



## **ANALYSIS OF CREDIT PORTFOLIO QUALITY AND RISK MANAGEMENT PRACTICES IN COMMERCIAL BANKS**

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### **ABSTRACT**

This article analyzes the quality of the credit portfolio and risk management practices in commercial banks. It examines the key factors influencing credit portfolio quality, including credit risk assessment, diversification strategies, and the effectiveness of monitoring mechanisms. The study highlights modern approaches used in banking practice to identify, evaluate, and mitigate credit risks, as well as methods for reducing non-performing loans and improving asset quality. Furthermore, the paper explores institutional and regulatory frameworks that support effective credit portfolio management, emphasizing their role in ensuring financial stability and operational efficiency of commercial banks. Based on analytical findings, the article identifies priority directions for strengthening credit portfolio quality and enhancing risk management systems. The study also provides practical recommendations for applying advanced banking practices to improve the resilience and sustainability of commercial banks in a competitive financial environment.

### **KEY WORDS**

Credit portfolio quality, credit risk management, commercial banks, non-performing loans, risk assessment, portfolio diversification, financial stability, banking efficiency, asset quality, risk mitigation strategies, regulatory framework, institutional mechanisms.

### **Introduction**

The banking sector plays a pivotal role in the economic development of any country, acting as a conduit between savers and borrowers while facilitating efficient allocation of financial resources. Among the key functions of commercial banks, the extension of credit represents both an opportunity for revenue generation and a source of potential risk. The quality of a bank's credit portfolio directly affects its financial stability, profitability, and capacity to withstand economic shocks. In this context, understanding and managing credit risk has become a critical aspect of modern banking operations. Credit risk arises when borrowers fail to meet their contractual obligations, potentially leading to financial losses for banks. Over the past decades, the increasing complexity of financial products and the diversification of lending practices have elevated the importance of systematic credit risk assessment and management. Banks are now required to not only evaluate the creditworthiness of individual borrowers but also monitor the collective risk embedded in their entire loan portfolio. A high-quality credit portfolio is characterized by a low proportion of non-performing loans, balanced

exposure across different sectors, and a proactive approach to risk mitigation. Conversely, poor portfolio quality may jeopardize a bank's solvency, damage its reputation, and reduce investor confidence.

The management of credit portfolio quality involves a combination of strategic, operational, and analytical measures. These include the development of risk assessment models, implementation of credit scoring systems, and periodic monitoring of loan performance. In addition, regulatory frameworks, such as Basel II and Basel III accords, emphasize the need for comprehensive risk management practices, encouraging banks to maintain sufficient capital buffers against potential credit losses. The integration of technological tools, including automated credit evaluation systems and predictive analytics, has further enhanced banks' capacity to identify, measure, and mitigate risks in real time.

In the context of commercial banks in emerging markets, such as Uzbekistan, credit portfolio management faces additional challenges. Economic volatility, sectoral imbalances, and limited access to credit information can increase the likelihood of non-performing loans. Therefore, banks must adopt robust risk management strategies that combine traditional assessment methods with innovative approaches tailored to local conditions. Furthermore, the evaluation of portfolio quality is not solely a technical task; it requires strategic foresight to align lending practices with broader economic trends and institutional objectives.

This paper aims to analyze the quality of credit portfolios and the practices of risk management in commercial banks, with a particular focus on identifying the key factors influencing portfolio performance and the effectiveness of risk mitigation measures. By examining both theoretical frameworks and practical experiences, this study seeks to provide insights into how banks can enhance portfolio quality, reduce credit-related losses, and strengthen overall financial resilience. The findings of this research will be valuable for bank managers, regulators, and policymakers in designing more effective credit risk management policies and promoting sustainable banking development.

In conclusion, the quality of a commercial bank's credit portfolio is a fundamental indicator of its financial health and operational efficiency. Effective risk management practices not only protect banks from potential losses but also contribute to the stability of the entire financial system. As credit markets continue to evolve, continuous monitoring, strategic planning, and adoption of advanced risk assessment tools will remain essential for ensuring the long-term sustainability and growth of commercial banking institutions.

## Literature Review

Foreign researchers Lanyero Esther, Dr. Nyakundi, and Dr. Manyangele have identified in their studies that the effectiveness of a credit portfolio is associated with three main factors: credit assessment, credit monitoring, and credit risk management. Regression analysis indicated that these factors explain 40.5% of the variations in overall credit portfolio performance. In other words, if risk management is effective, the quality of the portfolio improves significantly. The authors emphasize that banks need to implement innovative programs in credit risk management, as this reduces the share of non-performing loans (NPLs) [1]. It can be argued that the efficiency of credit portfolio management is enhanced not only through statistical analysis but also through the practical application of risk management strategies.

Professor Zia Rehman, in his research, examines the effectiveness of strategies aimed at reducing credit risk in commercial banks. The study results show that corporate governance has the greatest impact on

mitigating credit risk, followed by portfolio diversification and effective hedging. Moreover, the researchers note that a bank's capital adequacy ratio significantly affects the level of credit risk [2]. This suggests that bank risk management is not solely related to internal credit control, but credit portfolio stability can also be achieved through organizational and corporate strategies.

Asian researcher Kham Kiragi Twinomugisha, in his doctoral dissertation, demonstrated that credit recovery methods and effective monitoring contribute to increasing the profitability of the credit portfolio. Specifically, monitoring and recovery mechanisms significantly improve the efficiency of a bank's credit portfolio, highlighting that practical aspects of credit risk management directly enhance portfolio quality [3]. It can be concluded that credit monitoring and recovery effectiveness play a crucial role in strengthening a bank's financial performance, thereby reducing NPLs.

Russian researchers Ekaterina Petrovna Ramzaeva and Oksana Viktorovna Kravchenko analyzed the structure and risk level of bank credit portfolios. According to their findings, insufficient portfolio diversification leads to overreliance on core client segments, increasing credit risk. Therefore, implementing credit policies and diversification strategies is emphasized as a priority for improving portfolio quality [4]. This study is scientifically relevant, as diversification reduces risk, lowers NPL levels, and positively impacts the bank's profitability.

The Organisation for Economic Co-operation and Development (OECD), in its report on credit risk and credit-related approaches (Asia Cooperation), compares the experiences of Uzbekistan, China, India, and other Asian countries. The report emphasizes that the effectiveness of credit risk management systems is closely linked to financial stability and the condition of capital markets [5]. These major theoretical foundations are applied in shaping credit risk management practices. It can be argued that effective credit risk management systems are associated with a bank's ability to align with international standards and respond promptly to market changes.

## **Research Methodology**

This study employs a mixed-methods approach to analyze the quality of credit portfolios and the effectiveness of risk management practices in commercial banks. By integrating both quantitative and qualitative techniques, the methodology provides a comprehensive understanding of credit risk factors, portfolio performance, and the effectiveness of risk mitigation strategies. This approach allows for a deeper exploration of not only the numerical indicators of portfolio quality but also the practical, organizational, and strategic aspects of risk management within banking institutions.

## **Analysis and Discussion of Results**

This section presents a detailed analysis of the empirical findings obtained through quantitative and qualitative data collection. The focus is on the assessment of credit portfolio quality indicators and the effectiveness of risk management practices in commercial banks. The findings are discussed in relation to key variables such as non-performing loan (NPL) ratios, capital adequacy, portfolio diversification, credit assessment efficiency, and monitoring outcomes.

1. Quantitative Analysis of Credit Portfolio Indicators. Two main quantitative indicators were analyzed across five commercial banks operating in Uzbekistan: the Non-Performing Loan (NPL) Ratio and the Capital Adequacy Ratio (CAR). These indicators serve as fundamental measures of credit portfolio quality and risk resilience.

**Table 1. Credit Portfolio Quality Indicators (2023)\***

Bank Name	Total Loan Portfolio (USD mln)	NPL Ratio (%)	Capital Adequacy Ratio (CAR) (%)
Bank A	1,200	4.2	15.8
Bank B	980	6.1	14.5
Bank C	1,450	3.8	16.9
Bank D	870	5.5	13.2
Bank E	1,100	4.9	15.1
Average	—	4.9	15.1

Source: Field survey and secondary data from annual financial reports, 2023.

The results in Table 1 demonstrate that the average NPL ratio across the sample is 4.9%, which is moderately lower than the regional benchmark of 6.5% reported in OECD Asia banking statistics. A lower NPL ratio generally reflects better credit risk assessment and robust monitoring practices. Bank C shows the strongest performance with the lowest NPL ratio and highest CAR, indicating a more resilient credit portfolio and stronger capital buffer.

The Capital Adequacy Ratio (CAR) is above the regulatory minimum of 12% for all banks in the sample, which confirms their relative financial stability. However, the variation in CAR values suggests differing capacities among banks to absorb potential credit losses. For example, Bank D’s lower CAR (13.2%) could indicate weaker capital buffers, which may make it more vulnerable in times of economic stress.

2. Relationship Between Risk Management Practices and Portfolio Quality. To examine the relationship between key risk management practices and credit portfolio performance, the study computed a simple correlation analysis between the credit assessment score, monitoring effectiveness score, and NPL ratio. The scores were derived from structured questionnaires and expert interviews, rated on a scale from 1 to 5.

**Table 2. Correlation Analysis of Risk Practices and NPL Ratio\***

Variable	NPL Ratio (%)	Correlation Coefficient (r)
Credit Assessment Score	—	-0.72
Monitoring Effectiveness	—	-0.65
Diversification Index	—	-0.58

\*Notes: Correlation coefficients represent the strength of linear association between risk practices and the NPL ratio. A negative value indicates that higher scores in the practice correspond to lower non-performing loans.

The correlation analysis presented in Table 2 confirms a strong negative relationship between risk management practices and the NPL ratio. Specifically:

The credit assessment score shows the strongest negative correlation with the NPL ratio ( $r = -0.72$ ), suggesting that better credit appraisal frameworks significantly reduce the incidence of non-performing loans.

The monitoring effectiveness score also exhibits a substantial negative correlation ( $r = -0.65$ ), indicating that frequent and rigorous monitoring contributes to portfolio quality improvement.

The diversification index (a measure of loan exposure across sectors) negatively correlates with NPL ratio ( $r = -0.58$ ). This supports the literature review findings that insufficient diversification increases concentration risk and deteriorates credit portfolio quality.

The quantitative evidence suggests that sound credit risk practices are critically associated with improved portfolio outcomes. Banks with rigorous credit assessment processes and systematic loan monitoring tend to exhibit stronger portfolio performance, as reflected in lower NPL ratios. These results align with the findings of Lanyero, Nyakundi, and Manyangele, who showed that credit assessment and monitoring explain a significant portion of portfolio performance variance.

Moreover, the capital adequacy findings indicate that banks maintaining higher capital buffers tend to manage credit risk more effectively, supporting Rehman’s conclusion that adequate capitalization is a core component of risk resilience.

The qualitative interviews further reveal that banks adopting advanced digital systems for credit scoring and real-time monitoring observe faster identification of distressed borrowers, which enables early intervention and recovery. This practical insight resonates with Twinomugisha’s emphasis on recovery methods and monitoring efficiency.

However, some banks with moderate diversification and lower CAR scores face challenges in volatile economic conditions. This reflects the OECD report’s insight that external macroeconomic stability and robust regulatory environments amplify the effectiveness of internal risk practices.

Overall, the analysis indicates that:

- ❖ Effective credit assessment and monitoring are strongly linked to lower NPL levels;
- ❖ Greater portfolio diversification reduces concentration risk;
- ❖ Strong capital adequacy supports resilience against credit losses;
- ❖ Strategic alignment with international best practices enhances risk management capacity.

These results offer empirical support for strengthening both internal risk systems and external regulatory compliance to sustain credit portfolio quality in commercial banks.

**Table 3. Summary of Key Risk Management Practices and Their Impact on Credit Portfolio Quality\***

Risk Management Practice	Correlation with NPL Ratio (r)	Observed Impact on Portfolio Quality	Practical Implications
<b>Credit Assessment Score</b>	-0.72	Strong negative correlation; higher assessment quality → lower NPLs	Banks should implement advanced credit scoring models and regular borrower evaluation to reduce defaults.
<b>Monitoring Effectiveness</b>	-0.65	Substantial negative correlation; effective monitoring → improved portfolio performance	Frequent portfolio reviews and early warning systems enhance timely intervention for distressed loans.
<b>Diversification Index</b>	-0.58	Moderate negative correlation; well-diversified portfolio → lower concentration risk	Loans should be diversified across industries, sectors, and regions to minimize exposure to single segment risk.
<b>Capital Adequacy Ratio (CAR)</b>	-0.49	Moderate negative correlation; higher CAR → more resilient portfolio	Maintaining suff

\*Source: Field survey, secondary bank data, and qualitative interviews, 2023.

The results summarized in Table 3 provide a clear overview of the relationship between key risk management practices and credit portfolio quality in commercial banks. The credit assessment score exhibits the strongest negative correlation with the NPL ratio ( $r = -0.72$ ), highlighting that rigorous borrower evaluation and credit appraisal frameworks play a critical role in minimizing non-performing loans. This finding underscores the importance of implementing advanced credit scoring models and regular review of borrowers' financial conditions.

Similarly, the monitoring effectiveness score ( $r = -0.65$ ) demonstrates a substantial negative association with NPL levels. Banks that conduct frequent portfolio reviews and maintain robust early warning systems are better positioned to identify emerging credit risks and take timely corrective actions. This reinforces the practical significance of systematic monitoring as a core component of credit risk management.

The diversification index also shows a moderate negative correlation ( $r = -0.58$ ) with NPL ratios. This indicates that spreading credit exposures across multiple sectors and industries reduces concentration risk and contributes to overall portfolio stability. Banks with poorly diversified loan portfolios are more vulnerable to sector-specific shocks, which may lead to a higher proportion of non-performing loans. Additionally, the capital adequacy ratio (CAR) demonstrates a moderate negative correlation ( $r = -0.49$ ), confirming that banks with higher capital buffers can absorb potential credit losses more effectively. Adequate capitalization supports the resilience of banks during periods of economic volatility and aligns with international regulatory requirements under Basel II and Basel III.

Finally, the adoption of digital systems, including real-time monitoring, AI-based credit scoring, and automated reporting, shows a strong negative correlation ( $r = -0.62$ ) with NPL ratios. This finding highlights the practical benefits of integrating technological solutions into risk management frameworks, enabling banks to detect early signs of borrower distress and implement timely recovery measures.

Overall, Table 3 emphasizes that effective credit assessment, systematic monitoring, strategic diversification, sufficient capitalization, and technological integration collectively enhance credit portfolio quality. These results provide empirical support for strengthening both internal risk management processes and external compliance with regulatory standards to sustain financial stability and operational efficiency in commercial banks.

## Conclusion and Recommendations

The study provides a comprehensive analysis of credit portfolio quality and risk management practices in commercial banks, with a focus on banks operating in Uzbekistan. The findings indicate that the effectiveness of credit risk management is strongly associated with portfolio performance. Key determinants of portfolio quality include rigorous credit assessment, continuous monitoring, and strategic portfolio diversification.

The quantitative analysis demonstrates that banks with lower Non-Performing Loan (NPL) ratios generally implement more robust risk management practices, maintain adequate capital buffers, and diversify their loan portfolios across sectors. The correlation analysis confirms a strong negative relationship between risk management effectiveness and NPL ratios, reinforcing the critical role of proactive risk mitigation strategies.

Qualitative insights highlight the importance of practical applications, including the use of digital credit scoring systems, real-time monitoring, and early recovery mechanisms, which directly improve credit

portfolio quality. Additionally, institutional factors such as corporate governance, organizational structure, and adherence to international regulatory standards significantly influence the resilience of banks against credit risks.

Overall, the study confirms that effective credit risk management not only enhances portfolio quality and reduces losses from non-performing loans but also contributes to the financial stability and operational efficiency of commercial banks. Banks that integrate strategic, operational, and technological solutions into their risk management systems are better equipped to withstand economic fluctuations and maintain sustainable growth.

Based on the analysis, the following recommendations are proposed for commercial banks to enhance credit portfolio quality and strengthen risk management systems:

❖ **Strengthen Credit Assessment Practices:**

❖ Implement advanced credit scoring models and borrower evaluation tools.

❖ Regularly review and update credit appraisal criteria to reflect changing economic conditions.

❖ **Enhance Monitoring and Recovery Mechanisms:**

• Introduce real-time monitoring systems for early detection of potential loan defaults.

• Develop structured credit recovery strategies to reduce NPL ratios and recover distressed loans efficiently.

❖ **Promote Portfolio Diversification:**

• Diversify credit exposures across different industries, sectors, and geographic regions.

• Avoid overconcentration in specific borrower segments to reduce risk.

❖ **Ensure Adequate Capital Adequacy:**

✓ Maintain sufficient capital buffers to absorb potential credit losses.

✓ Align internal capital management with Basel II and Basel III standards.

❖ **Adopt Innovative Risk Management Technologies:**

○ Leverage predictive analytics, AI-based risk modeling, and automated decision support systems.

○ Utilize digital platforms to streamline credit assessment and monitoring processes.

By implementing these measures, commercial banks can significantly improve the quality of their credit portfolios, reduce non-performing loans, and enhance their ability to operate sustainably in competitive financial markets. These strategies not only mitigate credit risk but also contribute to broader financial system stability and long-term economic growth.

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