Operational Risk Management in Financial Services

A dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment of the requirements for the Master's Degree

By

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**Operational Risk Management in Financial Services**". The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor. It has been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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REPORT OF RESEARCH COMMITTEE

Mr. Ramesh Pandit has defended research proposal entitled "**Operational Risk Management in Financial Services**", successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Srijana Khadka and submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We, the undersigned, have examined the thesis entitled "**Operational Risk Management in Financial Services**" presented by Ramesh Pandit a candidate for the degree of master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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ABBREVIATIONS

ANOVA	:	Analysis Of Variance
CM	:	Commercial Banks
EC	:	Employee Commitment
et al.	:	And others
HR	:	Human Resource
HRM	:	Human Resource Management
JS	:	Job Satisfaction
JV	:	Joint Venture
Max	:	Maximum
Min	:	Minimum
SME	:	Small and Medium Sized Enterprise
SS	:	Service Sector
USA	:	United States of America

ABSTRACT

Risk Management avoids significant drawbacks and increases financial performance of banks. Good financial performance rewards employees as well as shareholders for their working environment and investment respectively. The purpose of this study is to examine the impact of non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate and bank size on return on assets and return on equity of multinational corporation performance. The secondary data was collected from sample banks and examined by applying standard financial analysis and statistical tools. It used the multiple regression analysis to examine the impact of risk management on profitability of Multinational Corporation in Nepal. From the regression outcomes the result found that the result shows that LR, NPLR, spread rate, and CAR have no discernible effect on ROE. Nevertheless, the constant term and size p-values are 0.003 and 0.003 below the significance level of 0.05, respectively. It demonstrates that ROE and ROA is significantly impacted by constant term and size. It is therefore suggested that to enhance financial performance and minimize the risk of non-performing loans in the future, banks must watch very carefully the loans' performance and analyze thoroughly the clients' credit history and ability to pay back their debts prior to any approval of loan applications. The researchers recommend that future studies on impact credit influence on banks' financial performance should consider more independent variables and longer periods of study such as fifteen to twenty years to have more accuracy and generalized results. Also, this research will be valuable for financial analysts, investors, regulatory bodies, economists or any other stakeholders that are taking any relevant decisions.

Key Words: Risk Management, Non-performing loan ratio, Profitability, Capital Adequacy Ratio, Interest Spread Rate

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Risk management involves recognizing, evaluating, and mitigating possible issues or dangers that might impact a project, organization, or objective. It enables individuals or businesses to prepare for unexpected situations by creating strategies to lessen harm or losses. After risks are identified, they are analyzed based on how likely they are to occur and the severity of their potential impact. This analysis helps prioritize which risks require urgent attention (Liargovas & Skandalis, 2018).

Risk management refers to the process of identifying, evaluating, and ranking risks, then efficiently allocating resources to reduce, monitor, and control the likelihood or impact of negative events (Njogo, 2012). According to Schmidt and Roth (1990), it involves applying strategies to minimize the harmful effects of uncertainty and potential losses. Since the onset of the industrial revolution, managing risk has been a central concern for those involved in finance (Dima & Orzea, 2014).

Risk refers to the possibility of encountering harm or uncertainty. It represents the negative effects that various forms of uncertainty can have on profitability. The nature and extent of risks an organization faces are influenced by several factors, including its size, operational scale, and the complexity of its business activities. In the banking sector, common risks include credit, market, liquidity, operational, legal/regulatory compliance, and reputational risks (Thangavel & Kannan, 2008).

According to Rop and Rotich (2018), there is a significant relationship between a commercial State Corporation's financial performance and its approaches to managing operational, financial, and strategic risks—with correlations of 98.7%, 92.7%, and 87.4% respectively. The study also revealed a moderate positive link between financial performance and reputational risk management, measured at 56.2%. Effective control of operational risks can lead to increased profitability and reduced operating costs. Moreover, strategies that help minimize liabilities can enhance the organization's overall financial outcomes.

Weak risk management within financial institutions has been shown to reduce profitability, raise interest rates, and slow economic growth, ultimately preventing these institutions from reaching their strategic goals. Haneef et al. (2012) note that poor risk practices can contribute to a rise in non-performing loans, posing a threat to financial stability. On the other hand, Ayayi and Maty (2010) argue that strong risk management plays a critical role in maintaining control over loan portfolios, which enhances both the performance and long-term sustainability of microfinance institutions (MFIs).

Collier et al. (2002) argued that improving risk management practices positively influences a company's profitability. Moore (1983) emphasized that strong risk management discipline strengthens the governance process, thereby enhancing its overall effectiveness. Soin and Collier (2013) noted that risk management has evolved beyond its traditional association with finance (e.g., value at risk, derivatives) and accounting (e.g., financial transparency), becoming a critical function for management accountants. However, risk management is not without limitations—it can lead to an overemphasis on defensive strategies, heightened reputational risks, and challenges related to accountability and trust. Beckmann (2007) stressed the importance of implementing effective risk control systems and procedures to identify, prevent, and mitigate operational risks within an organization.

This study explores the relationship between total investment and various financial ratios, including total deposits, non-performing loans, credit-to-deposit ratio, capital adequacy, loan loss provisions, return on equity (ROE), and return on assets (ROA). Additionally, it investigates how ROE and ROA are influenced by the ratio of total investment to total deposits, non-performing loans, credit deposits, capital adequacy, and loan loss provisions.

1.2 Problem Statement

According to Idama, Asongo, and Nyor (2014), intense competition among banks has led to a downward trend in interest rates on both savings and loans. At the same time, non-performing assets have emerged as a significant challenge for commercial banks. In line with NRB regulations, banks are required to allocate a portion of their income to cover provisions for bad loans and non-performing assets. Lending, particularly in the industrial

and economic sectors, is inherently risky. To manage this risk, institutions often adopt effective business strategies to either eliminate or reduce financial exposure. In some cases, they may use product design and pricing strategies to transfer risk to other parties. The banking sector recognizes that businesses need not take on unnecessary risks or those that could be shifted elsewhere. Instead, companies should manage only those risks that are more efficiently handled internally than by the market or individual investors.

Do commercial banks truly prioritize risk management? If they do, it should play a significant role in enhancing profitability, as higher earnings are generally linked to increased shareholder value. However, credit policies often lack structure and clear guidelines, particularly regarding credit features. In Nepal, credit decisions and loan approvals have been observed to be lenient, often influenced by personal relationships. New customers quickly realize that the credit approval process can be quite rigorous, sometimes complicated further by documentation requirements.

Research shows that many commercial banks in Nepal approve loans without adequate due diligence, which can contribute to a rise in non-performing loans and defaults. Additionally, it is argued that the existing credit risk management practices are inadequate to effectively address the current credit risk challenges faced by Nepalese banks (Bhattarai, 2019).

Agene (2011) defines credit risk as the reduction in credit advances that ultimately results in substantial non-performing loan expenses, management costs, and credit losses. Furthermore, Agene (2011) notes that such issues are more prevalent in non-traditional banks, and financial institutions are no exception to this trend.

Although credit risk significantly affects the operations of financial institutions and is frequently discussed in policy circles, Olajide et al. (2011) point out that research on this topic remains limited, particularly in developing countries. While Abba et al. (2013) examined the impact of risk management on the performance of financial firms, and Ariffin and Kassim (2019) focused on credit risk management within financial firms, some earlier studies have sought to address this gap by investigating risk management in developing economies. However, most of these studies have either overlooked financial institutions in rural areas or focused mainly on financial businesses. As a result, there is

still a shortage of literature specifically addressing risk management in financial institutions. This study aims to investigate credit management strategies employed by commercial banks as its primary focus.

This study highly focused on following statements.

i. What is the pattern of return on assets, return on equity, non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate and Firm Size?
ii. What is the relationship between non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate, Firm Size, return on assets and return on equity?
iii. How does non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate and Firm Size effect return on assets and return on equity of financial institution?

1.3 Objectives of the Study

The primary objective of this study is to evaluate the impact of risk on the profitability of financial institutions in Nepal.

i. To assess the pattern of return on assets, return on equity, non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate and Firm Size.
ii. To examine the relationship between non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate, Firm Size, return on assets and return on equity.
iii. To analyze the effect of non-performing loan ratio, liquidity ratio, capital adequacy ratio, interest spread rate and Firm Size on return on assets and return on equity of financial institution.

1.4 Rationale of the Study

Financial institutions play a crucial role in driving the economic development of developing countries like Nepal. Their primary goal is to utilize funds and resources efficiently to maximize surplus. Additionally, these institutions have a social responsibility to contribute to the country's socioeconomic progress by offering preferential loans and advances to underserved sectors. This study provides important insights, helping financial institutions understand how credit risk management affects their operations and overall performance.

Undoubtedly, this study holds importance for various stakeholders; however, it is primarily intended for the following groups:

Importance to shareholders

If shareholders consider the offered price too low, they can effectively block takeover attempts. Consequently, shareholders play a significant role in influencing a company's overall performance and profitability by overseeing many aspects of its operations.

Importance to customers

Regardless of the industry or the products and services offered, customers remain the cornerstone of any business. They are vital in shaping your marketing strategies, as sales depend entirely on their engagement and support.

Importance to financial institution and stock exchange

While financial markets can appear complex, they essentially serve as platforms where individuals and institutions come together to allocate capital efficiently. These markets enable businesses to raise funds for growth, investments, and employment. They also support government initiatives by financing infrastructure projects such as hospitals, schools, and roads.

Importance to government bodies and policy makers

Government policies address various public concerns by providing tailored solutions, detailing the reasons and actions required for specific issues. To regulate business activities, governments implement a range of laws.

Importance to the institutes

Institutions play a vital role in redistributing resources within the economy to ensure fair allocation and protect vulnerable populations. They also foster trust by upholding a consistent legal framework through effective judicial and law enforcement systems.

Importance to the researchers

Research serves several important functions, such as expanding knowledge in a specific field, testing hypotheses, and informing decision-making. It is crucial for enhancing understanding and sound judgment. By unraveling complex issues, debunking misconceptions, verifying facts, and establishing a reliable base of information, research strengthens the ability to make informed decisions and fosters greater insight.

1.5 Limitations of the Study

This study has several limitations. The main constraints are as follows:

i. The study used joint ventures banks as financial institution. There are all together 20 commercial banks operating in the country while 7 banks are joint ventures, but this study cover only five joint venture banks i.e. Nepal SBI Bank Limited, Everest Bank Ltd., Nabil Bank Ltd., Himalayan Bank Ltd. and Standard Chartered Bank Ltd.. Therefore, inclusion of all the commercial banks in this study would have provided more valid results.

ii. This study concentrates only on credit risk and profitability of commercial banks and ignores the other financial aspects.

iii. The period of the study is limited from fiscal year 2014/15 to 2023/24.

iv. The study is basically based on secondary data, articles, publication and journals of the respective finance.

CHAPTER- II

LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Concept of Operational Risk

Operational risk refers to the potential for loss due to inadequate or failed internal processes, people, systems, or external events. Unlike market or credit risk, which are affected by external financial factors, operational risk is related to the internal functioning of an organization.

Processes – Mistakes or inefficiencies in company operations, such as policy violations or errors in transaction processing.

People – Fraud, misconduct, human error, or inadequate staffing and training.

Systems – Problems related to software, cyber threats, data breaches, or IT infrastructure. failures.

External Events – Changes in regulations, natural disasters, or geopolitical disruptions.

Examples of Operational Risk:

A cybersecurity breach at a bank is leading to the leakage of client data, while supply chain disruptions are causing production delays at a manufacturing company.

A retail company experienced financial losses due to employee theft or fraud.

Managing Operational Risk:

Organizations mitigate operational risk through internal controls, risk assessment frameworks, regulatory compliance, employee training, and technological safeguards. Taking a proactive approach to risk management helps minimize financial losses and protect the organization's reputation.

2.1.2 Theories of Operational Risk

Portfolio Theory

Modern Portfolio Theory (MPT), developed by Harry Markowitz in 1952, is widely used in microfinance institutions (MFIs) and the banking sector to explain and manage investment risk. Credit defaults have long been a challenge for financial firms, and MPT helps address exposure arising from changes in interest rates and market conditions. Most MFIs apply metrics such as Value at Risk (VaR) and Portfolio at Risk (PaR) to monitor and control these risks.

MPT enables investors to evaluate the expected risk and return of their investment portfolios by emphasizing diversification. Markowitz demonstrated mathematically that diversifying assets reduces risk and enhances returns by considering the correlations between asset prices. By combining securities that behave differently or at different times, investors can lower overall portfolio risk while potentially increasing expected returns. This approach helps investors predict both expected returns and risk exposure using statistical measures. Markowitz's work showed that many investors fail to fully consider the correlations between securities' returns, and his theory provides a framework to create well-diversified portfolios that mitigate vulnerability through asset pooling.

Risk Theory

Using statistical analysis of historical price movements and volatility, this theory estimates the likelihood of portfolio losses. It is widely employed by banks and other financial institutions because it allows for real-time risk measurement, making it crucial for decisions related to hedging and trading (Kaplanski & Levy, 2013). Value at Risk (VaR) is calculated based on three components: the maximum potential loss, the probability of that loss occurring, and the time horizon considered. This theory is particularly relevant to our study as it helps quantify credit risk stemming from non-performing loans and risky portfolios, which directly impact the financial health of microfinance institutions (MFIs). Additionally, it enables the identification of key risk factors affecting different MFI portfolios.

Value at Risk (VaR) is a key concept in financial risk management that estimates the potential decline in the value of an asset or portfolio over a specified time frame, assuming normal market conditions and a given confidence level. It quantifies the maximum expected loss within a certain confidence interval, expressed either as a percentage or a monetary amount. The time horizon for VaR calculations—such as a day, week, or month—depends on the asset type and the organization's requirements. Common confidence levels used are 95% or 99%, meaning there is a 5% or 1% probability, respectively, that losses will exceed the VaR estimate. Financial institutions widely adopt VaR for both internal risk management and regulatory compliance. However, VaR has limitations, especially in its ability to account for extreme market events and periods of illiquidity.

Liquidity Risk Theory

Liquidity risk is a critical threat that often precedes major market crises. It acts as a key warning signal that can trigger the escalation of credit risks alongside other market hazards, ultimately turning isolated loss events into widespread collapses of financial institutions. This dynamic was evident during the 2007 U.S. mortgage market meltdown. Acerbi and Scandolo (2007) emphasize that every financial institution must be capable of identifying and categorizing the liquidity risks it faces. For microfinance organizations, factors such as their transactions, product portfolios, cash flow statements, and balance sheet structures play a crucial role in determining their liquidity needs and the available sources to meet those requirements.

Therefore, it is essential for any financial institution to assess its liquidity position to prevent a reduction in capital and earnings. This concept is relevant to the study as it helps quantify liquidity risk associated with high-risk portfolios and non-performing loans, which directly impact the performance and financial stability of microfinance institutions (MFIs). Furthermore, the theory assists in identifying key capital and income fluctuations that influence the overall stability of MFIs.

Agency Theory

Agency theory has been widely used by scholars to develop theoretical frameworks for risk management (Smith and Stulz, 1985; Tufano, 1998; Phuong et al., 2020). This theory examines social phenomena through the principal-agent relationship, where principals (investors) delegate decision-making authority to agents (managers) to act on their behalf. Jensen and Meckling (2019) define this relationship as a contract between one or more principals and an agent, granting the agent specific decision-making powers. Smith and Stulz (1985) applied agency theory to analyze managers' risk-taking and hedging behaviors in corporate risk management. Later, Fite and Pfleiderer (1995) used the theory to explore how hedging influences corporate value. Tufano (1998) further justified risk management through agency theory, arguing that managers often pursue hedging strategies that may not align with shareholders’ best interests.

Institutional Theory

Institutionalization is defined as the process through which elements of formal structure become widely accepted as both appropriate and necessary, thereby legitimizing organizations (Tolbert & Zucker, 1983). Previous studies have used institutional theory to explain the adoption of risk management practices (Collier & Woods, 2011). According to Nguyen and Dang (2023), institutionalization occurs when risk management procedures become highly standardized across most firms. This uniformity can result from coercive isomorphic pressures, where political, legal, or regulatory forces influence organizations through mandates, guidance, or persuasion (Dang et al., 2022; DiMaggio & Powell, 1983). Due to this assumption of homogeneity in institutional theory, all financial institutions—regardless of their size or complexity—tend to adopt fundamental risk management practices. As a result, institutional theory offers valuable insights into why risk management is widely embraced in banking (Nguyen, 2022).

The Commercial Loan Theory

The commercial loans theory, also known as the "real bills doctrine," is one of the oldest theories explaining the core operations of banks. It posits that banks should limit their lending to self-liquidating, short-term loans and commercial papers (Hosna & Manzura, 2009). This theory aims to guide banks by providing a logical and persuasive framework for the lending process and its role in broader economic activities.

Some banks, whose liquidity primarily comes from customer deposits, view short-term loans as the most appropriate because deposits can be withdrawn at any time and typically have short durations. This perspective aligns closely with the principles of the commercial loans theory, which emphasizes liquidity as a key driver of economic activity. However, by focusing mainly on short-term lending, this theory falls short in supporting banks with strong reserves that seek to finance medium- and long-term projects, such as real estate and industrial development. Consequently, this approach can create a financing gap that hampers economic growth, especially in sectors requiring long-term investment.

Adhering to this theory is crucial for understanding bank credit within its traditional short-term framework, as it overlooks the relative stability of bank deposits. Withdrawal requests—whether routine or unexpected—rarely occur all at once, allowing banks to

utilize deposits for reasonable periods without risking a liquidity crisis. Scholars and banking experts highlight that comprehending modern banking operations requires an understanding of banks' historical foundations, which are deeply rooted in the commercial loans theory. Despite its limitations, many banks worldwide continue to apply its core principle of short-term lending alongside established credit screening and evaluation practices.

Shift-ability Theory

The shiftability hypothesis explains how banks address liquidity shortages by transferring or selling assets to other banks with high liquidity (Alshatti, 2014). Rather than replacing the commercial loans theory, this hypothesis expands upon it by introducing a broader range of banking assets. According to the shiftability theory, a bank's liquidity relies on its ability to quickly sell or transfer certain assets at predictable prices (Nwaezeaku, 2006). This led banks to diversify their asset holdings by including transferable financial instruments—such as government securities—in addition to maintaining self-liquidating bonds, thereby enhancing their liquidity management (Moti, Masinde, & Mugenda, 2012).

Hosna and Manzura (2009) note that the transformation theory significantly influenced banks' operations by encouraging them to grow their assets through convertible investments as alternative sources of liquidity, rather than focusing solely on loans. Advocates of the shiftability theory argue that the commercial loans theory places excessive emphasis on the liquidity of commercial loans (Kargi, 2011). However, a key limitation of the shiftability theory is that although some banks can transfer assets to meet liquidity demands, this capability is not universal across all banks.

The Anticipated Income Theory

Prochanow introduced the concept in 1944 in response to U.S. commercial banks' practice of offering term loans. Following extensive research on loans and bank assets, he developed the "Anticipated Income Theory" in 1949. According to Soyibo et al. (2004), this theory primarily focuses on long-term loans and advances. Afriyie and Akotey (2011) explain that, unlike the commercial loans theory—which relies on monetizing or selling assets—or the shiftability theory—which involves transferring assets, the Anticipated

Income Theory assumes that banks expect borrowers to repay loans through their future earnings, regardless of the borrower's character or the nature of their business.

According to the anticipated income hypothesis, banks should grant loans based on the borrower's projected future income rather than the current value of their assets. What makes this theory noteworthy is its focus on the repayment of loans through future cash flows or expected profits generated by the borrower's business or projects (Kolapo et al., 2012). Although the anticipated income theory was developed as a response to the commercial loans theory, it neither competed with the shiftability theory nor the capacity theory. Instead, it directed the attention of banks and banking scholars toward identifying the most suitable types of loans for banks, while still acknowledging that a bank's primary source of liquidity remains its secondary or optional reserves.

The Credit Risk Theory

The credit risk theory highlights the possibility that lenders may face financial challenges, rendering them unable to return deposits to owners or meet other obligations due to capital and interest losses, often stemming from borrowers defaulting on their debts—commonly referred to as non-performing loans (Serwadda, 2018). Consequently, lenders conduct credit checks, require appropriate loan insurance such as mortgage insurance, and seek enhanced collateral, including third-party or personal guarantees on the borrower's assets. The level of risk assumed by borrowers directly influences loan costs, including interest rates and fees.

The Liability Management Theory

This theory emphasizes that traditional approaches to managing banks' debt and liquidity are outdated because banks can obtain funds from the capital market through short-term debt instruments whenever there is a reserve shortfall. However, this does not mean banks focus solely on managing liabilities while neglecting asset management. Instead, the liability management theory underscores the importance of the asset structure in maintaining bank liquidity (Shafiq & Nasr, 2010). Unlike earlier views, this theory argues that banks can use their liabilities to generate the liquidity needed to meet loan demands and withdrawal requests. Additionally, since loans alone do not produce income, a bank that fails to provide adequate liquidity to fulfill depositor needs will inevitably struggle to retain those depositors over time.

2.2 Empirical Review

2.2.1 Review of International Articles

Hu et al. (2024) researched on risk management of manufacturing financial institutions: the moderating effects of international asset dispersion and supply chain integration. This study aims to explore how supply chain integration (SCI) influences the relationship between supply chain risk management (SCRM) and the performance of manufacturing multinational corporations (MNCs), as well as how international asset dispersion affects this relationship. Using data from 378 respondents collected during the sixth round of the International Manufacturing Strategy Survey, hierarchical regression analysis was performed to test the hypotheses. The findings reveal that although international asset dispersion reduces the positive impact of SCRM on performance, SCRM still enhances the operational efficiency of manufacturing MNCs. Moreover, strong external integration can help mitigate the negative consequences of global asset dispersion and support the effectiveness of SCRM practices.

Isomiddinovich and Jasurbek (2024) examined on improvement of risk management system in commercial banks. The paper analyzed the risk management systems used by commercial banks, highlighting the unique features of the techniques applied in banking risk management, the adoption of global risk management standards, and key conclusions. The challenges and risks faced by banks arise from ongoing social and economic changes worldwide, economic globalization, and both local and international banking environments. Consequently, there is an urgent need to enhance existing management methods and incorporate specific elements of risk management. In particular, methods that work well for systematic risk are ineffective for managing banks' unsystematic risks. Moreover, procedures once considered effective in bank risk management have become outdated and warrant separate attention. Given the current global financial climate and the high volatility in stock markets, improving and efficiently managing risk remains a critical priority.

Hamalainen (2024) researched on human rights risks, human rights due diligence and sustainable risk management in supply chains. The primary aim of this thesis is to identify the most critical human rights risks in electronics supply chains and explore how companies can mitigate them through sustainable risk management and human rights due

diligence. Theoretically, key risks include forced and child labor, health and safety concerns, unfair working conditions, excessive overtime, inadequate compensation, and discrimination. To achieve this, the study examines six companies by analyzing data from their websites and sustainability reports. The findings reveal that these companies face similar human rights challenges as outlined in the literature. They also implement human rights due diligence and sustainable risk management practices aligned with OECD, ILO, and UN guidelines, with only minor variations in approach. These results offer valuable benchmarking insights for other firms in the electronics sector.

Alam et al. (2024) analyzed integrating enterprise risk management (ERM): strategies, challenges, and organizational success. This essay explores the fundamental concepts of Enterprise Risk Management (ERM) and underscores its vital role in achieving corporate objectives by improving decision-making, enhancing risk awareness, and building organizational resilience. It highlights both the benefits and challenges associated with ERM implementation, emphasizing the critical influence of leadership in driving this process. The essay also stresses the importance of integrating resources into organizational workflows and strategically allocating them to optimize risk management efforts. Key elements such as adaptability and continuous improvement are examined as essential contributors to the success of ERM programs. Through real-world case studies, the report demonstrates how effective ERM adoption can lead to measurable gains in strategic and operational performance. Ultimately, this work aims to offer a comprehensive understanding of ERM’s role in contemporary business, advocating for its broad adoption and ongoing refinement to address evolving business risks.

Permata et al. (2024) examined to manage risks that arise in banking, policy procedures, methods and ways of measuring each type of risk that arise in the bank's business activities. This study employs both descriptive and quantitative research methodologies. The sample consists of 35 banks listed on the Indonesia Stock Exchange, covering the period from 2018 to 2021. A purposive sampling technique was applied, selecting banks based on predefined criteria. Return on Assets (ROA) serves as the dependent variable, while the Loan-to-Deposit Ratio (LDR) and Non-Performing Loans (NPL) are the independent variables.The findings indicate that the null hypothesis can be rejected, supporting the alternative hypothesis. Specifically, the independent variables collectively have a significant impact on ROA. Non-Performing Loans (NPL) exhibit a significant

negative effect on ROA, as evidenced by a t-value less than the critical t-value. Conversely, the Loan-to-Deposit Ratio (LDR) has a significant positive effect on ROA, with a t-value exceeding the critical threshold.Furthermore, the simultaneous test results reveal that the combined influence of LDR and NPL on ROA is statistically significant, as the calculated F-value surpasses the critical F-value.

Kumari et al. (2024) examined the possible effects of risk upon profitability in the context of Indian “public” and “private” sector banks. A study of 24 Indian banks was conducted using secondary data extracted from their annual reports over a 10-year period, spanning from 2011–12 to 2020–21. The dependent variables in the study were Return on Equity (ROE), Return on Assets (ROA), and Net Interest Margin (NIM). The independent variables included credit risk indicators such as Non-Performing Loans to Total Loans (NPL/TL or RNNTNA), Loan to Total Assets ratio, Capital Adequacy Ratio (CAR), and Credit-Deposit Ratio (CDR).Based on the results of the Hausman test and unit root analysis, the study found that profitability of Indian banks is significantly influenced by credit risk measures—including capital adequacy, loan advances, and non-performing assets—as well as credit deposits relative to total loans. The findings underscore the critical importance of enhancing credit risk management to ensure the sustained viability of Indian banks in the post-COVID era.

Bhuiya et al. (2023) studied to find out the impact of risk on the profitability of selected commercial banks of Bangladesh. The study focused on sixty-one designated commercial banks in Bangladesh, selecting a sample of ten banks comprising three state-owned banks, three privately held Islamic banks, three privately held non-Islamic banks, and one specialized commercial bank. The data spanned from 2009 to 2018. Profitability was measured using two dependent variables: Return on Equity (ROE) and Return on Assets (ROA).The study incorporated eight independent variables: Capital Adequacy Ratio (CAR), leverage ratio, GDP growth rate, firm size, Loan to Total Deposits ratio (LATD), Pre-Provision Profit to Total Loans and Advances (PPT), Loan Loss Provision to Total Non-Performing Loan (LLP), and the Credit Risk Management Ratio (NPLR). Both linear regression and multiple regression models were employed to analyze the relationship between these independent variables and the profitability measures (ROE and ROA) separately.The results showed that none of the t-values for the independent variables were statistically significant in explaining the variation in ROE and ROA.

Yeasin (2022) conducted a research on impact of risk management on financial performance: A study of commercial banks in Bangladesh. This study aims to explore the impact of risk management on the financial performance of commercial banks in Bangladesh. Focusing on six commercial banks, the research employs a deductive approach using panel regression analysis on secondary data spanning from 2010 to 2019. Four key variables influencing bank performance were examined: Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), and Return on Assets (ROA) as the performance measure.The panel regression results indicate that both CAR and NPL have a statistically significant negative impact on the financial performance of Bangladeshi commercial banks. Conversely, the Loan to Deposit Ratio (LDR) positively and significantly influences financial performance. These findings suggest that risk factors, particularly credit risk and capital adequacy, adversely affect bank performance, while efficient liquidity management supports it.

Agaba and Eton (2022) conducted a research risk management practices and loan performance of commercial banks in Uganda. This study examined the relationship between loan performance and risk management practices in 19 commercial banks in Mbarara City. Using a correlational research design, data was collected via standardized questionnaires completed by management and credit staff. Regression and correlation analyses were employed to investigate the link between various risk management techniques—such as risk identification, assessment, monitoring, and control—and loan performance. Findings revealed a significant positive correlation between loan performance and the implementation of these risk management practices. However, the study also identified a gap: some banks lacked qualified specialists capable of accurately forecasting risks and evaluating the impact of loan officers' decisions.

Azam (2022) conducted a research on impact of risk management towards sustainability of microfinance industry in Sri Lanka: A case study. The aim of this research is to investigate the potential correlation between risk management and the sustainability of Sri Lanka's microfinance sector. To explore this relationship, a straightforward regression analysis was conducted to examine how one independent variable impacts a dependent variable. The study utilized a cluster sampling technique and included 376 female microfinance borrowers from three regions in Sri Lanka. Primary data were collected through surveys, while secondary data were obtained from sources such as the

Microfinance Information Exchanger (MIX), microfinance institution (MFI) annual reports, and the Central Bank of Sri Lanka (CBSL). The findings indicate that the sustainability of Sri Lanka's microfinance sector is significantly and positively associated with effective risk management.

Kwashie et al. (2022) investigates the impact of risk with focus on non-performing loans on the financial performance of commercial banks in Ghana. The study focused on fifteen commercial banks in Ghana over the period from 2013 to 2018. Return on assets (ROA) and economic value added (EVA) served as the dependent variables, while the independent variables included bank size, age, GDP, inflation (INF), monetary policy rate (MPR), non-performing loan ratio (NPL), capital adequacy ratio (CAR), and loans and advances ratio (LAR). The research employed the Hausman specification test, correlation analysis, multiple regressions using panel data, and both fixed and random effect estimators, ensuring the statistical significance of the study. Results from the random effect estimator indicated that non-performing loans negatively affect both financial performance indicators. Additionally, the monetary policy rate negatively impacted both measures, though it was insignificant for EVA. The study also revealed that bank age, firm size, and GDP significantly improve financial performance, with ROA showing the greatest gains. Given the inverse relationship between non-performing loans and financial performance, it is recommended that commercial banks implement stringent and regularly updated credit risk management policies to guide loan approval and credit risk monitoring processes.

Siddique et al. (2022) aims to capture the effect of risk management and bank-specific factors on South Asian commercial banks' financial performance (FP). The study used Return on Equity (ROE) and Return on Assets (ROA) as dependent variables, while independent variables included the capital adequacy ratio (CAR), non-performing loan ratio (NPL), average lending rate (ALR), cost-efficiency ratio (CER), liquidity ratio (LR or credit-deposit ratio, CDR), firm size, inflation, and age. Secondary data from nineteen commercial banks were analyzed. The results showed that NPL, CER, and LR were strongly negatively associated with financial performance (ROA and ROE), whereas CAR and ALR had a significant positive relationship with the financial performance of the Asian commercial banks.

Jati (2021) aims to determine the effect of Non-Performing Loans and Capital Adequacy Ratio on Return on Assets at PT. The study on the International Bank of Victoria analyzed financial statements spanning ten years, from 2009 to 2018, using an explanatory research methodology. The statistical analysis included hypothesis testing, correlation, regression, and determination. The results revealed that non-performing loans (NPL) have a significant impact on return on assets (ROA). Additionally, the capital adequacy ratio (CAR) is identified as a key factor influencing ROA. Both CAR and NPL were found to have a substantial simultaneous effect on the bank's return on assets.

AI-Zaidanin and AI-Zaidanin (2021) researched on the impact of credit risk management on the financial performance of United Arab Emirates commercial banks. Using panel data from 2013 to 2019, this study examines the impact of several independent variables—including the capital adequacy ratio (CAR), non-performing loans ratio (NPL), cost-income ratio (CIR), liquidity ratio (LR), and loans-to-deposits ratio (LDR)—on the financial performance of sixteen commercial banks operating in the United Arab Emirates. The analysis employed a random effects model alongside descriptive statistics on secondary data collected from the banks. Results indicate that both the non-performing loan ratio and cost-income ratio significantly reduce bank profitability, while CAR, liquidity ratio, and loans-to-deposits ratio show a weak positive relationship with return on assets (ROA) but lack statistical significance. Consequently, it is recommended that banks enhance monitoring of loan performance and conduct thorough credit assessments before loan approval to mitigate future non-performing loans and improve financial outcomes. Furthermore, continuous improvement in asset utilization, liquidity management, and operating cost control is advised. The study also suggests that efforts to strengthen the impact of capital adequacy and deposit-based lending on profitability should be intensified. For future research, a broader range of independent factors and longer study periods—spanning 20 to 30 years—are encouraged to yield more accurate and generalizable insights into credit risk management's effect on bank performance.

Hac et al. (2021) examined on enhancing risk management culture for sustainable growth of Asia commercial bank - ACB in Vietnam under mixed effects of macro factors. To foster a robust risk management culture and effectively modify policies within the banking system, macro policymakers must closely examine risk management practices and the influence of macroeconomic factors on market risk to ensure sustainable growth.

Key questions include how adjustments to the risk-free rate, trade balance, and other policies can mitigate risk. This study addresses these concerns by calculating the Beta CAPM for Asia Commercial Bank (ACB), a leading Vietnamese commercial bank, during the nation's low inflation period from 2015 to 2020. Employing semiannual data and an econometric model incorporating nine macroeconomic variables, alongside synthesis statistics and dialectical materialism, the analysis reveals that the Consumer Price Index (CPI) positively correlates with ACB's Beta CAPM, while the lending rate and risk-free rate (Rf) exhibit negative correlations. These findings imply that rising inflation coupled with declining loan and risk-free rates increases market risk. Based on these results, the study recommends targeted macroeconomic and risk management policies for banks and government agencies, offering insights applicable to other emerging markets.

Rehman et al. (2020) researched on a multi-group analysis of risk management practices of public and private commercial banks. The study examines the relationship between risk management practices and credit and operational risks in public and private sector commercial banks, focusing on knowledge of risk management, risk identification, risk assessment and control, and risk monitoring. Using a cross-sectional data approach, information was collected from 284 bank employees and analyzed. Path analysis through multi-group Partial Least Squares Structural Equation Modeling (PLS-SEM) was conducted on sub-samples, and Measurement Invariance of Composite Models (MICOM) analysis was employed to validate the measurement model across groups. The overall findings show that both public and private banks implement effective risk management procedures; however, subgroup analysis reveals that private sector banks exhibit significantly stronger risk management practices. Notably, public sector banks place greater emphasis on risk identification. The study also finds differences in risk management approaches between the two sectors, with knowledge of risk management having no significant effect on risk assessment and control in public sector banks.

Munangi and Sibindi (2020) examine the impact of risk on the financial performance of 18 South African banks for the period 2008 to 2018. This study investigates the impact of several independent variables—capital adequacy ratio (CAR), size, leverage, non-performing loans ratio (NPLR), non-performing loans to total equity (NPLE), and growth—on the dependent variables return on equity (ROE) and return on assets (ROA)

in South African banks. The findings reveal that most banks exhibit higher ROE than ROA. Using static panel data techniques, including the Random Effects Model (REM), Fixed Effects Model (FEM), and pooled Ordinary Least Squares (OLS), the Fixed Effects model was identified as the best fit. Results show a negative relationship between credit risk and financial performance, indicating that an increase in non-performing loans reduces bank profitability. Conversely, growth positively influences financial success, suggesting that bank expansion enhances output capacity. Additionally, capital adequacy is positively correlated with financial performance.

Satyamoorthi et al. (2020) examined on impact of financial risk management practices on financial performance: evidence from commercial banks in Botswana. The study examined how financial risk management techniques influenced the financial performance of Botswana's commercial banks, using return on equity (ROE) and return on assets (ROA) as performance measures. Financial risk management was assessed through variables such as loan-to-deposit ratios, inflation, interest rates, and the ratios of total debt to total assets, total debt to total equity, and total equity to total assets. The study encompassed all ten commercial banks in Botswana over an eight-year period from 2011 to 2018, utilizing monthly secondary data from the Bank of Botswana Financial Statistics database. Descriptive analysis, regression, and correlation analyses were employed. The regression results revealed that interest rates had a significant negative impact on both ROE and ROA. The ratio of total debt to total assets had a negative but negligible effect on ROA, while it had a positive yet negligible effect on ROE. Additionally, the loan-to-deposit ratio significantly and negatively affected both ROE and ROA. The findings suggest that banks should adopt effective market, credit, and liquidity risk management strategies to safeguard their institutions and enhance profitability by appropriately balancing financial risk management with financial performance.

AI-Eitan and Bani-Khalid (2019) investigated the impact of risk on the financial performance of Jordanian commercial banks listed in Amman Stock Exchange, for the period 2008-2017. The sample comprises thirteen commercial banks in Jordan, and the study employs panel data analyzed through both fixed-effect and random-effect models using the GLS method. Unit root tests confirm the absence of serial correlation among independent variables. Based on the Hausman test results, the random effects model is deemed more appropriate for examining the relationship between credit risk (CR) and the

profitability of Jordanian banks. Findings reveal that CR—measured by the ratio of doubtful debts to total loans, non-performing loans, and loan losses to total loans—has a significant and negative impact on both return on equity (ROE) and return on assets (ROA). Conversely, total deposits and firm size positively and significantly influence the financial performance of these banks.

Ekinci and Poyraz (2019) examined the impact of risk on banks' profitability of the Turkish Banking Sector for the period 2005-2017. The study analyzes data from 26 deposit banks—state-owned, privately held, and foreign—that operated in the Turkish banking sector from 2005 to 2017. Profitability is measured using return on equity (ROE) and return on assets (ROA). Independent variables include firm size (SIZE), GDP growth rate (GDPG), CPI inflation (INF), capitalization (total capital to total assets, TC/TA), asset quality (total loans to total assets, TL/TA), and credit risk measured by non-performing loans to total loans (NPL/TL). Regression analysis, based on the correlation degrees between independent and dependent variables, reveals a weak correlation among independent variables. The estimation results indicate that credit risk negatively correlates with both ROE and ROA.

Shahid et al. (2019) examined the relationship between credit risk and financial performance measured by Return on Assets (ROA) and Return on Equity (ROE) of commercial banks of Pakistan. The study examined independent variables such as the capital adequacy ratio (CAR), credit interests/credit facilities, provision for facilities loss to net facilities ratio (PFL/NF, also known as LLPR), leverage ratio, and the quantity of non-performing loans to gross loans ratio (NPL/GL, also called NPLR). Conducted from 2010 to 2017, the research involved twenty-four commercial banks in Pakistan. The results indicated that credit risk is the primary determinant of banks' financial performance, with findings showing a significant impact of credit risk on the financial performance of Pakistani commercial banks. Identifying systematic solutions for the financial sector to enhance bank performance is facilitated by understanding and managing credit risk.

Olalekan, Olumide and Irom (2018) researched on financial risk management and the profitability: an empirical evidence from commercial banks in Nigeria. The study examines the impact of financial risk management on the profitability of Nigerian

commercial banks, using Return on Assets (ROA) as the profitability measure and liquidity risk, credit risk, and capital adequacy risk as proxies for financial risk management. Due to data availability, the analysis included 14 of the 15 commercial banks listed on the Nigerian Stock Exchange as of 2017, using financial data from 2011 to 2016. Employing multiple regression analysis, the results revealed that liquidity risk has a negligible positive effect on profitability, capital adequacy risk significantly and positively influences profitability, while credit risk has a considerable negative impact. Based on these findings, it is recommended that banks carefully manage consumer loans to reduce non-performing loans, which adversely affect performance, and maintain a strong asset base along with adequate shareholder equity.

Kutum (2017) assessed the impact of risk on the profitability (measured by return on equity and return on assets) of banks listed on the Palestine Exchange. The study focused on five of the six banks listed on the Palestine Exchange, covering the period from 2010 to 2015. The independent variables examined included credit risk measured by net charge-offs to total loans and advances (NCOTLA), non-performing loans to total loans and advances (NPLTLA), pre-provision profit to total loans and advances (PPTLA), firm size measured by total assets (SIZE), growth in net income (GRO), and leverage defined as total debt to total assets (TDA). Multicollinearity was assessed using the Variance Inflation Factor (VIF) and Tolerance tests. Findings revealed a slight but positive relationship between credit risk, specifically the ratio of non-performing loans to total loans and advances, and profitability measured by return on assets (ROA). Additionally, a positive correlation was observed between firm size and profitability.

Tian (2017) researched on Commercial Banking Risk Management. This edited collection provides a comprehensive examination of the regulatory challenges uncovered and reforms implemented in financial markets following the 2007–2008 crisis. It offers practical solutions for financial institutions to comply with stringent new regulations and adapt to rigorous oversight while managing risk effectively. Key topics include market risk, counterparty credit risk, liquidity risk, operational risk, fair lending risk, model risk, stress testing, and CCAR, alongside other critical aspects of commercial banking risk management. The book also addresses modern frameworks for capital requirements, essential business risk management components, and data technologies that support risk management. Each chapter is authored by experts collaborating with major commercial

banks, consulting and auditing firms, regulatory agencies, and academic institutions. This collection serves as a valuable resource for students and professionals in the commercial banking sector.

Rathnasiri (2016) studied impact of risk on the profitability of commercial banks in Sir Lanka. The study investigates several independent variables, including total loans as a percentage of total assets, total loans as a percentage of total deposits (DEPO or CDR), non-performing loans as a percentage of total loans (NPLR), provision for loan losses as a percentage of total loans (PPL or LLPR), the natural logarithm of total assets, the annual inflation rate, GDP growth rate, and total assets of the banking sector as a percentage of GDP. The results indicate that credit risk significantly impacts the profitability of Sri Lankan commercial banks. Based on these findings, it is recommended that Sri Lankan banks implement strategies to reduce non-performing loans while increasing deposits and assets to enhance profitability.

Ebenezer and Omar (2015) investigated the effect of risk on the profitability of commercial banks in Nigeria. The researcher selected eight commercial banks for the study using the Systemically Important Banks (SIBs) report. The analysis covered data from 2011 to 2014. The independent variables examined were total debt to total equity (TDTE), non-performing loans to gross loans and advances (NPLGLA), and total debt to total assets (TDTA), while return on equity (ROE) served as the dependent variable. The study employed panel data analysis, including random effects and fixed effects regression models, along with various diagnostic tests. The findings revealed a significant negative relationship between the non-performing loan ratio and profitability, an insignificant negative link between the debt-to-assets ratio and profitability, and an insignificant positive association between the debt-to-equity ratio and profitability over the study period.

Noman et al. (2015) looked at 172 observations from 18 private commercial banks between 2003 and 2013 to ascertain how credit risk affected the banking sector's profitability in Bangladesh. This study examined Return on Equity (ROAE), Return on Assets (ROAA), and Net Interest Margin (NIM) as dependent variables. The independent variables included the Capital Adequacy Ratio (CAR), Loan Loss Reserve to Nonperforming Loans (LLRNPL), Loan Loss Reserve to Gross Loans (LLRGL), and the

Nonperforming Loan Ratio (NPLGL). Using methods such as the OLS random effects model, Generalized Least Squares (GLS), and the system Generalized Method of Moments (GMM), the study found that both NPLGL and LLRGL had a significant negative impact on all profitability indicators. Additionally, CAR was shown to significantly reduce ROAE. Further analysis revealed that the implementation of Basel II had a notably negative effect on ROAE but a significantly positive effect on NIM. These findings carry important policy implications for enhancing profitability and safeguarding banks against financial crises.

Table 1

Summary of Empirical Review

S.N	Authors (Date)	Topic	Objectives	Methodology	Findings
1	Hu et al. (2024)	risk management of manufacturing financial institutions: the moderating effects of international asset dispersion and supply chain integration	To explore the counteraction effect of supply chain integration (SCI)	Fixed effects on a panel data regression model	The findings indicate that although the dispersion of international assets reduces the performance benefits, supply chain risk management (SCRM) enhances the operational efficiency of manufacturing multinational corporations (MNCs). However, external integration can help mitigate the adverse effects of global asset dispersion and support the successful implementation of SCRM practices.

2	Isomidinovich and Jasurbek (2024)	improvement of risk management system in commercial banks	To examine the relationship between credit risk and profitability of some selected banks in Bangladesh.	A linear regression model and multiple-regression model are used in the study.	The results reveal that Return on Equity (ROE) is significantly and negatively influenced by the non-performing loan ratio (NPLR), the loan loss provision ratio (LLPR), and the macroeconomic factor GDP. Additionally, the findings show that Return on Assets (ROA) is significantly affected by both the non-performing loan ratio (NPLR) and the ratio of loans and advances to total deposits (LATD).
3	Hamalainen (2024)	Human rights risks, human rights due diligence and sustainable risk management in supply chains	To examine the possible effects of credit risks (CRs) upon profitability in the context of Indian “public” and “private” sector	Data analysis was carried out using the random-effects estimator,	The profitability of the country’s banks is notably influenced by credit risk (CR) indicators, including capital adequacy, loan advances, non-performing assets (NPA), and the ratio of credit deposits to total loans.

			banks		
4	Alam et al. (2024)	integrating enterprise risk management (ERM): strategies, challenges, and organizational success	To examines the fundamental ideas of ERM and emphasizes how important it is to accomplishing organizational goals	Fixed and random-effect models and GLS method are employed	The results suggest that credit size has a limited effect on credit risk in international banks. The global financial crisis has generally had a positive influence on credit risk. Additionally, credit risk is shaped by a combination of internal and external factors, with their impact varying considerably based on the bank's ownership structure.
5	Permata et al. (2024)	manage risks that arise in banking, policy procedures, methods and ways of measuring each type of risk that arise in the bank's business activities	to capture the effect of credit risk management and bank-specific factors on South Asian commercial banks' financial performance (FP)	Multiple regression analysis	The study's findings reveal that non-performing loans (NPL) have a significant negative effect on return on assets (ROA), as indicated by a t-value lower than the critical t-table value.
6	Kumari et al.	the possible	To investigate	Correlation analysis,	The profitability of banks in the country is strongly

	(2024)	effects of risk upon profitability in the context of Indian "public" and "private" sector banks	the impact of credit risk with focus on non-performing loans on the financial performance of commercial banks in Ghana	Multiple regressions with the Panel data analysis, Hausman specification test, fixed effect and random effect	affected by credit risk (CR) indicators such as capital adequacy, loan disbursements, non-performing assets (NPA), and the ratio of credit deposits to total loans.
7	Bhuiya et al. (2023)	The impact of risk on the profitability of selected commercial banks of Bangladesh	To research the effect of Non-Performing Loans and Capital Adequacy Ratio on Return on Assets at PT. Bank Victoria International.	The analysis technique uses statistical analysis with regression testing, correlation, determination, and hypothesis testing.	Both non-performing loans and the capital adequacy ratio significantly influence return on assets (ROA), with the capital adequacy ratio showing a particularly strong effect.
8	Yeasin (2022)	impact of risk	to analyze the impact	Ordinary least squares	Non-performing loans (NPL) and the capital adequacy ratio

		management on financial performance: A study of commercial banks in Bangladesh	of risk management on financial performance of commercial banks	[OLS]), fixed effects model (FEM) and random effects model (REM) were employed	(CAR) had a significant negative effect on the financial performance of commercial banks. Conversely, the loan to deposit ratio (LDR) showed a significant positive impact on their financial performance.
9	Agaba and Eton (2022)	risk management practices and loan performance of commercial banks in Uganda	examined the relationship between risk management practices and loan performance of commercial banks	A panel data analysis of both fixed and random-effect models and GLS method are employed for the study. The unit root tests were also used.	The study found a strong relationship between loan performance and the processes of risk identification, assessment, monitoring, and control.
10	Azam (2022)	impact of risk management towards sustainability of microfinance industry in Sri Lanka:	to examine whether there is a relationship between risk management and the sustainabil	The Hausman test, the random effects model and regression analysis were used to determine	The study's findings indicate that the effectiveness of Sri Lanka's microfinance sector is strongly and positively linked to efficient risk management.

	A case study	ity of the microfinance industry in Sri Lanka.	relationship between variables.

2.2.2 Review of Nepalese Studies

Gyawali and Thapa (2024) researched on enterprise risk management and performance of insurance companies. This study aims to examine the impact of risk management (RMG), risk mitigation (RM), risk assessment (RA), and risk identification (RI) on institutional performance (IP). The objective is to analyze how these risk management practices, individually and collectively, affect institutional outcomes. The research employed descriptive and causal designs, collecting data through a standardized questionnaire using a five-point Likert scale from 151 managers, officers, and department heads working in the life and non-life insurance sectors of the Rupendehi district. Correlation analysis was used to explore relationships between variables, while stepwise regression analyzed their effects. The findings reveal that RA, RM, and RMG each significantly improve institutional performance when considered separately. However, when analyzed within a single model, only RA and RM remain significant. Although RI showed consistently positive effects, its impact was statistically insignificant across all models. Overall, institutional performance is strongly influenced by RA and RM, whereas RI and RMG have a lesser effect.

Dhital et al. (2024) examined on the effect of corporate governance attributes on risk management practices of Nepalese commercial banks. The study examines the influence of corporate governance attributes on the risk management practices of Nepalese commercial banks. Operational risk and non-performing loans are used as the dependent variables. The independent variables include the audit committee, risk management committee, frequency of board meetings, board size, board diversity, and leverage. The research is based on secondary data collected from 15 commercial banks, comprising 105 observations from 2015–16 to 2021–22. Data sources include the annual reports of the

selected banks, publications and websites of Nepal Rastra Bank (NRB), and the Banking and Financial Statistics published by the bank.

Regression models and correlation coefficients are calculated to assess the impact of corporate governance on Nepalese commercial banks' risk management procedures. The study finds that risk management committees have a negative effect on operational risk and non-performing loan risk, indicating that having more directors on these committees leads to lower levels of both risks. Similarly, the size of the audit committee negatively influences operational risk and non-performing loans, meaning a larger audit committee helps reduce these risks. However, operational risk is positively correlated with the leverage ratio, suggesting that higher leverage increases operational risk. Board meetings are also found to positively affect operational risk and non-performing loans, implying that more frequent board meetings are associated with higher risk levels. Likewise, board diversity, particularly an increase in female board members, is linked to higher operational and non-performing loan risks.

Mahat, Pandey and Thapa (2023) studied on enterprise risk management and institutional performance of life insurance companies in Nepal. This study aims to assess the performance of Nepali insurance companies through the lens of enterprise risk management. It proposes that the performance of these companies can be influenced by processes such as risk identification, assessment, mitigation, implementation, and overall management. Data was collected via a detailed structured questionnaire from 100 carefully selected key staff members across various insurance offices in the Kathmandu Valley. The analysis utilized stepwise regression and correlation techniques. The main findings indicate that while risk management and implementation negatively affect business performance, risk identification, assessment, and mitigation have positive effects. However, only the impact of risk mitigation was found to be statistically significant. Consequently, the study recommends that insurance companies focus on risk mitigation to enhance their performance. Finally, it suggests that to maintain productivity and stay competitive at an international level, companies should adopt enterprise risk management practices aligned with global standards.

Darlami (2023) researched on impact of credit risk, operational risk and liquidity risk on the profitability of Nepalese commercial banks. This study examines the impact of credit

risk, operational risk, and liquidity risk on the profitability of Nepalese commercial banks. The dependent variables are return on equity (ROE) and return on assets (ROA), while the independent variables include capital adequacy ratio, non-performing loans, loan loss provisions, cost to income ratio, leverage ratio, and loan to deposit ratio. The research uses secondary data from 208 observations across 26 commercial banks spanning 2013–14 to 2020–21. Data sources include publications from the Ministry of Finance, annual reports of selected banks, and Banking and Financial Statistics from Nepal Rastra Bank. Regression models and correlation analyses were applied to assess the influence of credit, operational, and liquidity risks on bank profitability. The findings show that ROA is positively affected by the capital adequacy ratio, suggesting that higher capital adequacy improves ROA. Conversely, both ROE and ROA are negatively influenced by non-performing loans, indicating that increases in NPLs reduce profitability. Similarly, loan loss provisions and the loan to deposit ratio also have a negative impact on ROE and ROA, meaning that higher levels of these factors correspond with lower profitability.

Bhatt et al. (2023) examined on examining the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. The objective of this study was to explore the factors influencing credit risk management and their connection to the performance of Nepalese commercial banks. It also examined the impact of credit risk management on bank performance. The results reveal a positive relationship between environmental risk and credit risk management. Furthermore, credit risk management is found to be significantly affected by credit appraisal indicators and market risk analysis. The study suggests that credit risk management mediates the relationship between market risk analysis, environmental risk, credit appraisal metrics, and the performance of commercial banks. To reduce credit risk and achieve strong financial results, managers are encouraged to implement effective risk prevention and control strategies.

Paudel (2022) investigated on risk management in Nepalese cooperative societies. Risk management has been a key focus for many stakeholders, as it represents the most critical risk faced by depository institutions (DIs). Since the central bank regulates cooperative societies (CS) differently from banks, various risks have emerged within the CS sector. The rapid vertical and horizontal growth of cooperatives has weakened ethical standards,

leading to problems such as poor governance, lack of transparency, and discrimination. This study explored credit risk analysis and management in Nepalese cooperative groups through a combination of quantitative and qualitative approaches.

A primary survey involving 126 cooperatives from the Kathmandu district was conducted between July and September 2014. Secondary data were obtained from annual audit reports spanning five years, from 2008/09 to 2012/13. While internal management within cooperatives can be efficient at times, it appears inconsistent and unfair in others. To address these issues, stricter and more timely regulations should be enforced. Given the apparent weaknesses in credit risk management among cooperative societies, relevant authorities need to adopt suitable strategies, and cooperative administrations should prioritize effective credit risk management. Additionally, cooperatives should be classified based on factors such as size, type of activities, and geographic coverage, with regulations tailored accordingly. This approach is necessary because significant variations in the scale of cooperative activities suggest that a one-size-fits-all regulatory framework may not be effective.

Chaulagain (2022) examined on determinants factors of risk management of microfinance performance in Nepal. This study examines the critical aspects of loan management and the operations of microfinance institutions (MFIs) in Nepal, with the main objective of assessing the operational performance expected from MFIs. The research found that factors such as the regulatory environment, loan lending systems, and information technology play a significant role in MFI success. It highlights that MFI performance is positively influenced by the regulatory framework, information technology, staff motivation, management systems, effective risk management, and the loan lending process. Additionally, the study reveals that the operational efficiency of Nepalese MFIs is closely linked to management systems, risk management, and staff motivation. These findings are valuable to all stakeholders involved with MFIs, including investors, regulators, policymakers, and banking financial institutions (BFIs). Ultimately, the study underscores that operational effectiveness is crucial for the sustainability and continued service delivery of MFIs in Nepal.

Giri (2021) examined on Credit risk policy of commercial banks in Nepal. The primary objectives of the study were to assess the investment policies of NIBL and SBI, analyze

their asset and liquidity management, and examine the growth rate of the loan to total deposits (LATD) ratio. The financial and statistical analysis indicates that the ratio is satisfactory, as both banks' current assets exceed their current liabilities. However, the cash reserve ratios have shown significant fluctuations over time. NIBL has maintained both the current ratio and cash reserve ratio better than SBI. Meanwhile, the asset management ratio suggests that SBI utilizes its deposits more efficiently compared to NIBL.

Lamichane (2020) investigated on Risks in Nepalese Microfinance Institutions (MFIs): A Review of Best Practices. This essay aims to explore the various risks faced by Nepali microfinance institutions (MFIs) during their loan decision-making processes. By implementing effective risk management, MFIs can reduce threats to their financial health while capitalizing on new opportunities. To achieve their dual goals of reaching underserved populations and maintaining sustainability, MFIs intentionally assume certain risks. As a result, they are exposed to a wide range of risks, including institutional, financial, operational, and external challenges. Proper management of these risks is essential for MFIs to remain sustainable and viable. Lending to clients who often lack collateral, credit histories, or business records means MFIs regularly take risks. While taking risks is necessary for success, it is crucial that these risks are carefully measured and managed.

Risk management is fundamentally about taking calculated risks. It involves both preventing potential issues and identifying them early when they arise. In microfinance institutions (MFIs), risk management is a continuous process of systematically identifying, measuring, monitoring, and controlling risks. This ensures that MFIs operate responsibly, securely, and effectively while fulfilling their missions. Traditionally, risk has been viewed negatively, associated with harm, loss, and unfavorable outcomes. However, some regulations and policies recognize that risk also encompasses uncertainty and potential opportunities that could help an organization achieve its goals.

Lama (2020) researched on risk management of Agricultural Development Bank Limited. The study primarily aimed to analyze trends in loan investments, collections, and outstanding balances; examine the relationship between loan to total deposits (LATDs) and ADBL's deposits, loans, and non-performing loans; and review the bank's provisions

for defaulted loans and non-performing assets. The findings reveal that short-term outstanding debt, collections, and actual loan disbursements have been increasing annually. There is a significant correlation between ADBL's deposits, loans, and non-performing loans with LATDs. Additionally, ADBL adequately allocates provisions for its non-performing assets.

Maharjan (2019) researched on Credit practices of commercial banks (with reference to Nabil Bank Limited (NABIL), Standard Chartered Bank Limited (SCBL) and Himalayan Bank Limited). This study utilized various statistical methods, including standard deviation, correlation, trend analysis, and financial tools, to analyze and present the data. Regarding relative lending strength, the data indicates that Nabil has the highest ratio of total liabilities to total assets. However, the performance of the other two banks closely aligns with Nabil's average ratio and the combined average. Nabil's preference for investing in government securities leads to the lowest ratio of loans and advances to total assets. The ratios of loans and advances to deposits, as well as investments to deposits, reflect the proportion of total deposits used to generate bank profits, regardless of the specific portfolio allocations.

Nabil's earning activities represent the largest share of its total deposits, significantly exceeding the ratios of the other two banks. The average ratios for Himalayan and Nabil differ considerably from the combined average. HBL has the smallest net assets, mainly due to its lower share capital, reserves, and surplus within its capital structure. Despite this, HBL contributes substantially to loans and advances relative to its net assets. During the study period, Nabil provided the highest amount of loans and advances. Nabil's lending primarily benefits the industrial and productive sectors of the economy.

Bhattarai (2016) analyzed the effect of risk on the performance of Nepalese commercial banks. This study employs both descriptive and causal comparative research designs. It analyzes combined data from 14 commercial banks over the period 2010 to 2015 using a regression model. The independent variables include firm size, capital adequacy ratio (CAR), non-performing loan ratio (NPLR), cost per loan asset (CLA), liquidity ratio (LLPR), and CAR, while the dependent variable is return on assets (ROA). The regression results, with an R^2 value of 0.284, indicate that credit risk influences bank performance, explaining 28.4% of the variation in performance through the explanatory

variables. Although the coefficient for CAR is not statistically significant, the NPLR coefficient is significant. The study's F-value of 5.635, which is greater than 1, suggests that the model fits the data well and that the independent variables meaningfully explain the variations in ROA.

2.3 Research Gap

A research gap refers to an area where there is insufficient knowledge to draw conclusions on a particular topic. It is essential for banks to understand both the risks and returns involved. While many studies have explored the link between risk management and the profitability of commercial banks, this study seeks to address gaps by emphasizing the importance of risk in achieving desired returns and maintaining competitiveness. Unlike Munangi and Sibindi (2020), who examined only two banks over a ten-year period, this study uses ten years of secondary data and includes five joint venture banks in its sample.

Unlike Ekinci and Poyraz (2019) and Noman et al. (2015), who considered several independent variables such as non-performing loans and deposits, this study includes additional factors like the ratios of total investment to total deposits, loans and advances to total deposits, non-performing loan ratios, loan loss provision ratios, and capital adequacy ratios. This sets it apart from the research by Bhuiya, Miah, and Chowdhury (2023). The primary focus of this study is to explore the relationship between risk and the profitability of five joint venture banks. By providing comprehensive and current data on how risk affects the profitability of these banks, this study adds valuable insights to the existing literature and will serve as a useful reference for future research on related topics.

CHAPTER - III
RESEARCH METHODOLOGY

Research technique refers to the series of systematic steps (along with the rationale for each) that a researcher follows to address a problem with specific goals. This chapter outlines the complete research methodology. It includes details on the research design, sample size and selection criteria, methods of data collection, as well as the techniques and tools used for data processing.

3.1 Research Design

The study utilized both descriptive and causal research methods to assess, compare, and categorize the characteristics of independent variables and the bank's dependent factors influencing profitability. Likewise, the causal comparative design aims to uncover relationships between independent and dependent variables by examining outcomes following specific events or actions.

3.2 Population and Sample, and Sampling Design

The demographic data for this study consists of all 20 commercial banks operating in Nepal as of mid-May 2024 (end of Jestha, 2081). A sample, which is a representative subset of the population, was selected to analyze specific characteristics. Five joint venture banks—Nabil Bank Ltd., Himalayan Bank Ltd., Nepal SBI Bank Limited, Everest Bank Ltd., and Standard Chartered Bank Ltd.—were chosen for their superior profit margins. The study covers a ten-year period from 2014–15 to 2023–24. Convenience sampling was used to select the sample to facilitate easier data collection.

3.3 Sources of Data

The study primarily relies on secondary data. This data, spanning fiscal years 2014–15 to 2023–24 and consisting of both published and unpublished materials, was gathered exclusively through document review. The information was sourced from the annual reports of Standard Chartered Bank Ltd., Himalayan Bank Ltd., Nabil Bank Ltd., Everest Bank Ltd., and Nepal SBI Bank Limited.

3.4 Data Collection and Analysis

Once the study data was collected, it needed to be analyzed and interpreted. Various statistical and financial tools were employed to carry out the data analysis.

3.5 Method of Analysis

This section explains the statistical models applied to evaluate the secondary data. The study employs descriptive statistics, correlation, and regression analysis. Examples of descriptive statistics used include regression analysis, correlation, mean, and standard deviation.

3.5.1 Statistical Tools

To achieve the objectives of this study, several essential statistical methods are utilized. The primary analysis tools include:

Descriptive statistics

Descriptive statistics are brief, informative measures that summarize a specific data set, which may represent either a sample or the entire population. They are divided into two types: measures of central tendency and measures of variability (or dispersion). Measures of central tendency include the mean, median, and mode, while measures of variability include the range (maximum and minimum) and standard deviation.

Arithmetic Mean

The arithmetic mean, also called the simple mean, is calculated by dividing the total sum of all observations by the number of observations. It serves as the most representative value of the entire data set. The arithmetic mean of a series can be determined using the formula:

$$\text{Mean } (\bar{X}) = \frac{\Sigma x}{n}$$

Where,

$\bar{X}$= Sum of the variables 'x'

N = No. of Observation

Standard Deviation

The standard deviation is considered the most effective absolute measure of dispersion because it satisfies most criteria for a good variability measure, unlike other measures that have limitations. It is defined as the positive square root of the average squared deviations from the arithmetic mean. Standard deviation reflects the range and extent of variation around the mean, providing an absolute measure of dispersion. A higher standard deviation indicates greater variability, while a lower one suggests less. In essence, dispersion measures how much data points deviate from the central value, helping assess the data's consistency or variability. It is calculated as follows:

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{\sum(X - \bar{X})^2}{n}}$$

Correlation Analysis

The correlation coefficient measures the relationship between independent and dependent variables. It is a method used to determine how closely these two variables are connected. A correlation exists when changes in the independent variable correspond to changes in the dependent variable.

$$\text{Correlation Coefficient (r)} = \frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{n\Sigma x^2 - (\Sigma x)^2}\sqrt{n\Sigma y^2 - (\Sigma y)^2}}$$

The Karl Pearson correlation coefficient ranges between -1 and +1. A value of -1 signifies a perfect negative correlation, whereas a value of +1 indicates a perfect positive correlation.

If, r = 0, there is no relationship between the variables

r < 0, there is negative relationship between the variables

r>0, there is positive relationship between the variables

r - 1, the relationship is perfectly negative between the variables

r +1, the relationship is perfectly positive between the variables

Regression Analysis

Regression analysis is a mathematical method used to identify which variables actually affect an outcome. A multiple regression model helps determine the relative impact of each independent variable on profitability. In this study, regression analysis was applied to explore the relationship between an insurance company's profitability and various independent factors. The independent variables—capital adequacy ratio, non-performing

loan ratio, liquidity ratio, firm size, and return on assets—were adopted from Bhattarai (2016), while the dependent variables, interest spread rate and return on equity, were taken from Noman et al. (2015).

Model 1

This model examines the impact of different factors on an insurance company's return on assets (ROA) and return on equity (ROE).

$ROE = \beta_0 + \beta_1 LR\ it + \beta_2 NPLR\ it + \beta_3 ISR\ it + \beta_4 CAR\ it + \beta_5 FS\ it$ .....+eit

Model 2

$ROA = \beta_0 + \beta_1 LR\ it + \beta_2 NPLR\ it + \beta_3 ISR\ it + \beta_4 CAR\ it + \beta_5 FS\ it$ .....+eit

Where,

ROA = Return on Assets

ROE = Return on Equity

LR = Liquidity Ratio

NPLR = Non-Performing Loan Ratio

ISR = Interest Spread Rate

CAR = Capital Adequacy Ratio

FS = Firm Size

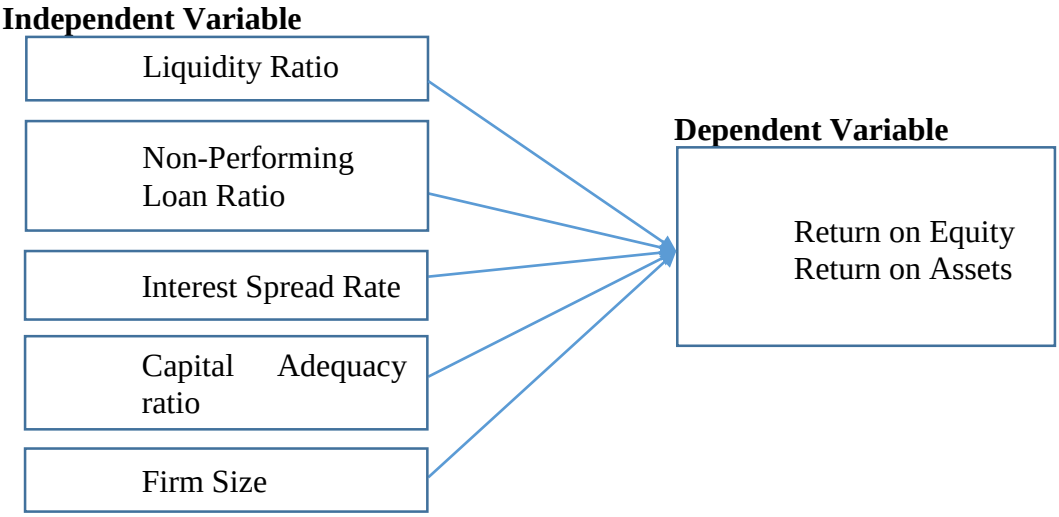
e_{it} = others /Errors

3.6 Research Framework and Definition of Variables

The study framework clearly illustrates the relationship between independent and dependent variables. A research model has been created to analyze how independent factors—such as liquidity ratio, non-performing loan ratio, interest spread rate, capital adequacy ratio, and firm size—influence the dependent variables, namely return on equity and return on assets. This is shown below:

Figure 1

Research Framework



Source: Bhattarai (2016); Kumari et al. (2024); Noman et al. (2015)

Definition of Variables

Liquidity Ratio (LR)

The liquidity ratio refers to the percentage of a bank's total deposits that Nepal Rastra Bank (NRB) requires to be held in liquid form. This ratio is a crucial part of NRB's monetary policy, which aims to regulate the country's money supply, inflation, and overall liquidity. When the liquidity ratio increases, bank liquidity decreases, and vice versa. During periods of high inflation, measures are taken to slow down the circulation of money in the economy. The liquidity ratio is also a financial metric used to evaluate a debtor's ability to repay existing obligations without needing external financing. It involves calculating ratios such as the current ratio, quick ratio, and operational cash flow ratio to determine a company's debt repayment capacity and safety margin (Afriyie & Akotey, 2011).

Non-Performing Loan Ratio (NPLR)

The non-performing loan (NPL) ratio measures a bank's credit risk by evaluating the quality of its outstanding loans. A lower NPL ratio suggests less risk related to the existing loans, while a higher ratio signals a greater likelihood of losses if the bank fails to recover the owed amounts. This ratio represents the percentage of a lender's total loans that are classified as non-performing, serving as an important indicator of credit risk and loan quality (Bhuiya et al., 2023).

The NPL ratio is calculated by dividing the total number of non-performing loans by the total number of loans. For example, if a bank has one million non-performing loans out of a total of one hundred million loans, its non-performing loan ratio would be 1% (Connell, 2023).

Interest Spread Rate (ISR)

The interest rate spread is the difference between the interest rate that banks charge on loans to customers and the interest rate they pay on deposits such as demand, time, or savings deposits. Although these rates vary across countries due to differing terms and conditions, the interest rate spread essentially measures how much banks earn from lending compared to what they pay to depositors. Sometimes called the net interest rate spread or bank spread, it is an important indicator of a bank's profitability. A higher interest rate spread means the bank is earning more from its lending activities relative to its cost of funds, signaling greater profitability. It is calculated by subtracting the interest rate on deposits from the interest rate on loans.

Capital Adequacy Ratio (CAR)

The ability of financial organizations to withstand shocks to their balance sheets is ultimately determined by their capital adequacy. Bank capital is categorized into Tier I and Tier II to measure this adequacy, with Tier I representing core capital and Tier II representing supplementary capital. Minimum capital adequacy ratios are essential because they ensure that banks maintain sufficient capital to absorb a reasonable amount of losses before facing bankruptcy and risking depositor funds.

Firm Size

Firm size refers to the scale of a company's operations and can be measured using various indicators such as workforce size, market capitalization, assets, revenue, production, and invested capital. It is one of the key ways businesses differ from each other. In this study, firm size is measured by the total assets of the companies. This includes the total value of a bank's assets such as cash, loans, securities, and real estate, with the natural logarithm of total assets often used to calculate firm size. Larger banks, which hold a greater share of the banking industry, can significantly influence the industry as a whole.

Return on Equity (ROE)

Return on equity (ROE) is a financial performance metric calculated by dividing net income by shareholders' equity, which is the difference between assets and debt. It measures a company’s return on net assets and serves as an indicator of profitability and how efficiently a company generates earnings from its equity. A higher ROE suggests that management is more effective at using equity funding to produce revenue and drive growth.

Return on Assets (ROA)

Return on assets (ROA) is a financial metric that measures how efficiently a company generates profit from its total assets. It indicates how well a business uses its resources to produce income and serves as an important tool for investors, analysts, creditors, and management to assess operational efficiency and profitability. A higher ROA reflects better utilization of assets to earn profits, while a lower ROA may signal inefficiencies or poor resource management. Overall, ROA helps evaluate the profitability of a company in relation to the assets it owns.

CHAPTER - IV

RESULTS AND DISCUSSION

The observation and analysis stage is a critical part of any research study. Observation involves systematically organizing and recording the collected data, while analysis refers to examining and interpreting this information. By presenting financial data in tabular or graphical formats, analysis helps to identify patterns, trends, and insights, which can then be used to recommend appropriate corrective actions or informed decisions.

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics for all the variables used in the study, providing a summary of each variable involved in the analysis. It includes key measures such as the mean, standard deviation, maximum, and minimum values, offering insights into the central tendency and variability of the data.

Table 2

Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
LR	50	3.05	27.48	12.07	5.432
NPLR	50	.10	3.22	.811	.771
Spread Rate	50	3.18	7.09	4.36	.7984
CAR	50	48.32	92.50	73.41	12.459
Firm Size	50	46088	291066	110626.10	55356.28
ROA	50	.73	3.03	1.807	.504
ROE	50	6.25	33.17	18.559	5.685

Source: Appendix – I

Table 2 presents the descriptive statistics of seven key variables related to commercial banks' performance and risk management, including firm size (FS), return on equity (ROE), return on assets (ROA), interest spread rate (ISR), capital adequacy ratio (CAR), liquidity ratio (LR), and non-performing loan ratio (NPLR). The mean values indicate the average measurements for each variable over the study period, with the banks showing an average ROA of 1.807 and an average ROE of 18.559. Other mean values include firm size at 12.07, interest spread rate at 0.811, capital adequacy ratio at 4.36, liquidity ratio at 73.41, and a notably high non-performing loan ratio averaging 110,626.10. The maximum

values reveal the highest recorded points for these variables, such as a maximum ROE of 33.17 and ROA of 3.03, while the minimum values show the lowest recorded figures, including a minimum ROE of 6.25 and ROA of 0.73 during the ten fiscal years. The standard deviation provides insight into the variability of the data, with ROE and ROA exhibiting standard deviations of 5.685 and 0.504, respectively, indicating that the data points are clustered fairly close to their means.

4.2 Correlation Analysis

In this section of data analysis, statistical methods such as the coefficient of correlation are used to examine relationships between different variables. For example, if a bank fails to receive sufficient deposits on time, it may be unable to extend large loan amounts. The terms Tcal and Ttab represent the calculated and tabular values of the t-statistic, respectively, evaluated at a 5% level of significance with three degrees of freedom, while "r" denotes the coefficient of correlation. The following findings highlight important relationships observed in the data.

Table 3

Correlation Analysis

Variables	CRR	NPLR	Spread Rate	CAR	Size	ROA	ROE
CRR	1						
NPLR	-0.214	1					
	0.256						
Spread Rate	.506**	0.029	1				
	0.004	0.881					
CAR	0.006	-0.145	-0.009	1			
	0.976	0.444	0.961				
Firm Size	-0.288	0.216	-.473**	-0.196	1		
	0.122	0.251	0.008	0.299			
ROA	.405*	-0.083	.697**	.400*	-.499**	1	
	0.026	0.664	0	0.029	0.005		
ROE	.519**	0.001	.669**	-0.12	-.627**	.767**	1
	0.003	0.997	0	0.526	0	0	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3 presents the correlation matrix showing the relationships between the variables. The non-performing loan ratio (NPLR) has an insignificant negative correlation with return on assets (ROA) ($r = -0.083$, $P > 0.05$) and an insignificant positive correlation

with return on equity (ROE) ($r = 0.001$, $P > 0.05$). In contrast, the capital adequacy ratio (CAR) shows a positive and significant correlation with both ROA ($r = 0.405$, $P < 0.05$) and ROE ($r = 0.519$, $P < 0.01$). Additionally, the interest spread rate exhibits a strong positive and significant correlation with ROE ($r = 0.669$, $P < 0.01$) and ROA ($r = 0.697$, $P < 0.01$).

The correlation matrix also reveals a negligible negative correlation between liquidity ratio (LR) and return on equity (ROE) ($r = -0.012$, $P > 0.05$), but a positive and significant correlation with return on assets (ROA) ($r = 0.400$, $P < 0.05$). Firm size shows a significant negative correlation with both ROA ($r = -0.499$, $P < 0.01$) and ROE ($r = -0.627$, $P < 0.01$). Furthermore, ROA and ROE themselves exhibit a strong positive and significant correlation ($r = 0.767$, $P < 0.01$).

4.3 Regression Analysis

The primary objective of the regression analysis was to determine the impact of independent variables on the study's dependent variables, return on equity (ROE) and return on assets (ROA), as noted by Boudriga et al. (2019). The analysis aimed to test the hypotheses and examine how factors such as liquidity ratio (LR), non-performing loan ratio (NPLR), interest spread rate (ISR), capital adequacy ratio (CAR), and firm size (FS) influence ROE and ROA.

Table 3

Model Summary of ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858a	.736	.627	1.45872

a. Predictors: (Constant), Size, CAR, NPLR, LR, Spread Rate

The coefficient of determination (R^2) of 0.736 indicates that 73.60% of the variance in return on equity (ROE) can be explained by the independent variables liquidity ratio (LR), non-performing loan ratio (NPLR), interest spread rate (ISR), capital adequacy ratio (CAR), and firm size (FS).

Table 4

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26930727.660	5	5386145.532	13.182	.000
	Residual	25810189.720	44	586595.221		
	Total	52740917.380	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), Size, CAR, NPLR, LR, Spread Rate

The ANOVA table provides an overall summary of the relationship between the independent variables—firm size (FS), interest spread rate (ISR), capital adequacy ratio (CAR), liquidity ratio (LR), and non-performing loan ratio (NPLR)—and the dependent variable, return on equity (ROE). It shows that this relationship is statistically significant, with a p-value of 0.000, which is well below the 0.05 significance level, indicating strong evidence that these variables collectively influence ROE.

Table 5

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	339.428	493.688		.688	.495
	LR	350.170	237.535	.181	2.474	.048<0.05
	NPLR	17.673	5.788	.377	3.053	.004<0.05
	Spread Rate	-.005	.003	-.190	-1.509	.138>0.05
	CAR	-449.891	262.993	-.202	-2.011	.034<0.05
	Firm Size	17.907	2.965	.788	6.039	.000<0.05

a. Dependent Variable: ROE

Source: Appendix III

Regression analysis output: coefficient

Table 5 presents the regression coefficients, showing that firm size, non-performing loan ratio (NPLR), and liquidity ratio have positive and significant beta values of 350.170,

14.673, and 17.907, respectively, indicating that a one-unit increase in these variables corresponds to increases in return on equity (ROE) by those amounts. In contrast, the capital adequacy ratio (CAR) has a negative and significant beta value of -449.891, meaning that a one-unit increase in CAR leads to a decrease in ROE by 449.891 units. Additionally, the interest spread rate has a negligible and negative impact on ROE. Overall, LR, NPLR, and size positively influence ROE, while CAR negatively affects it.

Table 6

Model Summary of ROA

	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886a	.785	.761	.27836

a. Predictors: (Constant), Size, CAR, NPLR, LR, Spread Rate

The coefficient of determination (R^2) of 0.658 shows that 65.8% of the variation in return on assets (ROA) can be explained by factors such as the liquidity ratio, non-performing loan ratio, interest spread rate, capital adequacy ratio, and firm size.

Table 7

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.479	5	2.496	32.212	.000b
	Residual	3.409	44	.077		
	Total	15.888	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), Size, CAR, NPLR, LR, Spread Rate

The ANOVA table provides an overall summary and significance test of the relationship between the dependent variable, return on assets (ROA), and the independent variables—liquidity ratio (LR), non-performing loan ratio (NPLR), interest spread rate (ISR), capital adequacy ratio (CAR), and firm size (FS). It reveals that this relationship is statistically significant at the 0.05 level, with a p-value of 0.000.

Table 8

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.774	.186		25.725	.000
	LR	-.284	.046	-.759	-6.216	.000<0.05
	NPLR	.046	.006	1.064	8.405	.000<0.05
	Spread Rate	-.020	.021	-.080	-.952	.346>0.05
	CAR	-.046	.120	-.030	-.387	.701>0.05
	Firm Size	.036	.005	.592	7.626	.000<0.05

a. Dependent Variable: ROA

Source: Appendix III

Table 5 presents the regression analysis results highlighting the effects of liquidity ratio (LR), non-performing loan ratio (NPLR), interest spread rate, capital adequacy ratio (CAR), and firm size on return on assets (ROA). The study found that LR, NPLR, and firm size have beta coefficients of -0.284, 0.046, and 0.036, respectively. This means that a one-unit increase in NPLR and firm size corresponds to increases in ROA by 0.046 and 0.036 units, respectively, while a one-unit increase in LR results in a decrease in ROA by 0.284 units. The findings indicate that LR negatively and significantly influences ROA, whereas NPLR and firm size have positive and significant effects. Conversely, the impact of interest spread rate and CAR on ROA is negative but negligible.

4.3 Discussions

The CAMEL model is employed in this study to assess and manage risks according to the research objectives. The independent variables considered include firm size, interest spread rate, liquidity ratio, non-performing loan ratio, and capital adequacy ratio. Using a combination of statistical and financial methods, the study evaluates and compares the performance of risk management.

This approach aligns closely with the research by Hu et al. (2024), which identified variations in bank performance and highlighted the high volatility of Nepal’s capital

market. In this context, the term "Mean" refers to the average value of each variable, while "Maximum" and "Minimum" represent the highest and lowest recorded values of each variable, respectively. The standard deviation measures the dispersion or spread of data points around the mean.

Both ROA and ROE show moderately positive correlations with the capital reserve ratio (CRR), indicating that higher profitability may be linked to larger reserves. The strong and positive correlation between ROA and ROE suggests that profitability based on assets generally aligns closely with returns on equity. Additionally, the capital adequacy ratio demonstrates a strong positive correlation with ROE but a negligible relationship with ROA, which aligns with the findings of Alam et al. (2024).

There is also a significant positive correlation between the interest spread rate and both profitability measures, particularly ROA, indicating that a wider spread may enhance asset-based profitability. However, the spread rate shows a strong negative correlation with firm size, which could reflect challenges related to scale or efficiency losses. These results align with the findings of Permata et al. (2024) but contradict those reported by Bhuiya et al. (2023).

Overall, there is a negative relationship between firm size and both ROE and ROA, suggesting that larger firms may experience lower returns on equity and assets possibly due to inefficiencies or more complex operations. This finding aligns with the results of Siddique et al. (2022) and Munangi and Sibindi (2020), who also reported that the capital adequacy ratio (CAR) shows no significant correlation with most other variables.

Unlike the findings of Alam et al. (2024), this analysis reveals a strong positive relationship between the Non-Performing Loan Ratio (NPLR) and equity returns, indicating that higher levels of non-performing loans are associated with increased returns—an unexpected result that may reflect the dynamics of high-risk lending environments and warrants further contextual examination.

Return on Equity (ROE) is positively influenced by business size, implying that larger firms tend to generate higher equity returns, while a significant negative effect from the Capital Adequacy Ratio (CAR) suggests a potential trade-off between profitability and

capital reserves; although the Spread Rate shows no clear effect on ROE, the Liquidity Ratio (LR) contributes positively, aligning with the findings of Kwashie et al. (2022) and Azam (2022).

The Non-Performing Loan Ratio (NPLR) once again shows a strong positive influence, highlighting its critical role in profitability metrics, while firm size remains a consistent and favorable predictor of Return on Assets (ROA); however, the Liquidity Ratio (LR) has a significant negative effect, suggesting that higher liquidity may not always lead to better asset returns, and both the Capital Adequacy Ratio (CAR) and Spread Rate appear to have minimal impact on ROA in this model—findings that align with AI-Zaidanin and AI-Zaidanin (2021) but contrast with those of Permata et al. (2024).

CHAPTER – V

SUMMARY AND CONCLUSION

5.1 Summary

The study aimed to assess risk management and its impact on business performance by analyzing secondary data from the annual reports of five joint venture banks in Nepal—Nepal SBI Bank Limited, Everest Bank Ltd., Nabil Bank Ltd., Himalayan Bank Ltd., and Standard Chartered Bank Ltd.—over a ten-year period from 2014–15 to 2023–24. Using a descriptive research design, the study examined return on equity and return on assets as dependent variables, with the liquidity ratio, non-performing loan ratio, interest spread rate, capital adequacy ratio, and business size as independent variables. Data was collected from the banks' official websites, relying solely on secondary sources without altering the original information.

The study is organized into five chapters: the first outlines the main research problem, provides background information, introduces the sample banks, states the research objectives and rationale, and discusses the study's limitations; the second chapter focuses on theoretical analysis, summarizing relevant literature and presenting the conceptual framework; the third details the research methodology, including statistical tools, research design, data sources, analytical methods, and the financial variables examined; the fourth chapter presents and analyzes data using statistical techniques to highlight the quantitative dimensions of risk management, along with discussions; and the final chapter offers a summary, conclusions, implications, recommendations, and comparisons with existing empirical findings where relevant.

The study revealed that firm size had a strong negative correlation with ROE, while CRR, the spread rate, and ROA showed a significant positive correlation with ROE. ROA had a weak relationship with both CRR and CAR, but a strong positive correlation with the spread rate, and a moderately negative correlation with firm size. Regression analysis highlighted firm position and performance as key determinants, showing that size, NPLR, and liquidity ratio positively and significantly influenced ROE, whereas CAR had a significant negative impact. Additionally, ROA was significantly and positively affected by NPLR and firm size, while the liquidity ratio had a significant negative effect on ROA.

5.2 Conclusions

Based on the findings, the study concludes that the sampled Nepalese commercial banks exhibit inadequate risk management practices. It highlights that the capital adequacy ratio (CAR) has no significant impact on financial performance, suggesting it should not be considered a key factor in assessing bank performance. Contrary to the expectation that higher CAR enables banks to issue more loans and absorb credit losses, the study found a negative and insignificant relationship, undermining support for existing capitalization policies. Furthermore, the non-performing loan ratio (NPLR) showed a negative effect on performance, reinforcing its role as an indicator of poor risk handling, as it reflects the proportion of loan defaults. Together, these results point to weak risk management among Nepalese commercial banks.

The study found a strong correlation between risk indicators and bank performance, concluding that the non-performing loan ratio negatively affects performance, while cost per loan assets has a positive impact. The positive effect of cost per loan assets suggests that banks are efficiently allocating loans and generating more interest income relative to their expenses, positioning it as a crucial factor in improving performance. Additionally, bank size also influences performance. Overall, the findings point to inadequate risk management practices among Nepalese commercial banks, emphasizing the need for more effective risk control to safeguard institutional resources and protect stakeholders' interests.

5.3 Implications

Based on the empirical findings, the report recommends that Nepalese commercial banks enhance their credit risk management to improve return on assets (ROA), emphasizing strict adherence to the Basel II Accord and current NRB Directives. The negative impact of the non-performing loan ratio on performance highlights how increased loan loss provisions reduce profitability, underscoring the need for responsible credit risk practices. Complying with these regulatory frameworks demonstrates a prudent approach that can ultimately strengthen bank performance.

Banks should develop and implement strategies that enhance competitiveness and performance while minimizing risk exposure by conducting thorough credit assessments

before granting loans. It is recommended that credit activities strictly follow established policies, including clear written procedures and transparent delegation of loan approval and review responsibilities. Additionally, senior management must ensure regular, independent internal audits of credit and management processes. The study concludes that effective risk management and loan servicing are essential to keeping non-performing loans (NPLs) low, thereby maintaining the high profitability of Nepalese commercial banks.

This study is also intended to serve as a valuable resource for academics conducting further research. Given that it focused on only three criteria, additional studies are needed to explore other factors that contribute to risk mitigation and enhance the performance of Nepalese commercial banks.

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APPENDICES

Appendix – I

Essential Information of Nepal SBI Bank Limited

FY	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
CRR	9.32	10.92	8.33	10.04	7.18	6.65	8.89	3.22	3.05	4.06
NPLR	0.26	0.19	0.14	0.10	0.20	0.20	0.23	0.23	0.15	2.43
Spread Rate	3.45	3.85	4	3.68	4.99	4.43	3.87	3.18	4.36	3.99
CAR	13.28	14.03	13.49	15.71	15.15	14.12	15.55	13.86	13.25	12.58
Bank Size	64796	61083	59277	78515	102539	118314	118314	132402	153103	185958
ROA	1.5	1.64	1.59	1.57	1.97	1.94	1.17	0.7	1.07	1.06
ROE	22.85	17.08	17.46	14.87	15.81	16.2	10.44	6.26	9.57	10.77

Essential Information of Everest Bank Limited

FY	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
CRR	9.32	10.92	8.33	10.04	7.18	6.65	8.89	3.22	3.05	4.06
NPLR	0.26	0.19	0.14	0.10	0.20	0.20	0.23	0.23	0.15	2.43
Spread Rate	3.45	3.85	4	3.68	4.99	4.43	3.87	3.18	4.36	3.99
CAR	13.28	14.03	13.49	15.71	15.15	14.12	15.55	13.86	13.25	12.58
Bank Size	64796	61083	59277	78515	102539	118314	118314	132402	153103	185958
ROA	1.5	1.64	1.59	1.57	1.97	1.94	1.17	0.7	1.07	1.06
ROE	22.85	17.08	17.46	14.87	15.81	16.2	10.44	6.26	9.57	10.77

Essential Information of Standard Chartered Bank Limited

FY	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
CRR	9.32	10.92	8.33	10.04	7.18	6.65	8.89	3.22	3.05	4.06
NPLR	0.26	0.19	0.14	0.10	0.20	0.20	0.23	0.23	0.15	2.43
Spread Rate	3.45	3.85	4	3.68	4.99	4.43	3.87	3.18	4.36	3.99
CAR	13.28	14.03	13.49	15.71	15.15	14.12	15.55	13.86	13.25	12.58
Bank Size	64796	61083	59277	78515	102539	118314	118314	132402	153103	185958
ROA	1.5	1.64	1.59	1.57	1.97	1.94	1.17	0.7	1.07	1.06
ROE	22.85	17.08	17.46	14.87	15.81	16.2	10.44	6.26	9.57	10.77

Essential Information of Nabil Bank Limited

FY	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
CRR	11.32	14.15	6.77	10.02	10.05	4.78	11.20	3.66	4.13	6.89
NPLR	2.23	1.82	1.14	0.79	0.55	0.74	0.98	0.84	1.62	3.39
Spread Rate	4.25	4.14	3.27	3.28	3.77	4.05	4.21	4.17	4.19	4.67
CAR	11.24	11.57	11.73	12.42	13	12.5	13.07	12.77	13.09	12.54
Bank Size	87274	115986	127619	140697	169076	201139	237680	2091066	419818	481204
ROA	2.89	2.06	2.32	2.69	2.61	2.11	1.58	1.71	1.2	1.42
ROE	27.97	22.73	25.61	26.65	20.94	17.76	13.61	15.19	9.78	11.66

Essential Information of Everest Bank Limited

FY	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
CRR	16.91	24.27	16.16	16.52	17.75	18.56	14.43	18.50	6.5	7.11
NPLR	0.97	0.66	0.38	0.25	0.2	0.16	0.22	0.12	0.12	0.79
Spread Rate	2.48	3.11	3.17	3.44	3.57	4.08	4.17	4.88	4.89	4.67
CAR	11.31	13.33	12.66	14.54	14.2	13.74	13.38	12.48	11.89	13.3
Bank Size	70445	99153	113885	116510	144818	170077	185023	211650	225211	250090
ROA	2.25	1.85	1.85	1.83	1.97	1.94	1.42	0.89	1.13	1.41
ROE	28.4	22.84	20.32	17.38	16	17.33	13.5	8.56	10.88	13.05

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