

Scientific article

IRISTI 06.73.55

<https://doi.org/10.55956/BKOV2679>

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CREDIT RISK MANAGEMENT IN THE BANK

Abstract. *The article is devoted to the issues of credit risk management in the banking sector, which remain a key factor in financial stability and sustainability of the banking system. The main attention is paid to the analysis of modern methods of assessing and minimizing credit risks, including the introduction of new digital technologies, improving borrower scoring procedures and the use of big data to predict customer solvency. The article discusses factors influencing the growth of problem loans, such as macroeconomic instability, increasing debt burden and changes in borrower behavior. Particular attention is paid to the role of regulators in credit risk management, including tightening prudential standards, asset quality control and the introduction of stress testing in banking institutions. The importance of loan portfolio diversification as a way to reduce risks is considered, as well as key approaches to debt restructuring to reduce the level of defaults. The article emphasizes the need to integrate innovative technologies, such as artificial intelligence and blockchain, to automate the risk management process. The author emphasizes the importance of an integrated approach that combines analytical tools, regulatory impact and a long-term strategy for interacting with clients aimed at sustainable development of the banking system and minimizing credit losses.*

Keywords: *credit risk, risk management, problem loans, borrower creditworthiness, loan portfolio.*

Introduction. Banking risk management in Kazakhstan is an important part of maintaining the stability of the financial system and the effective operation of banks. It includes the process of identifying, assessing, analyzing and minimizing various risks that may affect the activities of a bank. The main types of risks include credit risk (default of borrowers), interest rate risk (changes in interest rates), liquidity risk (inability to meet short-term obligations), operational risk (errors in operating activities), foreign exchange risk (changes in exchange rates) and risks associated with the macroeconomic situation. The National Bank of the Republic of Kazakhstan (NBRK) regulates and controls these risks by setting norms and standards for the banking system,

including requirements for capital, mandatory reserves and reporting. Modern risk management methods include the use of statistical models for forecasting, asset diversification, hedging using derivatives and the development of corporate risk management units. Effective risk management helps banks reduce potential losses and maintain customer confidence, which contributes to the overall financial stability of the country.

Research conditions and methods. The economic value of credit risk The profitability of a bank's operations depends on the quality of its loans, that is, their profitability . If a loan is not paid back on time, the bank incurs losses. Minimizing credit risk is a key task for managing credit institutions [1]. Different scholars define

credit risk differently. Let me focus on some definitions of credit risk: Makysh S.B.'s definition of credit risk describes the bank's losses due to a borrower's inability to pay back a loan or accrued interest on time for a loan received from the bank. Shayakhmetova K.O.'s credit risk or default risk is the probability that a borrower will fail to fulfill its obligations to a lender in accordance with the terms of a loan agreement. Seitkasymov G.S.'s. Credit risk is the inability of a party in a financial transaction to fulfill the terms and conditions of the contract, resulting in financial losses for the asset holder. This risk can arise for several reasons, including:

- The borrower's unresponsibility
- Inability to generate sufficient future cash flows
- Improper accounting by the bank management
- Unexpected negative changes in business and economic conditions
- Political instability
- Negative conditions in the business reputation of the borrower
- Lack of confidence in the quality, liquidity, and future value of the collateral for the loan

Credit risk can also arise from the deterioration of a bank's situation or the

bankruptcy of its major customers. There are three types of credit risks:

1. Fraud risk - the likelihood that bank employees or customers will engage in fraudulent activities that could harm the bank.

2. Operational risk - risk associated with internal processes and systems at the bank, such as IT systems, human resources, and physical security.

3. Market risk - risk related to changes in market conditions, such as interest rates, exchange rates, and commodity prices. Fraud risk is a major type of credit risk that banks face. Fraud against the bank's managers or employees or losses can seriously damage the bank's reputation, sometimes even leading to bankruptcy.

Research results. In the Republic of Kazakhstan in 1991-1994, the most common causes of bad debts were economic instability, lack of control over the financial sector, and instability in monetary policy. Additionally, lending to the circulation sphere through free or concessional loans from the National Bank of Kazakhstan led to the terms of UBR falling one after another and eventually to bankruptcy. If initially, there were 200 commercial banks in the country in 1995, today there are only 35.

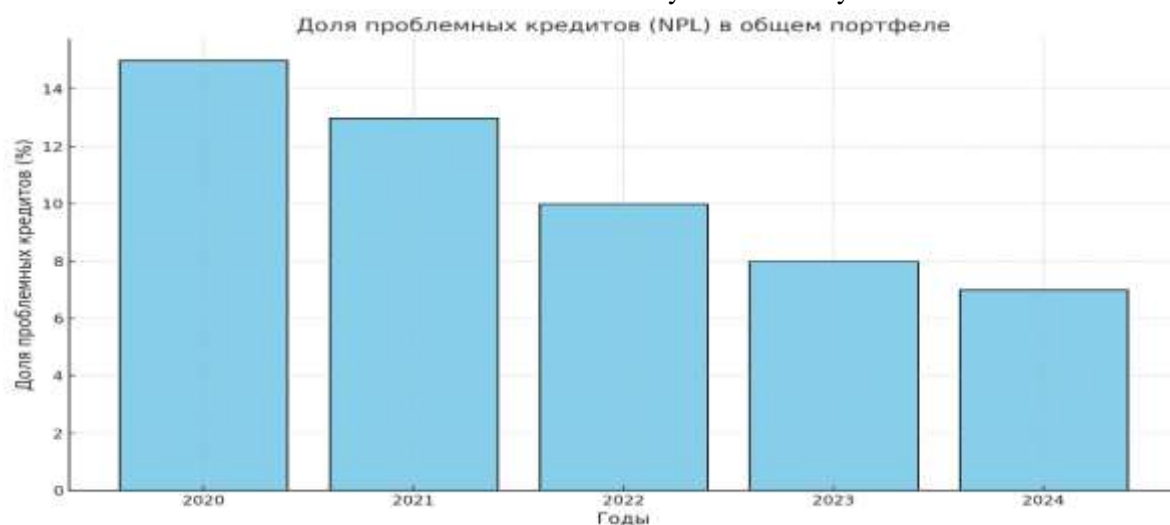


Figure-1 Share of non-performing loans (NPL) in the total portfolio

The risk of foreign loans in developing countries in the 1970s was huge and was associated with stagnation, which caused the bankruptcy of several large banks in the USA.. The risk of non-payment of internal debt is associated with difficulties in accounting for all factors that affect the borrower's ability to repay. Internal reasons may include the low level of employee specialization, improper performance of

duties, and other factors. Banks take into account several levels of credit risk: credit risk under a personal agreement, which includes expenses incurred as a result of the borrower's failure to fulfill a specific loan agreement, and credit risk of the entire loan portfolio, which is the sum of risks associated with each loan agreement in the portfolio [2].

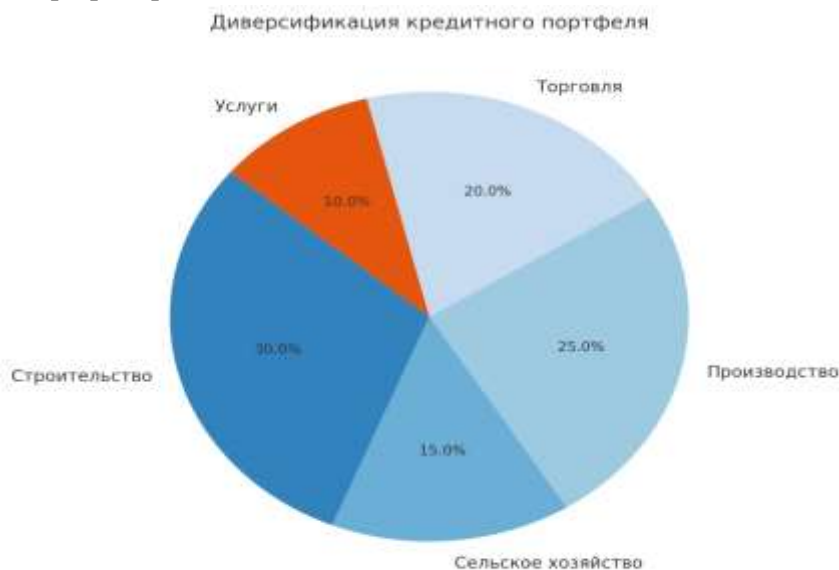


Figure-2 Loan portfolio diversification

Increasing the level of a bank's system and effective management can help solve many problems, so each bank should

consider minimizing its risk by reducing costs and minimizing the risk of default by borrowers during their period of activity.

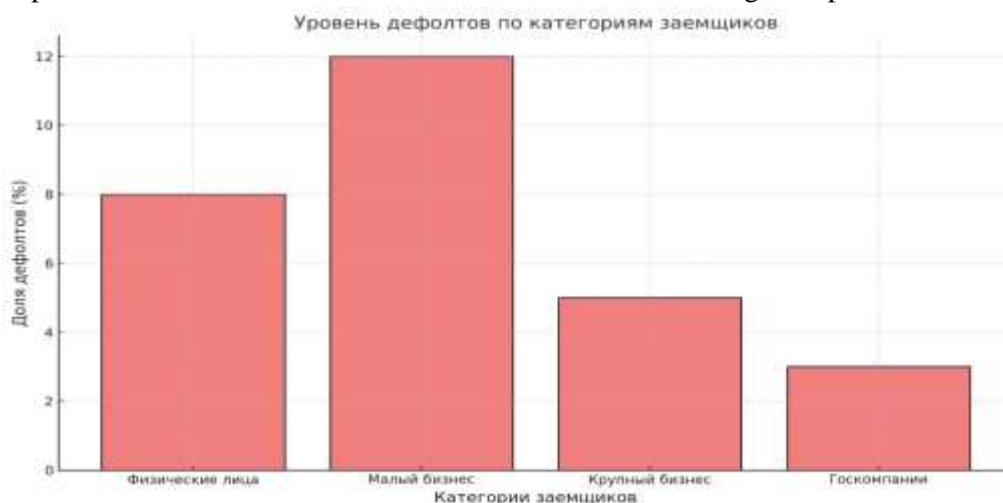


Figure-3 Default rate by borrower category

Factors that affect this risk include:

1. A high concentration of the bank's lending activities in areas that are sensitive to market changes,

2. A significant proportion of unsecured and non-performing loans, as well as other contracts with clients experiencing financial difficulties,

3. Frequent changes to the bank's policies and strategies, such as in lending,

4. A large share of loans given to new large customers,

5. Introduction of a large number of new banking services within a short period.

Credit risks are classified according to the following criteria:

1. Based on the type and speed of disbursement:

Included

Not included

2. Based on the characteristics of the lender:

Condition

Banking

Promotional video

Loans from insurance companies and individuals

3. By type of borrower: Agricultural

Industrial

Communal

Personal

4. By field of use: Consumer

Industrial

Investments

Seasonal.

Based on the level of credit risk, banks divide their customers into three groups depending on the type and size of borrower: small, medium, and large. Small and medium-sized businesses are very flexible and can quickly adapt to changing market conditions.

This allows them to make good profits and change their activities quickly. However, they often have only a limited amount of personal capital, which can lead to unexpected economic or political

changes, competition, and bankruptcy. Large businesses, on the other hand, are less flexible and do not adapt as quickly to changes. They have more capital and can withstand adverse conditions. Banks are more cautious when lending to large businesses because they need to be certain that the loan will be paid back. Banks also try to minimize risk by limiting the amount of risk they take on [3].

The high level of credit risk in the banking system of Kazakhstan is due to the financial situation of many companies, which is characterized by a lack of working capital, delayed payments, outstanding invoices, and credit debt.

Discussion of scientific results.

Discussion of Figure-1 Default rate by borrower category.

The chart shows the share of defaults by borrower category: individuals, small businesses, large businesses, and state-owned companies. The highest level of defaults was recorded in the small business segment, which is associated with the high sensitivity of this category to economic changes, limited financial resources and dependence on external factors such as inflation and market fluctuations. Small businesses often face income instability, which makes it difficult to repay their obligations on time. Individuals have a default rate of about 8%, which indicates difficulties with financial discipline and an increase in the debt burden of the population. Large businesses and state-owned companies show lower default rates of about 6% and 4%, respectively, due to more stable financial models, large capital and government support. Nevertheless, even in these categories, there are risks associated with the deterioration of the economic environment and possible delays in the implementation of major projects.

Table-1

The loan portfolio of banks of the Republic of Kazakhstan, Million KZT

Billion KZT	2022 year	2023 year	Variance	Variance (%)
All Banks	26385.5	32462.4	6076.9	123.00%
Bank RBK	922.4	1286.6	364.2	139.50%
Home credit Bank	521.5	722.5	201	138.50%
Kaspi Bank	3869.4	522.2	-3347.2	13.50%
Bank Center Credit	2703	3614.5	911.5	133.70%
Forte Bank	1428.4	783.7	-644.7	54.90%
Halyk Bank	8388.3	10327.7	1939.4	123.10%
Jusan Bank	1223	1353.1	130.1	110.60%
Eurasian Bank	1361.8	1474.9	113.1	108.30%
Otbasy Bank	3073.1	6231.1	3158	202.80%
Bereke Bank	1339.1	1403	63.9	104.80%
Other Banks	1556.4	2045.2	488.8	131.40%
Created by the author on the basis of statistical reports on the financial market and banking activities of the Republic of Kazakhstan.				

The chart shows the structure of the banks' loan portfolio by economic sector. The construction sector is in the lead, with a share of up to 30%. This is due to the active development of infrastructure in Kazakhstan and the demand for housing in conditions of urbanization. However, the concentration of loans in one sector increases the risks for banks in the event of a downturn in construction activity or a crisis in the industry. The manufacturing sector occupies the second position with 25%, which underlines its importance to the economy. Banks actively support industrial development, but face risks related to the volatility of global commodity prices and

limited export markets. Trade (20%) and agriculture (15%) are important sectors, but they are characterized by instability – trade is affected by inflation and fluctuations in consumer demand, and agriculture depends on climatic conditions and government subsidies. The service sector is the least represented (10%), which indicates the lack of interest of banks in financing this segment, despite its growing potential [4].

Discussion of Figure-3 The share of non-performing loans (NPL) in the total portfolio

The chart shows a decrease in the share of problem loans (NPL) in the banking system of Kazakhstan over the period from 2020 to 2024. In 2020, the indicator reached a peak of 15%, which is explained by the consequences of the COVID-19 pandemic, which caused economic instability and a reduction in borrowers' incomes. The gradual reduction of NPL to 10% in 2024 indicates a significant improvement in credit risk management in the banking sector. This became possible due to stricter requirements for issuing loans, the development of debt restructuring programs and the strengthening of the role of the National Bank in regulating banking activities. Nevertheless, the retention of NPL at a level above 10% indicates existing structural problems, such as limited access to high-quality information about borrowers, insufficient use of digital technologies in credit risk analysis, and dependence on macroeconomic stability. Banks need to continue working to reduce the share of problem loans by introducing innovative approaches and increasing transparency in customer interaction.

Discussion of Figure-4 Dynamics of Lending in the Economy of Kazakhstan (2023–2024)

Table-2

Non-performing loans of commercial banks of the Republic of Kazakhstan in 2024

Indicators	Amount (mln KZT)
Loans without overdue principal/interest	30 948,0
Overdue loans (1–30 days)	660,0
Overdue loans (31–60 days)	219,0
Overdue loans (61–90 days)	157,6
Loans overdue by more than 90 days	1 039,8
Provisions under IFRS	1 823,8
Reserves for loans overdue by more than 90 days	737,1
Created by the author on the basis of statistical reports on the financial market and banking activities of the Republic of Kazakhstan.	

The graph shows the dynamics of lending in the economy of Kazakhstan in 2023-2024 in trillion tenge, dividing loans into categories: business (gray), consumer purposes (red), mortgage (yellow) and other purposes (orange). The total amount of credits is shown as a black line. In 2023, there is an increase in total loans in the first half of the year, with a peak in the middle, followed by a gradual decline. In 2024, the trend will stabilize, with slight fluctuations. The share of consumer loans remains stable, demonstrating steady importance, mortgages occupy a relatively smaller share and remain at a stable level, loans to businesses show gradual growth. The graph shows the dynamics of lending in Kazakhstan in 2023-2024. The total volume of loans (black line) increased from 20 trillion tenge at the beginning of 2023 to 25 trillion tenge in the middle of the year (+25%), then decreased to 21 trillion tenge by the end of 2024 (-16%). Consumer loans (red) maintain a stable level of 8-9 trillion tenge, a change of about 5%. Loans to businesses (gray) increased from 5 to 7 trillion tenge (+40%). The mortgage

(yellow) remained at the level of 3-4 trillion tenge, an increase of about 10%. Loans for other purposes (orange) remain minimal, about 1 trillion tenge, with minor changes. Business loans provide the largest contribution to growth (+40%), while consumer loans maintain a high stable level. The overall dynamics of lending reflects the growth of economic activity in the first half of 2023 and stabilization in 2024. The overall conclusion is that the growth in lending supports economic activity, with an emphasis on consumer goals and business.

Discussion of Table-1. The loan portfolio of banks of the Republic of Kazakhstan, Million KZT

Based on the data from the table below, the loan portfolio of banks in the Republic of Kazakhstan increased by KZT 6076.9 billion in 2023, which is an increase of 23% compared to 2022, confirming the dynamics of increasing lending in the country. A significant increase is observed in banks such as Bank RBK, where the growth amounted to 364.2 billion tenge or 39.5%, and Home Credit Bank, which increased by 201 billion tenge, equivalent to 38.5%. Otbas Bank showed the largest increase among all banks with an increase of KZT 3,158 billion, which is an impressive 202.8%, indicating an increase in demand for lending in the housing construction sector or other specific segments served by this bank. Halyk Bank showed an increase of 1939.4 billion tenge or 23.1%, which confirms its stable position in the market as one of the leaders in the banking sector [5].

At the same time, Forte Bank and Kaspi.kz they demonstrated negative dynamics. Forte Bank reduced its loan portfolio by 644.7 billion tenge, which is a decrease of 45.1%. This may be due to a review of the bank's risk policy, a reduction in the level of risky assets, or a focus on other products and segments. U Kaspi.kz

The loan portfolio decreased by KZT 3,347.2 billion, which is equivalent to a decrease of 86.5%. Such a significant reduction may be related to the bank's overall strategy, for example, reducing the focus on lending in favor of transactional or other banking services.

Eurasian Bank increased its portfolio by KZT 113.1 billion (an increase of 8.3%), which is a moderate increase, possibly related to efforts to maintain a stable customer base and expand credit products. Jusan also demonstrated an increase of 130.1 billion tenge, which was an increase of 10.6%, confirming the smooth development of its credit policy. Bereke Bank increased its loan portfolio by 63.9 billion tenge, which is equivalent to an increase of 4.8%. The remaining banks collectively demonstrated an increase in their portfolio by 488.8 billion tenge, which indicates a strengthening of the positions of smaller participants in the banking sector.

In total, the lending market in Kazakhstan is showing significant growth, which may be due to both increased demand for loans from the population and businesses, and the efforts of banks to increase their market shares. However, the negative dynamics of individual major players, such as Kaspi.kz and Forte Bank may signal potential problems in certain market segments or indicate changes in the strategic priorities of these banks.

From the point of view of bank risk management, especially in the context of loan portfolio growth, it is advisable to focus on the following aspects: strengthening the system for analyzing borrowers' creditworthiness, introducing more rigorous methodologies for stress testing and forecasting possible losses, and developing digital platforms for automated risk assessment. This will minimize the risk of non-repayment of loans in an unstable economic situation. A job offer in the field of banking risk management may include

the development and implementation of integrated credit, market and operational risk management systems, staff training on new risk analysis techniques, as well as the creation of analytical tools to assess the impact of macroeconomic factors on the loan portfolio.

Discussion of Table-2 Non-performing loans of commercial banks of the Republic of Kazakhstan in 2024

Table 2 presents data on the status of problem loans in commercial banks in Kazakhstan for 2024. It identifies various categories of overdue debts and the total amount of reserves for such loans. The analysis of these data allows us to draw the following conclusions and highlight key aspects. The total amount of problem loans According to the table, the total amount of loans without overdue principal and/or accrued interest amounted to KZT 30,948 million. This is a significant amount, indicating the scale of the problem of borrowers' insolvency this year. This amount may be the result of several factors, including macroeconomic instability, declining household incomes, and deteriorating payment discipline. The structure of problem loans in terms of overdue Debt with a delay of 1 to 30 days amounted to 660 million tenge. This indicator indicates the presence of short-term delays, which may be related to temporary difficulties of borrowers. This category of delay usually has a high potential for repayment with appropriate measures on the part of banks. Arrears overdue from 31 to 60 days amounted to 219 million tenge. A decrease in the volume of debts in this category compared to the previous one may indicate that banks are actively working to collect overdue debts at an early stage. Delays from 61 to 90 days amounted to 157.6 million tenge. A decrease in the amounts in this category may be the result of the transfer of part of the debts to longer-term delinquencies or

the full repayment of part of the debts. The greatest concern is caused by debts overdue for more than 90 days, which amount to 1,039.8 million tenge. Such loans have a low probability of repayment and form the main burden on the bank's reserves.

1) Reserves for loans with high delinquency According to the table, reserves formed for loans with a delay of more than 90 days amount to KZT 737.1 million, which reflects a significant amount of funds that banks must divert to cover potential losses.

2) The impact of International Financial Reporting Standards (IFRS) The provisions under IFRS are indicated at the level of 1,823.8 million tenge. This indicates the need for banks to comply with strict international standards regarding risk accounting and reserve formation. This approach makes it possible to increase the transparency of financial reporting, but at the same time increases the burden on banks.

3) Possible reasons for the growth of problem loans The growth of problem loans in 2024 may be related to several factors: a slowdown in economic growth, a decrease in household incomes; exchange rate instability, which increases the debt burden of borrowers with foreign currency loans; lack of effective early warning and credit risk management mechanisms in a number of banks. Recommendations for improving the situation In order to reduce the share of problem loans in the future, banks are recommended to strengthen monitoring of borrowers' solvency and improve credit risk analysis processes.; to implement more effective debt collection systems, including working with borrowers in the early stages of delinquency; to cooperate with government agencies to develop programs to support the population and businesses in difficult economic conditions; to restructure loans for borrowers experiencing temporary financial difficulties; to increase the level of

financial literacy of the population in order to minimize the risk of insolvency. This, an analysis of the data in the table shows that the problem of problem loans in the banking system of Kazakhstan requires an integrated approach involving both banks themselves and government agencies. Effective credit risk management and the introduction of modern analytical tools can help stabilize the situation and reduce financial losses.

Conclusion. Credit risk management is one of the key tasks for banks, as their financial stability, sustainability and competitiveness in the market depend on it. In the face of modern challenges, including the growing debt burden of borrowers, economic instability and increased regulatory control, banks are forced to adapt their strategies to minimize risks and improve the efficiency of their loan portfolio. Analysis of default statistics shows that the greatest risk is associated with lending to small businesses and individuals. This is due to their high vulnerability to economic changes and limited ability to restore solvency. At the same time, sectors such as construction, manufacturing and trade make a significant contribution to the loan portfolio, which requires banks to diversify their portfolio in order to avoid excessive concentration in one industry. Special attention should be paid to the introduction of modern technologies such as artificial intelligence, machine learning and big data to automate the processes of scoring and monitoring credit risks. These technologies make it possible to more accurately predict the probability of defaults, take into account behavioral and economic factors, and promptly make decisions on restructuring or strengthening control over problem borrowers. The role of regulators in managing credit risks should also not be underestimated. Strengthening prudential regulations, introducing stress testing, and

overseeing the quality of banks' assets contribute to creating a more stable and transparent financial system. However, banks must independently develop internal strategies aimed at reducing the level of problem loans, including debt restructuring, strengthening customer interaction, and developing individual lending conditions.

In the long term, an integrated approach to credit risk management,

combining technological innovations, portfolio diversification and regulatory impact, will allow banks not only to minimize financial losses, but also to strengthen the trust of customers and investors. This will become the basis for the sustainable development of the banking system in the face of constant changes and uncertainty.

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БАНКТЕ НЕСИЕ ТӘУЕКЕЛДІ БАСҚАРУ

Аңдатпа. Мақала қаржылық тұрақтылық пен банк жүйесінің тұрақтылығының негізгі факторы болып қалатын банк секторындағы несиелік тәуекелді басқару мәселелеріне арналған. Несиелік тәуекелдерді бағалау мен азайтудың заманауи әдістерін талдауға, соның ішінде жаңа цифрлық технологияларды енгізуге, қарыз алушының скорингтік рәсімдерін жетілдіруге және клиенттердің төлем қабілеттілігін болжау үшін үлкен деректерді пайдалануға басты назар аударылады. Мақалада жұмыс істемейтін несиелердің өсуіне әсер ететін факторлар, мысалы, макроэкономикалық тұрақсыздық, борыштық жүктеменің артуы және қарыз алушының мінез-құлқының өзгеруі қарастырылады. Пруденциалдық стандарттарды қатайтуды, активтердің сапасын бақылауды және банк мекемелерінде стресс-тестілеуді енгізуді қоса алғанда, кредиттік тәуекелдерді басқарудағы реттеушілердің рөліне ерекше назар аударылады. Тәуекелдерді азайту тәсілі ретінде несиелік портфельді әртараптандырудың маңыздылығы, сондай-ақ дефолт деңгейін төмендету үшін қарызды қайта құрылымдаудың негізгі тәсілдері қарастырылады. Мақалада тәуекелдерді басқару процесін автоматтандыру үшін жасанды интеллект және блокчейн сияқты инновациялық технологияларды біріктіру қажеттілігі атап өтілген. Автор аналитикалық құралдарды, реттеушілік ықпалды және банк жүйесінің тұрақты дамуына және несиелік шығындарды барынша азайтуға бағытталған клиенттермен өзара әрекеттесудің ұзақ мерзімді стратегиясын біріктіретін кешенді тәсілдің маңыздылығына назар аударады.

Тірек сөздер: несиелік тәуекел, тәуекелді басқару, проблемалық несиелер, қарыз алушының несиелік қабілеті, несиелік портфель.

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УПРАВЛЕНИЕ КРЕДИТНЫМИ РИСКАМИ В БАНКЕ

Аннотация. Статья посвящена вопросам управления кредитными рисками в банковском секторе, которые остаются ключевым фактором финансовой стабильности и устойчивости банковской системы. Основное внимание уделено анализу современных методов оценки и минимизации кредитных рисков, включая внедрение новых цифровых технологий, совершенствование процедур скоринга заемщиков и использование больших данных для прогнозирования платежеспособности клиентов. В статье обсуждаются факторы, влияющие на рост проблемных кредитов, такие как макроэкономическая нестабильность, повышение долговой нагрузки и изменения в поведении заемщиков.

Особое внимание уделено роли регуляторных органов в управлении кредитными рисками, включая ужесточение пруденциальных нормативов, контроль за качеством активов и внедрение стресс-тестирования в банковских учреждениях. Рассматривается важность диверсификации кредитного портфеля, как способа снижения рисков, а также ключевые подходы к реструктуризации задолженности для снижения уровня дефолтов. В статье подчеркивается необходимость интеграции инновационных технологий, таких как искусственный интеллект и блокчейн, для автоматизации процесса управления рисками. Автор делает акцент на важности комплексного подхода, сочетающего аналитические инструменты, регуляторное воздействие и долгосрочную стратегию взаимодействия с клиентами, направленную на устойчивое развитие банковской системы и минимизацию кредитных потерь.

Ключевые слова: кредитный риск, управление рисками, проблемные кредиты, кредитоспособность заемщика, кредитный портфель.

Received 28.12.24

Received in revised form 31.12.24

Accepted for publication 03.01.25

Cite the article:

Kepuladze, T.A. Credit risk management in the bank // Bulletin of Dzulat University. – 2024. – No.4. – p.216-225
<https://doi.org/10.55956/BKOV2679>



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