



BANKING FINANCIAL SECURITY RISKS IN KAZAKHSTAN

T.B. Mussilimova^{*1}, *S.B. Makysh*², *A.T. Jumabekova*³

^{1,2,3} Esil University, Astana, Kazakhstan

E-mail: ¹tomiris.mussilimova@gmail.com, ²makysh.sb@yandex.ru,
³a.jumabekova77@gmail.com

Abstract. Due to the rapid development of digitalization, banks are increasingly vulnerable to cyber threats like hacker attacks, data leaks, and fraudulent schemes, posing challenges to transparency and sustainability. The *objective* is to analyze the main risks affecting the financial security of banks in order to maintain the stability of the financial system in the face of various external and internal threats. It discusses the main types of risks faced by banks and highlights the impact of factors influencing their security and stability. Research *methods*: structural and functional analysis; comparative analysis, which makes it possible to compare the financial threats of domestic banks with foreign ones; and analyzing statistical data to assess trends in the development of banks. The calculation of credit risks of the banking sector of the Republic of Kazakhstan for 2023-2025 was also given. *Results* – drawing on international experiences, the authors emphasize the need for comprehensive risk management strategies to enhance cyber security, regulatory compliance, internal audits, and stress testing in second-tier banks. *Conclusion* – The authors provide recommendations for minimizing risks affecting the financial security of banks, as well as improving cyber security systems, and strengthening financial security to ensure the resilience of the banking sector.

Keywords: financial security, banking risks, cybersecurity, data leakage, digitalization, fraud.

Received 18.06.2025. Revised 25.02.2026. Accepted 20.05.2026. Available online 30.06.2026

*the corresponding author

Introduction

Financial security of the banking system of the Republic of Kazakhstan is a key element of the sustainable functioning of the national economy. Banks, as the core of the financial sector, fulfil critical functions of capital accumulation and redistribution, ensuring solvency and lending to various sectors of the economy. From a macroeconomic perspective, the stability of the banking sector directly affects economic growth, investment climate and the level of public confidence in financial institutions. From an institutional perspective, banks in Kazakhstan are not only financial institutions, but also objects of state policy, subject to increased regulation by such authorities

as the Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market (ARDF) and the National Bank of Kazakhstan.

Historically, the banking system of Kazakhstan has evolved from a Soviet centralized model to a market model, accompanied by stages of reform, crisis and consolidation. Currently, banks in the Republic of Kazakhstan are facing new challenges related to digitalization, global competition and cross-border cyber threats, which determine the need to rethink approaches to ensuring their financial security. Modern banks have to adapt to the rapidly changing environment, develop effective risk management strategies and implement advanced data protection technologies. Ignoring financial security threats can lead to serious consequences, including capital losses, reduced customer confidence and destabilization of the banking system as a whole.

Literature review

Literature review shows that the issue of financial security of banks is actively researched both in the domestic and foreign scientific environment. The works of such a foreign scientist, Md. Waliullah, with co-authors (Md. Waliullah, Md Zahin Hossain George, Md Tarek Hasan, Md Khorshed Alam, Mosa Sumaiya Khatun Munira, Noor Alam Siddiqui, 2025), conducted a systematic review of cybersecurity threats in digital banking, analyzing 78 peer-reviewed papers from 2015-2024. The authors show that threats (phishing, malware) significantly affect the financial security of banks, and describe protection methods (MFA, biometrics, AI fraud detections). Serbian scientists write in their research about the importance of developing machine learning models with key characteristics such as security, trust, stability and reliability (Ana V. Kovačević, Sonja D. Radenković, 2024). These features are essential to mitigate risks and ensure the secure implementation of AI technologies in the banking sector, where financial data protection is paramount. Y. Liu, with co-authors provide an overview of FinTech risks that directly impact banking security and resilience (Liu, Y., Abdul Rahman, A., Imna Mohd Amin, S. et al, 2025). G. Birindelli explores cyber risks as a component of systemic risks in the financial sector, which fits the concept of financial security (Birindelli, G., Iannuzzi, A.P., 2025).

As for Russian scientists, the dissertation of A.A. Pavlov (Pavlov A.A., 2024) studies the impact of fintech risks on the economic security of banking activities, which reflects modern challenges to financial security. E. Pechnikova's work analyzed existing cybersecurity risks in the banking system (Ensuring cybersecurity in the financial and banking sector in the context of digitalization, 2024). The characteristics of attackers using information technology were identified. Examples of possible preventative measures needed to combat fraud were provided.

Among Kazakhstan's authors who contributed to the development of this topic, we can highlight the works of K.M. Kazbekova and co-authors, where they consider risk management and financial stability of banks (Kazbekova, K., Zhanibekova, G., Myrzakhanova, D., & Myrzhikbayeva, A., 2022). D.D. Kerimkulova, M.T. Zholamanova and I.V. Larionova, in their research, identified the factors shaping current and future trends in the development of the financial sector, including the banking sector, and also proposed 12 key trends in ensuring the financial stability of the banking sector in Kazakhstan (Kerimkulova, D., Zholamanova, M., & Larionova, I., 2023). Also P. Buzaubayeva, A. Orazbayeva, G. Alina, Z. Baimagambetova, G. Kengesin in their work note that the main risks to the financial stability of Kazakhstan's banking sector include ineffective risk management, technological constraints, a shortage of skilled personnel, and the need to strengthen risk-based regulation in the context of digitalization and global financial instability (P. Buzaubayeva, A. Orazbayeva, G. Alina, Z. Baimagambetova, G. Kengesin, 2024).

Thus, despite the systemic and interdisciplinary approach to the analysis of the main threats to the financial security of banks in the Republic of Kazakhstan has not yet been properly developed. In particular, threats arising at the intersection of digital technologies and banking activities, including phishing, DDoS attacks, the use of artificial intelligence in fraudulent schemes, as well as internal threats associated with the human factor and management errors, remain poorly studied.

At the same time, having a large number of theoretical and empirical studies, a number of problems remain unresolved related to the comprehensive definition and classification of threats to financial security, insufficient adaptation of international risk assessment methodologies to the Kazakhstan context, as well as fragmented data on actual cases of threats and vulnerabilities.

One of the main problems is the lack of a comprehensive analysis of the key threats to the financial security of banks in the Republic of Kazakhstan in the context of digitalization and globalization, which makes it difficult to

develop effective strategies and mechanisms for their neutralization. The solution to this problem is of great practical importance both for banking institutions themselves and for regulators and customers.

Thus, this study is aimed at solving the problems of ensuring financial security and effective risk management of banks in the Republic of Kazakhstan.

The purpose of this study is to identify, systematize and comprehensively analyze the main threats to the financial security of the banks of the Republic of Kazakhstan, taking into account the current challenges and trends in the financial and technological spheres, as well as to develop recommendations for their minimization.

Research methods

The following scientific and methodological approaches and research methods were applied to disclose this topic:

- structural and functional analysis, which allowed us to identify internal interrelationships and functional roles of elements of the banking system of Kazakhstan in the context of financial security, as well as to identify key threats that can destabilize the banking sector;

- economic and statistical analysis was used to study quantitative data and identify statistical dependencies between macroeconomic indicators and the level of financial security of the banking sector. In particular, the relationship between macroeconomic indicators of Kazakhstan (such as the level of GDP per capita, the volume of consumer lending and the average annual earnings of the population) and the indicators of financial soundness of banks was studied by analyzing dynamic series;

- categorical analysis, which was used to systematize and classify threats to banks' financial security, allowing to identify the most significant categories of risks and establish a hierarchy of threats by the degree of their impact on the stability of the banking sector;

- method of comparative analysis made it possible to compare threats to financial security of Kazakhstan banks with similar risks faced by banking systems of foreign countries. This approach provided an understanding of general trends and facilitated the identification of specific threats characteristic of the Kazakhstan banking sector;

- graphical method was used for visual presentation in the work of statistics and dynamics of key indicators of banking security, which allowed to clearly identify trends and assessment of the scale of financial risks;

The research *hypothesis* posits that the application of a comprehensive risk-based approach to managing the financial security of second-tier banks in the Republic of Kazakhstan in the context of digitalization helps reduce credit, operational, and cyber risks, as well as enhance the banking system's resilience to external and internal threats.

Additionally, official materials, regulatory documents of the National Bank of the Republic of Kazakhstan, were analyzed, as well as expert opinions of specialists in the field of financial security and banking regulation were used.

Results and Discussion

The banking system of the Republic of Kazakhstan is a key element of the economic infrastructure of the state, ensuring the stability of money circulation, financial settlements and lending to the economy. In modern conditions, banks of Kazakhstan are considered from different positions: as commercial organizations pursuing profit, as elements of state economic policy, and as objects subject to significant financial and cyber risks.

This study demonstrates the increased interest of researchers in the problem of the financial security of banks in Kazakhstan. Thus, annual reports of the National Bank of Kazakhstan regularly highlight the relevance of liquidity, credit and operational risks, noting the growth of threats associated with the digitalization of banking services. Deloitte's research notes that banks in Kazakhstan experience significant pressure from cybercrime, and regulations in the field of cybersecurity still do not always provide an adequate level of protection (deloitte.com, 2022). Despite the wide coverage of individual aspects of threats, there is a need for a comprehensive approach to studying the entire range of threats and their impact on the activities of the banking sector of the country.

As it is known that the activity of banks is subject to many risks, let us consider some of the main threats (Table 1).

Table 1 – Main threats to banks' financial security

№	Names	Descriptions
1	Identity theft	A cyber threat in which a hacker steals someone's financial or personal data and uses it for his or her own selfish, illegal purposes. A bank data leak could lead to an increase in identity theft, as stolen bank data is sold on the dark net to buyers who are willing to pay huge sums.
2	Spoofing	A technological cyber threat in which a hacker mimics an official banking website and then uses a fake email account. To lure the victim, some phishing pretext is used and the user is asked to enter their credentials in a form that looks valid, which eventually leads to credential theft. The usernames and passwords are either collected for sale or used by the hackers themselves to withdraw funds.
3	Ransomware	This type of threat is very popular when a hacker conducts a full-scale ransomware attack on a banking system. In such a cyberattack, the hacker injects malware into the system using malware delivered via phishing emails. The malware corrupts all data on the system, can spread to other connected systems, and then blocks the user from accessing their own system. To grant back access to the system, the hacker demands money in return.
4	Compromise with business email	The banking sector makes heavy use of email correspondence: sending transaction notifications via email, sharing sensitive data with customers and using it to communicate with other branches. A hacker is able to tap into this stream of messages to identify the methods of email communication, forge a valid identifier for that email, authorize payments, redirect them to their bank accounts and then disappear without a trace. At the heart of a BEC attack is phishing, a technique used by hackers to trick victims into clicking on malicious links and attachments in a fraudulent email.
5	Threats from an internal staff member	This type of threat is becoming a frequent phenomenon today: disgruntled employees with grievances against the bank (dissatisfied with their salary or the bank's policy) can cause serious damage, including ignoring the security rules established in the bank, or even deliberate data leakage.
6	DDoS attacks	Even the most reliable servers are useless if they are overloaded with spam requests. This is exactly what happens in a distributed denial-of-service attack. Scripts are launched that send constant requests to the bank's infrastructure and then the system fails and eventually collapses.

Note: compiled by the authors based on these sources (Informacionnaya bezopasnost bankov, 2025).

Comparative analysis makes it possible to identify both trends common to the global banking sector and threats specific to the banking system of Kazakhstan, which should be taken into account when developing a strategy to ensure financial security (Table 2).

Table 2 – Comparative analysis of threats to the financial security of banks in Kazakhstan and foreign countries

Threats	Kazakhstan	Foreign countries
Credit risks	High level of overdue loans	High degree of creditworthiness of the population
Currency risks	High dependence on exchange rate fluctuations	High volatility of currency markets, especially in transition economies
Liquidity risks	Lack of liquidity during economic downturns	Liquidity problems in times of global crises

Operational risks	Rising cyber threats, weak internal systems	High level of technological and cyber threats in developed countries
Concentration risks	High dependence on a limited number of customers or industries	Diversified risks associated with the globalization of financial markets

Note: compiled by the authors based on data (nationalbank.kz, 2024; imf.org, 2024).

The following table considers the main types of threats to financial security faced by banks, both at the global and national levels, and shows the experience of global banks in preventing these threats (Table 3).

Table 3 – Types of threats to banks’ financial security

Threats	Kazakhstan	International experience in risk minimization
Cyberattacks and digital threats	Increase in attacks, phishing, and database hacking	Active use of AI algorithms and blockchain for defense (US, EU, China)
Financial fraud and money laundering	Incidents of illegal transactions, lack of transparency	Tougher AML (Anti-Money Laundering) and KYC (Know Your Customer) measures in Europe and the US
Economic instability	Impact of oil price fluctuations, dependence on the commodity sector	Diversification of assets, development of sustainable investment strategies
Inadequate regulation and internal risks	Problems with transparency, corporate governance	Tight regulatory requirements in Switzerland, UK favor bank resilience

Note: compiled by the authors based on these sources (imf.org, 2024).

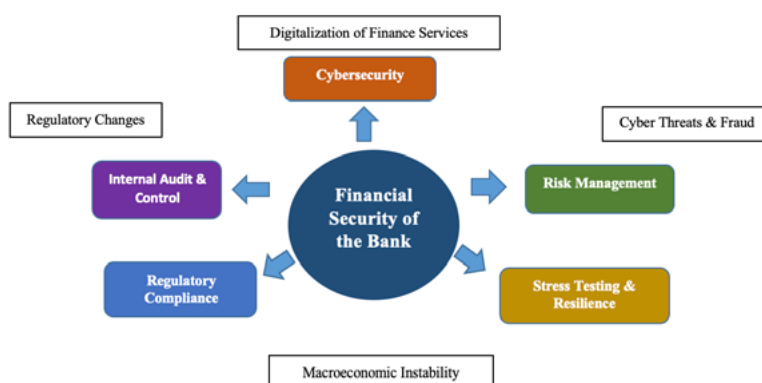


Figure 1 – Integrated model of ensuring the financial security of a commercial bank

Note: compiled by the authors

For the purpose of a comprehensive analysis of the bank’s financial security in the context of digitalization, an integrated financial security model is proposed in the article. The presented model is based on a systematic approach and reflects the interrelation of key functional elements that ensure the stability of banking activities.

The central place in the model is occupied by the bank’s financial security, formed through the effective functioning of the risk management system, cybersecurity, internal audit, regulatory compliance and stress testing.

Cybersecurity is of particular importance in modern conditions, as the growth of digital banking services increases the impact of technological threats on the financial stability of banks.

The proposed model allows not only to identify vulnerable elements of financial security, but also to form comprehensive management solutions aimed at minimizing risks and increasing the stability of the banking sector.

Below is a table with data on credit risks of the Banking sector of the Republic of Kazakhstan for 2023-2025. The main indicator of credit risk is for problem (non-performing) loans (NPL) and the volume of banks' loan portfolio.

Table 4 - Credit Risk Indicators of the Banking Sector of Kazakhstan (2023-2025)

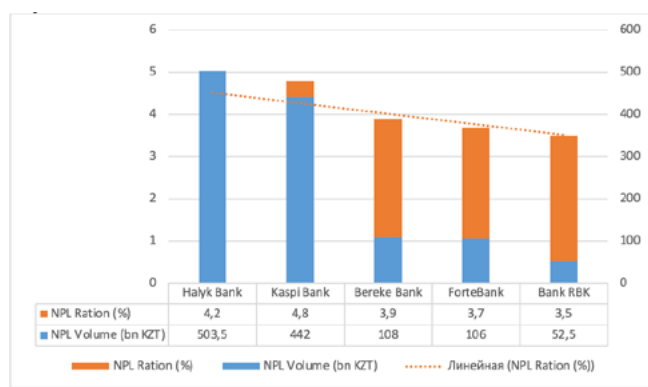
Year	Total Loan Portfolio (approx., trillion KZT)	NPL Ratio (90+ days), %	Estimated NPL Volume (trillion KZT)	Comments
2023	27,9	3,36%	0,94	Stable asset quality, moderate credit growth
2024	33,8	3,05%	1,03	Portfolio expansion with a slight improvement in the NPL ratio
2025	36,5	3,41%	1,24	Temporary increase in NPL ratio; sector remains capitalized

Note: compiled by the authors based on these sources (forbes.kz, 2023).

The table data can be calculated using the following formula:

$$\text{Estimated NPL Volume} = \text{Loan Portfolio} \times \text{NPL \%} \quad (1)$$

In 2023, credit risk remained contained; NPL ratio below 3,5%. Rapid lending growth (especially retail) with stable asset quality in 2024. In 2025, early data we can note slight increase in the NPL ratio, partly due to retail credit expansion and macro adjustments.



Note: compiled by the authors based on data (dknews.kz, 2026).

Figure 2 allows us to see Halyk Bank & Kaspi Bank show relatively higher credit risk exposure per loan portfolio, with large absolute volumes reflecting both their market size and loan book expansion. Bereke Bank & ForteBank moderate problem loan ratios, consistent with smaller portfolios. As for the last Bank RBK, lower volume but still among the notable top 5 in 2025.

In synthesis, Kazakhstan's banking sector is a tale of 2 risks: the visible, quantifiable exposure of dominant players versus the latent, ratio-intensive vulnerability of mid-tier institutions. Effective risk governance will require tailored strategies that address both dimensions-scale-driven systematic risk and intensity-driven institutional

fragility-to maintain financial stability amid an uncertain macroeconomic horizon.

Since 2022, the Agency of the Republic of Kazakhstan on Regulation and Development of Financial Market (ARDF) has been carrying out annual supervisory stress tests of systemically important second-tier banks. The main purpose of stress testing is a comprehensive assessment of the banking system's resilience to potential economic shocks, as well as identification and timely elimination of key risks and vulnerabilities.

The stress testing procedure consists of several interrelated stages:

- at the first stage, a preliminary assessment of banks' asset quality (Asset Quality Review, AQR) is conducted, aimed at ensuring the reliability and objectivity of the initial data used for further analysis. In 2023, this review covered the 11 largest banks, the aggregate share of which was about 84% of assets and 85% of the loan portfolio of the banking sector of the Republic of Kazakhstan.

- the next stage includes the development of two scenarios of economic development: baseline and stress scenario. The baseline scenario is formed based on a consensus forecast of macroeconomic indicators, reflecting the most likely course of events. In turn, the stress scenario provides for a sharp deterioration of the macroeconomic situation and includes a decline in GDP growth rates, accelerated inflation, lower world oil prices, and a significant depreciation of the national currency.

- within the framework of the third stage, banks independently model the impact of these scenarios on their own financial indicators. Particular attention is paid to changes in such key indicators as capital adequacy, profitability level, and dynamics of problem loans. The regulator exercises strict control over the banks' compliance with the approved methodology and the correctness of the calculations.

- at the final stage of stress testing, each bank receives individual recommendations from the regulator aimed at improving internal risk management procedures and enhancing overall resilience to potential crisis events.

Eleven banks took part in the stress testing, including the country's largest financial institutions: Halyk Bank, Kaspi Bank, Jusan Bank, ForteBank, Bank CenterCredit, Eurasian Bank, Altyn Bank, Bank RBK, Nurbank, Home Credit Bank, and Freedom Bank.

The analysis also revealed a significant impact of certain risks on the banks' performance. In particular, credit risk led to a decrease in capital adequacy by 5,2 percentage points and market risk by 2,4 percentage points. At the same time, these negative effects were fully compensated for by the growth of interest and non-interest income of the banks, whose positive contribution to the capital amounted to 6,6 percentage points.

Particular attention is drawn to the potential growth in the level of problem loans. According to the stress scenario, the share of such loans may increase by 2,5 times - from 13,5% to 35,8% (gov.kz, 2024).

Thus, the annual supervisory stress tests conducted by the ARDF represent an effective tool of risk-oriented approach in the regulation of the banking sector. This tool allows timely identification of threats, improving the quality of risk management and ensuring the resilience of the banking system of Kazakhstan to possible economic shocks. It is planned to continue and develop the practice of stress testing, including the expansion of banks' coverage and the improvement of applied methodologies.

The diagram below shows the minimum value of k1 in the stress scenario of each stress testing cycle (Figure 3):

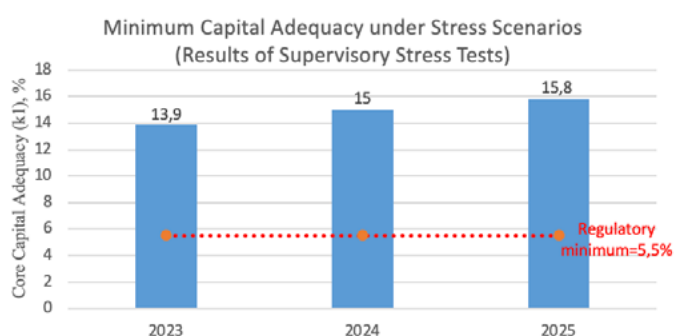


Figure 3 - The minimum k1 value in the stress scenario of each stress test cycle

Note: compiled by the authors based on data (gov.kz, 2024).

The chart shows the dynamics of the minimum level of capital adequacy of banks (k1) based on the results of supervisory stress tests for the period 2023-2025. The horizontal line reflects the minimum capital adequacy ratio set by the regulator at 5.5%.

The data obtained indicate a steady excess of the actual values of the indicator over the regulatory minimum throughout the period under review. In 2023, the value of the k1 coefficient was 13.9% in 2024 -15%, and in 2025 (forecast value) – 15.8%, which indicates a gradual strengthening of the capital stability of the banking sector even under stressful scenarios.

The increase in the capital adequacy ratio reflects an increase in the ability of second-tier banks to withstand external shocks, including macroeconomic instability and increased cyber risks, which is an important element of ensuring their financial security.

In addition, the domestic banking sector also applies various methods of analyzing financial security that are in line with international standards and adapted to national conditions. Thus, the coefficient analysis is actively used to assess the financial stability of banks. Key indicators include:

- Capital Adequacy Ratio (CAR), which shows the bank's ability to cover potential losses at the expense of its own capital;
- liquidity ratio, aimed at assessing the bank's ability to fulfil short-term obligations;
- profitability ratios (ROA, ROE), measuring the efficiency of assets and equity capital utilization. These indicators are regularly analyzed as part of supervisory procedures and internal control of banks.

Kazakhstan's banks also use rating systems for a comprehensive assessment of their financial condition and risks. Thus, the Kazakhstan Deposit Guarantee Fund (KDGF) has developed a model for assessing the financial condition of banks, which allows them to classify them by risk level and set appropriate contribution rates.

Since 2019, the Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market applies the SREP methodology in the supervisory assessment of second-tier banks. This risk-oriented approach is in line with the best international practices and allows for more effective supervision of banks' activities.

Banks are required to assess information security risks in accordance with the approved methodology. This includes creating a list of critical information assets, assessing risks for these assets and determining the level of materiality of losses from possible information security breaches.

To monitor and analyze information security incidents, banks are connected to the «Qainar» automated information-processing system.

This system makes it possible to effectively monitor threats and vulnerabilities, as well as to respond to information security incidents in a timely manner.

Kazakhstan banks actively use Value-at-Risk (VaR) to assess market risks (interest rate, currency and price). In conditions of increased volatility in 2022-2024. VaR-indicators temporarily increased, but remained within controlled limits. For example, a sharp increase in the NBRK prime rate and devaluation of the tenge in early 2022 were successfully compensated by a reduction in open currency positions and interest rate risks. According to the regulator, the maximum capital reduction due to market risks during stress tests was only about 2-3 percentage points of the Tier 1 capital adequacy ratio (k1), which corresponds to an acceptable level.

The largest banks, such as Halyk Bank and Kaspi Bank, in their internal tests also demonstrated resilience to market shocks due to conservative risk management policies and high profitability. At the same time, the FDIC started using the VaR methodology from 2023 to better assess the market risk of banks and professional securities market participants. The results showed that even with strong shocks (+ 200 bps increase in rates, ± 5% change in the exchange rate), prudential regulations were met by all market participants, despite possible revaluation of bond portfolios.

Application of these methods allows Kazakhstani banks to maintain a high level of financial security, meet the requirements of regulators and effectively manage risks in a dynamically developing financial environment.

Thus, market risks of the largest banks of Kazakhstan are at an acceptable level, covered by current income and capital and do not threaten their financial stability. At the same time, credit risk remains the main source of vulnerability, especially in the segment of unsecured consumer lending (inbusiness.kz, 2024)

At the same time, the rapid development of advanced technologies contributes to the development of cyber threats to the banking sector of Kazakhstan. According to the National Security Committee, since the second half of

2022, large-scale DDoS attacks on government and infrastructure resources affecting the operation of online banking services have been recorded (Newtimes.kz, 2022). Cases of data leaks of client records of one of the largest banks were also revealed, presumably due to a hacked backup.

According to a Kaspersky Lab report (24kz, 2024), Kazakhstan is among the top 10 countries in the first half of 2024 in terms of the percentage of users affected by financial malware (Zhanel Zhazetova, 2024). The main attack tool (85%) was banking Trojans (CliptoShuffler and ClipBanker) that spoof data on the clipboard to steal funds. Other common threats include exploits, malicious websites and malware downloaders.

Financial losses from cyber fraud have also increased significantly, especially with the growth of online banking and fintech applications. In the first half of 2024, the number of attacks on banking web resources doubled compared to 2022.

Despite the increased threats, Kazakhstan's largest banks have improved their resilience to cyberattacks. According to the KPMG survey, the security index of websites and applications of Kazakhstan's banks (62.64) is higher than the regional average for Central Asia and the Caucasus (54.61) (assets.kpmg.com, 2022). Deloitte also confirms the compliance of banks' IT systems with international standards and the existence of cybersecurity strategies. Kaspi, Halyk Bank and other large banks are actively strengthening protection, implementing anti-fraud systems, biometric authentication and have their own threat monitoring centers. In addition, since 2022, there has been an industry-specific cybersecurity center under the National Bank and the FDIC to coordinate and share information on cyber incidents.

However, despite the measures taken, the risk remains high and the regulator has made cybersecurity a supervisory priority. In this regard, banks regularly conduct stress tests, develop operational response plans and strengthen personal data protection. Despite the growing number of attacks, major incidents with significant losses of client funds were prevented. Experts recommend continuing to strengthen protection in view of the possible complication of cyber threats such as ransomware and insider attacks. Kazakhstan's financial sector is actively engaging with international companies to increase resilience to new types of threats.

Conclusion

Thus, having studied and analyzed the main threats and risks of banks, we can conclude that the financial security of banks remains the most important element of economic stability. Kazakhstan faces threats similar to international practices, but the level of cyber defense and regulatory control is still inferior and requires further improvements. World leaders in the banking sector are actively introducing advanced technologies and regulatory mechanisms, which may become the basis for further development of Kazakhstan's financial system. To improve the financial security of banks, it is necessary to strengthen cyber defense, introduce international AML/KYC standards and improve macroeconomic policy.

The conducted comprehensive analysis of threats to the financial security of the banking system of the Republic of Kazakhstan allowed to identify and systematize the key factors:

1. Financial stability of banks. According to the data of stress testing (ARRF, IMF) and the Value-at-Risk (VaR) method, the largest banks (Halyk Bank, Kaspi Bank, Otbas Bank) showed a high level of capitalization and ability to withstand financial shocks, demonstrating a capital safety margin exceeding the normative indicators.

2. Market risk management. Application of VaR methodology confirmed effective control of market risks (currency, interest rate, price). Stress tests revealed a limited impact of these risks on the banks' capital compensated by current income, which indicates a high quality of the implemented risk management.

3. Cyber threats and information security. There was an increase in the number and complexity of cyber-attacks, while Kazakhstani banks significantly strengthened their information security infrastructure, actively implementing international standards of data protection, which allowed them to avoid significant incidents and maintain financial stability.

4. Dynamics of banks' ratings. During the period under review, international agencies (Moody's, Fitch, S&P) upgraded the ratings of leading banks (Halyk Bank, Kaspi.kz, Otbas Bank) to investment grade, which reflects improved asset quality, reduced credit risks and increased confidence of international investors.

Despite the positive trends, there are still problems that require special attention, such as the ever-increasing

level of cyber threats due to the digitalization of banking services and the development of fintech, as well as the high risk of the unsecured consumer-lending segment, which can put pressure on the capital of individual banks.

Thus, in summary, it should be noted the need for further study of international practices in terms of risk management system development, including regular stress testing, improvement of market risk assessment methods, monitoring of credit quality of assets and strengthening of cyber protection measures. Implementation of these measures will allow Kazakhstan banks to successfully adapt to the challenges of the global financial environment and apply measures to minimize them.

Acknowledgements and Conflict of Interest. There is no conflict interest.

Authors' contributions

Mussilimova T.B. – theoretical framework, literature review, data collection, interpretation of results.

Makysh S.B. – theoretical justification, problem formulation, interpretation of results.

Jumabekova A.T. – literature review, interpretation of results.

References

1. 24.kz. (26.12.2024). Каждая третья компания в Казахстане подвергалась кибератакам. <https://24.kz/ru/news/economy/687143-kazhdaya-tretya-kompaniya-v-kazakhstane-podvergalas-kiberatakam>
2. Ana V. Kovačević & Sonja D. Radenković. (11.2024). Artificial intelligence and cybersecurity in banking sector: opportunities and risks. <https://doi.org/10.48550/arXiv.2412.04495>
3. Assets.kpmg.com. (2022). KPMG Caucasus and Central Asia Banks Security Review. <https://assets.kpmg.com/content/dam/kpmg/kz/pdf/2022/09/Bank-Security-Research-kpmg.pdf>
4. Birindelli, G., & Iannuzzi, A. P. (17.10.2025). The Systemic Importance of Cyber Risk in Banks. In: Pacelli, V. (eds) Systemic Risk and Complex Networks in Modern Financial Systems. New Economic Windows. Springer, Cham. https://doi.org/10.1007/978-3-031-64916-5_16
5. Deloitte.com. (2022). Ежегодный обзор кибербезопасности банков Казахстана, октябрь 2022, Компания «Делойт» в Каспийском регионе провела свое второе исследование кибербезопасности казахстанских банков второго уровня. <https://www.deloitte.com/content/dam/assets-zone2/kz/ru/docs/about/2024/deloitte-ra-kz-banks-cyber-review-combined-with-all-uz-az-results-20221010.pdf>
6. Dknews.kz. (09.01.2026). Banks are still growing, but with more caution: what is happening in Kazakhstan's banking sector. <https://dknews.kz/en/articles-in-english/379845-banks-are-still-growing-but-with-more-caution-what-is>
7. Ensuring cybersecurity in the financial and banking sector in the context of digitalization. (2024). Journal "U". Economy. Management. Finance, 4, 222–229. <https://portal-u.ru/index.php/journal/article/view/1019>
8. Forbes.kz. (05.03.2023). Забыть про NPL: почему нужно менять подход к оценке проблемных кредитов в Казахстане. https://forbes.kz/articles/zabyit_pro_npl_pochemu_nujno_menyat_podhod_k_otsenke_problemnyih_kreditov_v_kazahstane
9. gov.kz. (2024). Отчет надзорной оценки SREP 2024. https://www.gov.kz/uploads/2025/4/16/fc8e660d7c06b8b89c58b20e23970c78_original.1201235.pdf
10. gov.kz. (16.04.2025). Отчет надзорного стресс-тестирования банков 2024. <https://www.gov.kz/memleket/entities/ardfm/documents/details/828364?lang=ru>
11. gov.kz. (28.05.2024). АРПФР опубликовало отчет надзорного стресс-тестирования банков. <https://www.gov.kz/memleket/entities/ardfm/press/article/details/169272>
12. International Monetary Fund. Monetary and Capital Markets Department. (2024). Republic of Kazakhstan: Financial System Stability Assessment. IMF Staff Country Reports, 2024(048). Accessed 01.02.2026. <https://doi.org/10.5089/9798400266041.002>
13. Kazbekova, K., Zhanibekova, G., Myrzakhanova, D., & Myrzhykbayeva, A. (2022). Risk management and financial stability of banks. BUKETOV BUSINESS REVIEW, 107(3), 56–66. <https://doi.org/10.31489/2022ec3/56-66>

14. Kerimkulova, D., Zholamanova, M., & Larionova, I. (2023). Trends in ensuring financial stability of the banking sector of Kazakhstan. Economic Series of the Bulletin of L.N. Gumilyov ENU, (2), 198–208. <https://doi.org/10.32523/2789-4320-2022-2-198-208>
15. Liu, Y., Abdul Rahman, A., Imna Mohd Amin, S., & al. (26.05.2025). Navigating fintech and banking risks: insights from a systematic literature review. Humanities and Social Sciences Communications, 12, 717. <https://doi.org/10.1057/s41599-025-05055-9>
16. Md. Waliullah, Md Zahin Hossain George, Md Tarek Hasan, Md Khorshed Alam, Mosa Sumaiya Khatun Munira & Noor Alam Siddiqui. (23.03.2025). Assessing the influence of cybersecurity threats and risks on the adoption and growth of digital banking: a systematic literature review. Cornell University. <https://arxiv.org/abs/2503.22710>
17. Nationalbank.kz. (09.09.2024). Отчет о финансовой стабильности Казахстана за 2023 год: макроэкономические риск-факторы на умеренных уровнях. <https://nationalbank.kz/ru/news/press-relizy/16990>
18. Perizat Buzaubayeva, Aigul Orazbayeva, Gulzhan Alina, Zamzagul Baimagambetova and Gulzhihan Kenges. (2024). Enhancing financial performance and risk management in Kazakhstan's banking sector. Banks and Bank Systems, 19(1), 157–169. [https://doi.org/10.21511/bbs.19\(1\).2024.14](https://doi.org/10.21511/bbs.19(1).2024.14)
19. Tadviser.ru. (06.06.2025). Информационная безопасность в банках. <https://www.tadviser.ru/index.php>
20. Ермек Сагимбаев. (12.08.2022). КНБ зафиксировано и отражено 295 млн кибератак и две тысячи DDoS-атак. <https://newtimes.kz/obshchestvo/154707-knb-zafiksirovano-i-otrazhenno-295-mln-kiberatak-i-dve-tysyachi-ddos-atak>
21. Павлов А. А. (2024). Экономическая безопасность российского банковского сектора под влиянием рисков современного финтех. <https://www.dissercat.com/content/ekonomicheskaya-bezopasnost-rossiiskogo-bankovskogo-sektora-pod-vliyaniem-riskov-sovremennog>

Мусилимова Т.Б.*, Мақыш С.Б., Жұмабекова А.Т.

Esil University, Астана, Қазақстан

Қазақстандағы банк қызметінің қаржылық қауіпсіздігінің тәуекелдері

Аңдатпа. Цифрландырудың қарқынды дамуына байланысты банктер озық қаржылық технологияларды белсенді түрде енгізуде, бұл киберқауіптерге және ашықтық пен тұрақтылықты қамтамасыз етуді қиындататын алаяқтық схемалардың өсуіне байланысты қосымша қауіптерді тудырады: хакерлік шабуылдар, деректердің бұзылуы және вирустық шабуылдар. Мақсаты – әртүрлі сыртқы және ішкі қауіптер жағдайында қаржы жүйесінің тұрақтылығын сақтау мақсатында банктердің қаржылық қауіпсіздігіне әсер ететін негізгі тәуекелдерді талдау. Банктердің тәуекелдерінің негізгі түрлері зерттелді және оларды жүйелеу жүргізілді, банктердің қауіпсіздігі мен тұрақтылығына тікелей әсер ететін негізгі факторлар қарастырылды. Мақалада келесі әдістер қолданылады: құрылымдық және функционалдық талдау; салыстырмалы талдаудың арқасында отандық банктердің қаржылық тәуекелдерін шетелдіктермен салыстыруға болады; сондай-ақ Қазақстан ұлттық банктері мен басқа да талдамалық мекемелер ұсынған статистикалық деректер. Сондай-ақ, Қазақстан Республикасының банк секторының 2023-2025 жылдарға арналған несиелік тәуекелдерінің есебі келтірілген. Нәтижелер – халықаралық тәжірибеге сүйене отырып, авторлар киберқауіпсіздікті арттыру, нормативтік талаптарды сақтау, ішкі аудит және екінші деңгейдегі банктердегі стресс-тестілеу үшін тәуекелдерді басқарудың кешенді стратегияларын әзірлеу қажеттілігін атап көрсетеді. Қорытынды – авторлар банктердің қаржылық қауіпсіздігіне әсер ететін тәуекелдерді азайту, сондай-ақ банк секторының тұрақтылығын қамтамасыз ету үшін киберқауіпсіздік жүйелерін жетілдіру және қаржылық қауіпсіздікті нығайту бойынша ұсыныстар береді.

Түйін сөздер: қаржылық қауіпсіздік, банктік тәуекелдер, киберқауіпсіздік, деректердің бұзылуы, цифрландыру, алаяқтық.

Риски финансовой безопасности банковского сектора в Казахстане

Аннотация. В связи с быстрым развитием цифровизации, банки активно внедряют передовые финансовые технологии, что вызывает дополнительные угрозы, связанные с киберугрозами и ростом мошеннических схем, затрудняющих обеспечение прозрачности и устойчивости, хакерские атаки, утечка данных и вирусные атаки. Цель – проанализировать основные риски, влияющие на финансовую безопасность банков с целью поддержания стабильности финансовой системы перед лицом различных внешних и внутренних угроз. Изучены основные виды рисков банков и проведена их систематизация, рассмотрены основные факторы, оказывающие непосредственное влияние на безопасность и устойчивость банков. В статье используются следующие методы: структурный и функциональный анализ; сравнительный анализ позволил сопоставить финансовые риски отечественных банков с зарубежными; а также статистические данные, предоставленные Национальным банком Казахстана и другими аналитическими учреждениями. Также приведен отчет о кредитных рисках банковского сектора Республики Казахстан на 2023–2025 годы. Результаты – опираясь на международный опыт, авторы подчеркивают необходимость разработки комплексных стратегий управления рисками для повышения кибербезопасности, соблюдения нормативных требований, внутреннего аудита и стресс тестирования в банках второго уровня. Заключение – авторы дают рекомендации по минимизации рисков, влияющих на финансовую безопасность банков, а также по совершенствованию систем кибербезопасности и укреплению финансовой безопасности для обеспечения устойчивости банковского сектора.

Ключевые слова: финансовая безопасность, банковские риски, кибербезопасность, утечка данных, цифровизация, мошенничество.

References

1. 24.kz. (26.12.2024). Kazhdaya tretya kompaniya v Kazakhstane podvergalas kiberatakam [Every third company in Kazakhstan has been subjected to cyberattacks]. <https://24.kz/ru/news/economy/687143-kazhdaya-tretya-kompaniya-v-kazakhstane-podvergalas-kiberatakam> [in Russian].
2. Ana V. Kovačević & Sonja D. Radenković. (11.2024). Artificial intelligence and cybersecurity in banking sector: opportunities and risks. <https://doi.org/10.48550/arXiv.2412.04495> [in English].
3. Assets.kpmg.com. (2022). KPMG Caucasus and Central Asia Banks Security Review. <https://assets.kpmg.com/content/dam/kpmg/kz/pdf/2022/09/Bank-Security-Research-kpmg.pdf> [in English].
4. Birindelli, G., & Iannuzzi, A. P. (17.10.2025). The Systemic Importance of Cyber Risk in Banks. In: Pacelli, V. (eds) Systemic Risk and Complex Networks in Modern Financial Systems. New Economic Windows. Springer, Cham. https://doi.org/10.1007/978-3-031-64916-5_16 [in English].
5. Deloitte.com. (2022). Ezhegodnyi obzor kiberbezopasnosti bankov Kazakhstana, oktyabr 2022, Kompaniya «Deloitte» v Kaspiiskom regione provela svoje vtoroe issledovanie kiberbezopasnosti kazakhstanskikh bankov vtorogo urovnya [Annual review of cybersecurity of banks in Kazakhstan, October 2022]. <https://www.deloitte.com/content/dam/assets-zone2/kz/ru/docs/about/2024/deloitte-ra-kz-banks-cyber-review-combined-with-all-uz-az-results-20221010.pdf> [in Russian].
6. Dknews.kz. (09.01.2026). Banks are still growing, but with more caution: what is happening in Kazakhstan's banking sector. <https://dknews.kz/en/articles-in-english/379845-banks-are-still-growing-but-with-more-caution-what-is> [in English].
7. Ensuring cybersecurity in the financial and banking sector in the context of digitalization. (2024). Journal "U". Economy. Management. Finance, 4, 222–229. <https://portal-u.ru/index.php/journal/article/view/1019> [in English].
8. Forbes.kz. (05.03.2023). Zabyt pro NPL: pochemu nuzhno menyat podkhod k otsenke problemnykh kreditov

-
- v Kazakhstane [Forget about NPL: why it is necessary to change the approach to assessing problem loans in Kazakhstan]. https://forbes.kz/articles/zabyit_pro_npl_pochemu_nujno_menyat_podhod_k_otsenke_problemnyih_kreditov_v_kazahstane [in Russian].
9. gov.kz. (2024). Otchet nadzornoj otsenki SREP 2024 [Supervisory Review and Evaluation Process SREP 2024 report]. https://www.gov.kz/uploads/2025/4/16/fc8e660d7c06b8b89c58b20e23970c78_original.1201235.pdf [in Russian].
 10. gov.kz. (16.04.2025). Otchet nadzornogo stress-testirovaniya bankov 2024 [Report on supervisory stress testing of banks 2024]. <https://www.gov.kz/memleket/entities/ardfm/documents/details/828364?lang=ru> [in Russian].
 11. gov.kz. (28.05.2024). ARFR opublikovalo otchet nadzornogo stress-testirovaniya bankov [ARFR published a report on supervisory stress testing of banks]. <https://www.gov.kz/memleket/entities/ardfm/press/article/details/169272> [in Russian].
 12. International Monetary Fund. Monetary and Capital Markets Department. (2024). Republic of Kazakhstan: Financial System Stability Assessment. IMF Staff Country Reports, 2024(048). Accessed 01.02.2026. <https://doi.org/10.5089/9798400266041.002> [in English].
 13. Kazbekova, K., Zhanibekova, G., Myrzakhanova, D., & Myrzhikbayeva, A. (2022). Risk management and financial stability of banks. BUKETOV BUSINESS REVIEW, 107(3), 56–66. <https://doi.org/10.31489/2022ec3/56-66> [in English].
 14. Kerimkulova, D., Zholamanova, M., & Larionova, I. (2023). Trends in ensuring financial stability of the banking sector of Kazakhstan. Economic Series of the Bulletin of L.N. Gumilyov ENU, (2), 198–208. <https://doi.org/10.32523/2789-4320-2022-2-198-208> [in English].
 15. Liu, Y., Abdul Rahman, A., Imna Mohd Amin, S., & al. (26.05.2025). Navigating fintech and banking risks: insights from a systematic literature review. Humanities and Social Sciences Communications, 12, 717. <https://doi.org/10.1057/s41599-025-05055-9> [in English].
 16. Md. Waliullah, Md Zahin Hossain George, Md Tarek Hasan, Md Khorshed Alam, Mosa Sumaiya Khatun Munira & Noor Alam Siddiqui. (23.03.2025). Assessing the influence of cybersecurity threats and risks on the adoption and growth of digital banking: a systematic literature review. Cornell University. <https://arxiv.org/abs/2503.22710> [in English].
 17. Nationalbank.kz. (09.09.2024). Otchet o finansovoi stabilnosti Kazakhstana za 2023 god: makroekonomicheskie risk-factory na umerennykh urovnyakh [Financial Stability Report of Kazakhstan for 2023: macroeconomic risk factors at moderate levels]. <https://nationalbank.kz/ru/news/press-relezy/16990> [in Russian].
 18. Perizat Buzaubayeva, Aigul Orazbayeva, Gulzhan Alina, Zamzagul Baimagambetova and Gulzhihan Kenges. (2024). Enhancing financial performance and risk management in Kazakhstan's banking sector. Banks and Bank Systems, 19(1), 157–169. [https://doi.org/10.21511/bbs.19\(1\).2024.14](https://doi.org/10.21511/bbs.19(1).2024.14) [in English].
 19. Tadviser.ru. (06.06.2025). Informatsionnaya bezopasnost v bankakh [Information security in banks]. <https://www.tadviser.ru/index.php> [in Russian].
 20. Ermek Sagimbayev. (12.08.2022). KNB zafiksirovano i otrazhenno 295 mln kiberatak i dve tysyachi DDoS-atak [The National Security Committee recorded and repelled 295 million cyberattacks and two thousand DDoS attacks]. <https://newtimes.kz/obshchestvo/154707-knb-zafiksirovano-i-otrazhenno-295-mln-kiberatak-i-dve-tysyachi-ddos-atak> [in Russian].
 21. Pavlov, A. A. (2024). Ekonomicheskaya bezopasnost rossiiskogo bankovskogo sektora pod vliyaniem riskov sovremennogo fintekha [Economic security of the Russian banking sector under the influence of risks of modern fintech]. <https://www.dissercat.com/content/ekonomicheskaya-bezopasnost-rossiiskogo-bankovskogo-sektora-pod-vliyaniem-riskov-sovremennog> [in Russian].

Information about the authors:

Mussilimova T.B. – Corresponding author, PhD student, Esil University, A. Zhubanova, 7, 010000, Astana, Kazakhstan.

Makysh S.B. – Doctor of Economics, Professor, Vice-Rector for Academic Affairs, Esil University, A. Zhubanova, 7, 010000, Astana, Kazakhstan.

Jumabekova A.T. – Candidate of Economic Sciences, Acting Associate Professor, “Finance” Department, Esil University, A. Zhubanova, 7, 010000, Astana, Kazakhstan.

Мусилимова Т.Б. – хат-хабар авторы, «Esil University» докторанты, А.Жұбанов, 7, 010000, Астана, Қазақстан.

Мақыш С.Б. – экономика ғылымдарының докторы, профессор, академиялық мәселелер жөніндегі проректор, «Esil University», А.Жұбанов, 7, 010000, Астана, Қазақстан

Жұмабекова А.Т. – экономика ғылымдарының кандидаты, «Қаржы» кафедрасының доцент м.а., «Esil University», А.Жұбанов, 7, 010000, Астана, Қазақстан.

Мусилимова Т.Б. – автор для корреспонденции, докторант PhD «Esil University», А. Жубанова, 7, 010000, Астана, Казахстан.

Макыш С.Б. – д. э. н., профессор, проректор по академическим вопросам, «Esil University», А.Жубанова, 7, 010000, Астана, Казахстан.

Джумабекова А.Т. – к. э. н., и.о. доцента кафедры «Финансы», «Esil University», А.Жубанова, 7, 010000, Астана, Казахстан.



Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY NC) license (<https://creativecommons.org/licenses/by-nc/4>).