MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
V.N. KARAZIN KHARKIV NATIONAL UNIVERSITY

Karazin Banking Institute

Department: **Banking Business and Financial Technologies**
Specialty: **072 Finance, Banking, Insurance and Stock Market**
Educational program: **Financial Technologies and Banking Management**
Group: **AF-23M full-time mode of study**

QUALIFYING MASTER'S THESIS

on the topic:

MANAGEMENT OF THE BANK'S CREDIT ACTIVITY AS A FACTOR OF ENSURING ITS STABILITY

higher education student **Tang Zhiyu**

The qualifying master's thesis was accepted for defense by the decision of the Department of Banking Business and Financial Technologies

Protocol No. 5 dated December 6, 2024

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Kharkiv – 2024

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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 Tang Zhiyu

1.Topic of the work "MANAGEMENT OF THE BANK'S CREDIT ACTIVITY AS A FACTOR OF ENSURING ITS STABILITY".
Scientific adviser Doctor of Economics, Associate Professor Karina Utenkova
(surname, first name, patronymic, academic degree, academic title)

Approved by order of the university dated September 17, 2024 No. 4601-5/1025.

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

3. List of issues to be developed:
In Chapter 1: to reveal the essence of the bank's credit policy and its implementation strategy; to determine the features of credit policy as a tool for credit risk management; to investigate the peculiarities of the mechanism of formation and implementation of the bank's credit policy.
In Chapter 2: to provide technical and economic characteristics of JSC CB PrivatBank activity; to analyze the structure and dynamics of the loan portfolio in the context of forecasting the Bank's risks; to analyze the credit portfolio risk assessment model and the calculation of the integral indicator of the Bank's credit risks.
In Chapter 3: to apply an anticipatory approach to monitoring and minimizing the Bank's credit risks; to provide recommendations on improving the effectiveness of credit policy implementation of JSC CB PrivatBank; to

determine the ways of improving information and analytical software control and minimization of credit risks of JSC CB PrivatBank.

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 _______________ Tang Zhiyu
signature initials, surname

Scientific Adviser _____________ Karina Utenkova
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ABSTRACT
ON THE QUALIFYING MASTER'S THESIS
"MANAGEMENT OF THE BANK'S CREDIT ACTIVITY AS A FACTOR OF ENSURING ITS STABILITY"
of Tang Zhiyu

The qualifying master's thesis comprises 108 pages, 21 tables, 10 figures, 13 formulas, and a list of 70 references.

The **object of research** is the processes involved in managing the bank's credit activity.

The **subject of research** encompasses theoretical aspects and practical recommendations for improving the management of credit activities in a banking institution.

The **purpose** of the qualifying master's thesis is to summarize theoretical and methodological aspects and provide recommendations for improving the management of the bank's credit activities.

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

- to reveal the essence of the bank's credit policy and its implementation strategy;
- to determine the features of credit policy as a tool for credit risk management;
- to investigate the peculiarities of the mechanism for forming and implementing the bank's credit policy;
- to provide a technical and economic description of the activities of JSC CB PrivatBank;
- to analyze the structure and dynamics of the loan portfolio in the context of forecasting the bank's risks;
- to analyze the credit portfolio risk assessment model and calculate the bank's integral credit risk indicator;
- to apply an anticipatory approach to monitoring and minimizing the bank's credit risks;
- to provide recommendations for improving the effectiveness of the credit policy implementation at JSC CB PrivatBank;
- to determine ways to enhance the information and analytical support for controlling and minimizing credit risks at JSC CB PrivatBank.

Based on the **research results**, theoretical and practical provisions have been formulated and translated into specific proposals to enhance the effectiveness of the credit policy formation and implementation at JSC CB PrivatBank. The results obtained can be used to address issues related to the management of credit activities not only in PrivatBank but also in other banking institutions.

KEYWORDS: Credit Policy, Credit Portfolio Risks, Credit Policy Management

CONTENT

INTRODUCTION

The credit policy forms the goals and priorities of the credit activity of the banking institution, the means and methods of its implementation, as well as the principles and order of the organization of the credit process. Ensuring the banking institution's profit from credit operations, as well as the effective allocation of credit resources are the main tasks in the implementation of the credit policy of commercial banks of Ukraine. However, in order to achieve these tasks, it is necessary not only to develop an effective credit policy, but also to organize the credit process in a banking institution in such a way that all progressive assets of credit policy are used in the management of the credit portfolio.

Taking into account the war that is taking place in Ukraine for the third year in a row, in today's conditions in the banking sector, the credit activity management system needs to be improved, which determines the relevance of the research topic.

A significant number of scientists deal with issues of the development of banking and the credit management system, including: S. Andros, I. Hutsal, V. Neighbor, J. Halperin, D. Shimon, A. Karminsky, O. Dzyublyuk, O. Lubar, G. Penikas, P. Preddy, D. Fantazzini D. and others. Accumulated significant experience in researching problems and main issues related to the formation of the credit policy of a banking institution. A significant contribution to the study of the essence of the concept of "bank credit policy", the definition of the types and functions of the bank's credit policy, the mechanism of its formation and implementation was made by:

Despite the fact that much attention is paid in the economic literature to bank lending, the corresponding risks and their impact on the quality of the loan portfolio, there are problems related to the specifics of the formation of the credit policy of a banking institution, which have not been sufficiently studied.

The purpose of the work consists in summarizing theoretical and methodological aspects and providing recommendations for improving the management of the bank's credit activities.

To achieve the set goal, the following tasks are solved in the work:

- the essence of the bank's credit policy and its implementation strategy are disclosed;
- the features of credit policy as a credit risk management tool are defined;
- the peculiarities of the mechanism of formation and implementation of the bank's credit policy were investigated;
- the technical and economic characteristics of JSC CB PrivatBank activity are provided;
- an analysis of the structure and dynamics of the loan portfolio was carried out in the context of forecasting the occurrence of Bank risks;
- the credit portfolio risk assessment model was analyzed and the calculation of the integral indicator of the Bank's credit risks was provided;
- an anticipatory approach to control and minimization of the Bank's credit risks is applied;
- recommendations were made to improve the effectiveness of the implementation of the credit policy of JSC CB PrivatBank;
- the ways of improving the information and analytical system are determined
- ensuring control and minimization of credit risks of JSC CB PrivatBank.

The object of the research is processes of managing the bank's credit activities.

The subject of the study are theoretical aspects and practical recommendations for improving the management of credit activity of a banking institution.

The theoretical and methodological basis of the research is the work of scientists in the field of banking, risk management, mathematical modeling, and mathematical statistics. The methods of mathematical statistics, risk theory, statistical processing of databases, and financial analysis were used in the work to obtain results.

The research information base is represented by NBU regulations, letters, instructions, credit market studies, scientific developments, statistical data of the NBU, official data on the credit activity of JSC CB PrivatBank.

The practical significance of the work is the possibility to use the proposed recommendations to reduce banking risks and ensure the financial security of the banking institution.

CHAPTER 1
THEORETICAL BASIS FOR THE FORMULATION AND IMPLEMENTATION OF THE BANK'S CREDIT POLICY

1.1. The essence of a bank's credit policy and its implementation strategy

Each banking institution determines its own credit policy, analyzing the whole set of internal and external factors and risks that affect its effective activity. Internal ones include: customer orientation; organization of banking work; credit potential of the bank; stability of deposits; regional and industry specifics of the bank's functioning, etc. The external ones include: monetary policy of the NBU; demand for bank loans; the general state of the country's economy; the level of budget deficit; politicization of society; the level of income of the population capable of consuming banking services; inflation rate and others [1].

The credit policy covers the most important elements and principles of the organization of credit work in the banking institution, which are fixed in writing and approved at the meetings of the credit committee and the credit supervision committee.

The main quantitative criteria for the effectiveness of the credit policy of a banking institution are compliance with the indicators of profitability and the level of risk of credit activity at the set target level without a threat to financial stability and competitiveness during a certain period, and the qualitative criteria are compliance with the requirements of banking regulation and supervision, compliance with banking policy, ensuring internal balance individual areas of credit policy and their compliance with the conditions of the external and internal environments. Structuring the views of scientists on interpretation of the concept of "credit policy of the bank" (Table 1.1).

Table 1.1

The main theoretical approaches to the interpretation of the concept of "credit policy of the bank"

Author	Features definition	Definition
1	2	3
S.V. Andros [2, p. 442]	A set of events	A set of bank measures to increase profitability and reduce credit risk.
N.A. Antipova [3, p. 18]	Part of philosophy	Part of the philosophy that determines the internal bank loan issuance procedure, document flow, monitoring of the loan portfolio, work with problem loans, setting interest rates
V.Ya. Vovk [4, p. 37]	Directions, principles, goals of credit activity	Defines the main directions of the credit process, priorities, principles and goals of a certain bank on the credit market and provides for the use of specific financial and other instruments used in the process of implementing credit agreements – the bank's tactics for organizing the credit process.
O.D. Lupus [5, p. 46]	Strategy and bank tactics	The bank's strategy and tactics for attracting funds and directing them to lending to the bank's clients (borrowers) based on the principles of: return, term, intended use and payment.
U.V. Vladychyn [6, p. 39]	Strategy and bank tactics	The strategy and tactics of the bank regarding the allocation of funds for lending to the bank's clients based on principles lending
I.S. Hutsal [7, p. 6]	Constituent part of the general bank policies	part of the bank's general policy aimed at achieving its strategic goals: compliance with the bank's financial stability, reliability, liquidity and solvency; implemented through a credit mechanism
N.A. Dzyubanovska [8, p. 20]	Document	A document defining the main goals and directions credit activities of the bank for the future.
O.V. Dzyublyuk [9, p. 307]	Activities and actions of the bank	A set of measures and actions related to the formation of the composition of the credit portfolio and control over it as a whole, as well as the establishment of standards for making specific decisions.
I.V. Carbivore [10, p. 5]	principles, criteria, goals of credit activities	A set of basic principles and criteria for making management decisions in the field of bank lending regarding the realization of its credit potential and effective impact on the country's economy at its various levels.
H.H. Korobova [11, p. 154]	System of measures in lending	The system of measures of the bank in lending to its customers, which is carried out to implement its strategy and tactics, with the determination of priorities in the process of developing credit relations, on the one hand, and the functioning of the credit mechanism, on the other.

R.R. Kotsovska [12, p. 78]	Complexdecisions regarding the organization of credit process	A set of decisions adopted by the bank's board, in which the conditions, parameters of credit granting, organization of the credit process are fixed.
O.O. Lubar [13, p. 183]	Activities of the bank in the region lending	In a narrow sense, it is a system of actions of the bank in the field of lending to its customers, carried out by the bank to implement its strategy and tactics in a given region in a certain period of time. Credit policy as the basis of the credit management process determines priorities in the process of credit relations development, on the one hand, and the functioning of the credit mechanism, on the other.
T.V. Mayorova [14, p. 7]	Ensuring security	Ensuring safety, reliability and profitability credit operations, that is, the ability to minimize credit risk.
O.L. Malakhova [15, p. 6]	Development of the organization concept	Development of the concept of the organization of credit relations between a commercial bank and its clients – business entities – at the microeconomic level by determining the sequence of actions regarding the practical implementation of credit support for entrepreneurial activity.
M.M. Novoseltseva [16, p. 5]	Bank strategy	A strategy in the field of lending, which defines general principles, rules, approaches and standards for all participants in the credit process, which are related to the bank's mission and aimed at achieving the strategic goals of its activity.
N.L. Ostrovskaya [17]	System tool management	A tool of the bank's credit management system, the ultimate goal of which is to prevent risks in achieving its strategic goals.
H.S. Panov [18, p. 5]	Strategy and bank tactics	strategy and tactics for attracting resources on a revolving basis and investing them in lending to bank clients
I.F. Prokopenko, [19, p. 117]	Strategy and bank tactics	The bank's strategy and tactics for directing funds to lend to the bank's clients (borrowers) based on lending principles.
The world of encyclopedias [20]	A set of factors, documents and actions	A set of factors, documents and actions that determine the development of a commercial bank in the field of lending to its customers. The credit policy determines the tasks and priorities of the bank's credit activity, the means and methods of their implementation, as well as the principles and procedure for organizing the credit process.
V.T. Susid [21, p. 218]	System strategic goals	A system of strategic goals of the bank's activity within the scope of lending and corresponding mechanisms for the effective implementation of these goals has been developed.

An analysis of the definitions of the concept of "credit policy of the bank" given in modern economic literature (Table 1.1) makes it possible to see that a unified understanding has not been formed. The credit policy of a banking institution in the most general sense should be studied as a component of banking policy that determines the goals of activity on the credit services market and strategies for achieving them, and in a practical-applied sense, we propose to define the credit policy of a banking institution as the structural and functional integrity of interconnected elements (goals, tasks, principles, technology, organization), the interaction of which allows to determine the most effective strategies of the bank's activities in the market of credit services.

To date, there is no single developed credit policy for all banking institutions, in order to implement the most successful organization of credit activity, each bank creates and ensures a personal credit policy, understanding the whole set of risks. The necessity of forming a credit policy and making it the basis of the activity of a banking institution is determined by the fact that it allows planning, regulating, controlling, and rationally organizing the relationship between the bank and its customers regarding the return of funds.

The credit policy of a banking institution is determined by: first, priorities in the selection of clients and credit instruments (market segmentation); secondly, the norms and rules regulating the practical activity of the bank staff, which implements these priorities in practice. It is the credit policy that helps the bank to form such a credit portfolio that will ensure the profitability of its activities, control of the level of risk and compliance with the regulatory requirements set by the regulatory authorities. Therefore, the credit policy of a banking institution reflects the actual composition of its credit portfolio and the choice of its structure.

The purpose of the credit policy of the banking institution is to form an evaluated and qualitative approach to risk management (indirect currency, interest, operational risks and liquidity risk) at the level of its credit portfolio (in the process of the most effective allocation of credit resources), in order to obtain the maximum possible income from credit operations at maintaining the optimal ratio between profitability and the level of credit risk in conditions of active promotion of the bank in priority sectors of the economy and regions of its presence.

The basis of the formation of the credit policy of any bank is its task. The effectiveness of the bank's credit activity will depend on how clearly and correctly they are formulated. The main tasks of the credit policy are:

1. Ensuring a clear sequence of actions of bank personnel responsible for credit transactions, which will create favorable conditions for maximum rationalization of the bank's functioning in the credit process.

2. Facilitating the adoption of optimal decisions regarding the granting of loans and the implementation of an adequate assessment of the amount of credit risk, which ultimately determines the level of riskiness of the bank's activity in general, its financial stability and the stability of its functioning on the credit market.

3. Improving the quality of the bank's loan portfolio as a result of reducing the number of less reliable customers and expanding relations with reliable borrowers or with those whose functioning on the market is characterized by positive trends in the indicators that determine their work.

4. Ensuring the bank's ability, based on marketing research, to respond adequately to changes in the credit market, taking into account the regional, sectoral, technological and other features of the activity of this or that borrower, setting the priorities of its own credit operations and maximally taking into account the needs of the bank's customers in borrowed funds [22, p. 405].

When developing and implementing the credit policy of a banking institution, a number of principles must be followed, but the definition of their composition is ambiguous. Yes, scientist T.S. Pavlenko determined that they are "scientific validity, optimality, efficiency, as well as the unity of the inextricable connection of the elements of credit policy, since only a scientifically based credit policy, formed taking into account the objective realities of life and subjective factors that determine it, allows the most complete expression of the interests of the state, the bank, its staff and customers" [23, p. 5]; Scientist M.M. Novoseltseva - "the predominance of a commercial approach over a financial one; the desire for balanced risk; use of various methods of loan refinancing; building an organizational structure adequate to the scale and level of risk of the bank's credit operations; making changes to the credit policy based on the analysis of the negative results of the activities of the credit units; understanding of the agreement by all participants, comprehensive consideration of the influence of external factors, compliance with ethical principles" [16, p. 7]. E.P. Ternovska divides the principles of the bank's credit policy into general (which is the basis of the credit policy of banks of the I and II levels) and specific ones. The first group of principles includes scientific validity (taking into account the full composition of factors and the use of scientifically based methods and models during its formation); optimality (combination of its effectiveness with the set goals); efficiency (effectiveness of its implementation); inextricable connection of elements of credit policy [24, p. 119]. In addition to the above, A. P. Pityeva justifies the feasibility of introducing the principles of systematicity (the feasibility of considering the bank's credit policy as a system), adaptability (the ability of the credit policy to be flexible, to adapt to the time-varying factors of the external and internal environments) and responsiveness (the speed of response to changes in the external and internal environments in order to ensure achievement of activity goals in the market of credit services) [25, p. 243].

The general principles of forming the credit policy of a banking institution can be defined as a set of principles of scientific validity, optimality, efficiency and systematicity.

The specific principles of forming the credit policy of a banking institution include:

- ensuring connection of credit policy with banking policy;
- ensuring the segmentation of credit policy directions according to the main forms and types of credit activity;
- ensuring the internal balance of individual areas of credit policy over time, regionally, etc.;
- ensuring the flexibility of the credit policy [26, p. 166].

The technology of credit policy formation is a set of methods that ensure systematic and continuous identification, analysis and control of factors affecting the formation of credit policy of a banking institution, development and implementation of a complex harmonized influence on them, as a result of which the achievement of the goals and objectives of the bank's credit policy is ensured in a certain period of time.

The technology of forming the credit policy of a banking institution consists of the following stages:

1. At the first (preparatory) stage, it is necessary to carry out an analysis, the objects of which are the state and changes of factors (determine real and potential the ability of the bank to implement the developed strategy on the market of credit services in a certain period of time), which affect the priority and directions of the credit policy of the banking institution from the point of view of the planned volumes of the credit portfolio and its growth, industry focus, type of customers, types of credit, organization of the lending process, etc.

Scientist I.S. Hutsal notes that the factors influencing and determining the credit policy should be divided into two types: external and internal.

"...If the internal factors are related to the competitiveness of the bank institution and, in particular, the financial stability and reliability of the bank, then the external factors are related to the political and economic situation in the country, the legal framework, the level of development of the banking infrastructure, as well as interbank competition" [7, p. 14]. H.S. Panova emphasizes that when developing a credit policy, banks analyze many factors that have a direct impact on their activities: macroeconomic (the general state of the country's economy, the financial policy of the state, the monetary and credit policy of the central bank), regional and sectoral (the state of the economy in regions and industries served by the bank, the composition of the bank's clients, their need for lending, the presence of competing banks), intrabank (the amount of the bank's own funds, qualifications and experience personnel, structure of liabilities) [18, p. 10]. I.V. Karbivnychy proposes to divide the factors that determine the bank's credit policy, depending on the levels of its implementation, into three groups: factors of external influence (the general state of the country's economy, the monetary and fiscal policy of the state, external credit risks), internal (the mission and purpose of the bank's activity , stage of the bank's life cycle, financial and economic condition, size and structure of the loan portfolio, level of corporate governance, internal credit risks) and factors related to the activities of its clients (regional specifics of economic relations, creditworthiness of borrowers, credit risks associated with borrowers' activities) [10, p. 8].

Thus, the composition of internal factors that determine the specifics of the formation of the banking institution's credit policy can be divided into two groups: the first group determines the goals of the bank's activity in the market of banking services as a whole; the second group of internal factors determines the resources and technologies available in the bank, which ensure the achievement of the set goals, in particular (financial support, organizational support, personnel support, technological support, information support).

Internal factors are controlled by the possibility of management, and controlled by the possibility of control. The occurrence and intensity of the manifestation of external factors do not depend on the activity of the banking institution, since they are extremely heterogeneous in their sources of origin and are the result of the influence of systems of different levels (factors of the external environment, indirect (political, legal, economic, social factors) and direct (banking regulation and supervision, the monetary and credit policy of the National Bank of Ukraine and the state of the credit services market) influences), in terms of the possibility of management, all these factors are uncontrollable, in terms of the possibility of control - uncontrollable [26, p. 168]

2. At the second stage, the final determination of the bank's credit policy goals and the criteria for their achievement is carried out, based on this, a credit strategy is developed, namely, a detailed set of decisions to ensure the achievement of the bank's credit policy goals, taking into account the influence of external factors, based on the offer of competitive credit products, ability to effectively manage resources, maintain an acceptable level of risks and ensure the stability of the bank. The choice of a credit strategy involves the formation of alternative options for

achieving the goals of the credit policy, their evaluation and the selection of the optimal strategic alternative for implementation. For this, a toolkit is used, which includes quantitative methods of forecasting, scenario analysis, portfolio analysis toolkit, etc.

The credit policy of a banking institution can be conservative (if the part of loans in the total volume of working assets does not exceed 30% - it assumes that the bank does not try to obtain high incomes due to a significant expansion of the volume of credit activity, characterized by strict criteria for assessing the creditworthiness of borrowers, minimum terms for granting loans and their volumes, increasing the cost of credit resources, using strict procedures for the liquidation of problematic debt), moderate (the specific weight of loans in the total amount of working assets is 30-50% - it is assumed that the rate of growth of volumes of the loan portfolio corresponds to the average industry indicators, defines the typical conditions for carrying out credit operations in accordance with generally accepted banking practice and focuses on average level of credit risk), aggressive (part of loans exceeds 50% of the total volume of working assets - implies a significant expansion of the volume of credit activity, not taking into account the high level of credit risk accompanying credit operations, characterized by granting loans to riskier categories of borrowers, increasing the terms of granting loans and their sizes, reducing the cost of the loan to the minimum possible level, giving borrowers the opportunity to extend the loan) [26, p. 168].

3. At the third stage, within the framework of the developed credit policy of the banking institution, the main parameters of the organization of the credit process are developed: determination of powers in the field of granting loans, which each credit officer and credit committee are empowered with; determination of obligations for transfer of rights and provision of information within the framework of lending business processes; requirements for checking, evaluating and making decisions on customer credit applications; forming standards for assessing borrowers' creditworthiness and differentiating loan terms; formation of requirements for information provision, in particular, the necessary documentation that is attached to

each loan application, as well as documentation that is kept in the credit file (financial reporting, guarantee and pledge agreements, etc.); defining the rights of bank employees with a detailed definition of who is responsible for storing and checking credit files; formalization of the rules for accepting, evaluating and implementing credit collateral; a description of the policy and practice of setting interest rates and loan commissions, loan repayment conditions; description

quality standards that apply to all loans; description of the practice of identifying, analyzing and resolving situations related to problem loans, etc. [26, p. 169].

4. At the fourth stage, the mechanism of control over the implementation of the credit policy of the banking institution is formed, which involves a set of actions of management entities aimed at constant monitoring of factors affecting the possibility of implementing the credit policy, with the aim of timely detection of deviations of the actual results of credit activity from the planned and making operational management decisions that ensure the achievement of its goals in a specified period of time.

5. At the fifth stage, a general assessment of the effectiveness of the developed credit policy is carried out [26, p. 169]

The organization of the formation of the credit policy of a banking institution is a set of techniques and methods of rational combination of elements of the management subsystem (management entities) with internal factors that influence the formation of credit policy in time and space (Fig. 1.1.).

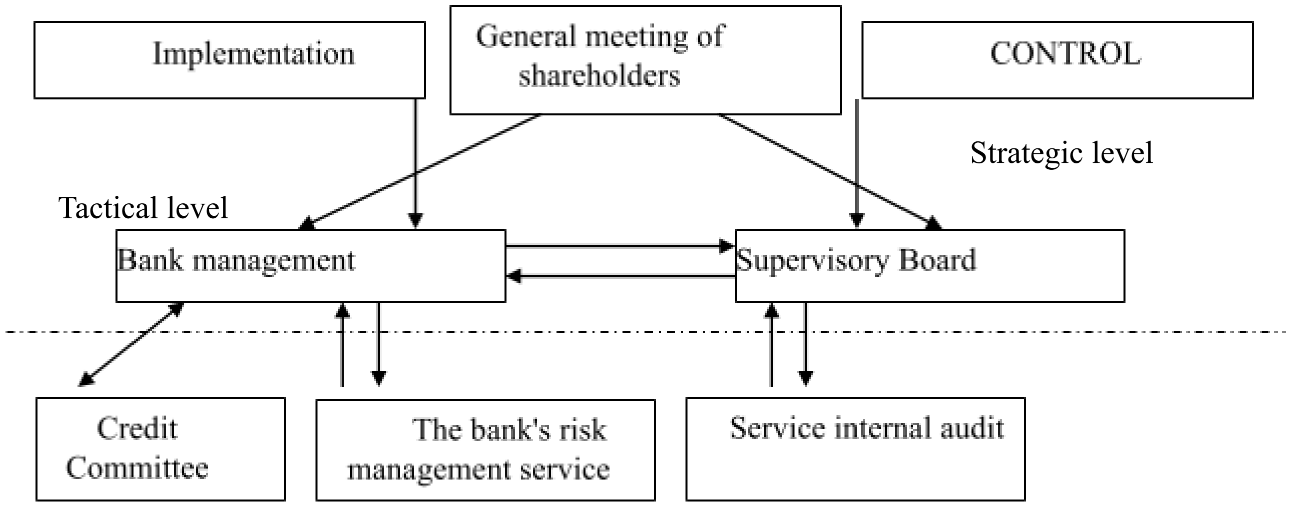

Fig. 1.1. Organization and formation of credit policies of bank institutions [26]

The formation of the bank's credit policy is carried out at the strategic level by the bank's supervisory board within the limits of its functions and responsibilities to the bank's owners, depositors/contractors and banking supervision bodies. The highest executive body that ensures the implementation of the bank's credit policy at the strategic level is the bank's board - within the limits of its powers and responsibilities to the bank's supervisory board, depositors and counterparties, and banking supervision bodies. Part of the functions of the bank's board to ensure the adoption of management decisions adequate to the current situation and control over their implementation in banks are transferred to specially created collegial bodies. According to the requirements of Ukrainian legislation, banks are obliged to create a credit committee as the main specialized body for effective management of their credit activities (the structure of credit committees of each specific bank is determined individually depending on its regional structure and system of delegation of powers). At the tactical level, employees of the risk management unit and other structural divisions of the bank, which are participants in the lending process, participate in the development of the credit policy [26, p. 170].

Therefore, ensuring the effectiveness of the credit policy is possible only with a balanced approach of the bank to the implementation of each stage of the credit process. Today, in the conditions of a pandemic, an unstable economic and political situation, it is necessary to make timely adjustments to the priorities of the bank's activities in the field of lending, to determine the most profitable tactics for the bank's credit activity, ensuring the implementation of a flexible credit policy aimed at preserving the bank's credit potential, its stable and profitable operation.

1.2. Peculiarities of the credit policy as a credit risk management tool

Studying the development of the banking sector of the country's economy, there is an understanding of the need for a timely response to rapid changes in the domestic business environment, where there is a city of emergence of new business risks, in particular, today these are risks associated with political factors and with the COVID-19 pandemic, the consequences of which extend to various types of risks - economic, political and public pressure. The increase in insolvency of the population and non-performing loans in 2021, as a result of the pandemic, has a negative impact on the domestic banking sector, which leads to a decrease in business loans.

When granting any loan, the banking institution faces the problem of uncertainty as to whether it will be returned on time, and even more so, whether it will be returned at all, hence it follows that the main task of the bank when granting a loan is the transformation of uncertainty into risk and its detailed analysis . That is why credit risk is the main financial risk of banking activity, and its effective management is the basis of the bank's financial risk management [6, p. 45].

Credit risk is understood as the risk of the borrower not fulfilling the initial conditions of the loan agreement, namely the non-return (in full or in part) of the principal amount of the debt and the interest on it within the term established by the contract [27, p. 248]. With regard to credit risk, it should be noted: firstly, credit risk is part of a large area of financial risk and is closely related to interest rate, currency, industry and other risks of banking activity (for example, non-repayment of loans causes an increase in the risk of liquidity and the risk of bankruptcy of a banking institution); secondly, the credit risk for the bank is exacerbated due to the fact that banks do not lend their own funds, but the funds of depositors and creditors; thirdly, the level of risk is constantly changing. This happens because both banks and their clients operate in an economic, political and social dynamic environment where conditions are constantly changing [28, p. 31].

Credit risk management is considered one of the important areas of financial management in a banking institution. Effective credit risk management is a necessary and sufficient condition for the creation of a developed bank risk management system, which has a decisive importance for ensuring its long-term economic success and well-being of all subjects involved in its functioning, primarily investors and owners. Since credit risk is an objective economic phenomenon, its occurrence does not depend on the will and desire of bank employees, which necessitates its management through the development of various banking strategies and the use of special methods to ensure the least probable deviation of forecast indicators from actual financial results.

The main goal of credit risk management at the level of a separate loan is the implementation of measures aimed at minimizing the bank's losses on a separate loan operation in the event of a credit risk.

Bank credit risk management consists of the following stages: credit risk assessment, credit risk monitoring, credit risk regulation, risk minimization [29, p. 100].

Credit risk management of a banking institution consists in conducting an analysis in the following main directions, which are the conditions for minimizing credit risk:

- selection and training of personnel (corporate culture of personnel in the field of credit policy implementation);
- assessment and control of the credit portfolio;
- pricing taking into account the degree of risk;
- diversification of the bank's credit operations: by borrowers, sectors of the economy, types of loans, in order to reduce the overall credit risk of the bank. The bank more than diligently pursues a policy of diversification, the more it limits and

reduces credit risk;

- assessment of the borrower's creditworthiness;
- assessment of the adequacy and liquidity of property, property rights accepted as collateral for loan obligations, assessment of the reliability of guarantees and sureties;
- credit investment insurance;
- credit limit - setting the amount of the maximum amount owed on loans to a specific borrower. When setting the value of the limit, the bank evaluates the main indicators of the borrower's activity and the external environment in which it operates: the financial and economic condition of the borrower, the health of the industry, the development forecast, vulnerability, competitive environment, dependence on technological changes, work experience and relationships ties and other things;
- creating reserves to cover possible loan losses;
- careful control and supervision of the borrowers' fulfillment of their obligations, the progress of activities being credited, including the targeted use of the issued funds;
- careful control over problem loans, search for ways to repay them [28, p. 42].

Credit risk management methods are divided into two groups according to the factors that cause them.

The first group is credit risk management methods at the level of a separate loan: analysis of the borrower's creditworthiness; credit analysis and assessment; loan structuring; documentation of credit transactions; control over the granted loan and the condition of the collateral.

The second group - at the level of the loan portfolio: diversification; limitation; creation of reserves.

The peculiarity of the listed methods is the need for their consistent application, since at the same time they represent the stages of the lending process. If at each stage the loan officer is given the task of minimizing the credit risk, then it is necessary to consider the stages of lending as methods of managing the risk of a separate loan [30, p. 82].

Monitoring the condition of the loan and the condition of the collateral implies the need to maintain close contact with the borrower throughout the entire term of using the loan. The banking institution must monitor the state of affairs of the client and, if necessary, apply preventive measures to protect its interests. In the practice of Ukrainian commercial banks, the most common forms of securing the borrower's obligations to the bank are property pledge, guarantee (guarantee) of a third party, collection of penalties and fines, assignment in favor of the bank of the borrower's claims and accounts to a third party, insurance of the borrower's liability to the bank for non-repayment of loans and the risk of non-repayment of loans. The legal bases of these forms of pledge are determined by the Civil Code of Ukraine [29, p. 100, 31].

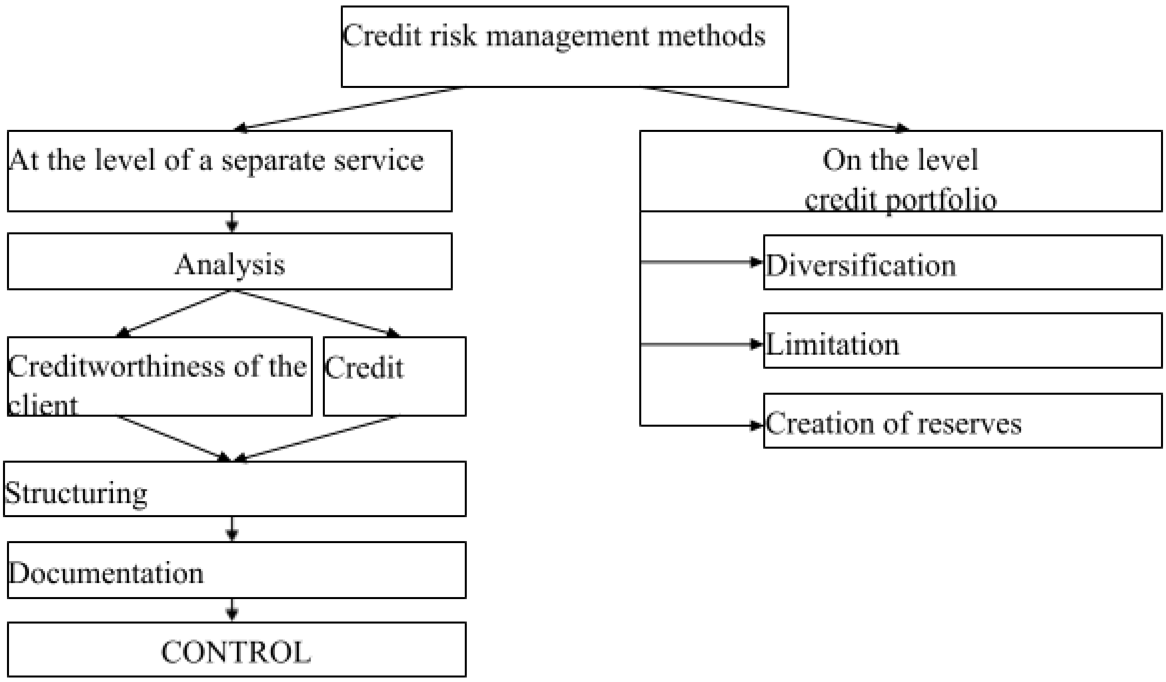

Fig. 1.2. Scheme of classification of credit risk management methods of a banking institution [29]

Methods of risk management of the bank's credit portfolio: diversification; concentration; limitation; creation of reserves for compensation of losses on credit operations.

The diversification method consists in distributing the loan portfolio among a wide range of borrowers who differ from each other both in terms of characteristics (capital size, form of ownership) and operating conditions (economic sector, geographic region). Three types of diversification are considered: sectoral (means the distribution of loans between clients operating in different sectors of the economy. To reduce the overall risk of the portfolio, the selection of sectors is of crucial importance, which should be based on the results of statistical studies. The diversification method should be applied carefully and carefully, based on statistical analysis and forecasting, taking into account the capabilities of the banking institution itself and, above all, the level of personnel training.Diversification requires professional management and deep knowledge banking services market [29, p. 101].

The concentration of the credit portfolio means the concentration of the bank's credit operations in a certain industry or a group of interrelated industries, in a geographical area, or lending to certain categories of clients. When forming a loan portfolio, a certain level of concentration should be observed, since each banking institution works in a specific market segment and specializes in serving a certain clientele. At the same time, excessive concentration significantly increases the level of credit risk. Banks often concentrate their loan portfolios in the most popular sectors of the economy, such as energy, the oil and gas industry, and real estate investment. Determining the optimal ratio between the levels of diversification and concentration of the bank's loan portfolio is a task that must be solved by the management of each banking institution depending on the chosen strategy, opportunities and specific economic situation [29, p. 101].

Limiting the volume of credit operations limits the concentration of the credit portfolio in terms of individual borrowers, groups of borrowers, businesses, industries, sectors of the economy and regions. The limit in terms of an individual borrower determines the maximum amount and terms of granting a loan. The limit is calculated on the basis of an analysis of the borrower's creditworthiness (financial performance indicators, business plan, etc.). The size of the limit is adjusted depending on the current financial condition of the debtor and the forecast assessment of his future financial condition [29, p. 101].

The main standards of credit risk are the NBU regulations, specified in the Instruction on the Procedure for Regulating the Activities of Banks in Ukraine, fines for violation of the norms of the listed regulations are applied to each case of violation [32].

One of the main tools of credit risk management and compensation of possible financial losses from non-repayment of loans is

formation of insurance reserves for credit operations. Banks are required to form reserves monthly in full (regardless of the amount of their income) by risk groups in accordance with the amounts of actual credit debt as of the first day of the month following the reporting month, before the deadline for submitting the monthly balance sheet. In addition to the special reserve, which is formed at the expense of profit before taxation, banks create a general reserve, the source of which is the net profit. For the most part, the funds of the general reserve are directed to cover losses on loans that arose due to the bank's fault, to reimburse court costs, to cover losses in full, if the funds of the special reserve were not sufficient for this purpose [29, p. 102].

Thus, it can be argued that credit risk management is based on credit policy and involves the creation of a mechanism for identifying risk factors, analyzing and calculating their value, monitoring the current state of borrowers and controlling the deal.

1.3. Features of the mechanism for the formation and implementation of bank credit policies

For Ukraine, as well as for most countries of the world, 2020 was a test of sustainability, the problems of the country's economic development were caused by the impact of the COVID-19 coronavirus pandemic. The coronavirus pandemic has become a challenge for domestic banks, because it forced them to quickly respond to changes in the economy and the behavior of citizens. The pandemic and quarantine restrictions contributed to the fact that the country's population began to more actively switch to non-cash payments and use e-commerce services more often. Today, it is important and relevant to implement the latest credit portfolio management tools, which will allow not only to reduce the total credit risk of the bank portfolio and increase its profitability, but also to support the financial stability and reliability of the banking institution. Lending is available

an important source of income and an important component of JSC CB relations

PrivatBank with clients. Achieving success in banking requires high quality and efficiency in identifying, assessing and monitoring lending risks.

In their credit activities, commercial banks are connected with clients and partners. In this regard, the field of lending is expanding and new credit products are being created, forms and methods of lending are being distinguished. Continuous provision of the optimal level of credit risk while simultaneously achieving the planned level of profit from credit investments in conditions of instability of the internal and external environment requires the introduction of a sound credit policy in banking institutions, which would be based on the reliability of data analysis of the current situation and possible ways of its development in the future, on the possibilities bank to promptly respond to changes in factors affecting the market of credit services [33, p. 2].

In order to implement an effective organization of credit activity, each banking institution creates and ensures a personal credit policy, understanding the whole set of risks. The credit policy for a banking institution is the basis of its credit activity, which is consistent with the general concept of the bank's development, which makes it possible to achieve the interconnection of the strategy (determines the main principles, priorities and goals of a particular bank in the credit market. It is determined, first of all, by the choice of customers, secondly, the norms and rules that regulate the practical activities of bank personnel, and, thirdly, the competence of the bank's management and the level of qualification of personnel dealing with lending.) and tactics (determines specific financial instruments used by the bank to realize its goals in the implementation of credit agreements, the rules for their implementation, the procedure for organizing the credit process).

The model of formation and implementation of the banking institution's credit policy includes four main stages:

1. Statement of the credit policy task:
2. Choosing the best credit policy option:
3. Development of measures for the formation and implementation of credit policy:
4. Monitoring of credit policy implementation.

The credit policy being developed should be flexible – to provide for a possible range of models of appropriate management decisions, the use of new credit instruments, the introduction of new innovative technologies for the implementation of the credit process, which would make it possible to take into account possible changes in the external and internal conditions of credit activity [34, c. 154].

The credit policy of a banking institution is related to both economic and administrative and management tools, levers and methods that form the basis of the mechanism of formation and implementation of credit policy.

The essence of the mechanism of formation and implementation of the bank's credit policy:

- the main purpose of the mechanism of formation and implementation of the bank's credit policy is the organization of the lending process, which acquires a certain direction and target orientations in connection with the functioning of this mechanism;
- the mechanism of formation and implementation of the bank's credit policy includes both the organization of the lending process and the actions of management entities through economic and managerial methods and levers that affect the implementation of credit relations;
- the mechanism of formation and implementation of the bank's credit policy is not static, but constantly develops, passing through a number of stages from a simple functional to a complex combined management system;
- the effective functioning of the mechanism of formation and

implementation of the bank's credit policy, including its tools, levers and methods of influence on the lending process, depend on the completeness of ensuring the economic interests of the subjects of credit relations;

- ensuring the implementation of the lending process, the mechanism of formation and implementation of the bank's credit policy includes regulatory actions aimed at its adaptation to the rapidly changing economic situation.

The mechanism of formation and implementation of the bank's credit policy is a system of actions and organizational and economic methods, tools of influence, with the help of which the crediting process is put into effect, and the regulation of which is carried out in accordance with defined principles. The mechanism of formation and implementation of the bank's credit policy assumes that these processes take place on the basis of the integration of interdependent and interconnected elements and can change quantitatively and qualitatively under the influence of various factors, which makes it possible to highlight the main elements in the formation of the bank's credit policy: the target orientations of the bank's credit activity ; principles of credit activity organization and credit policy formation; factors determining credit policy; quantitative characteristics of credit activity; qualitative characteristics; financial support mechanism [10, p. 5].

Examination of the main mechanisms of interaction of all elements of the formation of the bank's credit policy makes it possible to determine that in its structure, the credit policy involves the presence of the following two chains: first, the mechanism of financial support of the credit policy, the main elements of which are sources of formation of credit resources, forms and methods of attracting funds; secondly, the mechanism of bank lending, implemented through various credit procedures and types of credit products [10, p. 6].

The division of the entire mechanism of formation and implementation of the bank's credit policy into separate elements is quite conditional, because all components of this mechanism closely interact with each other, simultaneously performing the functions of components that differ in economic essence. So, for example, a new credit product of a bank, developed in accordance with the current principles of credit policy, may eventually gain popularity among other banks, thereby influencing the credit market in the country as a whole, changing it, and therefore gradually becoming a factor in the formation of credit policy .

Credit risk, which requires the development of a management system and its minimization, has a significant impact on the processes of formation and successful implementation of the credit policy of a banking institution.

Elucidation of the main factors of the appearance of credit risks makes it possible to classify them into three main groups (external, internal and those related to the peculiarities of the bank's borrowers), as well as to determine the main directions of credit risk management measures, which should include certain restrictions, aimed at reduction of credit risks (determining the concentration and size of loans, lending to persons related to the bank, setting limits), classification of loans and reservations [10, c. 8].

The totality of all financing sources mobilized by the bank is the total credit potential of the bank, but these funds cannot be used for lending purposes in full.

The effectiveness of the use of credit potential funds is achieved by observing a set of conditions when: the required minimum liquidity is ensured; the entire collection of credit potential funds is used; the highest possible profit on credit potential is achieved, subject to an acceptable level of credit risk.

Each bank independently determines the amount of its own funds and their structure, based on the credit policy developed by it and the overall development strategy. The amount of the bank's equity capital directly depends on the results of credit activity and its efficiency, because the more stable the bank's interest income and the greater the amount of profit received, the higher the level of bank capitalization. Such a relationship indicates that the quantitative parameters of the bank's credit policy are directly dependent on the capital part of the credit potential - equity, the amount of which, in turn, is directly proportional to the qualitative characteristics of the credit policy [10, c. 8].

An integral component of the mechanism of formation and implementation of the bank's credit policy is the definition of criteria for assessing the creditworthiness of its potential borrowers, on the basis of which the methodology for determining the borrower's reliability class should be formed:

- assessment of the financial condition of the borrower – a legal entity is carried out taking into account his branch specialization;
- the bank can independently set normative values and corresponding points for each indicator depending on its importance (significance) among other indicators that may indicate the highest probability of the borrower fulfilling obligations under credit operations;
- normative values of each indicator (except for subjective ones) are determined for the segment of small and medium-sized businesses, depending on the average industry indicators in Ukraine; the class of the bank's borrower based on the results of the assessment of his financial condition is determined on the basis of the main indicators and adjusted taking into account additional (subjective) indicators.

The proposed approach involves taking into account factors influencing financial and economic activity of a subjective nature, in particular, such as: the efficiency of the borrower's management, its market position and dependence on cyclical and structural changes in the economy and industry, management professionalism, business reputation, credit repayment history debts

Thus, the imperfect mechanism of formation and implementation of credit policy in domestic banks creates a significant obstacle in the way of using the experience accumulated in the world to achieve economic growth. Therefore, today there is an urgent need for a theoretical and practical study of the problems of formation and implementation of the credit policy of banking institutions and the features of the effective formation of their credit portfolio.

CHAPTER 2
ANALYSIS AND EVALUATION OF THE MECHANISM FOR IMPLEMENTING THE CREDIT POLICY OF JSC CB PRIVATBANK

2.1. Analysis of the financial and economic activity of JSC CB PrivatBank

Joint-stock company commercial bank PrivatBank is a state bank. JSC CB PrivatBank was formed in accordance with the founding agreement dated February 7, 1992 in the form of a limited liability company under the name PrivatBank commercial bank and registered by the National Bank on March 19, 1992 under registration number 92. In accordance with the founding agreement dated July 6, 2000 and on the basis of the decision of the constituent meeting of shareholders dated July 6 2000 commercial bank

PrivatBank was reorganized by changing the organizational and legal form into a closed joint-stock company commercial bank PrivatBank [1].

The Board of the National Bank of Ukraine adopted decisions to reduce the discount rate from 13.5% per annum, established from December 13, 2019, to 11% per annum from January 31, 2020, to 10% per annum from March 13, 2020, to

8% per annum from April 24, 2020 and up to 6% per annum from June 12, 2020, respectively. In December, the National Bank left the discount rate at the previous level, the key argument in favor of this decision being the increase in inflationary pressure against the background of high uncertainty regarding the quarantine and the further impact of the pandemic on consumer demand and business activity. The official hryvnia exchange rate against the US dollar decreased by 19.5% from 23.6862 hryvnias per US dollar on January 1, 2020 to 28.2746 hryvnias per US dollar on January 1, 2021 [11]. The main financial indicators of JSC CB

PrivatBank during 2016-2020 (table 2.1).

Table 2.1

Financial results of JSC CB PrivatBank

Indicator	Year				
	2016	2017	2018	2019	2020
Assets, million UAH	205183	254805	278048	309723	382525
Liabilities, million UAH	206065	230012	246584	255194	329700
Own capital, mln. UAH	(882)	24793	31464	54529	52825
Authorized capital, mln. UAH	-	206060	206060	206060	206060
Revenues, million UAH	47586	44048	54921	69648	81458
Expenses, million UAH	223824	43670	42123	37039	57156
Result of activity, mln. UAH	(176238)	378	12798	32609	24302
Return on assets, %	-	0.001	0.05	0.11	0.06
Return on capital, %	-	0.02	0.41	0.60	0.46

Analyzing the table 2.1 it can be seen that as of December 31, 2016 JSC CB PrivatBank had negative equity in the amount of 882 million. UAH This indicator is technical due to the presence of significant support from the bank's shareholder – the state of Ukraine, but the negative equity of JSC CB PrivatBank indicates the state in which it was at the time of nationalization.

As of December 31, 2019, the bank's equity amounted to 52,825 million. UAH The increase in equity deserves a positive assessment, which was made possible, for the most part, thanks to the profitable operation of the bank. The authorized capital of the bank in 2020 remained unchanged and amounted to 206,060 million. UAH [11].

According to the results of 2020, JSC CB PrivatBank has a sufficient level of capital. The regulatory capital of the bank at the end of 2020 is 35.3 billion. hryvnias, and the regulatory capital adequacy ratio is 28.09% (with the norm

> 10%). According to the results of the stress testing of banks conducted by the NBU in 2020, even in the most negative scenario, the level of capital adequacy will not be lower than the regulatory level.

The sources of profit of JSC CB PrivatBank did not change significantly in 2020, although they were limited by the influence of macroeconomic trends. So, in 2020, on the one hand, the bank's income was strongly affected by restrictions on credit growth, fluctuations in commission income, and on the other hand, the trend of decreasing interest rates on the market ensured a decrease in value resources. Also, in

2020, the volatility of macro factors increased, which led to a significant result from revaluations of positions and financial assets. The bank's net profit for 2020 is 24.3 billion. hryvnias, which remains the maximum result of the entire banking sector of Ukraine.

Net interest income in 2020 is 21.6 billion. UAH, and increased by almost 10% compared to 2019.

Net commission income also has a stable volume. The dynamics of commission income is due to both the increase in the volume of customer payments and the revision of JSC CB PrivatBank tariffs.

Income dynamics of JSC CB PrivatBank for 2016-2020 (Fig. 2.1).

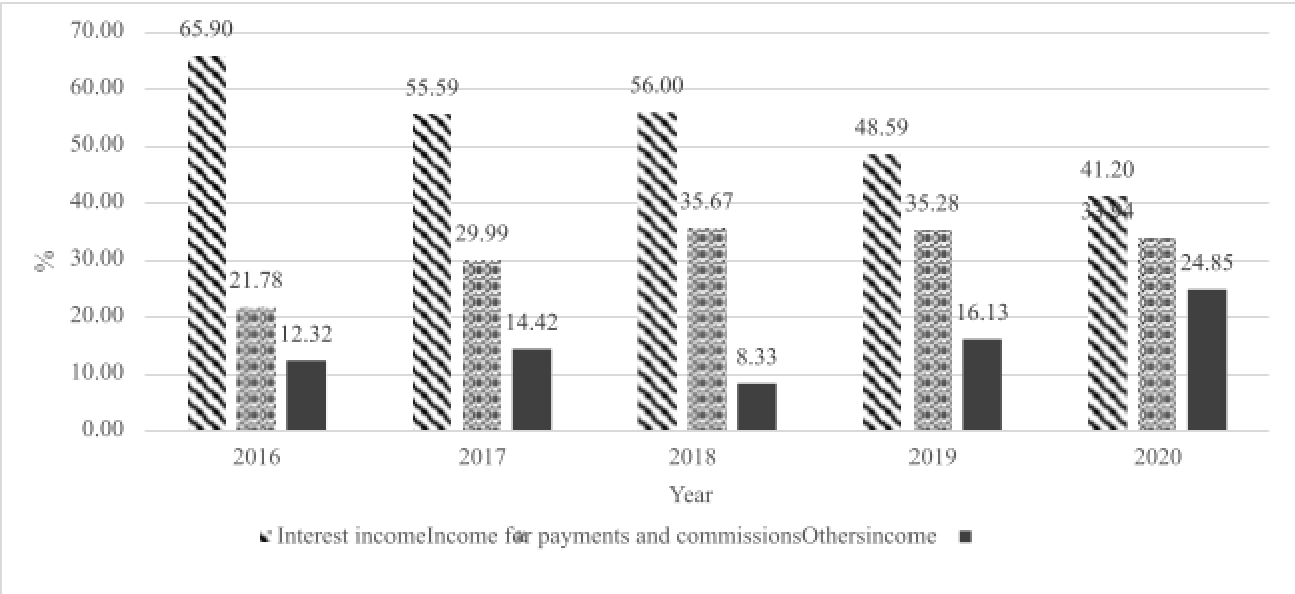

Fig. 2.1. Dynamics of the income structure of JSC CB PrivatBank for 2016-2020, % [11]

The trading result of JSC CB PrivatBank is formed mainly by currency purchase and sale operations, which in 2020 amounted to 3.1 billion. UAH

Part of the bank's profit is the result of the influence of macroeconomic factors. Thus, changes in the world economy and the economy of Ukraine led to an increase in the fair value of bonds of the domestic state loan, which were received as a contribution to the authorized capital of JSC CB PrivatBank upon nationalization.

Administrative and operational expenses of JSC CB PrivatBank in 2020 amounted to 18.0 billion. hryvnias, of which about 0.7 bln. UAH spent on special bonus payments to employees of the network for increased risk while working in the conditions of the coronavirus and 0.3 billion. UAH – for protective materials and additional disinfection of branches, ATMs and terminals.

The dynamics of expenses of JSC CB PrivatBank for the years 2016-2020 is shown in fig. 2.2.

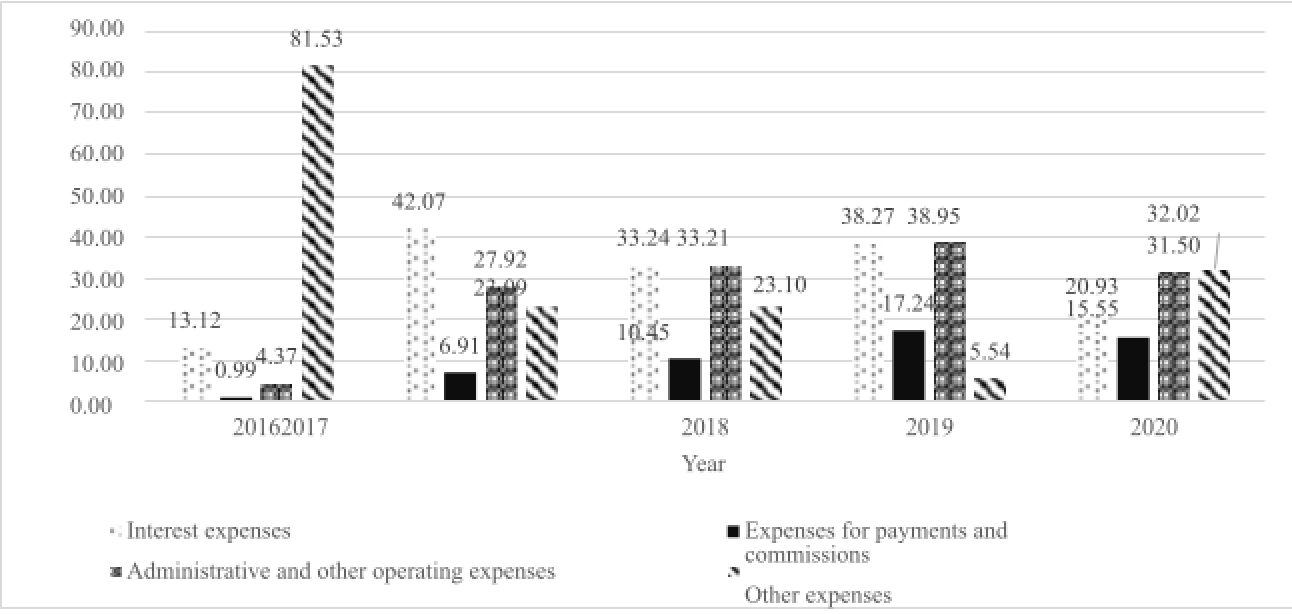

Fig. 2.2. Dynamics of the cost structure of JSC CB PrivatBank for 2016-2020, % [11]

Analysis of expenses of JSC CB PrivatBank showed that interest expenses for 2016-2020 had a tendency to decrease. In contrast, commission, administrative and other operating expenses tended to increase.

Thus, the results of 2020 are a reflection of the moderate impact of the COVID-19 coronavirus pandemic and the realized opportunities for rapid adaptation of the bank and its products to the new requirements of the market and customers. In 2021-2022, JSC CB PrivatBank plans to continue developing its products, offering customers innovative services, improving the network and payment infrastructure, actively developing lending, expanding the product offer for various segments, and taking a balanced approach to risk assessment.

Assets make up a significant part of banking operations and have one of the primary values in the activity of banks, because they form their income. For the purpose of detailed consideration of the structure and dynamics of the balance sheet assets of JSC CB PrivatBank it is necessary to analyze the data given in the table. 2.2.

Table 2.2

Structure of assets of JSC CB PrivatBank, mln. UAH

Indicator	Year				
	2016	2017	2018	2019	2020
Cash and cash equivalents and mandatory reserves	30159	25296	27360	45894	49911
Indebtedness of banks	2410	4516	-	27118	25059
Loans and advances to customers	43583	38335	50140	59544	55021
Embedded derivative financial assets	27044	34336	-	-	-
Investment securities for the future sales	64409	90354	-	-	-
Investment securities held to maturity	-	36322	-	-	-
Investment securities at fair value through profit or loss	-	-	86244	84680	100750
Investment securities for at fair value through other comprehensive income	-	-	79299	66602	119196
Investment securities for amortized cost	-	-	14538	875	1715
Advance payment from the current tax on profit	181	184	184	2257	6660
Investments in subsidiaries and associates the company	433	30	30	155	30
Investment real estate	1358	579	3340	3379	2933
Premises, improvement of leased property, equipment and intangible assets	3956	3326	3793	4764	5894
Other financial assets	229	490	2743	2210	3448
Other assets	9585	9652	8899	9285	8900
Property transferred to the ownership of the bank as pledge holder	21836	11268	1361	1244	1228
Assets held for sale	-	117	117	-	32
Total assets	205183	254805	278048	309723	382525

At the beginning of 2020, about 50% of the assets of JSC CB PrivatBank were represented by securities in the form of bonds of the domestic state loan of Ukraine (OVDP), the majority of which appeared at the bank after nationalization due to the replacement of non-performing loans. In Ukraine, OVDP, as government securities, are identified as assets with the lowest degree of risk, therefore, even in the presence of a loan portfolio of poor quality, in general, the quality of the bank's assets can be considered quite suitable to ensure its continuous operation and satisfy the demand from customers for financial liquidity .

In the table 2.3 shows the financial indicators and rating of JSC CB PrivatBank for 2016-2020. The rating assessment of financial assets of JSC CB PrivatBank according to the liquidity criterion is determined by the following indicators (Table 2.3).

Stages of assessment of financial assets of JSC CB PrivatBank according to the criterion of liquidity: verification of compliance with established indicators and norms of bank liquidity; expert evaluation according to the given criteria [14].

Table 2.3

Financial indicators and rating of JSC CB PrivatBank [11]

Year	Assets, thousand, UAH (X1)	Total liquidity of liabilities, % (X2)	Profitabi litycapit al, % (X3)	Interest margin, % (X4)	Ratio of expenses and income, % (X5)	Correlatio nloans and deposits, % (X6)	Rati ng, % (Y)
2016	205183	1.00	-	1.90	1.13	0.22	7
2017	254805	1.11	-	2.40	1.33	0.18	7
2018	278048	1.13	0.41	6.02	2.20	0.22	5
2019	309723	1.21	0.60	6.35	1.72	0.25	3
2020	382525	1.16	0.46	5.65	2.81	0.24	3

The rating system makes it possible to evaluate all the factors by which the financial condition and quality of operations of each banking institution are evaluated. Each component of the rating system is evaluated on a five-point scale, where a score of "1" is the highest and a score of "5" is the lowest. The performed indicator of the bank rating showed that since 2018 JSC CB PrivatBank belongs to a strong state - less than 5%, i.e. rating 1 (strong): high level of liquid assets; a liquidity indicator that exceeds all established norms is constantly maintained; high level of funds raised in the form of basic deposits; the ability to quickly attract funds for a moderate fee; liquidity ratios are better than those of other banks.

Let's consider the structure of liabilities of JSC CB PrivatBank, which is presented in the table. 2.4.

Table 2.4

The structure of liabilities of JSC CB PrivatBank, mln. UAH

Indicator	Year				
	2016	2017	2018	2019	2020
Debt to the NBU	18047	12394	9817	7721	-
Indebtedness to banks and others financial organizations	2667	234	195	201	2
Client funds	181133	212750	231055	240621	312708
Issued debt securities	2	2	2	-	-
Obligations of the lessee from leasing	-	-	-	1748	1855
Deferred tax liability on profit	94	106	136	121	146
Other financial obligations	4000	4397	2247	1522	2907
Reserves and non-financial liabilities	122	129	3132	3260	12082
In total	206065	230012	246584	255194	329700

As of December 31, 2019 and 2018, interest rate for tranches of long-term refinancing loans by the NBU ranged from 14.25% to 16% per year. According to the terms of the NBU refinancing loan agreements as of December 31, 2019 and 2018, the repayment terms for the remaining tranches fell from May 2016 to February 2017. In December 2018, the bank signed a framework credit agreement and a framework credit repo agreement with the NBU for a period of 10 years, which allows the bank to receive refinancing, overnight, repo loans secured by government securities if necessary [11].

During the nationalization of the bank, in December 2016, liabilities were converted into bank capital in the amount of 10,934 million. UAH customer funds, 10,721 mln. UAH issued Eurobonds and 7,783 mln. UAH subordinated debt.

In general, the management of assets and liabilities of JSC CB PrivatBank is aimed at obtaining the maximum profit from conducting banking operations while ensuring the fulfillment of obligations on time and in full.

In 2020, in connection with the impact of the COVID-19 pandemic, JSC CB PrivatBank revised the approaches to the assessment and classification of assets, as well as the assessment of possible credit losses and the size of required reserves. During 2020, JSC CB PrivatBank, in accordance with the NBU's recommendations, offered various debt restructuring options (including credit holidays) to borrowers affected by quarantine restrictions. Such borrowers, taking into account the presence of signs of increased risk, were classified for the purpose of assessing reserves for expected credit losses with an assessment of credit losses within the term of the loan (assets with a significant deterioration in quality but without signs of default).

Therefore, it is possible to highly evaluate the financial results of JSC CB PrivatBank, which allow it to increase the amount of equity capital and reduce dependence on the support of the shareholder - the State of Ukraine represented by the Ministry of Finance. The priority directions in the activities of JSC CB PrivatBank were and remain the improvement of the quality of customer service processes, with mandatory compliance with the requirements of the law, the development of lending while maintaining the high quality of the loan portfolio, the improvement and development of banking products/services, and the optimization of the infrastructure.

2.2. Analysis of the structure and dynamics of the credit portfolio in the context of forecasting the Bank's credit risks

The mechanism for implementing the credit policy of a banking institution includes the construction of an organizational structure and the organization of the process of managing the bank's credit portfolio. The structure of the credit division of a banking institution is a part of the bank's divisions that ensure its credit activity and employees who are endowed with certain rights and obligations, and are also responsible for the quality of the performed

work The largest part of the income comes to the banking institution precisely at the expense of credit operations, and therefore the construction of such an organizational structure of the credit division, which would be the most effective in managing the bank's credit portfolio, is an extremely important direction.

Ensuring the banking institution's profit from credit operations, as well as the effective allocation of credit resources are the main tasks in the implementation of the credit policy of commercial banks of Ukraine. However, in order to achieve these tasks, it is necessary not only to develop an effective credit policy, but also to organize the credit process in a banking institution in such a way that all progressive assets of credit policy are used in the management of the credit portfolio.

Lending is an important source of income and an important component of JSC CB PrivatBank relations with clients. Achieving success in banking requires high quality and efficiency in identifying, assessing and monitoring lending risks. Credit policy of JSC CB

PrivatBank and uniform standards implemented in all divisions of the bank are designed to provide an appropriate environment for effective credit risk management [15].

The main objective of the credit policy of JSC CB PrivatBank is to determine the main principles of the credit process and credit risk management in the bank. The main functions of the bank's credit policy are: establishment of the bank's general approach to accepting credit risks; determination of basic principles and standards of credit activity; establishment of responsibilities and powers of bank employees at each stage of the credit process; providing a comprehensive approach to risk management.

The credit policy establishes the general approach of JSC CB PrivatBank to accepting credit risks, it defines the basic principles and standards of credit activity, the responsibility and authority of bank employees at each stage of the credit process and provides a comprehensive approach to risk management, which ultimately guarantees the most rational use of the bank's resources. By establishing a clear connection between credit policy and business strategy, the bank lays the foundations for long-term success in banking [15].

JSC CB PrivatBank sets high standards for its employees, in particular, in the area of accepting credit risks, employees are required to have a high level of personal effort and honesty [15].

The bank's target customers are legal entities and individuals (and/or groups of individuals, as defined in Table 2.5 of the credit policy) to whom the bank offers credit products.

The Management Board of JSC CB PrivatBank is responsible for the implementation of the credit policy, namely: the coordination of the implementation of the credit policy, including the development, approval and implementation of the necessary procedures for the implementation of the credit policy; ensuring the conditions necessary for the implementation of the policy, providing financial resources, attracting qualified employees, organizing and reviewing the implementation of the policy; familiarization of the bank's employees with the bank's policy and related procedures; understanding and compliance of bank employees with the credit policy; responsibility of employees for non-compliance with the bank's policy and related procedures; provision of conditions for maintaining a high level of technological support/infrastructure of IT systems, timely provision of financial resources, hiring of qualified IT employees, in order to ensure analysis and monitoring of risks using integrated systems [15].

Funding currency: legal entities – hryvnia, US dollar, euro; natural persons - hryvnia. Target industries for financing: agriculture and related industries; retail trade; wholesale; manufacturers of consumer goods; infrastructure and transport (other industries may be considered subject to an acceptable structure of the agreement and the quality of the counterparty).

The main sections of the credit policy of JSC CB PrivatBank include: clients and products; financing currency; target industries for financing; adoption of innovations and changes; processing of exceptional situations; basic principles of lending; organization of credit process; minimum requirements for potential borrowers; minimum credit agreement standards; credit powers; credit monitoring; economic measures in dealing with problematic loans; reporting

The main goal of managing the credit portfolio of JSC CB PrivatBank is to achieve the bank's planned profit level, this main goal is divided into separate sub-goals aimed at: attraction of new customers; maximum realization of the potential of relations with each existing client; obtaining income adequate to the accepted risks.

Table 2.5

The main types of loan products JSC CB PrivatBank [15]

<table>
<tr><td colspan="2">Legal entities and/or physical persons-entrepreneurs</td><td colspan="2">Physical persons</td></tr>
<tr><td>Loan type</td><td>The maximum is acceptable term</td><td>Loan typ</td><td>The maximum is acceptable term</td></tr>
<tr><td colspan="2">1. Loans in current activity:</td><td colspan="2">1. Unsecured loans:</td></tr>
<tr><td>- current overdraft score;</td><td rowspan="5">2</td><td>- credit cards;</td><td rowspan="2">2</td></tr>
<tr><td>- top-up credit working capital;</td><td>- consumer loans.</td></tr>
<tr><td>- guarantees, guarantees;</td><td colspan="2">2. Secured loans:</td></tr>
<tr><td>- a loan secured by a deposit;</td><td>- mortgage;</td><td>20</td></tr>
<tr><td>- trade financing.</td><td>- financing
cars, incl. in leasing;</td><td>5</td></tr>
<tr><td colspan="2">2. Investment financing:</td><td>- secured loan
deposit;</td><td>1</td></tr>
<tr><td>- financial leasing;</td><td rowspan="2">5</td><td rowspan="2">- collateral financing
real estate</td><td rowspan="2">5</td></tr>
<tr><td>- investment loan.</td></tr>
</table>

Thus, the management of the credit portfolio of JSC CB PrivatBank has a dual approach: management at the level of a separate operation, taking into account the risk associated with it; management of the general characteristics of the loan portfolio by using restrictions of individual segments, namely: setting restrictions for industries or regions (becomes especially relevant during the period of active expansion of the loan portfolio) [15].

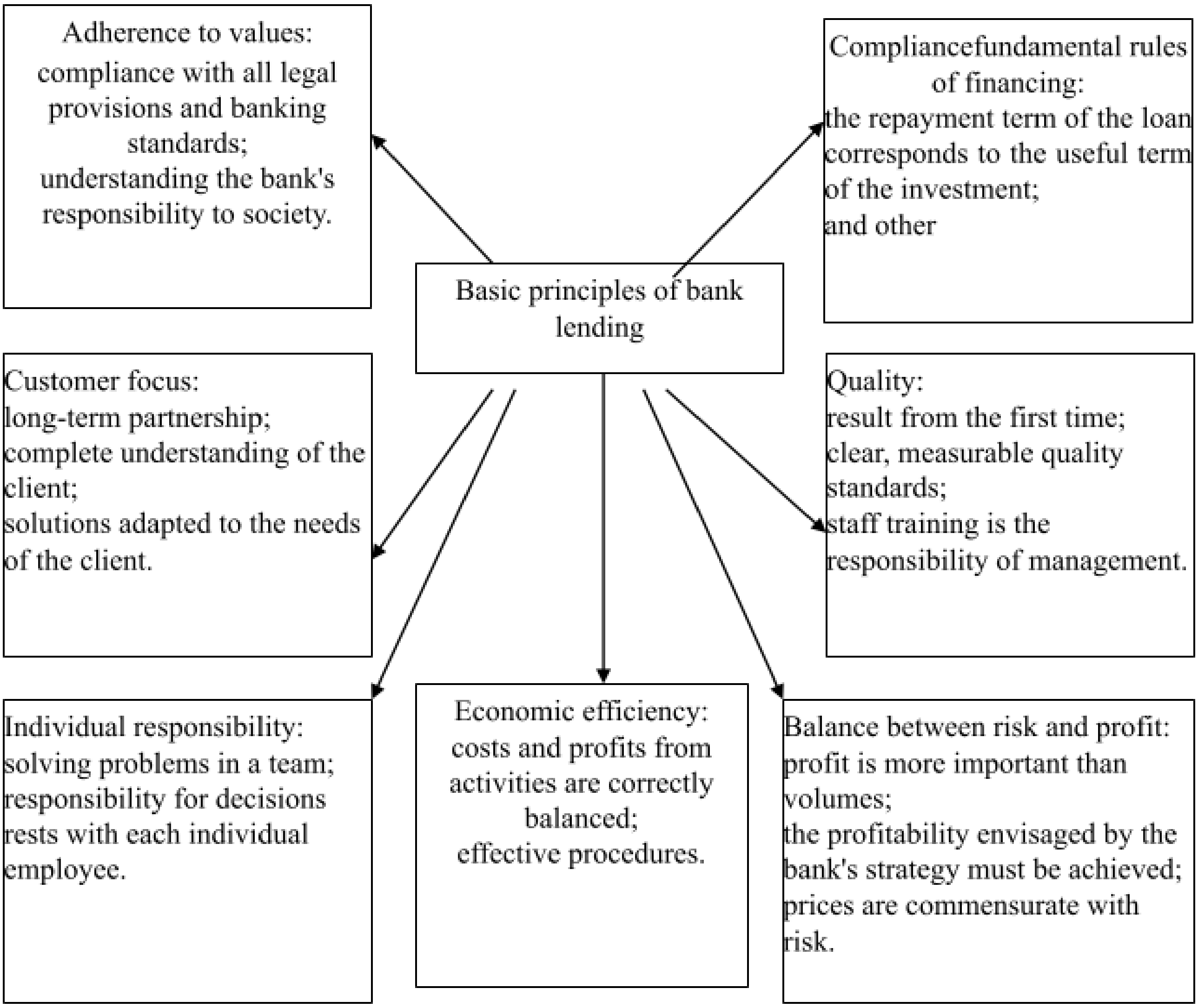

Fig. 2.3. Basic principles of lending JSC CB PrivatBank [15] Subdivisions of JSC CB PrivatBank involved in the lending process:

1. Risk Management Unit (quantitative, qualitative analysis and assessment of risks that the bank is exposed to in the course of credit operations; control over the adequacy of reserves for the bank's credit operations; assessment of creditworthiness and confirmation of the financial condition of the borrower (guarantor); verification of the completeness of the package of documents for the credit analysis, organization of credit monitoring, participates in the development of strategic parameters of the bank's loan portfolio, quality goals and guidelines for Business divisions; the head of

the Risk Management department is responsible for the current development and relevance of the bank's credit policy.

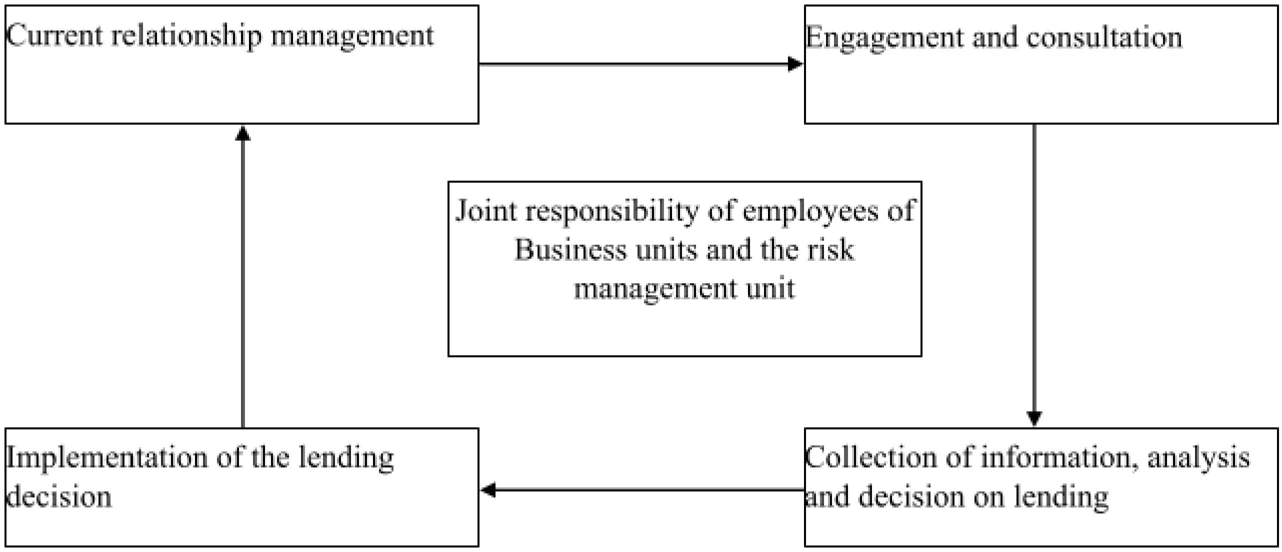

Fig. 2.4. Organization of the credit process JSC CB PrivatBank [15]

2. The credit committee approves the collateral structure, coverage ratios and other collateral parameters contained in the loan application.

3. The legal enforcement unit is responsible for the authenticity and enforceability of legal documentation.

4. The security service is responsible for analyzing the client's business reputation and, in cases where the bank accepts significant risks (defined by separate documents of the bank), the business reputation of persons related to the client.

5. The bank's back office is responsible for ensuring that all conditions of the approved loan are properly reflected in the contractual documents and in the bank's information systems.

6. Subdivisions of the collection [15].

The main prerequisites for each decision on granting a loan are comprehensive information about the client, his activities and the state of the industry. In particular, Business units must understand the following information about the client: natural person - social stability; material condition; credit history; legal entity or individual entrepreneur - key products and services of the client and substitute products; main counterparties, namely suppliers and buyers and competitors in the market; the client's economic sector, the state and trends of the industry, key success factors, individual risks; the level of the client's business reputation; organizational structure of the client.

Constant monitoring of the granted loans in order to ensure timely detection of changes in creditworthiness and increase in the degree of risk should be carried out in the context of the analysis of the financial condition of the client of JSC CB PrivatBank, compliance with the terms of credit agreements and other contracts. There are the following areas of monitoring: monitoring of the client's financial condition; monitoring of account turnover; provision monitoring; monitoring the client's business and reputation; monitoring; monitoring of deadlines. Monitoring methods: verification of documents (financial statements and others) provided by the client on a periodic basis; collection and analysis of information received from other sources, such as the press, internal banking information, information from third parties - business partners, competitors, etc.; periodic meetings with management and/or client representatives; regular visits to the premises of the client and/or guarantor (guarantor) to check the assets they own (including assets pledged as collateral). The monitoring system has two levels: the level of direct contact with the client and the level of intra-bank independent control, which are performed respectively by the employees of Business divisions and the employees of Risk Management. The main principle of this scheme is that only the employees of Business units should communicate directly with the client, and the employees of Risk Management should contact the client only in exceptional cases [15].

Minimum credit agreement standards of JSC CB PrivatBank: the subject of the agreement, which determines the main features of the loan, in particular: the amount of the loan, the term for which the loan is granted, the interest rate, the amount of commissions; the purpose of obtaining a loan; terms and conditions of granting credit; loan granting procedure; terms and conditions of repayment (or extension) of the loan; terms and procedure for payment of interest for credit use; terms and procedure for payment of commissions, penalties and other payments; statements, guarantees, additional terms and mutual obligations of the parties; a list of information required from the client in accordance with legal and regulatory requirements; reference to the list of security, if any; a list of events, in the event of which the bank may issue a decision on termination of lending, early repayment of the loan, collection of collateral and other sanctions; jurisdiction and dispute resolution procedure; official details of the parties [15].

The main economic measures used in dealing with problem loans of JSC CB PrivatBank are the following: revision (change) of the borrower's cash flow forecasts; protective measures to mitigate or minimize losses; changes in the client's policy and management; credit transaction restructuring; when the restructuring cannot prevent the potential losses of JSC CB PrivatBank, the bank must take measures for the early termination of the lending operation; sale of other assets of the client (through the court or by agreement with the client); initiation of bankruptcy proceedings.

In order to implement operational control over the credit portfolio of JSC CB PrivatBank and perform supervisory functions required by the NBU, Risk Management conducts analysis and evaluation of the quality of the credit portfolio on a periodic basis. The results of such analysis are considered at all levels of management with mandatory reporting to the Credit Committee, the Asset and Liability Management Committee, the Risk Management Committee and the Bank's Management Board for management decisions.

The banking portfolio in the economic literature is defined as a set of assets and liabilities of the bank, which, respectively, consists of a portfolio of active and passive operations of the bank. Active transactions by banking institutions are the most important source of profit, because they bring more than 90% of the total income to the bank. Thus, credit operations make up the majority of the bank's portfolio of active operations and are integral object of management, which is characterized by its specific features [16, p. 125].

A loan portfolio is a tool for managing the active operations of a banking institution, the purpose of which is to increase profits and operational efficiency, which is achieved by providing loans in various areas of lending, taking into account the requirements of the bank's credit policy and banking supervision authorities. Depending on the goal, the bank forms a loan portfolio of a certain type, which is a characteristic based on the ratio of profit and risk.

A risk portfolio is characterized by an increased level of profitability at a high level of risk, while an income portfolio has a lower level of profit, but credit risks are minimal. A balanced loan portfolio is a set of bank loans and has a structure and financial characteristics that are within the limits of choosing the most effective solution for combining risk and profitability [17].

The main tasks of forming a credit portfolio are: a high rate of expected income in the long term; minimizing the level of risks loan portfolio; compliance with the necessary liquidity of the credit portfolio; high level of income in the current period [18, p. 60].

So, the loan portfolio interconnects three key aspects of banking activity - profitability, liquidity and risk.

The process of forming a credit portfolio of a banking institution is determined in three stages: Stage I – determination of general provisions and goals of credit policy, creation of credit operations management apparatus; II stage – selection of specific lending objects for their inclusion in the loan portfolio; Stage III – analysis of the state of the credit portfolio and operational management of detected deviations from the optimal state [19].

Therefore, during the formation of the optimal credit portfolio, it is necessary to set the goal of implementing the developed credit policy by selecting the most effective and reliable credit investments. Constant analysis of the loan portfolio makes it possible to choose a rational option for the allocation of resources, the directions of the bank's credit policy, to reduce risk by diversifying credit investments, to make a decision on the feasibility of providing loans to clients [19].

Credit operations are the most important source of the bank's profit, however, in connection with the recent increase in cases of non-return of loans (during the global pandemic), these operations endanger the stability and stability of the bank as a whole. Therefore, the quality of the bank's loan portfolio means the formation of such a structure that would ensure the proper level of its liquidity and the maximum level of profitability of the banking institution with a minimum level of credit risk [20, p. 93]. The level of credit risk is determined by the size of financial losses as a result of non-return (late return) of the principal debt by the borrower and non-payment of interest on the loan (Table 2.6).

All of these credit risk factors can have the following negative consequences: a decrease in the quality of the credit portfolio; loss of principal and interest; costs of managing problem loans; loss of reputation; loss of capital; increase in reservation.

Table 2.6

Classification of credit risk factors of banking institutions [21, p. 20]

Groups of factors	Types of factors
Factors inherent in the external environment in relation to banking institutions and counterparties	- regulatory and legislative regulation of the activity of banking institutions; - regulatory and legislative regulation of the borrower's activity; - state of economic development; - the situation of demand for credit resources and their supply on the financial and credit market; - the level of competition between banking institutions and counterparties; - political situation in the country; - force majeure circumstances (pandemic, natural disasters, military operations, etc.).
Internal bankingcredit risk factors	- excessive concentration of the loan portfolio; - excessive diversification of the loan portfolio; - lack of effective methods of assessment and regulation of credit risks by stages of the credit process; - inadequate assessment of the impact of credit risk factors; - low qualification level, competence and work experience of specialists.
Factors inherent in the borrower's activity	- reputation of the borrower; - borrower's capital; - the borrower's ability to successfully conduct business; - creditworthiness of the borrower; - liquidity of loan collateral.

Therefore, in order to identify reserves for improving the efficiency of credit activity, provided the planned level of profitability and the permissible level of risk, banks conduct an analysis of the loan portfolio, which is carried out in two directions: analysis of the structure and dynamics of the loan portfolio (by terms of lending, currency of loans, types of loan products, sectors of the economy , risk level, etc.) and qualitative analysis of the credit portfolio (assessment of the risk and profitability of the credit portfolio) [20, p. 93].

Therefore, on the basis of this analysis, the bank's management forms an effective loan portfolio and makes decisions on changing its structure in order to increase the return on investments and optimize the repayment of loans, which affects the bank's liquidity and profitability. The current state of the credit portfolio of JSC CB PrivatBank for 2018-2020 is shown in the table 2.7, which shows that there was a clear upward trend during the analyzed period volume of lending, which is a positive factor, because lending is the main source of profit for the bank. Thus, in 2017, the volume of loans issued by the bank amounted to 237,181 million. hryvnias, in 2019 - 296,043 thousand UAH In 2020, the amount of loans issued decreased by 63,271 million. hryvnias, the rate of increase was -21.37% (in the first days of the quarantine, a noticeable outflow of funds of individuals began, such a reaction of customers is typical in conditions of uncertainty).

Table 2.7

Dynamics and structure of the loan portfolio of JSC CB PrivatBank [11]

Indicator	2018	2019	2020
Assets, million UAH	278048	309723	382525
Growth rate, %	9,12	11.39	23.51
Loans granted (total amount), mln. UAH	291936	296043	232772
Growth rate, %	23.01	1.41	-21.37
Loans granted (minus reserve for expected credit losses), million UAH	50140	59544	55021
Specific weight of loans in bank assets, %	18.03	19,22	14.38
Loans granted to legal entities, mln. UAH	5648	6250	5509
Growth rate, %	69,61	10.66	-11.86
Loans granted to individuals, mln. UAH	63434	68253	53839
Growth rate, %	45.65	7.60	-21,12
Loans to small and medium businesses (SMEs), mln. UAH	8251	8555	6859
Growth rate, %	95.99	3.68	-19.82
Loans and receivables by financial leasing managed as a separate portfolio	212795	210579	164332
Accounts receivable under financial leasing	1612	2312	2157
Purchased/created impaired loans	196	94	76
Overdue loan debt, mln. UAH	232000	228467	179175
The specific weight of overdue loans in the loan portfolio, %	79.47	77.17	76,97

Growth rate, %	27,28	-1.52	-21.58
Loan reserves, mln. UAH	241796	236499	177751
Growth rate, %	21.60	-2.19	-24.84

Analyzing the table. 2.8, it can be seen that over the entire period of analysis, the total assets of JSC CB PrivatBank increased by 50.79% and amounted to 382,525 million by the end of 2020. UAH A high share of loans in the bank's assets (in 2020, up to 60%) and a significant increase in the amount of overdue debt led to a significant increase in reserves for credit transactions.

Table data 2.8 indicate that for the period of 2018-2020, loans managed as a separate portfolio, which include non-performing loans that were issued before December 19, 2016, i.e. before the bank transitioned into a state-owned bank, have the largest share in the overall structure of the bank's assets property. As of 12/31/2020, their share is 70.60%, which is 2.29% less compared to 2018. JSC CB PrivatBank should gradually get rid of these assets and restructure them, because in fact this article increases the credit burden, not increasing the bank's income. The share of this portfolio in the overall structure of assets has a tendency to decrease, because the bank continues to increase lending to legal entities and individuals, which indicates an improvement in the structure of the bank's loan portfolio due to the use of effective credit management tools.

In 2020, the loan portfolio of JSC CB PrivatBank increased by 9.73%: from 50,140 mln. UAH as of 12/31/2018 to 55,021 million UAH as of December 31, 2020, primarily due to a decrease in loans granted to individuals by 21.12%, loans granted to legal entities by 11.86%, and loans granted to small and medium-sized businesses by 19.82%.

The largest increase in the volume of the bank's loan portfolio was observed in lending to individuals - in 2020 compared to 2017 (43,552 million UAH) by 10,287 million. UAH A slow growth rate is observed in lending to legal entities - in 2020, compared to 2018, it was

-2.46% (the decrease in loans provided by banks is observed in almost all sectors of the economy. The total loan portfolio of Ukrainian banks decreased by 13%

in 2020, the largest decrease was in lending to the basic and infrastructural sectors of the economy: mining (-31%), processing (-16 %), construction (–18%), transport (–21%) [22].

In 2018, the increase in requirements for borrowers and the strengthening of JSC CB PrivatBank's risk assessment work restrained the growth of overdue loans. During the year, the dynamics of overdue loans varied, but in general, according to the results of 2020, the volume of overdue debt of borrowers decreased by 21.58% and amounted to 179,175 million. UAH (Fig. 2.5).

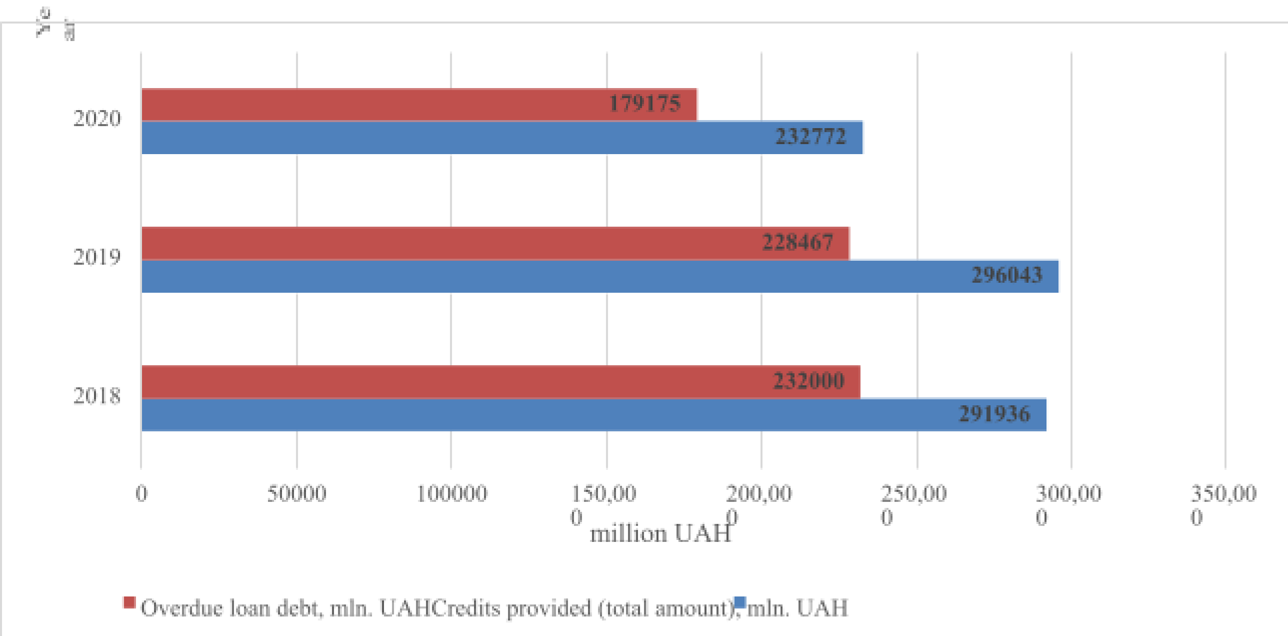

Fig. 2.5. Dynamics of loan portfolio volumes and overdue debt of JSC CB PrivatBank [11]

In 2020, loans to clients that JSC CB PrivatBank had written off at the expense of reserves in previous years were reimbursed in the total amount of 256 million. UAH (in 2019 – 338 million hryvnias) including compensation of 180 million hryvnias. UAH by credit cards (233 million hryvnias in 2019), 73 million hryvnias UAH for loans to legal entities (in 2019 – 100 million hryvnias) and 3 million hryvnias UAH for loans to small and medium-sized enterprises (in 2019 - UAH 5 million). The amount of compensation was recognized directly in profit or loss as part of allowances for impairment of loans.

As can be seen from the table 2.8, in 2020, there is a steady trend towards an increase in the share of overdue loans in the loan portfolio of JSC CB PrivatBank. Also, conclusions can be drawn about the level of problems of the bank's credit portfolio based on the amount of reserves formed to compensate for possible losses on credit operations.

Indicators of the credit portfolio of JSC CB PrivatBank according to its quality component in 2020 is presented in the table 2.8.

Table 2.8

Indicators of the credit portfolio of JSC CB PrivatBank by creditquality in 2020, million UAH [11]

Indicator	Loans and receivables under finance leases managed as a separate portfolio	Loans to legal entities	Loans to individuals							In total
			Credit cards	Mortgage loans	Loans for the purchase of a car	Consumer loans	Other loans	SMEs	Accounts receivable under financial leasing	
Large loans borrowers	-	1572	-	-	-	-	-	-		1572
Credits average borrowers	3	1990	-	-	-	-	-	1497	387	3877
Small loans borrowers	-	84	-	-	-	-	-	3190	215	3489
Loans from 1 up to 100 million UAH	-	-	22	186	-	1	8	-	21	238
Credits are less 1 million UAH	2	-	35311	1517	-	3416	9	-	703	40958
Overdueless than 30 days	-	1	470	11	-	6	-	18	16	522
Depreciated loans	164327	1371	4423	7324	35	71	111	1201	109	178972

Analyzing the table 2.9, it can be seen that the largest number of non-overdue and non-impaired loans of JSC CB PrivatBank were granted to individuals for current needs (credit cards), namely in the amount of 35,311 million. UAH, which is about 65.00% of the total amount of loans. The amount of loans issued to legal entities (average borrowers) includes 3.62% of loans in the amount of 1,990 million. UAH, legal entities (large borrowers) - 2.86%.

From the table 2.9, it can be seen that the largest number of loans overdue for up to 31 days were granted to individuals for current needs, namely, the amount of such loans is 470 million. UAH and this amounts to 90.38% of the total amount of overdue loans of JSC CB PrivatBank. Among impaired loans issued to individuals, most of them are those with a payment delay of more than 361 days - 5.98% of the total amount of impaired loans, their amount is 10,480 million. UAH

Table 2.9

Indicators of the credit portfolio of JSC CB PrivatBank with excess and insufficient collateral in 2020, mln. UAH [11]

Indicator	Assets with surplus collateral security		Assets with insufficient collateral security	
	Net book value assets	Fair value of collateral	Net book value assets	Fair value of collateral
Loans and receivables under finance leases managed as a separate portfolio	1974	3121	195	-
Loans to legal entities	3285	7736	794	4
Loans to individuals - mortgage loans	2231	9006	91	9
Loans to individuals - other loans	13	40	5	-
Loans to enterprises small and medium-sized businesses (SMEs)	2088	6375	2263	1
Accounts receivable for financial leasing	1968	4684	20	9

The financial impact of collateral is shown by JSC CB PrivatBank by means of separate disclosure of the value of collateral for financial assets, the value of collateral and other instruments for improving credit quality by which it is equal to or exceeds the book value of the asset ("assets with excess collateral"), and financial assets, the value of collateral and other instruments for improving credit quality, which are less than the book value of the asset ("assets with insufficient collateral"). Mortgage loans are secured by relevant residential real estate, loans for the purchase of a car are secured by relevant cars, loans to small and medium-sized businesses are secured by relevant commercial real estate, equipment and cars for commercial transportation (Table 2.10). To the table 2.10 credit card loans, consumer loans and part of loans to small and medium-sized businesses in the amount of 1,155 million are not included. hryvnias, since their provision does not require collateral security.

The structure of the loan portfolio of JSC CB PrivatBank by economic sectors and areas of commercial activity is shown in the table. 2.10.

Table 2.10

The structure of the loan portfolio of JSC CB PrivatBank by sectors of the economy and areas of commercial activity [11]

Indicator	2018 million UAH	%	2019 million UAH	%	2020, million UAH	%
Loans and receivables under finance leases managed as a separate portfolio	212795	73	210579	71	164332	70
Loans to individuals	64284	22	69499	23	54967	24
Loans to legal entities						
Agro-industrial complex and food industry	2298	1	1942	1	1690	1
Consumer goods	771	-	1192	-	1085	-
Other	3289	1	3858	1	3322	1
Loans to small and medium-sized enterprises (SMEs)						
Agro-industrial complex and food industry	1934	1	2316	1	2344	1
Consumer goods	1240	-	1651	1	1419	1
Provision of household, individual and professional services	2664	1	2440	1	1337	1
Infrastructure	556	-	599	-	450	-
Other	2105	1	1967	1	1826	1
Total loans and advances to customers, the total amount	291936	100	296043	100	232772	100

As of December 31, 2020, the total amount of loans to the 10 largest clients of PrivatBank JSC, excluding those managed as a separate portfolio, amounted to 2,264 million. UAH (as of December 31, 2019 – UAH 2,191 million) or 3% of the total amount of loans excluding those managed as separate portfolio (December 31, 2019 – 3%). The provision for expected credit losses related to these borrowers amounted to 986 million. UAH (as of December 31, 2019 – UAH 663 million).

Analysis of the table. 2.12 makes it possible to determine the branch diversification of JSC CB PrivatBank. The largest volume of bank lending falls on such sectors of the economy as individuals (23.61%), trade, repair of cars, household goods and personal items, provision of financial services, except for insurance and pension provision.

Thus, the theoretical foundations of the formation of a credit portfolio enable a banking institution to recognize the negative aspects of placing loans, to expand or restrain credit operations, to improve their structure, to determine the most appropriate strategy for the bank in the implementation of credit policy, therefore, during the analysis of the credit portfolio of JSC CB PrivatBank » for the years 2018-2020, both positive and negative moments were identified. But the observed negative situation indicates the deterioration of the quality of the bank's credit portfolio in connection with the decrease in the solvency of customers in the conditions of the epidemiological situation in the country as a whole.

The main source of income for banks is profit from credit operations. In this regard, the main problem facing the management of banks today is the effective formation of the bank's loan portfolio, because its ineffective formation leads to an increase in the risks of credit operations, which, in turn, leads to losses and the loss of invested resources.

2.3. Credit portfolio risk assessment model and calculation of the Bank's integral credit risk index

For Ukraine, as well as for most countries of the world, 2020 has become a test on sustainability, problems of the development of the country's economy, were caused by the impact of the COVID-19 coronavirus pandemic. Thanks to the prompt response of the NBU to the consequences of the pandemic, it was possible to preserve the financial stability of the country and its national currency. To support the economy during the crisis, the National Bank lowered the discount rate from 13.5% to 6%, which allowed banks to lower interest rates on loans for businesses and citizens.

According to United Nations estimates, since the beginning of the pandemic, more than 80% of the population has lost income, and more than 40% of families have lost at least one family member, which indicates a negative socio-economic impact on the lives of the population and a significant economic downturn [24].

The coronavirus pandemic became a challenge for domestic banks, because it forced them to quickly respond to changes in the economy and the behavior of citizens. Quarantine restrictions in 2020 negatively affected the work of banking institutions, their overall business activity decreased, demand for new loans and banking services fell, and defaults on previously issued loans increased. All this had a negative impact on the interest and commission income of banking institutions, the growth of net interest income slowed down to the lowest rate in four years – 3.9%.

According to the chairman of the NBU, the level of capital, liquidity, profitability and technological development of domestic banks allowed them to adequately cope with the challenges of the pandemic [24].

Quarantine affected the pace of lending to both households - that is, ordinary consumer loans - and the corporate sector. In March 2020, before the lockdown, loans began to grow, after the announcement of strict quarantine regulations - stoppages of business and transport - they fell, the demand for consumer loans fell, because there was simply nothing to spend them on. Despite the overall decline in consumer loans, mortgage loans grew; by the end of 2020, the total volume of mortgage loans reached 521 million. UAH, which is 36% more compared to 2019. As for businesses, their lending trends were similar to lending to households, but efforts were made to revive them - for example, with the program subsidized loans at 5%, 7% and 9%, which were developed for small businesses (up to 50 employees) with an annual income of up to 50 million. UAH and medium-sized businesses (50-250 employees) with an income of more than 50 mln. UAH In 2020, non-performing loans (NPL) continued to be written off from balance sheets [25].

The pandemic and quarantine restrictions contributed to the fact that the country's population began to more actively switch to non-cash payments and use e-commerce services more often.

Despite the COVID-19 crisis, banks made a profit of 41.3 billion in 2020. hryvnias, 29% less than in 2019 - 58.4 billion. hryvnias, more than 60% of the total profit in 2020 was received by JSC CB PrivatBank [25].

Today, it is important and relevant to implement the latest credit portfolio management tools, which will allow not only to reduce the total credit risk of the bank portfolio and increase its profitability, but also to support the financial stability and reliability of the banking institution.

The main parameters of the bank's credit portfolio are profitability and risk, and the effectiveness of the credit strategy and general credit activity of the banking institution is determined by the ratio of these indicators. The main goal of the process of managing the credit portfolio of a banking institution is to ensure maximum profitability at an acceptable level of risk.

The process of assessing the risk of the credit portfolio of JSC CB PrivatBank must be carried out in three stages. At the first stage, it is proposed to use certain indicators of the level of credit risk - indicators that are theoretically or empirically related to the occurrence of credit risk, and which the bank chooses independently: credit activity ratio; reserve adequacy ratio; credit quality ratio; ratio of overdue loans; the maximum amount of risk per borrower (or a group of related borrowers); the level of concentration of large credit risks; the level of credit risk concentration per insider; concentration level credit risks among insiders; the ratio of loans written off from the reserve; profitability ratio of credit operations.

Table 2.11

The main indicators of credit risk of JSC CB PrivatBank, % [11]

Indicator	Calculation formula	2018	2019	2020
1	2	3	4	5
Credit activity ratio	K_1=KP/A*100% 65-75% KP – loan portfolio of the bank; A – total assets.	104.99	95.58	60.85
Reserve adequacy ratio	K_2=R/CP*100% 0.9-5% P is a reserve created on compensation for losses on credit transactions	82,83	79.89	76.36
Credit quality ratio	K_3=BC/CP*100 % no more than 5% BC - bad loans.	72.89	71.13	70.60
The ratio of overdue loans	K_4=PC/CP*100 % no more than 10% PC - loans overdue for more than 30 calendar days.	77.30	76.66	76.56
The maximum amount of risk per person the borrower	K_5=Standard H7 no more than 25%	6.26	16.64	9.62
Level of concentration large credit risks	K_6=Standard H8 no more than 8 times the size of the LCD	0.00	32.04	0.00
Level of concentration credit risks per insider	K_7=Normal H9 no more than 5%	0.19	0.43	0.16
Coefficient of write-offs from the reserve	K_8=SR/CP*100% 0.25-1.5% SR - a write-off from the reserve created to compensate for losses on credit operations the bank	5.29	1.79	25,24
Profitability ratio of credit operations	K_9=PD-PV/KP*100 % not less than 1.4%. The upper limit value is 7.4. PD – interest income of the bank; PV - interest expenses of the bank.	5.74	6.64	9.28
The coefficient of coverage of the loan portfolio by the bank's own capital	K_{10}=VC/CP not less than 50%. Shows how much own funds are accounted for by one hryvnia of loans issued. VC is the bank's own capital.	0.11	0.18	0.23

We propose to evaluate ten indicators that have a significant impact on the level of credit risk of JSC CB PrivatBank (Table 2.12). For calculation data from the financial statements of JSC CB were used for the above indicators PrivatBank for 2018-2020.

For each of these indicators (Ki), there is an optimal value that is in a certain interval and has a lower (LBi) and an upper (UBi) limit (it will allow to ensure the identification of credit risks significant for the banking institution and a timely and adequate impact on them. For K1 coefficients, K2, K8 and K9 optimal value is in the range from LB>0 to UB. For coefficients K3-K7, the lower limit (LB) is equal to 0, and the upper limit (UB) - the maximum permissible value. A clear definition of the limits of the normative values of each indicator is necessary for the scoring of these indicators, which is carried out at the second stage of risk assessment.

It is assumed that in order to simplify calculations by the bank, the values of the LB and UB indicators are selected from the relevant database. In addition, it will provide an opportunity to change the set of indicators and add others if the economic, political or legal situation requires such changes.

Table 2.12

Source data for calculating credit risk indicators of JSC CB PrivatBank [11]

Indicator	2018	2019	2020
Total assets, mln. UAH	278048	309723	382525
Loan portfolio, mln. UAH	291936	296043	232772
Reserve for credit risks, mln. UAH	241796	236499	177751
Bad loans, UAH million	212795	210579	164332
Overdue loans, mln. UAH	225676	226950	178208
Regulatory capital, mln. UAH	19556	19223	35257
Standard H7, (%)	6.26	16.64	9.62
Standard H8, (%)	0.00	32.04	0.00
Standard H9, (%)	0.19	0.43	0.16
Write-off from the reserve, mln. UAH	15456	5297	58748
Interest income, mln. UAH	30754	33841	33563
Interest expenses, mln. UAH	14002	14174	11961
Own capital, mln. UAH	31464	54529	52825

An important role in assessing the level of credit risk belongs to credit risk standards, which aim to prevent excessive concentration of it in a banking institution. Economic norms of the bank's activity, which proves The National Bank of Ukraine is the basis of the system of limits established to limit and minimize the credit risk of JSC CB PrivatBank. Over the course of 2018-2020, JSC CB PrivatBank's compliance with all credit risk regulations is monitored.

At the second stage of credit risk assessment, a point assessment of each calculated risk indicator is performed according to the developed algorithm.

Depending on whether the calculated indicator falls into the interval optimal value, its scoring is carried out according to one of the four formulas:

$$Ri=100-100*(1-Ki/LBi), \quad (2.1)$$

$$Ri=100-100*(1-UBi/Ki), \quad (2.2)$$

$$Ri=100+100*(1-Ki/UBi), \quad (2.3)$$

$$Ri=100+100*(1-|2*Ki-(LBi+UBi)|/UBi-LBi), \quad (2.4)$$

where Ri is an indicator of the calculated number of points;

LBi is the lower limit of the optimal value of the risk indicator; UBi is the upper limit of the optimal value of the risk indicator.

Using the algorithm, it can be determined that formula 2.1 is used to calculate the K1 score (year 2020); formula 2.2 - for indicators K1 (2018-2019), K2 (2018-2020), K3 (2018-2020), K4 (2018-2020), K8 (2018-2020), K9 (2020) , K10 (2018-2020 years);

formula 2.3 – for indicators K5 (2018-2020), K6 (2018-2020), K7 (2018-2020 years); formula 2.4 is used for K9 (2018, 2019 years). The calculation of the score for each indicator in 2018-2020 is given in the table. 2.15.

After calculation quantity points for everyone indicator necessary proceed to the third stage of risk assessment, at which it is necessary to determine the integral indicator of credit risk, as well as the degree of credit risk and its dynamics. The integral indicator of credit risk (ICR) is defined as the sum of points,

weighted by weighting factors:

$$Ikr=\sum_{i=1}^{n} Ri*li \quad (2.5)$$

where R1, R2, ... Rn are indicators of the calculated number of points; l1, l2, ... ln - weight of indicators;

n is the number of indicators.

The weighting coefficients of the indicators must be established by the method of expert evaluations. Fifteen experts ranked 10 indicators of credit risk according to the principle: the indicator that has the greatest impact on the overall risk of the credit portfolio of JSC CB PrivatBank is equal to 10; the indicator that affects the least is equal to 1, the ranks are not repeated. The null hypothesis is: H0="experts' opinions are agreed", as an alternative: H1="experts' opinions differ significantly". The experts' assessments are given in the table 2.13.

Table 2.13

Point assessment of credit risk indicators of JSC CB PrivatBank

Indicator	The number of accrued points (R_i)		
	2018	2019	2020
Credit activity coefficient, K_1	71	78	94
Reserve adequacy ratio, K_2	6	6	7
Loan quality ratio, K_3	7	7	7
The ratio of overdue loans, K_4	13	13	13
The maximum amount of risk per borrower, K_5	175	133	162
The level of concentration of large credit risks, K_6	200	72	200
The level of concentration of credit risks per insider, K_7	196	191	197
Coefficient of withdrawals from the reserve, K_8	28	84	6
The profitability ratio of credit operations, K_9	155	125	80
Coverage ratio of classified own loans capital of the bank, K_{10}	0.22	0.36	0.46

To assess the degree of consistency of experts' opinions, it is necessary to calculate the concordance coefficient (W):

W=S/Smax, (2.6)

where S is a variation relative to the average rank; Smax is the maximum value of the variation.

The maximum value of the variation is calculated by the formula:

Smax=1/12m2(n3-n), (2.7)

where m is the number of ranked ranks (number of experts); n – number of ranking objects (number of indicators). The maximum value of the variation is:

Smax=152*(103-10)/12=18562.5. (2.8)

Table 2.14

Assessments of experts regarding the impact of risk indicators on the aggregate credit risk of JSC CB PrivatBank

Expert	Evaluation of experts, d_{ij}										
	K_1	K_2	K_3	K_4	K_5	K_6	K_7	K_8	K_9	K_{10}	Sum
1	9	7	10	6	7	2	1	4	5	4	55
2	10	5	8	7	8	2	2	4	5	4	55
3	9	7	10	5	9	2	1	4	5	3	55
4	10	8	9	6	8	1	2	4	6	1	55
5	9	7	10	5	8	1	3	4	5	3	55
6	10	6	10	7	6	1	2	5	5	3	55
7	10	7	9	6	5	1	2	4	8	3	55
8	9	7	10	6	8	1	2	4	5	3	55
9	10	7	9	5	7	1	2	4	5	5	55
10	9	7	10	6	8	1	2	4	5	3	55
11	9	7	10	6	8	2	3	4	9	2	55
12	10	7	7	6	8	4	3	2	5	3	55
13	9	7	9	7	8	1	2	4	5	3	55
14	10	7	9	6	8	1	2	4	5	3	55
15	8	5	9	8	7	2	3	4	6	3	55
Sum ranks	141	101	139	92	113	23	32	59	84	46	825
Summary rank	9	7	9	6	8	2	2	4	6	3	-

$S(R)_J=\sum_{i=1}^{15} d_{ij}$										
Amount deviation ranks from α, $S(R)_J-\alpha$	58.5	18.5	56.5	9.5	30.5	-59.5	-50.5	-23.5	1.5	-36.5	-
Squares of deviations, $(S(R)_J-\alpha)2$	3422	342	3192	90	930	3540	2550	552	2	1332	15952

Coefficient variations relatively average rank is calculated by the formula:

$S=\sum_{j=1}^{n} (S(R)_J-\alpha)2$, (2.9)

where α is an indicator of the average sum of ranks.

The index of the average sum of ranks (α) is calculated as follows:

α=1/2m*(n+1). (2.10)

Let's calculate the index of the average sum of ranks for the table of expert evaluations:

α=15*(10+1)/2=82.5. (2.11)

The table 2.15 shows that the coefficient of variation relative to the average rank (S) is 15952.

Let's calculate the concordance coefficient:

W=15952/18562.5=0.86. (2.12)

The concordance coefficient takes values from 0 to 1. The larger the concordance coefficient value, those higher degree consistency expert opinion.

The calculated value of the concordance coefficient is 0.86, and therefore this is more than enough to accept the H0 hypothesis about the agreement of experts' opinions.

Based on the results of the expert assessment, it is possible to calculate the values of the weighting coefficients for the credit risk indicators, which are necessary for the calculation of the integral credit risk indicator of JSC CB PrivatBank.

The weighting factors are calculated according to the formula:

lj=S(R)/Spovn=∑m dij/∑m ∑n DJ (2.13)

J i=1 j = 1i=1

where dij is the assessment given by the i-th expert to the j-th indicator ($i=\overline{1,m}$; $j=\overline{1,n}$); S(R) is the sum of ranks for the j-th indicator;

Spovn - the full sum of ranks.

According to the results of calculations, the total sum of ranks is Sfull=825 (table 2.15). Therefore, the weighting coefficients of the indicators have the following values (Table 2.15).

Table 2.15

The value of the weighting coefficients of JSC credit risk indicatorsCB PrivatBank

Experts	Indicator										Sum
	K_1	K_2	K_3	K_4	K_5	K_6	K_7	K_8	K_9	K_{10}	
Weighting factors, l	0.171	0.122	0.168	0.112	0.137	0.028	0.039	0.072	0.102	0.056	1

Having calculated the score for each risk indicator and the weighting coefficients of these indicators, it is possible to calculate the integral credit risk indicator (ICR) and draw a conclusion about the degree of credit risk in JSC CB PrivatBank. It is more expedient to use the calculation of the integral indicator to assess credit risk in dynamics. Based on the comparison of the results of the ICR assessment over several periods, it is possible to draw a conclusion about the trend of changes in the level of credit risk of JSC CB PrivatBank.

Let's calculate the value of the integral indicator of credit risk of JSC CB PrivatBank for 2018, 2019 and 2020. For this, it is necessary to make an assumption that the experts' assessments regarding the weight of each indicator remained unchanged during these three years. The calculation of Ikr is given in the table. 2.16.

Table 2.16

Calculation of the integral indicator of JSC credit riskCB PrivatBank

Indicator	Weight	2018		2019		2020	
		Calculated points	Weighted points	Calculated points	Weighted points	Calculated points	Weighted points
K_1	0.171	71	12,14	78	13.34	94	16.07
K_2	0.122	6	0.73	6	0.73	7	0.85
K_3	0.168	7	1.18	7	1.18	7	1.18
K_4	0.112	13	1.46	13	1.46	13	1.46
K_5	0.137	175	23.98	133	18,22	162	22,19
K_6	0.028	200	5.60	72	2.02	200	5.60
K_7	0.039	196	7.64	191	7.45	197	7.68
K_8	0.072	28	2.02	84	6.05	6	0.43
K_9	0.102	155	15.81	125	12.75	80	8,16
K_{10}	0.056	0.22	0.01	0.36	0.02	0.46	0.03
Sum	1		70.56		63.21		63.65

The total amount of points calculated for the indicators, weighted by the weighting factors, makes up the integral indicator of credit risk. In 2018, Ikr was 70.56 points; in 2019 – 63.21 points; in 2020 – 63.65 points. The dynamics of the integral indicator of the credit Bank is shown in fig. 2.6.

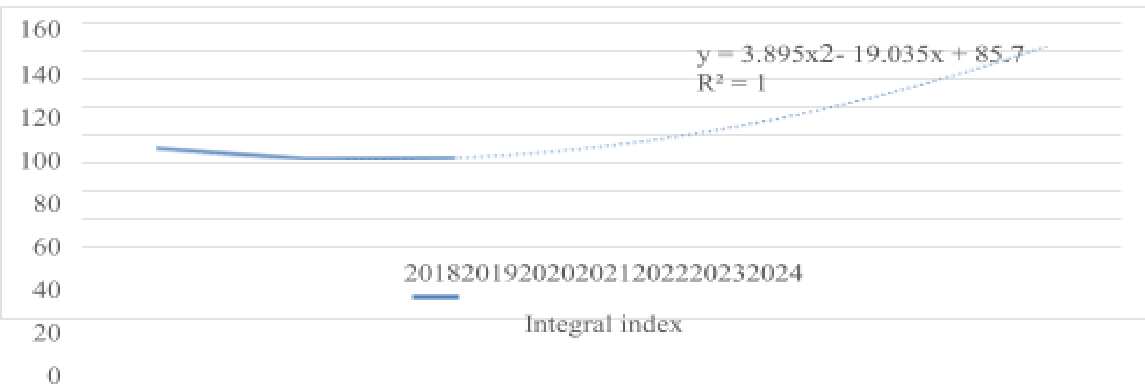

Fig. 2.6. Integral indicator of credit risk of JSC CB PrivatBank

To assess the degree of credit risk, the result of the calculation of Ikr should be considered as follows: the value of Ikr=100 corresponds to the indicators of the bank's activity, which are equal to the established critical limits of the limit values. The greater the value of Ikr exceeds the limit of 100 points, the lower the degree of risk observed in the bank. Conversely, if the indicator is significantly less than 100 points, this indicates a high level of credit risk.

Therefore, based on the results of the evaluation of the integral indicator, it can be concluded that during the analyzed period there is a high level of credit risk of JSC CB PrivatBank.

CHAPTER 3
DIRECTIONS OF INCREASING THE EFFICIENCY OF FORMULATION AND IMPLEMENTATION OF THE CREDIT POLICY OF JSC CB PRIVATBANK

3.1. Using an anticipatory approach to monitore and minimize the Bank's credit risks

One of the reasons for insufficient control of credit risk is the bank's non-compliance with the principle of prevention, which provides for the early implementation of control in order to prevent the occurrence of significant deviations of the actual level of credit risk from established norms.

In recent years, digitalization has become one of the current trends of the world economy, and has shown itself to be the most important factor in the economic growth of almost every country in the world. Digital technologies have long affected any sphere of activity, including the banking sector, they greatly facilitate the work of banking institutions and are a guarantee of their long-term development. Given that digitization has long been a trend in the banking sector, it was last year that all banking institutions were able to truly appreciate the real advantages of the new format of customer service. Ukrainian digital banking could develop in the shadow of classical banking for a long time, but the global pandemic of COVID-19 changed all plans and became a kind of driver for the accelerated digital transformation of the banking business. During the strict quarantine restrictions, a large number of customers of banking institutions preferred remote service. Most banks managed to expand the bandwidth of their own digital channels and increase the reliability of online services for customers in a short time. Various mobile products began to gain popularity among the population [1].

The consequences of the pandemic and quarantine restrictions have worsened people's lives. Decrease in solvency and deterioration of consumer sentiment as well also affected credit demand, which is held back by a sharp drop in the consumption of services and many groups of goods, primarily durable goods [2].

So, today the pace of lending tends to slow down, banks take into account the risks of non-return of funds, and the reduction of the interest rate, although it plays a certain role, but in the general background is not too big. After the easing of the quarantine, hryvnia retail lending was the first (and only) to recover, but so far its rates lag behind the pre-crisis level [2].

The negative consequences of the current crisis caused by the COVID-19 pandemic may occur in the coming year. The key threats facing banking institutions are a decrease in demand for banking services and a deterioration in the quality of loan servicing. In such conditions, a simplified approach to the bank's credit risk management mechanism, based mainly on credit risk assessment, regulation and control measures, is not effective enough.

Today, a rather urgent problem for commercial banks in the issue of credit risk control is the ability to determine in advance all possible changes in risk positions in the early stages of their occurrence and predict (forecast) the most likely ways of their development based on changes in the external and internal environment of the bank's functioning, as well as , most importantly, to develop an optimal set of preventive measures that will make it possible to effectively prevent the onset of potential negative phenomena. An integral component of the bank's set of preventive measures is the definition of criteria for assessing the creditworthiness of its potential borrowers, on the basis of which a methodology for determining the borrower's reliability class should be formed, which involves taking into account factors influencing the financial and economic activity of a subjective nature, in particular, such as: efficiency management of the borrower, its market position and dependence on cyclical and structural changes in the economy and industry, management professionalism, business reputation, repayment history credit debts For the effective implementation of the task of rational formation of the credit policy of JSC CB PrivatBank and its successful implementation, it is possible to propose a comprehensive approach to credit risk management in the bank as part of the overall system of risk assessment and management (Fig. 3.1).

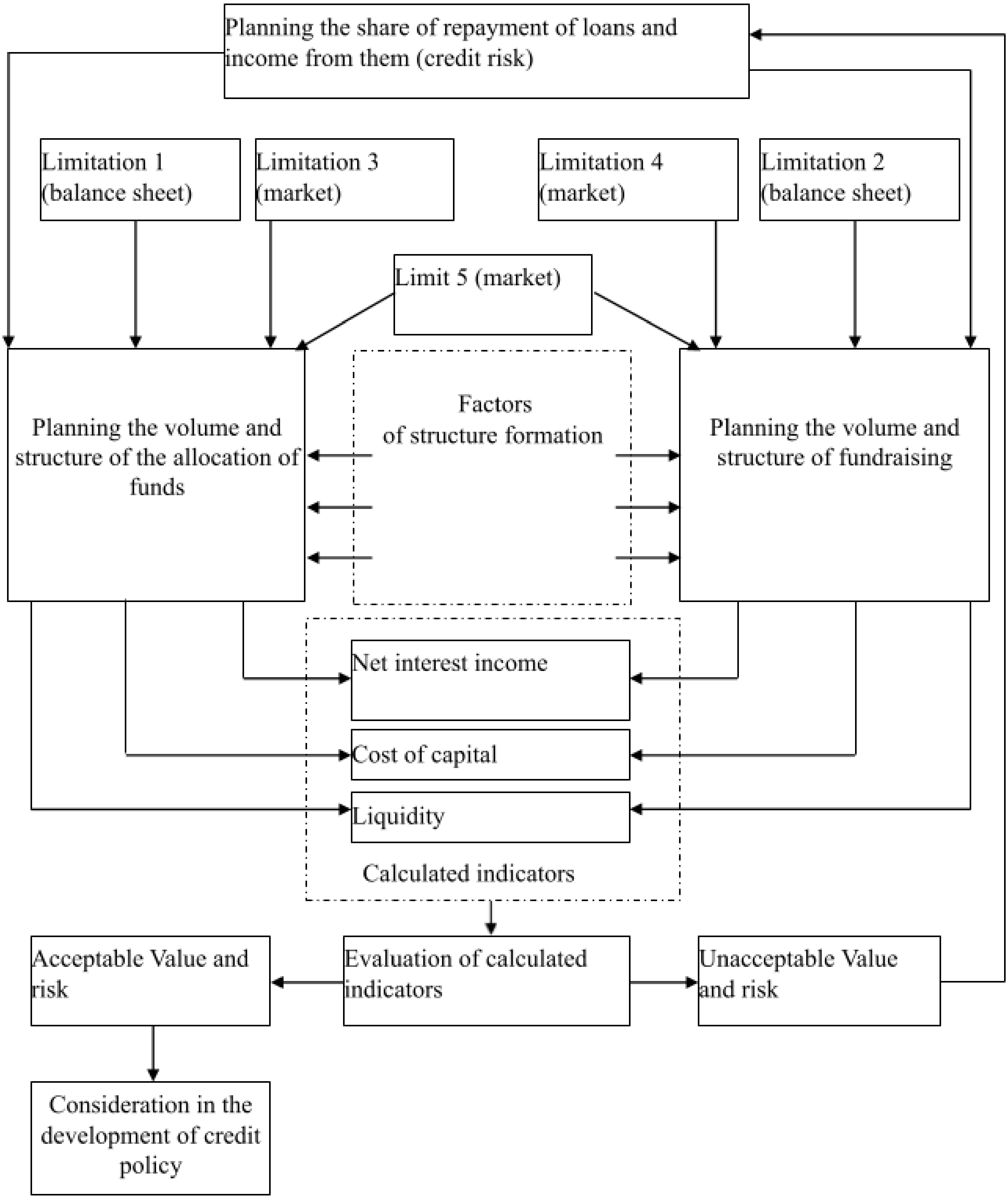

Fig. 3.1. Comprehensive approach to credit risk management of JSC CB PrivatBank (improved on the basis of [5])

Analyzing fig. 3.1, it can be seen that the rate of return of loans and income from them (credit risk) is first assessed. JSC CB PrivatBank plans this parameter based on the study of internal factors, and also takes into account factors that do not depend on its activity (forecast macroeconomic indicators, changes in the regulatory framework, trends in national and global financial markets) [5, p. 14]. Next, JSC CB PrivatBank plans the structure and volume of placement and attraction of funds, taking into account justified market and balance sheet restrictions. At the next stage, interest income, equity value, and liquidity are calculated depending on changes in planned and forecast indicators, namely: asset quality (credit risk), interest rates (interest rate risk), and currency rates (currency risk). In the process of calculations, the risk of a drop in the level of liquidity is also determined, if the obtained values of the above calculated indicators and the risks associated with them do not meet the bank's goals, it is necessary to repeat the entire cycle of the algorithm given in the algorithm taking into account the obtained results [5, p. 14].

On this basis, it is necessary to implement an anticipatory approach to the control of the bank's credit risk.

In the work of R.A. Rudensky stated that this type of management involves recognizing internal and external events, modeling their further development, and forming a set of warning reactions in order to make an optimal management decision. Since, in the conditions of the occurrence of unpredictable events, the probability of applying one forecast is quite low, the development of a set of forecasts or scenarios is of great importance, according to the scientist [3, p. 248].

Such English authors as James Morrison and William Ashley indicate that anticipatory management is a systematic process that involves the use of modern methods of information collection, new models of management decision-making, as well as methods of evaluating the obtained results [4].

Thus, anticipatory management should be understood as a purposeful activity that involves the early identification of potential threats to the external and internal environment based on weak signals and the formation of a multivariate scenario based on this, which reflects a set of probable ways of development of possible events and a set of alternative measures adequate to them, with the aim making the optimal management decision aimed at overcoming threats or using the opportunities of operating conditions.

The use of an anticipatory approach to the control and minimization of the bank's credit risk leads to significant advantages, because: in the dynamic environment of the operation of commercial banks, it increases the time resources of the subjects of credit risk control for making management decisions due to the occurrence of a significant time lag between the first signs of the manifestation of potential changes in the bank's risk positions of the phenomenon and its specific real impact; reduces the level of uncertainty of the banking institution's functioning conditions, as it is designed to identify and adequately process weak, vague informational signals of the occurrence of potential phenomena and predict the directions of their development; improves the information support of the credit risk management apparatus from the point of view of reducing the risk of incomplete coverage of data, etc.

For commercial banks, the ability to recognize any potential phenomena of the operating environment, which may lead to a change in the level of credit risk, in the early stages of their occurrence in order to further interpret them, determine their possible impact on the implementation of the bank's credit policy, is of particular importance. In this context, the application of the principle of anticipation is designed to solve these tasks, as it is aimed at anticipating all opportunities and threats that arise in the implementation of credit activities, on the basis of early identification, analysis and prediction of their likely development trajectories.

Anticipatory management does not replace any function of credit risk management, but only offers a new approach to management from the position of anticipating potential changes in the operating environment.

In view of the above, it is necessary to highlight the main characteristic features of the anticipatory approach to control and minimization of credit risk:

- preemptiveness – an approach aimed at anticipating any likely changes in the operating environment of a commercial bank, which potentially affect the level of credit risk, by means of the formation and implementation of appropriate early measures;

- systematicity – the application of the anticipatory approach is carried out on an ongoing basis in order to ensure a high level of response to changes in the level of credit risk in any period;
- focus - aimed at achieving the specific goals of a commercial bank, related to the maximum use of opportunities or overcoming potential threats and oriented to the optimization of the "risk-return" ratio - maximizing the return for a given level of credit risk or minimizing risk to ensure the desired level of return;
- functionality – performs specified functions (detective, warning, protective, predictive, responsive, observational, informational, etc.) for effective control and minimization of credit risk;
- complexity – involves the development of multiple options for the development of potential phenomena in order to ensure the maximum level of preparation of a commercial bank for each of them;
- openness – is in constant contact with external and internal environments to form channels of direct and feedback communication in order to receive informational signals;
- adaptability – quickly and painlessly adapts to changes in the functioning environment;
- adequacy – management measures should be formed in accordance with identified threats/opportunities and on the basis of formed forecasts.

Anticipatory management on the basis of weak signals as a process is implemented continuously and is a sequence of logically completed stages, the effective implementation of which ensures the achievement of the goals of anticipatory management, related to the effective anticipation of potential phenomena of the operating environment of JSC CB PrivatBank, which potentially affect the level of credit risk (Fig. 3.2).

Anticipatory management is carried out in the following stages:

1. A formalized representation of the management object and its

environment.

2. Recognizing situations (internal and external).
3. Identification of behavior patterns.
4. Formation of a set of anticipatory reactions.
5. Selection of an anticipatory management measure.
6. Implementation and control of decision implementation.

The functional basis of anticipatory management is the technology of its implementation, which ensures the logical sequence of the implementation of anticipatory management functions (planning, organization, motivation, control, regulation), and forms the basis for the development of management decisions of an anticipatory nature.

One of the basic tasks of anticipatory management is the identification of weak signals of the operating environment of JSC CB PrivatBank, that is, the identification of any initial threats, early signs of changing trends in the development of a certain phenomenon. To effectively perform this task in terms of an anticipatory approach to credit risk control, credit risk management entities must permanently carry out comprehensive monitoring of the operating environment for the purpose of searching for any early, initial signs or weak signals that could potentially lead to changes in risk positions, identify the most significant weak signals, adequately interpret them and predict the potential impact on the level credit risk, develop the necessary preventive measures to use opportunities or eliminate threats of changes in the level of credit risk. To ensure effective performance of this task, it is advisable to form a database of possible weak signals of potential changes in risk positions, as well as methods of predicting their further development to specific probable events regarding changes in the level of credit risk.

Weak signals of the operating environment are early, initial signs of future changes in operating conditions, which, on a probabilistic basis, report the possibility and sources of potential phenomena in the operating environment of PrivatBank CB JSC. It is advisable to form a list of basic weak signals within the internal and external environment of the bank's functioning, which can lead to changes in risk positions. The study of the external environment of the functioning of JSC CB PrivatBank in terms of possible influence on the level of credit risk covers a fairly wide range of its elements and, depending on the goals, can be directed to such priority factors as a change in the macroeconomic situation, a change in the situation on the money market and monetary policy of the National Bank of Ukraine, changes in the exchange rate of foreign currencies, changes in the demographic situation, etc. Commercial banks, when creating a list of basic weak signals within the internal environment, focus on the specifics of their strategic and tactical goals.

Since the anticipatory approach is designed to anticipate the onset of any change, it is appropriate to consider weak signals as basic information sources, which, although they contain vague data, are characterized by a large time lag between the first signs of their appearance and the specific impact of this or that phenomenon, which provides enough time for careful and balanced formation and adoption of a preventive management decision aimed at using opportunities or overcoming threats before they occur. This requires a correctly formed organizational structure, personnel support of the appropriate qualification level in order to carry out a detailed permanent analysis and identify weak signals, which will make it possible to distinguish random, episodic, unrelated changes from potential threats. On the basis of the above, it is possible to present the technological sequence of implementation of anticipatory planning of JSC CB PrivatBank.

Information provision of anticipatory planning should include the following: determination of the content and parameters of the necessary information; establishment of the optimal list of sources of obtaining given information on principles of mutual coordination of such characteristics as reliability, timeliness of the necessary data, the possibility of access to information sources and the level of financial capabilities for obtaining data; determination of the level of software and technical support for searching, organizing and processing the array of data; search and selection of necessary information from available sources; systematization, arrangement and processing of information in accordance with content requirements, as well as requirements of relevance and reliability; forming a data array and presenting it in the most optimal and convenient form.

In order to identify weak signals, it is advisable to use such methods as observation, induction, deduction, analysis, synthesis, analogy, formalization, axiomatic method, hypothetico-deductive method, expert method and the method of causal diagrams, probability theory, mathematical statistics, modeling, etc. .

The main issues of weak signal research are related to their detection and reception. Therefore, it is necessary to determine whether the detected signal is: a change in the situation, a significant symptom, which is related to the activity of JSC CB

PrivatBank in terms of carrying out credit operations, or only by random change or represents incomplete information about any event; how signals can be detected at the earliest stage, so that as much time as possible remains for the implementation of the necessary appropriate response; quantitative and qualitative assessment of the level of threats to the growth of credit risks.

Since quantitative models and methods of analyzing weak signals are primarily aimed at establishing regularities, formally confirming or refuting hypotheses, displaying weak signals of a possible change in the level of credit risk in the form of numerical arrays with the possibility of their further processing, it is advisable to use taxonomy methods for their evaluation.

Qualitative models and methods of analyzing weak signals are used, as a rule, at the stages of forming hypotheses, setting tasks, identifying potential events in the absence of analytical forms display of data and description of dependencies. Such methods and tools include brainstorming methods, scenario methods, and expert evaluation methods.

In order to obtain the most reliable and effective results, it is most appropriate to combine quantitative and qualitative methods of analysis in the process of recognizing weak signals of an increase in the level of credit risks of JSC CB PrivatBank.

The methodical approach to the evaluation and analysis of weak signals (threats) of an increase in the level of credit risks of JSC CB PrivatBank consists of three stages, which include: the formation of a base of weak signals of potential changes in the bank's risk positions; assessment of the level of threats to the growth of the bank's credit risks; forecast of possible growth of the bank's credit risks.

Each stage is a block, in the structure of which there is a list of actions performed depending on forecasts and vectors of the development of potential threats. The final block is a sequence of actions that forms a chain, which ends with an assessment of the level of realization of the credit risk of JSC CB PrivatBank.

The main operations of identifying weak signals of potential phenomena in the operating environment of JSC CB PrivatBank include the following: information support of the process of identifying weak signals of the operating environment; recognition and registration of specific weak signals of possible events based on the implementation of intuitive, logical, calculation operations, etc. for a certain period of time; formation of a combined set of weak signals of potential phenomena in the appropriate direction.

Traditionally, all signals about the occurrence of potential phenomena in the environment of JSC CB PrivatBank are divided into three groups according to the level of strength: weak, medium and strong signals (Table 3.1).

Weak signals contain information only about the possibility of potential changes in operating conditions and the source of their occurrence, and therefore require further processing and interpretation. That is, anticipatory management specialists must independently interpret the future the development of weak signals to medium and strong, without waiting for their own organic development, in order to anticipate the events that will be identified by the corresponding weak signals.

Table 3.1

Characterization of the signals of potential phenomena of the operating environment of JSC CB PrivatBank by level of strength

Identified signal characteristics	Signal strength		
	Weak	Average	Strong
The possibility of potential environmental changes is known functioning	Yes	Yes	Yes
The source of the occurrence of potential phenomena has been identified functioning environment	Yes	Yes	Yes

Specific characteristics of potential phenomena, directions are defined influence (positive, negative), spheres of influence	No	Yes	Yes
Possible managerial decisions regarding the use of opportunities or the elimination of threats to operating conditions are known	No	Yes	Yes
The impact of the identified opportunities and threats on the organization's activities is determined, taking into account possible managerial ones reactions	No	No	Yes

From the standpoint of the theory of probability, the identified possibility or threat of a change in the bank's credit risk level based on a weak signal is a random event, that is, an event that may or may not occur under given conditions. At the same time, there is a probability ($0 \leq p \leq 1$) that it will occur under the given conditions. Accordingly, if you choose a certain indicator that reflects the impact of a potential event on changes in the level of credit risks, then its value in this context is a random value, that is, a value that, as a result of tests, can take certain values (from the set of its values) with a certain level of probability .

Within the scope of the scenario analysis, a combination of detected weak signals (threats) is carried out and, on this basis, scenarios of their impact on the possibility of changing the level of the bank's credit risk are formed.

Such scenarios reveal several probable trajectories of the development of a weak signal to the corresponding potential phenomena and a list of adequate measures to prevent the impact of the identified factors.

It is advisable to evaluate weak signals on the basis of taxonomic analysis. The first step is the formation of a matrix of characteristics (signs) of multidimensional observation units. The next stage is the standardization of matrix element values. The next step in diagnosing the degree of realization of a weak signal is the division of signs into stimulators (the increase of which can have a positive effect on the level of credit risk) and destimulators (a negative effect on the level of credit risk). To determine the integrated taxonomic indicator of the realization of a weak signal, the distance between individual observations and the standard vector is determined. A taxonomic indicator is calculated based on the obtained values of the distances between individual observations. In turn, depending on the degree of implementation of a weak signal, which is determined on the basis of the calculation of the taxonomic indicator, the following types of scenarios of influence on the possibility of changing the credit risk level of JSC CB PrivatBank can be distinguished:

- pessimistic – the value of the taxonomic indicator is in the range of 0-0.5;
- basic – the value of the taxonomic indicator is at point 0.5;
- optimistic - the value of the taxonomic indicator is in the range of 0.5-1.

According to each defined scenario, it is expedient to form a set of measures that will limit the impact of threats of an increase in the level of credit risk of JSC CB PrivatBank.

Thus, in the anticipatory scenario, a complete information base is laid for the formation of anticipatory management decisions in the system of control and minimization of credit risk.

Based on the application of the expert method, anticipatory management decisions in the system of control and minimization of credit risk in accordance with external signals based on pessimistic, basic and optimistic scenarios are considered in the table 3.2.

Table 3.2

Anticipatory management decisions in the credit risk control and minimization system of JSC CB PrivatBank depending on external signals

An optimistic scenario	Basic scenario	Pessimistic scenario
Changes in the situation on the money market and monetary policy of the National Bank of Ukraine		
- uniform diversificationloan portfolio by terms; - decrease in the weighted average1.5 times the interest rate on loans.	- uniform diversificationloan portfolio by terms; - increase1.5 times the weighted average interest rate on loans.	- diversification of the loan portfolio by terms (increasing the specific weight of short-term loans); - increasing the weighted averageinterest rate for loans in 2 times.
Change in the demographic situation at the macroeconomic level		
- reduction of the credit limit for long-term loans by 15%.	- insurance of the bank's credit portfolio; - credit increase limit for long-term loans by 33%	- insurance of the bank's credit portfolio; - credit increase limit for long-term loans by 66%.
Change in the exchange rate of foreign currencies		

- balanced concentrationloan portfolio by currency; - reduction of the credit limit for lending in foreign currency by 15%; - reservation of the bank's loan portfolio.	- uniform diversificationloan portfolio by currencies; - increase of the credit limit for lending in foreign currency by 33%; - reservation of the bank's loan portfolio.	- diversification of the credit portfolio by currency with a decrease in dollars. USA; - increase of the credit limit for lending in foreign currency by 66%; - reservation of the bank's loan portfolio.
Change in the demographic situation at the macroeconomic level		
- diversification of the credit portfolio by subjects; - balanced concentration credit portfolio by territory.	- diversification of the credit portfolio by subjects; - introduction of credit limit portfolio by type of credit transactions.	diversification of the credit portfolio by subjects; - entering the limit loan portfolio by type of loan operations.
- reduction of the credit portfolio limit by type of credit operations by 15%; - reduction of the credit limit by categories of borrowers or groups of related persons by 15%.	- increase of the credit limit by categories of borrowers or groups of related persons by 33%; - diversification of the credit portfolio by territory.	- diversification of the credit portfolio by territory; - increase of the credit limit by categories of borrowers or groups of related persons by 66%.
- balanced concentration loan portfolio by interest rate.	- credit diversification portfolio at the interest rate.	- credit diversification portfolio at the interest rate.

Therefore, under various development scenarios, in case of certain identified weak signals due to factors of the external environment, JSC CB PrivatBank will create a set of measures to eliminate or localize them.

To estimate the expected credit losses of PrivatBank JSC on a portfolio basis, historical data (regarding default events, losses in case of default, etc.) of groups of loans with similar characteristics are used, taking into account forecast macroeconomic indicators (average salary, current account balance, exchange rate, the price of fuel, the price of major export commodities (for example, wheat), gross domestic product, and other indicators) using probability-weighted scenarios - basic, optimistic and pessimistic. JSC CB PrivatBank forecasts economic indicators for two years (Table 3.3) [8].

Table 3.3

Information on key macro-indicators of JSC CB PrivatBank in the context of weighted scenarios [8]

Key macro indicators	Scenarios	Assigned weights (%)	2021 year	2022 year
1	2	3	4	5
Average monthly dynamicssalaries, %	Basic scenario	50	3.40%	11.91%
	An optimistic scenario	10	6.66%	14.19%
	Pessimistic scenario	40	1.48%	9.95%
Currentaccount, million dollars USA	Basic scenario	50	(180)	(650)
	An optimistic scenario	10	67	(492)
	Pessimistic scenario	40	(338)	(808)
Exchange rate, hryvnia for 1 dollar	Basic scenario	50	29	29
	An optimistic scenario	10	28	28
	Pessimistic scenario	40	39	41
Gasoline A95, UAH for 1 liter	Basic scenario	50	27	27
	An optimistic scenario	10	25	25
	Pessimistic scenario	40	33	34
Gross internalproduct (GDP), %	Basic scenario	50	5	4
	An optimistic scenario	10	6	5
	Pessimistic scenario	40	(2)	(3)
Wheat price, USD US for 1 bushel	Basic scenario	50	593	526
	An optimistic scenario	10	756	671
	Pessimistic scenario	40	429	381

In the table 3.3, the impact of the application of several scenarios on the amount of expected credit losses on the main segment of the credit portfolio of JSC CB PrivatBank is presented [8].

Table 3.4

The impact of the application of several scenarios on the amount of expected credit losses of JSC CB PrivatBank [8]

Stage of assessment of expected credit losses	Several scenarios are affected	Impact of the base scenario	Effect applicationseveral scenarios
With an estimate of expected credit losses within 12 months	905	801	104
With the assessment of credit losses in within the term of the loan	174	160	14
Impaired loans	2176	2140	36
In total	3254	3100	154

The effect of the application of several economic scenarios on the amount of expected credit losses is defined as a comparison of the amount of expected credit losses resulting from the application of 100% weighting to the base scenario for each stage with the amount of expected credit losses in the case of the application of several weighted scenarios as of December 31, 2020 [8]. JSC CB PrivatBank regularly validates and analyzes macro indicators in terms of their impact on expected credit losses and changes their list and scenario weights if necessary. In 2020, due to the impact of the COVID-19 pandemic, JSC CB PrivatBank revised the approaches to assessing possible credit losses and the amount of required reserves.

The choice of a specific response measure should be carried out according to a number of criteria (resource capabilities, priority and timing of the implementation of measures, the level of their effectiveness, reach, compatibility with the general goals of the bank). For the formation of a complex system for detecting weak signals, it is important to establish the work of anticipatory management in two perspectives: methodological - it involves a clear definition of time limits for decision-making, as well as the formation of a system of methods for collecting and analyzing information in internal and external environments regarding detection of weak signals; organizational - is based on the formation of an appropriate structure that will allow optimizing the process of transmitting information about weak signals from the environment to the employee for the purpose of their further processing [6, p. 41].

Since anticipatory management is characterized by specific features of its implementation, which are related to the uniqueness and atypicality of each process of investigating weak signals, important tasks are the rational and correct selection of employees who will be able to effectively implement anticipatory operations, periodic improvement of their competence level, adequate stimulation of these specialists to productive activities, proper verification of the results of the work performed, etc.

The level of personnel support (that is, the level of qualifications, knowledge, skills and intuitive abilities, experience of employees in the field of early diagnosis of potential phenomena) determines the possibility of adequate selection of the necessary data, the efficiency of their acquisition, speed and quality of processing.

Due to the fact that anticipatory management in general and the principle of anticipation before the implementation of control and minimization of credit risk is only at the stage of formation in domestic practice and does not have proper organizational and methodical support, the functions of anticipatory management should be assigned to existing officials within the organizational structure of credit risk management .

Large commercial banks need to introduce the position of an anticipatory manager, or create an anticipatory committee within the organizational structure of management.

The task of employees who are involved in the implementation of the anticipatory approach is to exercise such managerial influence that, taking into account the timely detection of signals about possible changes in risk positions, to ensure the optimization of the "risk-return" ratio - maximizing the return for a given level of credit risk or minimizing the risk to ensure the desired level of profitability. With the use of an antisipative approach to the implementation of control and minimization of credit risk JSC CB PrivatBank has the opportunity to take adequate measures before the threatening problem of a possible increase in the level of credit risk becomes acute, as well as to create potential in advance for realizing the opportunities that are opening up [7, p. 11].

So, the concept of an anticipatory approach to monitoring and minimizing the bank's credit risk is based on recognizing and properly processing weak signals of potential changes in risk positions, as well as predicting their further development to specific probable events regarding changes in the level of credit risk.

3.2. Increasing the efficiency of the implementation of the credit policy of JSC CB PrivatBank

The process of improving the credit policy of JSC CB PrivatBank requires the implementation of information and analytical work, the results of which are a necessary condition for the implementation of monitoring, level assessment and analysis of factors affecting the level of financial and economic security of the bank.

The functioning of the information and analytical support system is mandatory for the correct and operational assessment of the level of financial and economic security of JSC CB PrivatBank, forecasting of possible internal and external threats, compliance with the sufficiency of financial resources for the timely fulfillment of obligations [15, p. 7].

Information and analytical provision of control and minimization of credit risks in the conditions of the COVID-19 pandemic is one of the subsystems of the information and analytical system of bank management, which is formed to support management decisions regarding the feasibility of carrying out a separate credit operation, taking into account its impact on the financial and economic security of CB JSC " PrivatBank". Accordingly, information and analytical provision of control and minimization of credit risks, combining information support - activities related to the collection, storage, processing, presentation and protection of necessary information (classifiers, documents, information arrays, databases, etc.) and analytical support - forms and methods of analysis, systematization and classification of this information, analysis and processing of information, formation of conclusions, proposals, recommendations and forecasts, must satisfy the following needs of PrivatBank JSC:

- objective assessment of the borrower's creditworthiness and factors that may have a negative impact on it;
- timely identification of threats to the bank's financial and economic security with a decrease in the borrower's creditworthiness;
- formation justified judgment the bank of expediencyimplementation and terms of the credit transaction;
- documentation by the bank of its own experience in this area.

The information process is organized in accordance with the requirements of Art. 34 of the Constitution of Ukraine [11], the Law of Ukraine "On Banks and Banking Activity" [12], the Law of Ukraine "On Information" [13] and the Law of Ukraine "On Access to Public Information" [14]. The formation of information used by JSC CB PrivatBank takes place both in the bank's institution and outside its borders - such information is formed by regulatory bodies, the National Bank of Ukraine, bank counterparties, rating and analytical agencies, etc.

After the preliminary collection of information, its expertise is carried out, which is carried out in the following forms: logical verification of data received from the borrower and other sources of information; holding a conversation with the borrower by the relevant credit manager of JSC CB PrivatBank; a visit to the borrower by the relevant credit manager of the bank to check the actual situation; assignment to an auditing firm to check financial documents and reports provided by the client, etc.

At the next stage, data processing is carried out, which involves: systematization of facts, which are sorted according to the degree of their relevance to the characteristics of the borrower's creditworthiness and factors affecting it affect; identification of key points based on the criteria for evaluating the borrower's creditworthiness; building hypotheses that explain the main facts; obtaining (if necessary) additional data; drawing up conclusions and checking them for compliance with other facts [15, p. 14].

Since the process of assessing the borrower's creditworthiness uses information about the activity and financial condition of the client, which in accordance with Art. 60 of the Law of Ukraine "On Banks and Banking Activity" [12] is a banking secret, therefore the relevant information security includes information protection, which involves preventing access to information by third parties (unauthorized, illegal access) and unintentional or unauthorized use, alteration or destruction of information.

In order to create a rational flow of information in order to control and minimize credit risks, JSC CB PrivatBank must rely on the following principles: reliability of information - information must reflect real processes and indicators that take place in the bank and the external environment; completeness of information - to obtain reliable conclusions, it is necessary that the information is complete, not partial; comparability of information - information from different sources regarding the same process or phenomenon must be identical; efficiency of obtaining information - information has value only if it is relevant; information efficiency – information and analytical processing of information must be appropriate, that is, the effect of such processing must exceed the costs of its implementation; convenience of information - information should be presented in a user-friendly form; expediency of information - information should be useful, i.e. necessary for performing analytical calculations and not overload [15, p. 16].

Analytical support for control and minimization of credit risks includes forms and methods of analysis, systematization and classification of information that make it possible to identify factors influencing the borrower's creditworthiness, analyze and process such information, form conclusions and forecasts based on assessments of the possible negative impact on the borrower's creditworthiness.

The borrower operates in a certain environment that can positively or negatively affect his creditworthiness. The unstable economic situation in Ukraine has a negative impact on the ability to receive a loan, to repay it in a timely manner and in full in accordance with the terms of the loan agreement. Therefore, there is a need to analyze and evaluate the factors affecting the borrower's creditworthiness.

The most common approaches to the analysis of the factors of the external environment of entrepreneurial activity today are:

- PEST analysis, which involves evaluating the business environment according to political, economic, social and technological factors;
- SLEPT-analysis, according to which the evaluation is carried out according to social, legal, economic, political and technological factors;
- STEEPLE-analysis, in which the environment is evaluated according to socio-cultural, innovative-technological, economic, educational, political, legal and environmental factors [15, p. 18].

The creditworthiness of a borrower-legal entity is significantly influenced by factors of the internal environment, among which the following groups of factors can be distinguished: financial; production; personnel; marketing; organizational

The identification and assessment of environmental factors of an individual borrower-legal entity, which negatively affect its creditworthiness, can be carried out by the method of expert assessments in the following sequence.

The qualitative indicators of the borrower's creditworthiness are assessed on a 10-point scale. For each indicator, qualitative criteria corresponding to the highest level of the borrower's creditworthiness are determined - an assessment of 10 points, the lowest level of the borrower's creditworthiness - 0 points, intermediate levels - an assessment in the interval [1; 9].

The threat of a decrease in the borrower's creditworthiness must be determined for all investigated enterprises, which makes it possible to more objectively and accurately assess the level of the borrower's creditworthiness and identify key threats to the financial and economic security of JSC CB PrivatBank.

3.3. Improvement of information and analytical support for the control and minimization of credit risks of JSC CB PrivatBank

A feature of the development of the banking sector is the intensive implementation of credit risk. The scale of the specified problem indicates that credit risk has acquired the characteristics of a systemic problem of the banking sector, which requires the development of credit risk minimization tools at the macroeconomic level.

At the macro level, control and minimization of banks' credit risk has two approaches: proactive and reactive (Fig. 3.5). The proactive approach of controlling and minimizing the credit risk of banks is manifested in the fact that the main aspects of regulation are legislative norms. First of all, we are talking about setting standards as mandatory restrictions on certain banking operations, by developing calculation coefficients at the level of the country's banking sector. Other aspects of credit risk regulation at the macro level are the regulator's development of legislation on problem debt settlement, i.e. a kind of "liquidation of consequences". This, as a rule, leads to the fact that a commercial bank, as a subject of credit risk management, acts in accordance with the development of the situation and does not have the opportunity to anticipate it. From this point of view, the reactive nature of bank credit risk control and minimization is more effective.

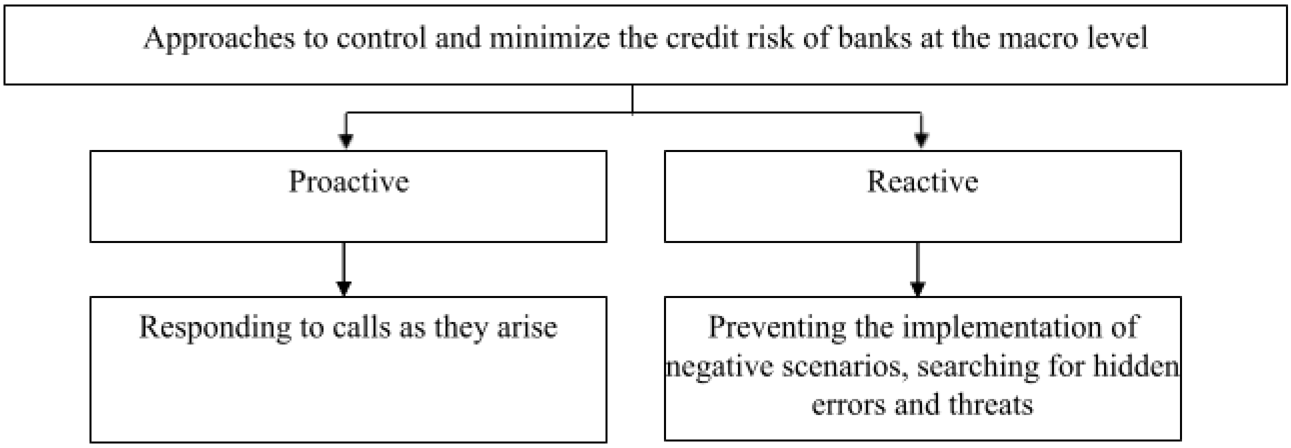

Fig. 3.5. Approaches to control and minimize the credit risk of banks at the macro level

A reactive approach to control and minimize the credit risk of banks can be ensured by forming a single information and analytical support for control and minimization of the credit risk of banks.

In Ukraine, the market of financial and information services is represented by a limited number of participants who are private institutions (credit bureaus, credit rating, consulting agencies) and are not responsible for the reliability of the information provided. As European experience shows, the key role in liberalization and increasing the level of openness of financial information is played by the state with the active support of banks, since they are the ones who need implemented measures to minimize credit risks.

A key role in this should be played by the Financial Information Center (FIC) as a subject of the system of collection, processing, storage and analysis of information about borrowers. It is not necessary to reject the possibility of regulatory and legal support of the National Bank of Ukraine during its creation.

State financial information agencies operate in France (the FIBEN database of enterprises operating on the basis of the Central Bank of France) and Germany (the BAKIS and BISTA databases on the basis of the Central Bank of Germany), and their main function is to collect statistical information and make decisions about minimization of the consequences of negative phenomena in the economy [9, p. 9].

The experience of the Bank of France attests to the high effectiveness and efficiency of the decision to create a state database of financial information FIBEN, which ensures the collection of financial information from a significant number of legal entities and individuals throughout the country, its further analysis and the provision of information services to commercial banks based on the collected information. In this case, in the person of the Bank of France, the state guarantees the reliability and quality of the information. An indisputable advantage for commercial banks is the ability to obtain all the necessary information about a potential borrower by contacting one institution.

In addition to the main function - providing reliable information about potential borrowers in order to reduce the credit risk of banks, FIBEN performs other functions as well. In particular, the purpose and task of the system database is to provide assistance to banks in finding prospective clients, which allows expanding the client base. Also, banking institutions have the opportunity to receive information about the growth prospects of a certain industry in one or another region, as well as a list of companies working in this industry. Such information allows banks to diversify their loan portfolio and increase interest in investments in the industry that is currently the most attractive for investment.

Foreign experience shows that credit history bureaus closely cooperate with audit firms, courts, and various state databases. However, domestic credit bureaus have limited access to state databases, which complicates the procedure for collecting information, as well as limits its completeness. This, in turn, indicates the insufficiency of the completeness of the information base possessed by credit history bureaus.

The French model provides for the mandatory accumulation of credit histories in the country's central bank, and credit bureaus function as its structural subdivisions. In many European countries, as well as in Japan, credit bureaus are created in the form of private companies belonging to a consortium of creditors [10,

p. 65].

The credit market is characterized by the so-called information asymmetry, when the creditor does not have sufficient and adequate information about the potential borrower, and the borrower does not voluntarily disclose the history of his previous experience with credit obligations.

The creation of the Financial Information Center will help reduce information asymmetry, increase competition between banks (and therefore improve the quality of banking services) with the aim of lending to reliable borrowers, and will also provide an opportunity to offer credit services to new clients.

The more information the Financial Information Center consolidates, the larger its analytical base will be, the more accurate and complete the calculations of credit ratings will be, this will help commercial banks to accept appropriate decisions on granting loans (avoid excessive concentration, carry out balanced diversification) and reduce the likelihood of credit risk.

Financial and information center", and internally - between the bank's divisions.

At the external level, the following connections are highlighted: the Financial Information Center with the borrower company and the State Fiscal Service: the company's provision of reports on indicators of current financial and economic activity (1); commercial banks and credit bureaus regarding the bank's provision of information on the client's credit history (2); The financial and information center with the credit bureau regarding the exchange of information about the client's credit history (3); Financial and information center with the bank: making requests by the bank for information on indicators of financial and economic activity of potential or real borrowers, their credit history (4), exchange of information between the Financial and information center and the bank (5). Here, the bank can provide information about the client's credit history directly to the Financial Information Center without the involvement of credit bureaus. The bank receives an assessment of the results of the activity of this or that company, the credit history of the individual borrower; the client and the bank: consideration of the loan application by the bank, subsequent issuance of a loan or refusal of credit (6); the borrower and the bank: interaction in the process of reviewing the loan application, as well as in the process of current loan servicing (7) and, in case of occurrence, working with overdue debts managed by the credit unit for the implementation of credit risk control (8), in cooperation with the unit for working with problem debts (9). At the intra-bank level, the interaction of the credit unit with other bank units that participate in the organization of the bank lending process is considered, namely: the risk management unit, the legal unit, the bank's security service and other bank units that participate in the credit process (10); interaction of the specified structural units with the unit dealing with problem debt (11).

The interaction of these divisions is manifested as follows: employees of the credit division search for potential customers, receive from them the information necessary for analyzing the borrower's creditworthiness (credit application, credit history, indicators of financial and economic activity, etc.); other divisions, based on data received from the bank's credit division, form a conclusion within their competence (conclusions of the legal service, economic security service, risk management); employees of the credit department, when making a decision to grant a loan, prepare the necessary package of documents for the formation of a complete credit case and ensure the conclusion of a credit and all necessary additional contracts with the borrower, in the event of a negative result - they send the client a refusal or offer the opportunity to re-apply to the bank for consideration of a new, adjusted application for issuing a loan; Employees of the credit division carry out permanent control of credit risk, monitoring the quality of loans issued, compliance with debt repayment discipline, monitor any changes in the borrower's financial and economic, production and economic activities, taking into account publications in the mass media, the opinions of partners, competitors and others counterparties of the borrower, his reputation, etc., interacting with each other and, if necessary, with unit for work with problem debt.

In Ukraine, there is a single information system - the Credit Register of the National Bank of Ukraine, the main purpose of which is to monitor the concentration of credit risk, including strengthening the monitoring of large business groups, in particular those related to the owners of banks, as well as reducing the share of problem loans [17] .

However, the activity of the Financial Information Center should be aimed at collecting, processing, storing and analyzing integrated information about the results of the financial and economic activity of economic entities based on the financial statements of enterprises and their credit history, which for commercial banks when assessing the borrower's creditworthiness will provide reliable incoming financial information. The financial and information center will carry out its activities on a commercial basis. Mandatory application to the Financial Information Center should be ensured at the legislative and regulatory level and, in turn, will ensure in-depth analysis in the format of Big Data, Data Mining.

In foreign practice, the mandatory nature of commercial banks' cooperation with credit history bureaus is regulated by central bank regulations, non-compliance with which will directly affect the bank's capital adequacy standards.

The main tasks of the Financial and Information Center are the formation of an integrated database of financial reporting of enterprises, quality control of the provision of financial information by business entities about the results of their activities, the formation of a database of borrowers' credit histories and ensuring unhindered access to this information by entities of the credit market.

The Financial Information Center receives credit histories directly from banks and the system of specialized credit bureaus that exist in Ukraine.

The scheme of work of the bureau of credit histories is as follows: creditors supply the bureau with data about their customers; the bureau compares them with information obtained from other sources (courts, state registration and tax authorities), and forms a file for each borrower; credit bureaus provide reports on credit transactions depending on the availability of information about the potential borrower, the type of loan and, most importantly, the degree of detail required by the lender.

The credit bureau provides various types of reports on credit transactions depending on the availability of information about the potential borrower: blank credit report; basic credit report; standard credit report; extended credit report. Credit reports include: positive and negative information characterizing the payment behavior of the credit history subject; aggregate (accumulated) information on individual loans, according to their types; information regarding various positions of the subject, for example: borrower, joint borrower, and guarantor; detailed information on individual types of credit at different stages of the "cycle": application submission, contract validity, contract termination, as well as withdrawal, payment, refusal; information on security instruments for each loan.

The simplest report contains information about past unpaid and overdue loans - so-called "black" or "negative" data. The most detailed reports - "white" ("white") or "positive" ("positive") contain the entire set of information about the borrower's assets and liabilities, guarantees, debt structure by terms and repayment time, his employment and his family's credit history.

Commercial banks can obtain this information by contacting credit bureaus directly. However, today there is a problem of conflict of interests in the activity of credit bureaus. It consists in the fact that at this stage credit history bureaus operate separately, without a common database, that is, there is no exchange of information between them, and small private credit history bureaus, created at the initiative of commercial banks, serve the interests of their owners only.

In this case, the information and analytical support for the activity of the Financial and Information Center should contain and combine into a single whole: sources of information; units for collection, registration, processing, analysis, transformation, transmission and storage of information; information and analytical system control unit; block of users.

That is, the process of information provision involves the following operations: collection of information from various sources and its registration; data processing and analysis; transformation and transmission of information; information storage (database). The execution of operations in the specified sequence determines the movement of information flows.

The database is formed on the basis of information from enterprises, commercial banks, credit bureaus and other sources. The collected information is of a diverse nature: descriptive, in particular, includes the name, legal status, type of activity code, address of the location of the legal persons, information about managers, associated persons, about participation in the capital, etc.; accounting and financial (financial reporting data); legal (information about decisions of commercial or civil courts).

The information collected by the Financial Information Center must be confidential and cannot be used for non-targeted purposes or disclosed. The information subjected to the final expert assessment is provided to commercial banks in the form of recommendations, instructional and methodical material, providing support for making management decisions on granting credit and assessing the borrower's creditworthiness.

Possessing a significant amount of information, the Financial Information Center can also provide additional services to credit institutions, in particular, such as the assignment of scoring and ratings, because it will have a large amount of information at its disposal and the ability to create unbiased assessments for all possible scenarios, it does not have any - what is the interest, apart from the formation of a reliable assessment of credit risk. This will provide a solution to the outlined problem of the lack of objective quantitative standards for comparison, caused by the spread of indicator values for enterprises of different branches, since the desired values of financial coefficients (financial stability, liquidity, etc.) given in the economic literature do not take into account the sectoral features and specifics of the enterprises' activities. Also, this service is relevant for small banks that do not have their own analytical resources for developing models, or that are just starting to engage in retail business.

The more information the Financial Information Center accumulates, the more complete the credit histories will be, the broader the analytical base and the range of services, and therefore it will help commercial banks make more balanced decisions regarding lending and help minimize credit risk.

Databases of credit bureaus are scattered and in most cases contain only negative information, which does not allow to accurately determine the complete list of unreliable borrowers, and also slows down the search process existing reliable customers with a positive credit history, the granting of loans to which will contribute to the recovery of lending to the real sector of the economy. And this, in turn, will serve to strengthen economic growth and stimulate business activity.

Increasing the level of reliability of information is carried out at the expense of reducing its confidentiality. The level of reliability and confidentiality of information are inversely proportional. However, with proper legislative and regulatory support, the reputation of the Financial Information Center will not cause mistrust among clients, and sources of replenishment of the information base will be official and transparent. The financial and information center will improve the financial discipline of market participants, strengthen competition and contribute to the improvement of the quality of services.

Thus, the creation of a unified system of financial information exchange between credit market participants will contribute to increasing the transparency of the lending process and minimizing the credit risk of banks by obtaining detailed information about potential and existing borrowers, assessing possible financial risks in lending, and reducing the risks of fraud and abuse.

CONCLUSIONS

On the basis of the conducted research, the following conclusions can be drawn:

In the first chapter, the economic meaning of the concept of "credit policy" was considered, the economic essence of credit risk, the management of which is the basis of the effective functioning of banking institutions, was studied, the basic principles of the mechanism of formation and implementation of the credit policy of a banking institution were characterized, and the practical aspects of its implementation were analyzed. Based on this, the following conclusions can be drawn:

1. The necessity of forming a reasonable and effective credit policy by every commercial bank under modern economic conditions is connected, first of all, with the importance of intensifying the positive influence of credit relations on the volume and structure of the money supply in the country and, as a result, on the stability of the monetary unit, and secondly, with ensuring the need for additional sources of financing for extended reproduction.

The definition of the economic essence of the bank's credit policy in the most general sense is formulated as a component of banking policy that determines the goals of activity in the credit services market and strategies for achieving them, and in a practical and applied sense, we propose to define the credit policy of a banking institution as the structural and functional integrity of interconnected are elements (goals, tasks, principles, technology, organization), the interaction of which allows to determine the most effective strategies of the bank's activity in the market of credit services.

2. It is noted that solving theoretical and practical issues of bank credit risk management requires improvement of scientific approaches to individual credit risk management and bank credit portfolio risk management. The need to justify these definitions is related to the need to distinguish various instruments in credit risk management at the specified levels. Individual credit risk is considered from the point of view of the goal of its management - as the probability of the borrower not

fulfilling his obligations under the credit transaction, i.e. the possibility that loan payments due to the influence of external and internal factors will be made with a deviation from the terms of the credit agreement. Credit portfolio risk is defined as the probability of an unplanned violation of the structure of credit investments, which can cause a lack of income and a decrease in the bank's capital due to ineffective implementation of the credit policy and violation of the terms of the credit agreement by several borrowers at the same time. Credit portfolio risk management is aimed at maintaining the balance of the bank's credit portfolio and minimizing possible losses from its implementation. Credit risk management should be organized as a permanent cyclical process, in which each of the stages is inextricably linked with others both functionally and organizationally. Each of the stages performs certain tasks and functions, collectively forming the credit risk management methodology.

3. It is substantiated that the mechanism of formation of the bank's credit policy involves the interaction of a number of interrelated elements, in particular: target orientations of the bank's credit activity; principles of credit policy formation; factors determining the bank's credit policy (macroeconomic, microeconomic and factors related to the activities of the bank's borrowers); quantitative and qualitative characteristics of credit activity. It is proposed to distinguish two components in the structure of the mechanism of effective implementation of credit policy: the mechanism of financial support of credit policy, the main elements of which are the sources and methods of formation of credit resources, and the mechanism of bank lending, which is implemented with the help of tools for the implementation of the credit process. It was determined that the main method of financial support for the mechanism of implementing the credit policy of domestic banks at the current stage of economic development should be the diversification of the bank's credit potential by attracting new customers.

In the second section, an analysis of the structure and dynamics of the loan portfolio was carried out in the context of forecasting the occurrence of credit risks of JSC CB PrivatBank; the risk assessment of the credit portfolio of JSC CB PrivatBank and the calculation of the integral indicator of the credit risk of the banking institution were carried out. Based on this, the following conclusions can be drawn:

1. Joint-stock company commercial bank PrivatBank is a state bank. JSC CB PrivatBank and its subsidiaries and associated companies are a universal bank with a focus on the retail segment, actively promoting services for small and medium-sized businesses and selectively working in the corporate sector.

The purpose of JSC CB PrivatBank is to conduct banking activities aimed at obtaining profit for its own development and in the interests of the owner. The banking services of JSC CB PrivatBank include: attraction of funds and bank metals from an unlimited range of legal entities and individuals into deposits (deposits); opening and maintaining current (correspondent) accounts of clients, including bank metals, and escrow accounts; placement of funds and bank metals involved in deposits (deposits), including current accounts, on one's own behalf, on one's own terms and at one's own risk. The main challenges of 2021-2022 are related to the further restructuring of the bank's activities and adaptation to new conditions caused by the change in the macro environment and the further impact of the coronavirus. For JSC CB PrivatBank this means the search for new development opportunities in digital channels, new ways of interaction with clients, optimization of internal processes and costs.

2. The process of risk assessment of the credit portfolio of JSC CB PrivatBank is proposed to be carried out in three stages. In order to assess the risk of the bank's credit portfolio at the first stage, it is recommended to use certain indicators of the level of credit risk - indicators that are theoretically or empirically related to the occurrence of credit risk.

3. Determining the priority of providing loan funds to subjects of credit relations is one of the main tasks of the bank's credit activity, which is of significant importance for the formation of both its financial result and the further development of society, in which banks play the role of an accelerator of the renewal of the production process. The credit strategy of JSC CB PrivatBank, which is based on the management of the main parameters of the bank's credit portfolio - its profitability

and risk, is a necessary component of the latest development of the banking system and society, which will allow banks to improve credit relations, taking into account their own interests and the interests of clients as much as possible. The management of the bank's credit portfolio should be based on a qualitative portfolio risk assessment system. It is proposed to introduce a credit risk assessment model of JSC CB PrivatBank based on the definition of an integral indicator.

The third section offers methodical approaches and practical recommendations for improving control procedures and ways to minimize credit risk of JSC CB PrivatBank. Based on this, the following conclusions can be drawn:

1. The need to use an anticipatory approach to control and minimize the credit risk of JSC CB PrivatBank is substantiated, the concept of which is to prevent the occurrence of significant deviations of the actual level of credit risk from established norms based on early recognition of threats and the development of anticipatory reactions to negative changes. The anticipatory approach to control and minimization of the bank's credit risk is based on the identification and assessment of basic weak signals within the internal and external environment of the bank's functioning, which may lead to changes in risk positions. A methodical approach to the assessment and analysis of weak signals (threats) using an anticipatory approach to control and minimization of credit risk involves the following stages: formation of a base of weak signals of potential changes in risk positions; assessment of the level of threats of growth in the level of credit risks; a forecast of the possibility of an increase in the level of credit risks. Within the framework of the scenario analysis, a combination of detected weak signals (threats) is carried out and, on this basis, scenarios of their impact on the possibility of changing the level of the bank's credit risk are formed. The created scenarios (optimistic, basic, pessimistic) reveal probable trajectories of the development of a weak signal to the corresponding potential phenomena and contain a list of adequate measures to anticipate the possible growth of the credit risk of JSC CB PrivatBank.

2. The main directions for improving the effectiveness of the credit policy implementation of JSC CB PrivatBank were determined, and attention was focused

on the need for a detailed assessment of borrowers' creditworthiness and its impact on the level of financial and economic security of JSC CB PrivatBank.

3. The level of the bank's credit risk directly depends on the assessment of the creditworthiness of each individual borrower, and therefore its minimization depends on an effective system of collecting, processing, storing and analyzing information about borrowers in the conditions of constantly growing information needs and market conditions. The proposed methodical regulations regarding the formation of the information support system for control and minimization of banks' credit risk at the macro level, in particular in terms of subjects of the information support system, take into account their interaction schemes, parameters that characterize information support.

REFERENCES

1. Zakharkin, O., Zakharkina, L., & Antoniuk, N. (2017). A comparative analysis of stock market volatility depending on investment time horizon. Economic Annals-XXI, 167(9-10), 49-52.

2. Kushnir SO, Batrakova TI, Basenko, KO The activation of regulatory

policy towards the development of social investment: Polissya Scientific Bulletin. Chernihiv: ChNTU, 2017. No. 1 (9). Ch. 1. 251 p. WITH. 197-202.

3. Irshak O.S., Leshchuk I.Ya. The current state of credit activity of banks and its influence on the development of the real sector of the economy. Black Sea economic studio 2018. Issue 34. S. 145 – 149. URL:http://nbuv.gov.ua/UJRN/bses_2018_34_32 (date of application: 13.10.2024).

4. Yaremenko V. A., Chalapko (Kalnyk) L. D., Babukhin D. AND. Credit as a necessary economic tool. Scientific bulletin of NLTU of Ukraine. The series is economical. 2017. Issue 27(2). P. 90-93.

5. Savluk M. I. Banks and economy. Crisis of the banking system: causes and a way out: scientific and practical materials. conf. URL:http://aub.org.ua/index.php?option=com_content&task=view&id=67&Itemid=258 (date of application: 15.09.2024).

6. Semenog A. Yu. Interaction of the banking and real sectors of the economy of Ukraine: main trends. Finance, accounting, banks. 2010. No. 1(16). P. 181 - 188.

7. Shiyan D. Bank lending and economic dynamics. Banking. 2009. No. 1. P. 27-38.

8. Deminskii S. How P2P lending was transformed in Ukraine. 2016. URL:http://news.finance.ua/ua/news/-/371527/sergij-deminskyjyaktransformuvalosya-r2r-kredytuvannya-v-ukrayini(date of application: 15.09.2024).

9. On banks and banking activity: Law of Ukraine dated 07.12.00 No. 2121-III.URL:http://zakon.rada.gov.ua/laws/show/2121-14#n869 (date of application: 20.09.2024).

10. Vovchak O. D., Rushchyshyn N. M., Andreykiv T. I. Credit and banking: manual. Kyiv: Znannia, 2008. 564 p.

11. Synopsis of lectures on the discipline "Banking system" for students, e.g. suitable 6.030508 "Finance and credit", 6.030509 "Accounting and audit". Inc.: Zolotaryova O. V., Dniprodzerzhinsk, DDTU, 2016, 112 p.

12. Moroz A. M., Savluk M. I., Pukhovkina M. F. Banking operations: sub. 2nd ed., ed. and add.; under the editorship Dr. Econ. Sciences, Prof. AND. M. Frost Kyiv: KNEU, 2009. 476 p.

13. Biletska L. V., Biletsky O. V., Savych V. AND. Economic theory (Political economy. Microeconomics. Macroeconomics) : teaching. village 2nd edition processing and additional Kyiv: Center for Educational Literature, 2009. 688 p.

14. Definition of the term "Credit". Wikipedia website. URL: https://uk.wikipedia.org/wiki/%D0%9A%D1%80%D0%B5%D0%B4%D0%B8%D1%82%82

15. Chubenko A.G., Loshytskyi M.V., Pavlov D.M., Bychkova S.S., Yunin O.S. Terminological dictionary on issues of prevention and countermeasures against legalization (laundering) of proceeds obtained through crime, financing of terrorism, financing of proliferation of weapons of mass destruction and corruption. Kyiv: Vaite, 2018. 826 p. URL: https://finmonitoring.in.ua/wpcontent/uploads/2018/12/terminologichnij-slovnik_finmonitoring.pdf (date of application: 19.10.2024).

16. Demyanenko M., Luzan Yu., Sabluk P., Skupy V. etc. Financial dictionary-reference / edited by M. Demyanenko. Kyiv: IAE UAAS, 2003. 555 p.

17. Arbuzov S., Kolobov Yu., Mishchenko V., Naumenkova S. Banking encyclopedia. Kyiv: CND NBU; Knowledge, 2011. 504 p.

18. Savluk M., Moroz A., Pudovkina M. etc. Money and credit / edited by M. Savluka. Kyiv: KNEU, 2001. 602 p.

19. Tchaikovsky Ya. The current state and prospects for the development of bank lending. Banking. 2005. No. 2. P. 36–47.

20. Mocherny S. Economic encyclopedia: in 3 volumes. T. 3. Kyiv: Academy Center, 2002.

21. Bechko P., Gerasimova T. Bank crediting of agricultural production: monograph. Uman: ed.-polygraph. Center "Vizavi", 2013. 189 p.

22. Hlushchenko S. Money. Credit. Credit market: subject. Kyiv: NaUKMA, 2015. 300 p. URL: http://ekmair.ukma.edu.ua/handle/123456789/9082/Glushchenko_Groshi.pdf?sequence =1&isAllowed=y (date of application: 20.09.2024).

23. Legal encyclopedia: In 6 volumes. /Editor: Yu. S. Shemshuchenko and others. Kyiv: "Ukr. encyclical.", 1998.

24. Money, banks and credit: in schemes and comments: education. manual / edited by B. Lutsiva. 2nd ed., revision. Ternopil: Carte Blanche, 2000. 225 p.

25. Britchenko I.G. Increasing the competitiveness of banks in the banking services market of Ukraine. Scientific Bulletin of Uzhhorod University. Series: Economy. 2015. Issue 1 (45). Volume 1. S. 176 - 179.

26. Hudz O. Lending and banking services of agro-industrial enterprises: modern trends and features. Kyiv: NNC IAE, 2005. 170 p.

27. Tax Code of Ukraine: Law dated 02.12.2010 No. 2755-VI. URL:https://zakon.rada.gov.ua/laws/show/2755-17#Text(date of application: 05.10.2024).

28. Vovchak O., Rushchyshyn N. Credit and banking: tutorial. Kyiv: Znannia, 2008. URL: http://pidruchniki.ws/19740704/bankivska_sprava/formi_vidi_kreditu.

29. Korablin S. The price of the loan. Mirror of the week. Ukraine. 2019. URL:https://zn.ua/ukr/finances/cina-kreditu-326704_.html (date of application: 10.09.2024).

30. Yurkiv N.Ya., Gladkikh D.M. The development of bank lending to business entities as a condition for ensuring sustainable economic growth in Ukraine: analytical report. National Institute of Strategic Studies. 2019. URL: https://niss.gov.ua/doslidzhennya/ekonomika/rozvitok-bankivskogo-kredituvannya-gospodaryuyuchikh-subektiv-yak-umova (date of application: 25.09.2024).

31. Dzyublyuk O., Tchaikovsky Y., Galapun N., Malakhova O., Pruskyi O., Sorokivska Z. Banking operations: subject. Ternopil: Economic Thought, 2009. 696 p.

32. Schumpeter Y. The theory of economic analysis: the study of profits, capital, credit, interest and the economic cycle / trans. from English IN. Stark Kyiv: VD "Kyiv-Mohyla Academy", 2011. 242 p.

33. Koblyanska O. Credit as a form of raised capital. Agricultural perspective. 2010. No. 8–9 (127). P. 26 - 30.

34. Myskiv G. Functioning and development of the credit market of Ukraine: theory, methodology, practice: monograph. Lviv: "Rastr-7", 2015. 360 p.

35. Polyak N. Theoretical aspects of the essence of credit. Bulletin of the Khmelnytskyi National University. Economic sciences. 2014. No. 6. Vol. 1. S. 185–188.

36. Fedorovych L. Theory of monetary and credit circulation. Odessa, 1888. 626 p.

37. History of money and banking / by general ed. WITH. Reverchuk Lviv: LNU named after I. Franka, 2003. 301 p.

38. Kolodizev O., Kolesnichenko V. Money and credit: manual. Kyiv: Znannia, 2010. URL:http://pidruchniki.ws/17530607/finansi/sutnist_funktsiyi_kreditu(date of application: 14.09.2024).

39. Regulation on the determination by banks of Ukraine of the amount of credit risk for active banking operations, approved by Resolution of the Board of the NBU dated 06.30.16 No. 351.
URL:https://zakon.rada.gov.ua/laws/show/v0351500-16 (date of application 15.09.2024).

40. Civil Code of Ukraine. Law of Ukraine dated January 16, 2003 No. 435-IV. URL:https://zakon.rada.gov.ua/laws/show/435-15?find=1&text

41. On mortgage: Law of Ukraine dated June 5, 2003 No. 898-IV. URL:https://zakon.rada.gov.ua/laws/show/898-15#Text

42. On consumer lending: Law of Ukraine dated November 15, 2016 No. 1734-VIII. URL:https://zakon.rada.gov.ua/laws/show/1734-19#Text

43. Rosola U. IN. Credit policy and analysis of the current state of the credit market of Ukraine / U. IN. Rosola, N. AND. Shkoka, M. WITH. Yarmolyuk Scientific Bulletin of Mukachevo State University. Ser. : Economy. 2018. Issue 1. S. 181-188. URL:http://nbuv.gov.ua/UJRN/nvmdue_2018_1_29

44. Banking encyclopedia / col. Av. ISBN 978-966-346-923-2. Kyiv: CND NBU "Knowledge", 2011. P. 503

45. The FATF report "Money laundering and terrorist financing through the real estate sector" (June 29, 2007), footnote 18. URL:http://www.fatf-gafi.org/publications/methodsandtrends/documents/moneylaunderingandterroristfinancingthroughtherealestatesector.html(date of application: 15.09.2024).

46. Gerasimovych A. M., Alekseyenko M. D., Parasiy-Vergunenko I. M. Analysis of banking activity. Understudy Kyiv: KNEU, 2004. 599 p.

47. Dyakonov K. M. Credit risk management of a commercial bank: dissertation for obtaining the scientific degree of Candidate of Economic Sciences. URL:
http://dspace.uabs.edu.ua/bitstream/123456789/6645/1/4_Diakonov_disser_w.pdf
(date of application: 15.10.2024).

48. Zavadskyi Y.S., Osovska T.V., Yushkevich O.O. Economic dictionary. Kyiv: CONDOR, 2006. 356 p.

49. Regulations on the procedure for banks to carry out operations under guarantees in national and foreign currencies: approved by the resolution of the Board of the National Bank of Ukraine dated 12.15.2004 No. 639. URL:https://zakon.rada.gov.ua/laws/show/z0041-05#Text(date of application: 14.09.2024).

50. Shemshuchenko Yu. S. Legal encyclopedia: [in 6 volumes]. Kyiv: Ukrainian encyclopedia named after M. P. Bazhana, 1998. Vol. 2: D - J. 744 p.

51. Official website of the National Bank of Ukraine. URL:https://bank.gov.ua/ua/statistic/supervision-statist#1 (date of application: 10.09.2024).

52. Affordable mortgage: state assistance in purchasing housing. Official website of the Ministry of Economy of Ukraine. URL:https://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=20fb406b-1857-418f-85cb-76aed312c20a&titleDostupna Ipoteka-erzhavnaDopomogaUPridbanniZhitla (date of application: 15.09.2024).

53. State support for energy saving - "warm credits" program. Official website of the State Energy Efficiency Agency. URL:https://saee.gov.ua/uk/consumers/tepli-kredyty (date of application: 15.09.2024).

54. Klyoba L. G. A marketing approach to improving the management of banking credit activities. Economy and the state. 2016. No. 5. P. 77-81.

55. State program "Affordable loans 5-7-9%". Official site. URL:https://5-7-9.gov.ua/ (date of application: 19.09.2024).

56. Business support tools during martial law in Ukraine. June 2023. Official website of the National Institute of Strategic Studies. URL:https://niss.gov.ua/news/komentari-ekspertiv/instrumentypidtrymky-biznesu-v-period-voyennoho-stanu-v-ukrayini-cherven (date of application: 10.10.2024).

57. The number of loans under the program of portfolio state guarantees doubled in June due to a 26% increase in volume - Ministry of Finance, Interfax-Ukraine official website. URL:https://interfax.com.ua/news/economic/924366.html (date of application: 07.10.2024).

58. Data from the official website of JSC PrivatBank. URL:https://privatbank.ua/about (date of application: 15.10.2024).

59. On the system of guaranteeing deposits of natural persons: Law of Ukraine dated February 23, 2012 No. 4452-VI.

URL:https://zakon.rada.gov.ua/laws/show/4452-17#Text (date of application: 20.09.2024).

60. Instructions on the procedure for regulating the activities of banks in Ukraine, approved by the NBU on August 28, 2001. #368. URL:https://zakon.rada.gov.ua/laws/show/z0841-01#Text(date of application: 18.09.2024).

61. Regulation on the determination by banks of Ukraine of the amount of credit risk for active banking operations, approved by Resolution of the NBU dated 06/30/2016 No. 351.
URL:https://zakon.rada.gov.ua/laws/show/v0351500-16#Text(date of application: 18.09.2024).

62. How to get a loan under the program "Affordable loans 5-7-9%" for agriculture? Features, nuances, possibilities. Latifundist official site. URL:https://latifundist.com/cards/72-yak-zaluchiti-kredit-za-programoyu-dostupni-krediti-5-7-9-pid-agro-osoblivosti-nyuansi-mozhlivosti (date of application: 20.09.2024).

63. Moroz A.M., Savluk M.I., Ostapyshin T.P. Operations of banks and non-banking credit institutions: a textbook / by science. ed. A.M. Frost Kyiv: KNEU, 2013. 543 p.

64. Ostapyshin T.P., Okhrimenko I.B., Sytnyk O.V. Operations of banking institutions: training / in general ed. T. P. Ostapishin Kyiv: KNEU, 2013. 956 p.

65. Functioning of the banking sector and credit cooperatives: theory and practice: monograph / by Nauk. ed. Britchenko I.H. Poltava RVV PUET, 2010. 152 p.

66. The skull of A.V. Banking operations: training. manual. Kyiv: Condor, 2008. 410p.

67. Bondar O. P. Use of instruments of state regulation of bank mortgage lending in Ukraine. Finance, banks, investments. 2012. No. 5. P. 76-82.

68. Polyak N. Theoretical aspects of the essence of credit. Bulletin of the Khmelnytskyi National University. Economic sciences. 2014. No. 6. Vol. 1. S. 185–188.

69. Korablin S. The price of the loan. Mirror of the week. Ukraine. 2019. URL: https://zn.ua/ukr/finances/cina-kreditu-326704_.html

70. Biloshapka V. S. Compliance control of the formation of the bank's credit portfolio as a guarantee of minimizing the loss of bank resources in the post-crisis period. Scientific Bulletin of the International Humanitarian University. Series: Economics and management. 2016. Issue 21. S. 117-120. Access mode:http://nbuv.gov.ua/UJRN/Nvmgu_eim_2016_21_26 (date of application: 20.09.2024).

Онлайн сервіс створення та перевірки кваліфікованого та удосконаленого електронного підпису

ПРОТОКОЛ
створення та перевірки кваліфікованого та удосконаленого електронного підпису

Дата та час: 18:36:53 04.12.2024

Назва файлу з підписом: 04_диплом_Tang_Zhiyu.pdf.p7s
Розмір файлу з підписом: 1007.8 КБ

Перевірені файли:
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Розмір файлу без підпису: 990.5 КБ

Результат перевірки підпису: Підпис створено та перевірено успішно. Цілісність даних підтверджено

Підписувач: УТЕНКОВА КАРІНА ОЛЕКСАНДРІВНА
П.І.Б.: УТЕНКОВА КАРІНА ОЛЕКСАНДРІВНА
Країна: Україна
РНОКПП: 2939018503
Організація (установа): ФІЗИЧНА ОСОБА
Час підпису (підтверджено кваліфікованою позначкою часу для підпису від Надавача): 18:36:53 04.12.2024
Сертифікат виданий: КНЕДП АЦСК АТ КБ "ПРИВАТБАНК"
Серійний номер: 5E984D526F82F38F0400000074586401307A3D05
Алгоритм підпису: ДСТУ 4145
Тип підпису: Удосконалений
Тип контейнера: Підпис та дані в одному файлі (CAdES enveloped)
Формат підпису: З повними даними ЦСК для перевірки (CAdES-X Long)
Сертифікат: Кваліфікований

Версія від: 2024.10.24 15:00

Онлайн сервіс створення та перевірки кваліфікованого та удосконаленого електронного підпису

ПРОТОКОЛ
створення та перевірки кваліфікованого та удосконаленого електронного підпису

Дата та час: 10:40:04 16.05.2025

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Розмір файлу з підписом: 1.9 МБ

Назва файлу без підпису: 04_диплом_Tang_Zhiyu.pdf.p7s.zip[1].p7s[1]
Розмір файлу без підпису: 1.8 МБ

Результат перевірки підпису: Підпис створено та перевірено успішно. Цілісність даних підтверджено

Підписувач - 1: АЗАРЕНКОВА ГАЛИНА МИХАЙЛІВНА
П.І.Б.: АЗАРЕНКОВА ГАЛИНА МИХАЙЛІВНА
Країна: Україна
РНОКПП: 2571514226
Організація (установа): ФІЗИЧНА ОСОБА
Час підпису (підтверджено кваліфікованою позначкою часу для підпису від Надавача): 20:28:50 05.12.2024
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Тип носія особистого ключа: Незахищений
Алгоритм підпису: ДСТУ 4145
Тип підпису: Удосконалений
Тип контейнера: Підпис та дані в одному файлі (CAdES enveloped)
Формат підпису: З повними даними ЦСК для перевірки (CAdES-X Long)
Сертифікат: Кваліфікований

Підписувач - 2: Омеляненко Денис Олегович
П.І.Б.: Омеляненко Денис Олегович
Країна: Україна
РНОКПП: 3634714115
Час підпису (підтверджено кваліфікованою позначкою часу для підпису від Надавача): 13:25:04 03.01.2025
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Тип носія особистого ключа: ЗНКІ криптомодуль ІІТ Гряда-301
Серійний номер носія особистого ключа: Не визначено
Алгоритм підпису: ДСТУ 4145
Тип підпису: Кваліфікований
Тип контейнера: Підпис та дані в одному файлі (CAdES enveloped)
Формат підпису: З повними даними ЦСК для перевірки (CAdES-X Long)
Сертифікат: Кваліфікований

Версія від: 2025.01.15 13:00