increase in the exchange rate of payment currency when importing.

There are several methods of currency risk insurance, in particular, on the basis of a mutual agreement between the participants of the agreement, when one

of the participants performs unilateral actions, or it is connected with the conduct of relevant operations by banks and insurance companies (Table 3.1). In practice, protective clauses are usually applied - conditions that are contractually included in a contract or agreement.

The simplest way to save foreign currency income from depreciation due to a fall in the currency rate is to include a currency clause in the foreign economic contract, which would provide for a change in the amount of payment and the price of the product, taking into account the change in the exchange rate of some stable currency in relation to the currency of payment. An indirect form of such a clause is fixing the price of goods in a stronger currency when payments are made in weaker currencies.

Index clauses also apply. This clause can save the seller (exporter) from a decrease in the purchasing power of the currency he receives under the contract, but not from changes in its exchange rate.

There is also a price revision clause, it is one-sided in nature, since price revision is possible only in case of a decrease in the exchange rate, but not an increase. The importer can agree to the exporter's requirements or refuse him. If no agreement is reached between the counterparties, the exporter can cancel the agreement without any compensation to the importer [39].

Table 3.1

Methods of currency risk insurance

Name	Characteristic
Direct currency reservation	It is used in case of coincidence of the currency of the contract and the currency of payment. Exporters insist on its application in the event that the currency of settlement tends to decrease.
Index clause	The payment amount depends on a certain price index.
Price revision notice	It is included in the contract in the case when the seller wants to protect himself from the currency risk, and the buyer does not go to enter any other clause into the contract.
Multi-currency clause	The payment currency is tied to several price currencies at once, i.e. to a "basket of currencies". At the same time, the

	payment amount changes depending on the change in the exchange rate of several currencies.
Barter agreements or counter purchases	These are operations in which the seller undertakes to purchase goods or products from the buyer in return. Two contracts are signed at the same time, where the amounts and delivery terms are fixed.
Combined currency and commodity clause	The payment amount is adjusted taking into account changes in exchange rates and commodity prices. In the case of their movement in one direction, the amount will be changed taking into account the largest deviation percentage, and if in different directions, the payment amount will be recalculated taking into account the margin between deviations of exchange rates and prices.

Source: compiled by the author based on scientific research data

In international practice, a multi-currency clause is also used. This reservation is of two types - on the basis of the arithmetic average percentage deviation of the exchange rates of the specified list of currencies or on the basis of changes in their conditional arithmetic average exchange rate. The first type of reservation is more appropriate, as it ensures a certain proportionality of changes in exchange rates. To simplify the calculation, exchange rates of several leading world currencies are used.

In practice, barter agreements or counter purchases are also used. At the same time, the equivalent of the exchanged goods (based on world prices) is fixed in the contract, and the difference that sometimes arises is covered by payment in currency.

One of the methods of insuring currency risks, which is used by large companies, is to regulate the currency position under contracts so that it is closed. For example, if the subject of foreign economic activity is predominantly export or import oriented, then the risk can be reduced by concluding contracts in different currencies, in which the dynamics of exchange rates have opposite trends. However, this method is effective only if the company has extensive foreign economic contacts.

As for the forms of settlements under foreign economic contracts, in international settlements, subjects of foreign economic activity of Ukraine use documentary letters of credit, collection and transfer. The activities of Ukrainian banks in the field of international settlements are aimed at improving the quality of service for foreign economic transactions of clients and correspondent banks, in particular, by making settlements according to documentary forms, banks contribute to reducing risks in foreign economic transactions, increasing cash flows, attracting new clientele, more reliable financing and strengthening relations with foreign banks.

Market risk management. Banking supervision must have confidence on a daily basis that banks assess and adequately control market risks with the necessary accuracy. If necessary, it is possible to create a special "cushion" of capital to cover price risks to which the bank is exposed, especially risks associated with commercial operations. Another important step in strengthening the reliability of financial markets is discipline, the observance of which is connected with the fulfillment of capital requirements of banks. Qualitative and quantitative market risk management standards should also exist in banks [12].

Banking supervision also needs to make sure that the bank's management has set appropriate limits and ensures adequate internal control over its operations in foreign currency.

Interest rate risk management. Banking supervision systematically monitors how banks control interest rate risk, which involves effective monitoring by the bank's supervisory board and management, the presence of adequate risk management policies and procedures, and a risk measurement system. In addition to this, banking supervision must receive sufficient and timely information from banks, which allows to assess the level of interest rate risk. This information should take into account a number of payment terms and currencies that are in the bank's portfolio, as well as other factors.

Operational risk management. The management of the bank must conduct a policy on managing operational risk or on reducing the severity of this risk (for

example, with the help of insurance or planning other measures in case of unforeseen circumstances) and develop and implement adequate measures regarding the resumption of business activities of all bank systems.

Management of other risks. Standards for managing other risks are becoming increasingly important as the complexity of financial instruments and risk assessment techniques increases. Moreover, the impact of new technologies on the banking market persistently requires many banks to carry out daily monitoring of transaction portfolios and quickly adjust the degree of risk taking into account market needs and client interests [47].

In these conditions, bank management, investors and, of course, banking supervision need truthful information regarding the bank's risk positions, and it must be correct, comprehensive and provided on a timely basis. Banking supervision contributes to this process by encouraging and reinforcing sound banking policies and requiring banks to put in place procedures that ensure the availability of such information.

3.2. Analysis of the effectiveness of the bank's economic capital management system

Currently, the conditions of the competitive environment in the markets of financial and banking services place increasingly high demands on the risk management systems of Ukrainian banks. In this regard, the number of banks striving to improve risk management systems and bring them into line with international best practices is constantly growing. However, only a few banks have the necessary methodical, organizational, information and personnel resources necessary for the calculation of economic capital, and only a few (which are mostly subsidiaries of large Western banks) perform the calculation in accordance with best practices.

The ability to calculate economic capital, i.e. the largest amount of possible losses over a given time horizon, calculated with a certain confidence interval,

characterizes a high level of maturity of the risk management system. Most Ukrainian credit organizations have to take many steps before they can fully and correctly calculate the amount of economic capital, as well as its allocation to the business unit [60].

As one of the tools for diagnosing the state of the risk management system, Deloitte specialists use a scale that will reflect the level of maturity of the risk management system (actually measuring the level of risks) of a commercial bank (Fig. 3.1). On the bottom floor of the pyramid, such a state of the system is presented, in which the bank detects and displays in its system the operations carried out by it, but at the same time does not carry out the detection and assessment of possible risks.

On the upper, sixth floor, such a state of the risk management system is displayed, in which the bank calculates economic capital, allocates it to divisions and evaluates their efficiency, taking into account the level of risk.

Currently, the risk management systems of most Ukrainian banks are in the third stage of maturity. At the same time, in a number of banks, revaluation of positions on the market is not carried out for all financial instruments, but only for trading portfolio instruments, since the regulator's requirements apply only to the trading portfolio.

It is obvious that, taking into account the current state of the banking system, the implementation of Basel II, especially advanced approaches, is an extremely difficult task for most domestic banks. First of all, this concerns small and medium-sized banks.

Even before moving to the stage of calculating the economic capital, most banks have to take a number of steps to ensure that the basic requirements for the risk management system are met.

Such steps include:

- improvement of the corporate governance system, creation of full-fledged boards of directors with the participation of independent directors, audit committees;

- improvement of internal audit: qualifications of employees, methodical support, work planning based on the level of risk;
- accumulation of data necessary for correct setting of rating and scoring models;
- implementation of IT systems with risk analysis functions, comprehensive rethinking of data structure and movement of information flows, formation of corporate data warehouses;
- creation of a risk management function (middle office), which would participate in all main business processes and would be independent from functions that are sources of risk;
- evaluation of all open positions on the market - including investment positions, complex derivative instruments - in management reporting;
- implementation of processes for calculating reserves (impairment) of financial assets in accordance with IFRS 39 [73].

Now we will consider in more detail the essence of economic capital, the advantages of implementing a system of calculating economic capital and possible approaches to the implementation of relevant processes.

Currently, economic capital is one of the innovations for the banking sector. This topic is actively discussed by representatives of the banking sector all over the world.

- Economic capital is a measure of risk and represents the level of unforeseen losses over a certain time horizon.
- Contingent losses are the bank's potential losses at the 99.99% significance level, which exceed the largest predicted level of expected losses.

As you know, the implementation of the system of calculating economic capital in the bank is a complex process. Economic capital is an integral part of a financial institution.

Many bodies and organizations external and internal to the bank are interested in the amount of economic capital and the efficiency of the process of its calculation, such as the bank's management, supervisory bodies, shareholders and

rating agencies. Pursuing their specific goals, each of the interested parties focuses on this indicator (Fig. 3.3).

Economic capital management guarantees the bank:

- creation of added value for shareholders;
- the ability to manage risk appetite (risk appetite);
- the possibility of integrating unforeseen losses with a certain level of significance from different types of risk;
- efficiency of allocation of funds by various business units;
- a reliable assessment of the effectiveness of subdivisions taking into account the level of risk [64].

Improved opportunities for insurance and obtaining a credit rating: the clarity of requirements and the spread of new capital and risk management rules directly affect the bank's costs in connection with obtaining a rating or insurance of property and liability.

Economic capital is usually calculated as the sum of estimated economic capital for each risk separately.

Using more complex methods that include the correlation effect can reduce the level of economic capital. A graphic display of such a situation is presented in (Fig. 3.5).

To comply with the qualitative and quantitative standards proposed by Basel II, the bank should use mathematical and statistical methods.

The history of regulatory requirements and the development of risk management methods determine the possibility of assessing unforeseen losses associated with economic capital separately for each risk.

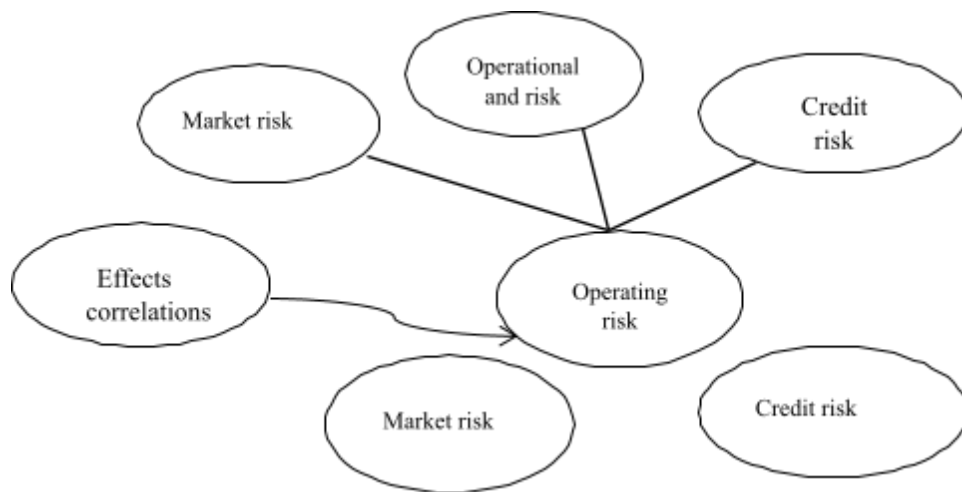


Fig. 3.2. Integration of market, credit and operational risks

There are 3 main approaches that can be used to estimate value at risk (VaR):

- historical methods;
- method of variation - covariance;
- Monte Carlo method.

Distribution (allocation) of capital:

- different methods of capital distribution result in different distribution options;
- different methodologies have different characteristics (for example, negative distribution);
- different methods of capital allocation can be used for different processes.

Capital distribution methods:

- covariance method;
- value-at-risk (VaR) method;
- degree of concentration;
- method of expected unfulfilled obligations;
- internally coordinated distribution;

- proportional coverage;
- the Myers-Read method (Myers-Read);
- the Shapley method;
- Auman-Shapley method.

However, many problems stand in the way of introducing advanced approaches and methods of risk assessment, including the calculation of economic capital, in Ukrainian banks.

One of the problems is the lack of necessary statistical (historical) data on the financial condition of borrowers, debt service indicators and facts of default. These data are necessary for building internal rating models.

Another significant problem is the lack of qualified specialists in the field of risk management.

We need specialists with a deep level of understanding of the banking business, including the specifics of doing business in Ukraine. Specialists must have an understanding of risk factors, modern methods of banking risk management, mathematical and statistical methods.

Most banks, especially medium and small ones, have insufficiently developed information systems. In many cases, the necessary information for risk management is simply not entered into the information systems or separate fragmentary applications are used, and it is not possible to combine the data that are within the framework of different programs. There are also problems with the quality of the data used, the system of normative reference information [73].

Many organizations need to move to a single platform or implement data warehouses, where information contained in different systems can be collected in a single repository.

However, an increasing number of Ukrainian banks are taking practical steps in the direction of improving the risk management system.

We hope that in the near future the banking system of Ukraine will not be inferior to the banking system of Western countries in terms of reliability.

CONCLUSIONS

In the diploma work, theoretical generalizations were made and solutions to scientific problems were obtained regarding the essence of the economic capital of the bank and its role in ensuring the financial stability of the banking institution in general, as well as proposals were made regarding the prospects of the bank's development and the mechanism of bank risk management, which have a direct impact on the formation and calculation of economic capital. The general conclusions obtained as a result of the research are as follows:

1. In the current conditions of global economic globalization, liberalization of financial markets and the possibility of crisis phenomena, the issue of ensuring sustainable economic development in every country of the world, which largely depends on the stability and efficiency of the banking system as a whole, and on the degree of financial stability of each bank in particular, is intensifying. Economic capital has a direct influence on the stability of the bank, as it shows the amount of capital necessary to cover both foreseeable and unforeseen losses that the banking institution may incur in the course of its activities.

2. For a clearer understanding of the definition of "economic capital", the approaches to its definition were summarized. The proposed definitions are considered from different sides, both from the side of comparison with regulatory capital, and with its complete opposite. Taking into account banking risks, investments and general activities of the bank and the services provided by it. A comparative table has been compiled with the definitions of the most famous scientists and the diversity of their views on this term.

3. To assess the qualitative state of the bank, its sensitivity to external factors through the main indicators of the financial statements for the analyzed period, which showed that the bank, despite the process of transition to state ownership, still retained its position on the banking market and retained the status of the most influential bank in Ukraine and confirmed the trust of customers.

4. Banks are part of a single economic organism as one of the important

sectors of the economy. The financial condition of the banking system and the economy as a whole are two interrelated phenomena. The state of each of them depends not only on their own development, but also on the development of social relations as a whole. The effectiveness of the development of the banking system has a positive effect on investment activity and economic growth in the country. On the other hand, the effectiveness of the functioning of banks largely depends on the state of the economy, especially on its production sector, because in the conditions of the crisis and the decline in investment activity, the activity of banks shifts towards conducting risky banking operations.

5. The analysis of existing methodical approaches to the definition of economic capital used in foreign practice shows the existence of significant differences between banks of different countries in its calculation. As for the practical application of the calculation of economic capital in Ukraine, this practice has not yet gained wide application and this topic is considered more theoretically.

6. To ensure an effective banking risk management mechanism, it is necessary to pay special attention to granting loans to insiders. It is this group of borrowers that is the most risky for the bank, because they are more likely to default on the loans taken. This situation also has consequences in the calculation of the amount of economic capital, as it has a direct effect on increasing its size in such a case, because such expenses must be covered by the bank precisely at the expense of economic capital.

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ПРОТОКОЛ
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Організація (установа): ФІЗИЧНА ОСОБА

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