# IMPACT OF CREDIT RISK ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL

**By**

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Submitted in Partial Fulfilment of the Requirement of Degree of Masters of Business Studies (MBS)

Kathmandu, Nepal

June, 2024

# Certification of Authorship

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal". 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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Muna Thapa Magar

Date: June, 2024

## Report of Research Committee

Ms. Muna Thapa Magar has defended research proposal entitled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal", 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 Dr. Dilliram Bhandari and submit the thesis for evaluation and viva voce examination.

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# Approval Sheet

This thesis entitled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" submitted by Ms. Muna Thapa Magar to the faculty of management, Tribhuvan University, in partial requirements for the degree MBS (Master of Business studies) has been found satisfactory in scope and quality. Therefore, we accept this theory as part of the degree.

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## Acknowledgements

I would like to forward my deepest gratitude to Dr. Dilliram Bhandari of Shanker Dev Campus who supports me with her invaluable scholarly supervision, constructive comments and suggestions that allow me to furnish this thesis report in this final format.

I would like to pay my sincere thanks to Asso. Prof. Dr. Sajeeb Kumar Shrestha, Head of Research Department and Asso. Prof. Dr. Krishna Prasad Acharya, Campus Chief of Shanker Dev Campus. Besides, I would also like to thank to other respected teachers of Shanker Dev Campus and all of the staff of this campus for their help in providing me various kinds of suggestion, information and comments.

Further, my deep regard to known and unknown individual who helped to collect the data at preliminary stage of this dissertation writing.

It is the matter of my immense pleasure to express my deep sense of gratitude and heartfelt respect to my parents for their affection, inspiration and incredible support to precede my academic career.

**Muna Thapa Magar**

# Table of Contents

# LIST OF TABLES

# Abbreviations

| | |
|---|---|
| CAR | : Capital Adequacy Ratio |
| CLA | : Cost per loan Advance Ratio |
| CRM | : Credit Risk Management |
| CV | : Coefficient of Variation |
| DR | : Default Risk |
| EBL | : Everest Bank Limited |
| GDP | : Gross Development product |
| HBL | : Himalayan Bank Limited |
| KYC | : Know Your Customer |
| LLPR | : Loan Loss Provision Ratio |
| LTDR | : Loan and Advance to Deposit Ratio |
| NABIL | : Nepal Arab Bank Limited |
| NIBL | : Investment Bank Limited |
| NPLR | : Non-Performing Loan Ratio |
| ROA | : Return on Assets |
| ROE | : Return on Equity |
| SBI | : State Bank of India. |
| SPSS | : Statistical Package for Social Science |

# Abstract

This study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" investigates the intricate relationships between profitability and various risk management metrics within Nepalese commercial banks from the fiscal years 2013/14 to 2022/23. The research employs a descriptive and causal-comparative design, analyzing data from a sample of five banks, representing 14.29% of the total population of commercial banks in Nepal. The study's objectives include assessing the profitability positions of these banks, evaluating key financial ratios such as capital adequacy ratio (CAR), non-performing loan ratio (NPLR), loan loss provision ratio (LLPR), and loan-to-deposit ratio (LTDR), and examining their impact on profitability measured by return on assets (ROA) and return on equity (ROE).

The findings reveal a complex interplay between these financial ratios and profitability. Higher capital adequacy is associated with lower ROA but higher ROE, indicating a trade-off between asset profitability and shareholder returns. Non-performing loans show a positive correlation with both ROA and ROE, suggesting effective management of non-performing assets or compensatory operational efficiencies. The loan-to-deposit ratio negatively impacts profitability, highlighting the risks of excessive leverage. Adequate loan loss provisioning is crucial for maintaining asset quality and long-term stability, despite its short-term impact on profitability.

The study underscores the importance of a balanced approach to risk management and profitability, suggesting that banks must strategically manage capitalization, non-performing loans, leverage, and loan loss provisions. These findings have significant implications for policymakers, regulatory authorities, and bank management in Nepal, providing a roadmap for enhancing financial stability and performance in the banking sector through prudent risk management practices and strategic adjustments in financial metrics.



*Keywords: Return on Assets, Return on Equity, Capital Adequacy Ratio, Non-Performing Loan Ratio, Loan and Advance to Deposit Ratio and Loan Loss Provision to Total Loan Ratio*

# CHAPTER I

# INTRODUCTION

## 1.1. Background of the Study

Credit plays a pivotal role in the financial system, enabling economic growth and stability by facilitating the flow of capital from lenders to borrowers. It allows businesses to invest in new projects, consumers to purchase goods and services, and governments to finance public expenditures. In recent years, the accessibility and terms of credit have undergone significant changes due to advancements in financial technology and regulatory reforms aimed at enhancing credit availability while ensuring financial stability (Dewatripont & Freixas, 2023). The ease of obtaining credit and its affordability are critical factors influencing economic activity and overall economic health (Chava, 2022).

Credit risk, also known as default risk, is the possibility that a borrower will fail to meet their obligations in accordance with agreed terms. It is one of the most significant risks faced by financial institutions, particularly commercial banks. Effective management of credit risk is essential for the stability and profitability of these institutions. In recent years, the methods for assessing and mitigating credit risk have evolved, incorporating advanced data analytics and machine learning techniques to predict defaults more accurately (Altman & Sabato, 2023). Regulatory frameworks, such as the Basel III Accord, have also emphasized the importance of maintaining adequate capital buffers to absorb potential losses from credit risk exposures (Basel Committee on Banking Supervision, 2022).

For commercial banks, managing credit risk is a core activity that impacts their financial health and operational efficiency. The practices employed to mitigate credit risk include rigorous credit appraisal processes, diversification of loan portfolios, and continuous monitoring of borrowers' financial health. In the context of Nepal, commercial banks face unique challenges due to the country's economic structure, regulatory environment, and market dynamics. Recent studies have highlighted that the effectiveness of credit risk management practices in Nepalese banks has a direct impact on their performance and stability (Shrestha & Bajracharya, 2023). The integration of technology in credit assessment and the evolving regulatory requirements are reshaping how banks approach credit risk management (Koirala, 2022).

Profitability is a key performance indicator for commercial banks, reflecting their ability to generate earnings from their operations. It is influenced by various factors, including interest income from loans, fee income, and the management of operational costs. In recent years, the profitability of banks globally has been under pressure due to low-interest rates, increased competition, and regulatory costs. For Nepalese commercial banks, profitability trends have been impacted by economic cycles, regulatory changes, and evolving customer preferences (Adhikari, 2022). Effective risk management, including credit risk management, plays a crucial role in sustaining profitability by minimizing potential losses and ensuring stable revenue streams (Gyawali, 2023).

The relationship between credit risk and profitability in commercial banks is complex and multifaceted. On one hand, higher credit risk can lead to increased loan defaults and credit losses, directly impacting profitability. On the other hand, effective credit risk management can enhance profitability by ensuring that lending activities are conducted prudently and that potential losses are minimized. Recent empirical studies have shown that there is a significant inverse relationship between credit risk and profitability in the banking sector, where higher credit risk generally correlates with lower profitability (Bhattarai, 2023). For Nepalese commercial banks, understanding and managing this relationship is critical to achieving long-term financial stability and growth (Lamsal & Poudel, 2022).

Therefore, this study aims to explore how credit risk management practices influence the profitability of commercial banks in Nepal, with the objective of providing insights that can help enhance the financial stability and growth of the banking sector. In this study, we will investigate the intricate relationship between credit risk management and profitability in Nepalese commercial banks by analyzing various credit risk management practices and their direct and indirect effects on banks' financial performance. The research will focus on several key aspects, including the effectiveness of current risk assessment methodologies, the impact of regulatory frameworks on risk management practices, and the role of technological advancements in improving credit risk evaluation and mitigation strategies.

### 1.2. Problem Statement

The profitability of commercial banks is a critical factor in the stability and growth of the financial system, particularly in developing economies like Nepal. Despite the crucial role that credit plays in fostering economic activity, managing the associated credit risk poses

significant challenges for banks. High levels of credit risk can lead to increased loan defaults, thereby adversely impacting banks' profitability (Altman & Sabato, 2023). This problem is exacerbated in the context of Nepal, where economic volatility, regulatory changes, and market conditions present unique challenges for credit risk management (Shrestha & Bajracharya, 2023).

Over the past decade, Nepalese commercial banks have experienced fluctuations in profitability, raising concerns about the effectiveness of their credit risk management practices (Adhikari, 2022). The intricate relationship between credit risk and profitability remains underexplored, with limited empirical studies focusing specifically on the Nepalese banking sector (Bhattarai, 2023). This gap in knowledge hampers the ability of banks to develop robust strategies for optimizing profitability while managing credit risk effectively.

Therefore, this study aims to investigate the impact of credit risk on the profitability of commercial banks in Nepal. It seeks to identify the key factors contributing to credit risk, analyze how these risks affect banks' financial performance, and provide insights into best practices for mitigating these risks to enhance profitability (Gyawali, 2023). Understanding this relationship is essential for policymakers, regulators, and banking professionals to ensure the sustainable development of the banking sector in Nepal (Lamsal & Poudel, 2022). The statement of the problem are:

- What is the current position of profitability, capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio of commercial banks in Nepal?
- What is the relationship between profitability and capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio of commercial banks in Nepal?
- What is the impact of capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio on profitability of commercial banks in Nepal?

### 1.3. Objectives of the Study

The banking sector is one of the most essential parts of any kind of economic activities. However, their financial status has not been properly evaluated yet. Therefore, the present study concentrates what extend they are achieving their goals.

Bank provides both the deposit and credit services to the public. They accept the funds from the savers as deposit and lend the funds to the fund seeker in the economy. Therefore, banks can run effectively only if they can mobilize their deposit fund at their prescribed area and realize those disbursed amounts timely. In totality, the prescribed study aims to analyze how far the banks have been able to achieve these objectives.

The main aim of this fieldwork is to gain practical knowledge of banking operation. The Specific objectives of the study are:

- To examine the position of profitability, capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio of commercial banks in Nepal.
- To assess the relationship of profitability and capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio commercial banks in Nepal.
- To examine the impact of capital adequacy ratio, non-performing loan, loan loss provision and loan and advance on the profitability of commercial banks in Nepal.

### 1.4. Rationale of the Study

The investigation into the impact of credit risk on the profitability of commercial banks in Nepal holds significant implications for various stakeholders within the financial sector. This study's findings will provide crucial insights and practical recommendations that can benefit banks, policymakers, regulators, and the broader academic community.

For commercial banks, understanding the relationship between credit risk and profitability is vital for strategic decision-making and risk management. By identifying the key factors that influence credit risk and their impact on financial performance, banks can develop more effective risk mitigation strategies, improve their credit appraisal processes, and enhance overall financial stability (Altman & Sabato, 2023). This knowledge will enable banks to optimize their loan portfolios, minimize default rates, and sustain profitability even in challenging economic conditions (Shrestha & Bajracharya, 2023). Policymakers

and regulators will benefit from this study by gaining a deeper understanding of the current credit risk landscape in Nepalese commercial banks. The findings can inform the development of more targeted regulatory frameworks and policies that promote sound credit practices while ensuring the stability of the financial system (Basel Committee on Banking Supervision, 2022). This research will provide evidence-based recommendations that can help in refining regulatory measures to balance the need for financial stability with the facilitation of economic growth (Koirala, 2022). The academic community will find this study valuable as it contributes to the existing body of knowledge on credit risk management and bank profitability. The empirical analysis and insights derived from this research will serve as a reference for future studies and facilitate a deeper understanding of the dynamics between credit risk and profitability in the context of developing economies (Bhattarai, 2023). This study will also highlight the unique challenges faced by Nepalese banks, thus enriching the global discourse on banking risk management. At a broader level, this study has implications for the overall economic development of Nepal. A stable and profitable banking sector is essential for facilitating investments, fostering business growth, and improving consumer confidence (Adhikari, 2022). Effective credit risk management ensures that banks can continue to provide the necessary financial support to various sectors of the economy, thereby contributing to sustained economic progress (Gyawali, 2023).

### 1.5. Limitations of the Study

Every research has its own limitations. The main focus of this study is to point out the financial position and its analysis of banking sectors. Preparations of multiple financial statements are common practices in private sector.

So, the conclusion is based on the However, following are the limitations of the study:

- This study has concentrated only on few performances (ROA and ROE) that are related with credit practices.
- Through there has been in operation of 20 Commercial Banks in Nepal, but only 5 banks have been selected as sample.
- Whole study is based on data from 2013/14 TO 2022/23.
- Some of the financial tools of comparison has used in this study. Hence the drawbacks and weakness of those tools may adversely affect the outcomes of the study.
- The sources of data are published annual report and internet website which is assumed to be correct.

# CHAPTER II

# REVIEW OF LITERATURE

This chapter is focused on brief discussion about the abstract regarding the theories of deposit mobilization. In order to accomplish the objective of the study only the relevant literatures have been reviewed, including different views of expertise, assumptions, book and journals, as well as major findings of previous studies of the relevant field is included in precise manner. Every possible effort has been made to grasp knowledge and information that is available from the concerned commercial banks.

## 2.1 Theoretical Review

The major theories related to the study of Impact of credit risk on profitability of commercial banks in Nepal are described below.

### Credit Risk Theory

Credit risk theory is fundamental to understanding the potential for financial loss due to a borrower's failure to meet their debt obligations. This theory emphasizes two critical components: Probability of Default (PD) and Loss Given Default (LGD). PD measures the likelihood that a borrower will default on their loan, providing a statistical basis for assessing the risk level of individual loans and the overall loan portfolio. LGD estimates the potential financial loss if a borrower defaults, taking into account factors such as recovery rates and the value of collateral. Banks use sophisticated models like CreditMetrics and KMV to predict credit risk and assess the potential impact on their portfolios. These models incorporate statistical analyses and market data to provide accurate risk assessments (Altman & Sabato, 2023). Effective credit risk management involves applying these metrics to evaluate borrower creditworthiness and to ensure that lending practices are designed to minimize potential losses, thereby maintaining financial stability (Basel Committee on Banking Supervision, 2022).

### Agency Theory

Agency theory explores the conflicts that can arise between principals (shareholders) and agents (bank management) due to differing goals and risk appetites. In the context of banking, managers may pursue higher short-term profits by taking on excessive credit risks, which can jeopardize the long-term financial health of the bank (Jensen & Meckling, 1976).

This theory highlights the necessity of effective corporate governance mechanisms to align the interests of managers with those of shareholders. These mechanisms include performance-based incentives, rigorous risk management frameworks, and oversight by the board of directors. By aligning managerial decisions with the bank's long-term goals, banks can better manage credit risks and enhance profitability. This alignment helps prevent excessive risk-taking and ensures that managerial actions contribute to the bank's sustainable growth and stability (Adhikari, 2022).

**Efficient Market Hypothesis (EMH)**

The Efficient Market Hypothesis (EMH) posits that financial markets are "informationally efficient," meaning that asset prices reflect all available information at any given time. In the context of credit risk and profitability, EMH suggests that the market prices of bank loans and securities already incorporate perceived risk levels. Thus, any deviations in pricing or profitability are likely due to new, unforeseen information (Fama, 1970). For banks, this means that they must rely on superior information and advanced risk assessment techniques to gain a competitive edge and achieve higher profitability. Continuous improvements in credit assessment processes, such as using advanced data analytics and credit scoring models, are essential for banks to stay competitive and manage credit risks effectively (Bhattarai, 2023).

**Modern Portfolio Theory (MPT)**

Modern Portfolio Theory, developed by Harry Markowitz, emphasizes the importance of diversification in managing investment risk. For commercial banks, MPT suggests that diversifying loan portfolios across different sectors, regions, and borrower types can reduce unsystematic risk. This approach ensures that a default in one sector does not disproportionately impact the overall portfolio. MPT advocates for creating an optimal mix of assets that maximizes expected return for a given level of risk (Markowitz, 1952). In the context of credit risk, banks should balance their loan portfolios to mitigate potential losses from defaults and maintain profitability. By diversifying their portfolios, banks can achieve a more stable financial performance and reduce the impact of adverse economic conditions on their loan portfolios (Gyawali, 2023).

### Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) provides a framework for assessing the risk and expected return of an investment. In banking, CAPM can be used to determine the required return on loans, considering the risk-free rate, the loan's beta (a measure of its volatility relative to the market), and the market risk premium. The risk-free rate represents the return on a risk-free investment, typically government bonds, and serves as the baseline for other investments. Beta measures the loan's volatility compared to the market, with a higher beta indicating greater risk and requiring a higher return. The market risk premium is the additional return expected from holding a risky asset over a risk-free one (Sharpe, 1964). By applying CAPM, banks can price their loans more accurately, ensuring they are compensated for the risks taken. This approach helps align loan pricing with the risk-return trade-off and supports the bank's profitability and risk management objectives (Shrestha & Bajracharya, 2023).

## 2.2 Empirical Review

Bhattarai (2023) delved into the impact of credit risk on the profitability of Nepalese commercial banks using panel data regression analysis spanning from 2010 to 2020. Key variables such as Non-Performing Loans (NPL), Loan Loss Provisions (LLP), ROA, and ROE were examined. The study highlighted that higher credit risk levels, indicated by increased NPL and LLP, significantly dampened bank profitability. This underscores the critical role of effective credit risk management practices in mitigating financial risks and sustaining profitability in the banking sector. The findings emphasize the need for banks to adopt proactive measures to manage and reduce credit risk exposures, thereby enhancing financial resilience and ensuring sustainable profitability amidst varying economic conditions and regulatory environments.

Gyawali (2023) explored how risk management practices impact the profitability of Nepalese commercial banks through a mixed-method approach. Combining qualitative interviews with quantitative financial analysis, Gyawali analyzed variables including Credit Risk Management Practices, ROA, ROE, and NPL. The study revealed that banks implementing robust risk management frameworks tend to achieve better profitability outcomes. This comprehensive approach provided nuanced insights into the interplay between risk management strategies and financial performance, suggesting that effective risk management not only mitigates losses from credit risk but also enhances overall

operational efficiency and strategic decision-making within banks. Gyawali's findings contribute valuable insights for policymakers and bank managers aiming to strengthen financial stability and performance in Nepal's banking industry.

Shrestha and Bajracharya (2023) evaluated the effectiveness of credit risk management practices in Nepalese commercial banks by surveying risk managers and analyzing secondary financial data. The study focused on variables such as Risk Management Practices, Non-Performing Loans (NPL), and Loan Loss Provisions (LLP). Their findings indicated that banks with advanced risk management practices exhibited lower levels of NPL and LLP, suggesting a positive correlation between effective risk mitigation strategies and financial stability. This underscores the importance of proactive risk management in safeguarding asset quality and enhancing overall profitability within Nepal's banking sector. The study's insights provide practical implications for improving regulatory frameworks and internal risk management protocols to sustain financial health and resilience amid evolving market dynamics.

Adhikari (2022) compared profitability trends among various commercial banks in Nepal over a decade. Employing a comparative analysis of financial ratios like Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), Adhikari's study revealed significant disparities. Larger banks consistently exhibited more stable and higher profitability compared to their smaller counterparts. This finding underscores the advantages of scale and efficiency in the banking sector, where larger institutions may benefit from economies of scale and diversified revenue streams. The study's insights are crucial for understanding the competitive landscape of Nepalese banks and can inform strategies for enhancing profitability and operational efficiency across different bank sizes.

Lamsal and Poudel (2022) explored the dynamics between credit risk and profitability in Nepal's banking sector using econometric models based on data from 2005 to 2020. The study analyzed key variables such as NPL, LLP, ROA, and ROE to assess the impact of credit risk on profitability. Their findings revealed a significant negative relationship, indicating that higher levels of credit risk adversely affected bank profitability over the studied period. This highlights the necessity for enhanced credit risk management strategies to mitigate financial risks and improve profitability in Nepalese commercial banks. Lamsal and Poudel's research contributes to the understanding of risk management practices and their implications for financial stability, providing valuable insights for policymakers,

regulators, and bank executives aiming to strengthen resilience and sustainable growth in the banking sector.

Koirala (2022) investigated the impact of technological advancements on credit risk assessment in Nepalese banks using primary survey data and secondary financial reports. Key variables included Technological Tools and Credit Risk Assessment. The study revealed that banks leveraging advanced technological tools for credit risk assessment exhibited lower Non-Performing Loan (NPL) ratios. Koirala's research underscores the transformative role of technology in enhancing risk management capabilities within Nepal's banking industry. By adopting innovative tools and analytics, banks can improve decision-making processes related to credit risk, thereby reducing potential losses and improving overall financial performance.

Rana (2022) explored the relationship between credit risk and profitability through multiple regression analysis on data spanning from 2010 to 2020. Key variables analyzed included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study consistently found a negative relationship between credit risk indicators and profitability metrics. Rana's research highlights the adverse impact of heightened credit risk on financial performance in Nepalese commercial banks. These findings underscore the imperative for banks to adopt comprehensive risk management strategies that address NPL and LLP effectively to sustain profitability amidst evolving market dynamics.

Gurung and Thapa (2021) assessed the relationship between credit risk and the financial performance of commercial banks through correlation analysis using data from 2012 to 2019. Key variables analyzed were Non-Performing Loans (NPL), Return on Assets (ROA), and Return on Equity (ROE). The study revealed a strong negative correlation between credit risk indicators (NPL) and financial performance measures (ROA, ROE). Gurung and Thapa's findings highlight the detrimental impact of elevated credit risk levels on bank profitability. They emphasize the importance of proactive risk management strategies to mitigate NPL ratios and enhance overall financial health in Nepalese commercial banks.

Pandey (2021) evaluated the impact of credit risk management on the profitability of Nepalese banks using descriptive and inferential statistics based on financial data from 2011 to 2020. Key variables examined included Credit Risk Management and Return on

Assets (ROA). The study concluded that proactive credit risk management significantly enhances profitability. Pandey's findings underscore the strategic importance of effective risk management practices in safeguarding asset quality and optimizing f inancial performance in Nepal's banking sector. By implementing robust risk management frameworks, banks can mitigate potential losses associated with credit risk and foster sustainable profitability over the long term.

Shrestha and Shakya (2021) analyzed the effect of credit risk on the profitability of Nepalese commercial banks using regression analysis on data from 2010 to 2019. The study focused on key variables including NPL, LLP, ROA, and ROE. Their findings demonstrated that higher NPL ratios were associated with lower profitability, indicating a significant impact of credit risk on financial performance. This underscores the importance of effective credit risk management practices in minimizing non-performing assets and enhancing profitability in Nepal's banking industry. Shrestha and Shakya's findings contribute empirical evidence to support the implementation of proactive risk management strategies to mitigate financial risks and sustain long-term profitability in commercial banking operations.

Bhandari (2021) investigated the impact of credit risk on bank performance using panel data analysis based on financial data from 2009 to 2019. Key variables analyzed included Non-Performing Loans (NPL), Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). The study identified that higher NPL levels negatively impacted both ROA and ROE, indicating a significant relationship between credit risk and overall bank performance. Bhandari's findings underscore the importance of prudent credit risk management practices in minimizing NPL ratios and optimizing financial metrics to ensure sustained profitability in Nepal's banking sector.

Subedi and Sapkota (2021) assessed the effectiveness of credit risk management practices in enhancing bank profitability through a survey of bank managers and secondary data analysis. Key variables examined included Credit Risk Management Practices, Return on Assets (ROA), and Return on Equity (ROE). The study concluded that banks implementing effective credit risk management practices demonstrated higher profitability levels. Subedi and Sapkota's research underscores the critical role of proactive risk management strategies in optimizing financial performance and ensuring long-term sustainability in Nepal's banking industry. By enhancing risk assessment frameworks and implementing robust risk

mitigation measures, banks can effectively manage credit risks and enhance overall profitability.

Adhikari and Sapkota (2020) examined the role of credit risk management in Nepalese banks' profitability using a case study approach and quantitative analysis. They focused on Credit Risk Management Techniques and Return on Assets (ROA). The study underscored the critical importance of effective credit risk management practices in maintaining high profitability levels. By analyzing how different banks implement these techniques, Adhikari and Sapkota highlighted strategies that contribute to sustained financial health and performance in Nepal's banking sector. Their findings suggest that banks with robust risk management frameworks are better equipped to navigate economic uncertainties and optimize profitability amidst fluctuating market conditions.

Dahal and Dahal (2020) analyzed how credit risk affects the financial performance of commercial banks using time series analysis based on data from 2008 to 2018. Key variables included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study's findings indicated that increased credit risk significantly reduced financial performance metrics. Dahal and Dahal's research highlights the detrimental impact of elevated NPL and LLP on profitability in Nepalese commercial banks, emphasizing the need for stringent risk management practices to mitigate these risks effectively.

Thapa and Bhattarai (2020) investigated the role of credit risk in determining the profitability of commercial banks using econometric modeling based on financial data from 2009 to 2019. Key variables analyzed included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study concluded that higher credit risk levels were associated with lower profitability, underscoring the negative impact of credit risk on financial performance in Nepal's banking sector. Thapa and Bhattarai's findings provide empirical evidence supporting the implementation of robust risk management strategies to mitigate NPL and LLP effectively and sustain profitability in commercial banking operations.

Table 1

*Summary of Previous Studies*

| Author (Year) | Objective | Key Variables | Methodology | Key Findings |
|---|---|---|---|---|
| Bhattarai (2023) | Assess impact of credit risk on profitability using panel data regression | NPL, LLP, ROA, ROE | Panel data regression analysis | Higher NPL and LLP reduce profitability; emphasizes effective credit risk management for financial resilience. |
| Gyawali (2023) | Explore how risk management practices affect profitability | Risk Management Practices, ROA, ROE, NPL | Mixed-method approach: qualitative interviews, quantitative analysis | Effective risk management enhances profitability; strategic insights for financial stability |
| Shrestha & Bajracharya (2023) | Evaluate effectiveness of credit risk management practices | Risk Management Practices, NPL, LLP | Survey, secondary financial data analysis | Advanced risk management correlates with lower NPL and LLP; crucial for financial stability in banks. |
| Adhikari (2022) | Compare profitability trends among commercial banks | ROA, ROE, NIM | Comparative analysis of financial ratios | Larger banks show higher and more stable profitability than smaller banks. |
| Lamsal & Poudel (2022) | Examine dynamics between credit risk and profitability | NPL, LLP, ROA, ROE | Econometric modeling | Higher credit risk negatively impacts profitability over time; highlights need for robust risk management strategies. |
| Koirala (2022) | Investigate impact of technological advancements on credit risk assessment | Technological Tools, Credit Risk Assessment | Primary survey, secondary financial reports | Technology improves risk assessment, reduces NPL ratios in Nepalese banks. |
| Rana (2022) | Explore relationship between credit risk and profitability using multiple regression | NPL, LLP, ROA, ROE | Multiple regression analysis | Heightened credit risk leads to lower profitability; calls for comprehensive risk management strategies. |

| | | | | |
|---|---|---|---|---|
| Gurung & Thapa (2021) | Assess correlation between credit risk and financial performance | NPL, ROA, ROE | Correlation analysis | Strong negative correlation between NPL and profitability metrics; emphasizes risk management importance. |
| Pandey (2021) | Evaluate impact of credit risk management on bank profitability | Credit Risk Management, ROA | Descriptive and inferential statistics | Effective credit risk management enhances profitability in Nepalese banks. |
| Shrestha & Shakya (2021) | Analyze effect of credit risk on profitability using regression | NPL, LLP, ROA, ROE | Regression analysis | Higher NPL ratios linked to lower profitability; underscores risk management's role in financial health. |
| Bhandari (2021) | Investigate impact of credit risk on bank performance using panel data analysis | NPL, ROA, ROE, NIM | Panel data analysis | Higher NPL levels affect ROA and ROE; highlights need for risk mitigation strategies. |
| Subedi & Sapkota (2021) | Assess effectiveness of credit risk management in enhancing bank profitability | Risk Management Practices, ROA, ROE | Survey, secondary data analysis | Effective risk management practices lead to higher profitability in Nepalese banks. |
| Adhikari & Sapkota (2020) | Examine role of credit risk management in Nepalese banks' profitability | Credit Risk Management Techniques, ROA | Case study, quantitative analysis | Effective risk management crucial for maintaining high profitability in banks. |
| Dahal & Dahal (2020) | Analyze impact of credit risk on financial performance using time series analysis | NPL, LLP, ROA, ROE | Time series analysis | Elevated credit risk reduces financial performance metrics; calls for stringent risk management. |
| Thapa & Bhattarai (2020) | Investigate role of credit risk in determining bank profitability using econometric modeling | NPL, LLP, ROA, ROE | Econometric modeling | Higher credit risk associated with lower profitability; emphasizes for robust risk management strategies. |

### 2.3 Research Gap

Based on the reviewed literature on the impact of credit risk management on the profitability of Nepalese commercial banks, several research gaps have been identified. Firstly, existing studies generally acknowledge the importance of credit risk management but often lack in-depth exploration of specific risk management techniques that are most effective within Nepalese banking institutions (Adhikari & Sapkota, 2020). There is a need for comparative analyses of different methodologies and strategies employed by banks to mitigate credit risk, to understand which practices yield optimal profitability outcomes.

Secondly, many studies reviewed have focused on relatively short-term data analysis, typically spanning 5 to 10 years (Pandey, 2021; Rana, 2022). This limitation calls for longitudinal studies that track the sustained impact of credit risk management practices on profitability over longer periods, providing insights into the durability and ongoing effectiveness of these strategies. Moreover, while Koirala (2022) touched upon the impact of technological advancements on credit risk assessment, further research is needed to fully understand the integration and effectiveness of emerging technologies like artificial intelligence and machine learning in Nepalese banks' risk management frameworks. Examining adoption rates, technological challenges, and comparative effectiveness across different banks would illuminate the potential benefits and drawbacks of these innovations in enhancing profitability.

Additionally, existing studies often aggregate data across the banking sector without distinguishing sectoral differences (Thapa & Bhattarai, 2020). Future research should explore how credit risk management practices vary across different banking sectors (e.g., commercial banks vs. development banks) and their specific impacts on profitability. Comparative studies could provide nuanced insights into sector-specific challenges and opportunities for improving risk management effectiveness. Lastly, while qualitative insights have been integrated into some studies (Gyawali, 2023), there remains a gap in qualitative research that explores the organizational dynamics and cultural influences affecting the implementation of effective credit risk management practices in Nepalese banks. Qualitative studies could offer deeper insights into the contextual factors facilitating or hindering the success of risk management strategies (Subedi & Sapkota, 2021), thereby enriching the understanding of this critical area.

# CHAPTER III

# RESEARCH METHODOLOGY

Research methodology is a systematically way of solving the research problem. It may be understood as science of studying that how research is done scientifically as well as systematically (Kothari, 1989). Research methodology is the research method used to test the hypothesis. It sequentially refers to the various steps to be adopted by a researcher in studying a problem with certain objectives in view. In other words, research methodology describes the methods and process applied in the entire subject of the study. This topic deals with research design, nature of data collection, processing of data and statistical tools used.

## 3.1 Research Design

Research design indicates a plan of action to be carried out in connection with proposed research work. Descriptive and Casual Comparative research design is used in the study because the historical secondary data have been mainly deployed for analysis. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. (Kothari, 1989).

## 3.2 Source and Nature of Data

This study is based on secondary data obtained from published statements of accounts of the commercial Banks in Nepal. Therefore, relevant financial and operational data for sample the banks are collected based on their annual reports and their websites for the period of 2013/14 to 2022/23. All the information is collected from these secondary sources. The study is conducted on the basis of secondary data. The data relating to the investment, deposit, loan and Advance, assets and profits are directly obtained from the Balance Sheet and Profit and Loss account of the concerned bank's annual reports. Supplementary data and information are collected from number of institution and authoritative sources like NRB, NEPSE, SEBON, web sites etc. For the additional information, informal-formal talks to the concerned head of the department of the bank were also done.

## 3.3 Population and Sample

Convenience and purposive sampling method is applied to select the sample for the study. The population of the study consist of 20 commercial banks that are currently operating in

Nepal out of them only five banks (i.e. NABIL, Himalayan Bank Ltd, Nepal Investment Bank Ltd, Everest Bank Ltd and Nepal SBI Bank Ltd) are used as the sample for the study. This represents 14.29% of the total population. According to Muiruri and Ngari (2014), a sample size more than 10% is a good representation of the population.

### 3.4 Method of Data Analysis

This study is based on secondary data collection from the bank's website and published annual reports of sampling banks. Relevant tools are used to find out the best appropriate outcomes as per designed objectives of the study. Since the objective of the study is to determine whether the credit risk has significantly affect the profitability performance of banks in Nepal with regards to the return on assets (ROA) and return on equity (ROE), the present research used mix of following tools in the analysis. Different quantitative methods of statistical tools have been used for driving essence of the research data and interpret them in meaningful way. The regression analysis has been used to measure the relationship between bank performance and credit risk variables. Further, the ratio is analyzed us ing regression statistical tool using SPPS program version twenty.

**Correlation Analysis**

It is statistical tools for measuring the magnitude of linear relationship between the two variables. Karl Person's measure, known as Karl person correlation coefficient between two variables series x and y, denoted by r (x, y), r can be obtained as:

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2}\sqrt{n\sum y^2 - (\sum y)^2}}$$

Where, r = correlation

coefficient n = no. of

years

$\sum x$ = Sum of series X

$\sum y$ = Sum of series Y

$\sum XY$ = Sum of the product X and Y

variables $(\sum x)^2$ = Sum of square of series X

$(\sum y)^2$ = Sum of squares of series Y

The value of coefficient of correlation always lies between +1 & -1. When coefficient of correlation (r) = +1, it means there is perfect positive correlation between the variables, when (r) = -1, it means there is perfect negative correlation between the variables and (r) = 0 refers that there is no relationship between the variables. The coefficient of correlation finds not only the magnitude of correlation but also its direction. The closer the value of 'r' to 1 or -1, the stronger the relationship between variables and the closer the value of 'r' to 0, weaker the relationship (Chaudary et al., 2014).

**Multiple Regression Analysis**

The mathematical measure of average relationship between two or more variables in forms of original units of data is known as regression. The regression is the estimation or prediction of unknown variable from known variable. The unknown variable is known as dependent variable and known variable is known as independent variable. The main objective of multiple regressions is to predict the value of dependent variables (Profitability) from known value of multiple variables (NPLR, CAR, LTDR, and LLPR).

To find out the impact of credit risk management on bank's profitability, it uses two model of regression analysis:

**Model 1**

$$ROA_{it} = \beta_0 + \beta_1 NPLR + \beta_2 CAR + \beta_3 LAR + \beta_4 LLPR + e \quad (1)$$

**Model 2**

$$ROE_{it} = \beta_0 + \beta_1 NPLR + \beta_2 CAR + \beta_3 LAR + \beta_4 LLPR + e \quad (2)$$

Where, ROA = Return on assets

ROE = Return on equity

NPLR = Non-performing loan

ratio CAR = Capital adequacy

ratio LAR = Loan and advance

ratio LLPR = Loan loss

provision ratio

e = error term

### 3.5 Conceptual Framework and Definition of Variables

A conceptual framework is a scheme of concepts or variables which the researcher will operationalize in order to achieve set objectives. It is a pictorial demonstration of the theory portrayed as a model where researcher shows the link between variables and renders reveal the relationship between the independent, extraneous and dependent variables.

The figure of conceptual framework is shown in figure below:

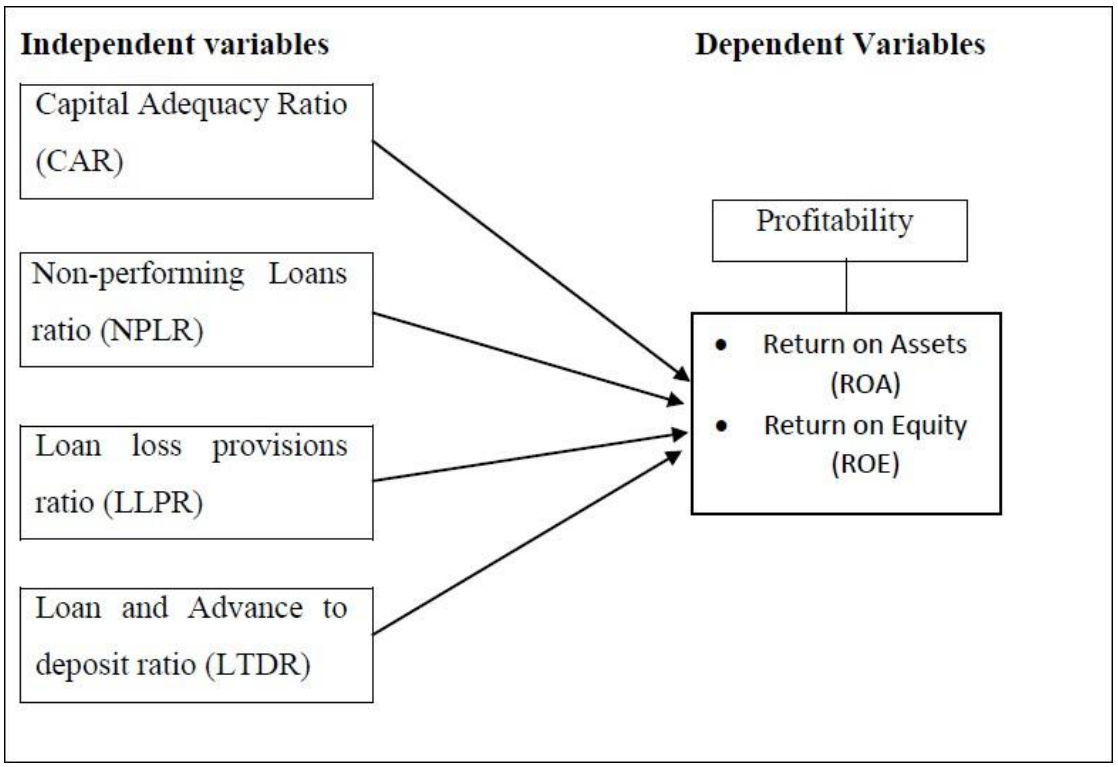


*Figure 1. Conceptual Framework*

(*Source: Shrestha & Bajracharya, 2023)*

**(i) Return on Equity (ROE)**

Return on equity (ROE) is the amount of net income returned as a percentage of shareholder's equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. It can be calculated as:

$$\text{ROE} = \frac{\text{Net Income after tax}}{\text{Total Equity capital}}$$

**(ii) Return on Assets (ROA)**

This defines the proportion of net operating profit that an organization obtains from the operations of business in a specified time period to the volume of the business's total asset, it can be calculated as:

$$\text{ROA}=\frac{\text{Net Income after tax}}{\text{Total Assets}}$$

**(iii) Capital Adequacy Ratio (CAR)**

This is the index supervisory experts employ to define the maximum volume of funds that the bank is required to be capable of taking some heights of danger imperiling credit funds. It can be calculated as:

$$\text{CAR}=\frac{\text{Total Capital}}{\text{Risk Weighted Assets}}$$

**(iv) Non-performing Loans ratio (NPLR)**

This defines the loans that the bank perceives as likely losses of monies owing to credit nonpayment. It can be calculated as:

$$\text{NPLR}=\frac{\text{Net Performing Assets}}{Total\ Loans}$$

**(v) Loans and Advances to deposit ratio (LTDR)**

This is a facility given out to the clients of bank that permits the clients to employ the bank's monies that is required to be repaid at an agreed time frame with interest. It can be calculated as:

$$\text{LTDR}=\frac{Loan\ and\ Advance}{Total\ Loans}$$

**(vi) Loan loss provision ratio (LLPR)**

This defines the volume of funds that bank's put aside from its yearly incomes as an insurance against likely loss of a non performing loan, or to equal a lost loan facility. It can be calculated as:

$$\text{NPLR}=\frac{\text{Ner Performing Assets}}{Total\ Loans}$$

# CHAPTER IV

# RESULTS AND DISCUSSION

This chapter provides the systematic presentation and analysis of data to deal with various issues associated with determinants of profitability of commercials banks in the context of Nepal. This chapter also presents the results of data analysis obtained by applying the various statistical and econometric models and methodologies described in chapter three-Research methodology.

## 4.1 Results

### Return on assets (ROA)

Return on assets is a financial ratio that shows the percentage of profit that a company earns in relation to its overall resources (total assets). Profitability can be measured in terms of relationship between net profit and total assets. ROA of any banks indicates that how management is effectively utilizing the company's assets to generate profit.

Table 2

*Return on Assets*

| Year | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 2.65 | 1.30 | 2.30 | 2.25 | 1.50 |
| 2014/15 | 2.06 | 1.34 | 1.90 | 1.85 | 1.70 |
| 2015/16 | 2.32 | 1.94 | 2.00 | 1.85 | 2.00 |
| 2016/17 | 2.70 | 2.03 | 2.10 | 1.72 | 1.68 |
| 2017/18 | 2.61 | 1.67 | 1.97 | 1.97 | 1.87 |
| 2018/19 | 2.11 | 2.21 | 1.79 | 1.94 | 1.94 |
| 2019/20 | 1.58 | 1.79 | 1.19 | 1.42 | 1.17 |
| 2020/21 | 1.71 | 1.68 | 1.56 | 0.89 | 0.70 |
| 2021/22 | 1.20 | 1.09 | 1.55 | 1.13 | 1.07 |
| 2022/23 | 1.42 | 0.47 | 0.83 | 1.41 | 1.06 |
| Average | 2.04 | 1.55 | 1.72 | 1.64 | 1.47 |
| S.D | 0.54 | 0.52 | 0.45 | 0.42 | 0.44 |
| CV | 0.27 | 0.33 | 0.26 | 0.26 | 0.30 |

*Source*: Appendix I

The data from Table 2 reveals the Return on Assets (ROA) for five banks over a decade, providing insights into their financial efficiency and performance stability. NABIL Bank consistently exhibited the highest average ROA of 2.04%, reflecting its superior asset

management and profitability. However, it also experienced notable fluctuations, particularly after 2016/17, indicating some variability in its performance. HBL's average ROA of 1.55% was moderate, but it showed significant instability with the highest standard deviation (0.52) and a dramatic drop to 0.47% in 2022/23, suggesting potential operational or external challenges. NIBL maintained a relatively stable performance with an average ROA of 1.72%, although it saw a declining trend in recent years, pointing to a gradual decrease in asset efficiency. EBL, with an average ROA of 1.64%, demonstrated the most consistent performance, having the lowest standard deviation (0.42), yet it also faced a downturn after 2017/18. SBI had the lowest average ROA of 1.47%, indicating it was the least efficient in asset utilization among the five banks. Despite some recovery, its performance was marked by variability and a significant drop in ROA during 2020/21. Overall, while NABIL led in average profitability, HBL and SBI exhibited considerable variability, and all banks showed a downward trend in ROA towards the end of the period, possibly reflecting broader economic or sector-specific challenges.

**Return on equity (ROE)**

The Return on Equity (ROE) ratio, also known as return on net worth, is a critical financial metric used by investors to evaluate a company's ability to generate profit from shareholders' equity. ROE is calculated by dividing a company's net income by its shareholders' equity, providing a measure of how effectively the company is utilizing its equity base to produce profits. A higher ROE indicates that a company is generating more profit per dollar of shareholders' equity, which is an attractive attribute for investors seeking strong returns on their investments. To increase ROE, companies can adopt several strategic approaches. One common method is to undertake share buybacks, where the company repurchases its own shares from the market. This reduces the number of outstanding shares and consequently decreases the equity base, potentially leading to a higher ROE if the net income remains constant or increases. Another effective strategy is to focus on operational efficiency and revenue growth**;** by improving operational processes, reducing costs, and expanding market share through new product launches or enhanced sales efforts, companies can boost their net income and, therefore, their ROE.

Table 3

*Return on Equity*

| Year | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 27.91 | 15.75 | 27.6 | 24.75 | 22.85 |
| 2014/15 | 22.73 | 15.98 | 24.8 | 20.57 | 21.51 |
| 2015/16 | 25.61 | 21.93 | 26 | 20.32 | 22.16 |
| 2016/17 | 25.61 | 18.6 | 19.1 | 17.38 | 20.41 |
| 2017/18 | 20.94 | 14.17 | 14.78 | 20.23 | 18.32 |
| 2018/19 | 17.76 | 18.34 | 13 | 17.5 | 16.2 |
| 2019/20 | 13.61 | 15.4 | 8.92 | 22.72 | 10.44 |
| 2020/21 | 15.19 | 14.89 | 11.04 | 37.06 | 6.26 |
| 2021/22 | 9.78 | 10.76 | 11.17 | 16.69 | 9.57 |
| 2022/23 | 11.66 | 4.65 | 6.69 | 17.91 | 10.77 |
| Mean | 19.08 | 15.05 | 16.31 | 21.51 | 15.85 |
| S.D | 6.40 | 4.71 | 7.57 | 6.03 | 6.10 |
| CV | 0.34 | 0.31 | 0.46 | 0.28 | 0.38 |

*Source*: Appendix I

The data from Table 3 provides insights into the Return on Equity (ROE) for five banks over ten fiscal years, revealing their profitability in relation to shareholders' equity. NABIL consistently demonstrated robust performance with an average ROE of 19.08%, the highest among the banks, indicating strong profitability and efficient use of equity. Despite this, NABIL experienced significant variability, reflected in a standard deviation (S.D) of 6.40 and a coefficient of variation (CV) of 0.34, with notable dips in recent years. HBL had a moderate average ROE of 15.05%, showing steadier performance with less variability (S.D of 4.71 and CV of 0.31) compared to NABIL. However, its ROE notably declined to 4.65% in 2022/23, suggesting possible operational challenges or external pressures affecting profitability. NIBL's average ROE was 16.31%, but it exhibited the highest variability (S.D of 7.57 and CV of 0.46) among the banks, indicating fluctuating performance and potential instability. Its ROE peaked early in the period but showed a declining trend, reaching a low

of 6.69% in 2022/23. EBL stood out with the highest average ROE of 21.51%, indicating exceptional profitability and effective equity utilization. It maintained a relatively stable performance (S.D of 6.03 and CV of 0.28) despite some fluctuations. EBL's ROE peaked significantly in 2020/21 at 37.06%, reflecting a period of outstanding financial performance. SBI had an average ROE of 15.85%, demonstrating moderate profitability with a standard deviation of 6.10 and a CV of 0.38, suggesting moderate variability. Its ROE showed a declining trend, reaching a low point in 2020/21 at 6.26%, indicating challenges in maintaining consistent profitability.

**Capital Adequacy Ratio (CAR)**

The Capital Adequacy Ratio (CAR) is a fundamental measure of a bank's financial health and stability, crucial for safeguarding depositors' funds and ensuring the resilience of financial systems globally. Expressed as a percentage of a bank's risk-weighted credit exposures, CAR ensures that banks maintain adequate capital relative to the risks they undertake through lending and investment activities.

Table 4

*Capital Adequacy Ratio*

| CAR | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 11.18 | 11.23 | 11.27 | 11.31 | 13.28 |
| 2014/15 | 11.57 | 11.14 | 11.9 | 13.33 | 14.02 |
| 2015/16 | 11.72 | 10.84 | 14.92 | 12.66 | 13.49 |
| 2016/17 | 11.73 | 12.15 | 13.02 | 14.69 | 15.71 |
| 2017/18 | 11.81 | 11.4 | 13.86 | 14.2 | 14.02 |
| 2018/19 | 11.4 | 11.63 | 13.26 | 13.74 | 14.12 |
| 2019/20 | 10.67 | 11.76 | 13.54 | 13.38 | 15.55 |
| 2020/21 | 10.67 | 11.21 | 14.71 | 12.48 | 13.86 |
| 2021/22 | 10.77 | 10.49 | 15.96 | 11.89 | 13.25 |
| 2022/23 | 10.22 | 9.03 | 13.32 | 13.3 | 12.58 |
| Average | 11.17 | 11.09 | 13.58 | 13.10 | 13.99 |
| S.D | 0.56 | 0.86 | 1.39 | 1.03 | 0.98 |
| CV | 0.05 | 0.08 | 0.10 | 0.08 | 0.07 |

*Source*: Appendix I

The data in Table 4 outlines the Capital Adequacy Ratio (CAR) for five banks over ten fiscal years, showcasing their financial stability and ability to absorb potential losses. NABIL maintained an average CAR of 11.17%, indicating adequate capital reserves with minimal variability (S.D of 0.56 and CV of 0.05). HBL's average CAR was slightly lower at 11.09%, with more noticeable fluctuations (S.D of 0.86 and CV of 0.08), particularly dropping to 9.03% in 2022/23. NIBL exhibited the highest average CAR of 13.58%, reflecting strong capital reserves, although it had significant variability (S.D of 1.39 and CV of 0.10), indicating fluctuations in its capital adequacy. EBL also showed robust capital adequacy with an average CAR of 13.10% and moderate stability (S.D of 1.03 and CV of 0.08). SBI maintained a high average CAR of 13.99%, suggesting strong capital buffers, with moderate variability (S.D of 0.98 and CV of 0.07). Overall, all banks exceeded the minimum regulatory CAR requirements, with NIBL and SBI demonstrating particularly strong capital positions, albeit with differing degrees of stability in their capital adequacy.

**Non-performing Loan Ratio**

The Non-Performing Loan (NPL) ratio is a crucial financial metric used to assess the quality of a bank's loan and advances portfolio by determining the proportion of non-performing assets relative to the total loans issued. In banking terminology, a loan is classified as non-performing when it falls into one of three categories defined by the Nepal Rastra Bank (NRB): substandard, doubtful, or loss. Substandard loans are those that are overdue for more than 90 days but less than 180 days, doubtful loans are overdue for more than 180 days but less than 360 days, and loss loans are those that are overdue for more than 360 days or are deemed uncollectible. The NPL ratio is calculated by dividing the total amount of non-performing loans by the total amount of loans and advances, and it is expressed as a percentage. A higher NPL ratio indicates a larger proportion of a bank’s loan portfolio consists of assets that are not generating income, signaling potential problems in loan quality and risk management. Conversely, a lower NPL ratio reflects better asset quality and more effective credit risk management practices. International banking standards typically recommend that NPLs should not exceed 5% of the total loan portfolio to ensure sound financial health. However, in the context of Nepal, the NRB has set a higher threshold, allowing a maximum NPL ratio of 10%. While this regulatory limit offers some flexibility for banks, a ratio closer to or below this maximum threshold is still preferable as it indicates that a bank is managing its credit risk more effectively and maintaining a healthier loan portfolio.

Table 5

*Non-performing Loan Ratio*

| NPLR | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 2.23 | 1.96 | 1.77 | 0.97 | 0.26 |
| 2014/15 | 1.82 | 3.22 | 1.25 | 0.66 | 0.19 |
| 2015/16 | 1.14 | 1.23 | 0.68 | 0.38 | 0.14 |
| 2016/17 | 0.79 | 0.85 | 0.83 | 0.25 | 0.1 |
| 2017/18 | 0.55 | 1.4 | 1.97 | 1.55 | 0.23 |
| 2018/19 | 0.74 | 1.12 | 2.5 | 0.16 | 0.2 |
| 2019/20 | 0.98 | 1.01 | 1.7 | 0.22 | 0.23 |
| 2020/21 | 0.84 | 0.48 | 2.1 | 0.12 | 0.23 |
| 2021/22 | 1.62 | 1.59 | 2.3 | 0.12 | 0.15 |
| 2022/23 | 3.39 | 4.93 | 1.2 | 0.79 | 2.43 |
| Average | 1.41 | 1.78 | 1.63 | 0.52 | 0.42 |
| S.D | 0.88 | 1.34 | 0.62 | 0.47 | 0.71 |
| CV | 0.62 | 0.75 | 0.38 | 0.90 | 1.71 |

*Source*: Appendix I

The data in Table 5 details the Non-performing Loan Ratio (NPLR) for five banks over ten fiscal years, offering insights into the quality of their loan portfolios and risk management efficacy. NABIL maintained an average NPLR of 1.41%, demonstrating generally good loan quality but with significant variability (S.D of 0.88 and CV of 0.62), especially notable with a peak of 3.39% in 2022/23. HBL had a higher average NPLR of 1.78%, indicating more frequent issues with loan performance and significant fluctuations (S.D of 1.34 and CV of 0.75), with a considerable spike to 4.93% in 2022/23. NIBL's average NPLR was 1.63%, reflecting moderate loan quality with less variability (S.D of 0.62 and CV of 0.38) compared to NABIL and HBL, though it showed occasional increases in non-performing loans, peaking at 2.5% in 2018/19. EBL stood out with the lowest average NPLR of 0.52%, indicating excellent loan quality and effective risk management, supported by its low variability (S.D of 0.47 and CV of 0.90). SBI also demonstrated strong loan quality with an average NPLR of 0.42%, the lowest among the banks, but with relatively higher variability (S.D of 0.71 and CV of 1.71), marked by a significant increase to 2.43% in 2022/23. Overall, EBL and SBI showcased superior loan portfolio quality, while NABIL, HBL, and NIBL experienced more variability and higher

levels of non-performing loans, particularly in recent years, suggesting differences in their risk management effectiveness and external challenges faced.

**Loan and Advance to Deposit Ratio**

The loan and advances to total deposit ratio is also known as credit deposit ratio (CD ratio). This ratio actually measures the extent to which the banks are successful to mobilize the total deposit on loan & advances for the purpose of profit generation. It is the proportion between the total loan and advance and the total deposit in the banks.

Table 6

*Loan and Advance to Deposit Ratio*

| LTDR | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 74.55 | 71.82 | 72.4 | 78.08 | 65.54 |
| 2014/15 | 64.43 | 75.37 | 74.7 | 66.63 | 78.39 |
| 2015/16 | 70.49 | 79.12 | 80.1 | 73.52 | 72.9 |
| 2016/17 | 65.38 | 83.59 | 84.9 | 82.32 | 78.08 |
| 2017/18 | 82.66 | 88.31 | 82.43 | 75.98 | 82.34 |
| 2018/19 | 81.96 | 87.37 | 71.97 | 87.01 | 90.52 |
| 2019/20 | 79.72 | 82.31 | 72.93 | 83.52 | 85.5 |
| 2020/21 | 89.84 | 89.87 | 75.12 | 85.3 | 95.58 |
| 2021/22 | 92.49 | 92.14 | 85.1 | 90.77 | 92.37 |
| 2022/23 | 84.19 | 88.64 | 85.05 | 85.7 | 81.42 |
| Average | 78.57 | 83.85 | 78.47 | 80.88 | 82.26 |
| S.D | 9.65 | 6.68 | 5.60 | 7.27 | 9.18 |
| CV | 0.12 | 0.08 | 0.07 | 0.09 | 0.11 |

Source: Appendix I

The data in Table 6 illustrates the Loan and Advance to Deposit Ratio (LTDR) for five banks over ten fiscal years, providing insights into their lending practices and liquidity management. NABIL maintained an average LTDR of 78.57%, indicating a balanced approach to lending and liquidity, with moderate variability (S.D of 9.65 and CV of 0.12). HBL had the highest average LTDR at 83.85%, suggesting a more aggressive lending strategy, with relatively consistent lending practices (S.D of 6.68 and CV of 0.08). NIBL's average LTDR was 78.47%, similar to NABIL, with the least variability (S.D of 5.60 and CV of 0.07), indicating stable and consistent lending practices. EBL had an average LTDR of 80.88%, reflecting relatively high lending activity with moderate fluctuations (S.D of 7.27 and CV of 0.09). SBI exhibited a robust lending approach with an average LTDR of

82.26%, but also showed significant variability (S.D of 9.18 and CV of 0.11). Overall, HBL and SBI demonstrated more aggressive lending strategies, while NABIL and NIBL maintained more balanced and stable approaches. EBL managed high lending activity with moderate consistency. The variability in LTDRs across the banks reflects their differing strategies in balancing loan growth with liquidity management.

**Loan Loss Provision to Total Loan**

The provision for loan loss reflects the increasing profitability of non-performing loan. Increase in loan loss provision decrease profit which results to decrease in dividend. But its positive impact is that it strengthens the financial condition of banks by controlling the credit risk and reduces the risk related to deposit.

Table 7

*Loan Loss Provision to Total Loan*

| Year | NABIL | HBL | NIBL | EBL | SBI |
|---|---|---|---|---|---|
| 2013/14 | 2.69 | 2.43 | 2.69 | 1.81 | 1.22 |
| 2014/15 | 2.47 | 3.52 | 2.17 | 1.59 | 1.22 |
| 2015/16 | 2.09 | 1.96 | 1.78 | 1.39 | 1.19 |
| 2016/17 | 1.76 | 1.61 | 1.93 | 1.27 | 1.44 |
| 2017/18 | 1.19 | 1.06 | 1.89 | 1.34 | 1.42 |
| 2018/19 | 1.1 | 0.97 | 1.87 | 1.36 | 1.4 |
| 2019/20 | 2.4 | 3.13 | 1.77 | 1.46 | 3.16 |
| 2020/21 | 2.09 | 2.68 | 3.6 | 1.24 | 2.83 |
| 2021/22 | 2.32 | 1.26 | 3.81 | 1.11 | 2.83 |
| 2022/23 | 2.32 | 3.27 | 2.59 | 2.13 | 2.48 |
| Average | 2.04 | 2.19 | 2.41 | 1.47 | 1.92 |
| S.D | 0.54 | 0.95 | 0.76 | 0.30 | 0.80 |
| CV | 0.26 | 0.43 | 0.31 | 0.21 | 0.42 |

*Source*: Appendix I

Table 7 presents the Loan Loss Provision to Total Loan ratio (LLP) for five banks over a span of ten fiscal years, offering insights into their risk management practices and provisioning for potential loan losses. NABIL maintained an average LLP ratio of 2.04%, indicating a conservative approach to provisioning relative to its total loans. The bank showed moderate variability with a standard deviation (S.D) of 0.54 and a coefficient of variation (CV) of 0.26, suggesting stability in its risk management strategies. HBL had a higher average LLP ratio of 2.19%, indicating a slightly more cautious approach compared to NABIL, with greater variability (S.D of 0.95 and CV of 0.43), reflecting fluctuations in its provisioning over the years. NIBL maintained an average LLP ratio of 2.41%, indicating a relatively prudent provisioning strategy compared to its peers. It demonstrated the lowest variability among the banks (S.D of 0.76 and CV of 0.31), suggesting consistent risk management practices. EBL had the lowest average LLP ratio at 1.47%, indicating a conservative approach to loan loss provisioning, supported by low variability (S.D of 0.30 and CV of 0.21). SBI had an average LLP ratio of 1.92%, showing a cautious yet competitive approach with moderate variability (S.D of 0.80 and CV of 0.42).

**Correlation Analysis**

The correlation between Return on Assets (ROA) and Return on Equity (ROE) with key banking metrics such as the Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Deposit Ratio (LADR), and Loan Loss Provision to Total Loan (LLPTL) provides valuable insights into the financial health and performance of banks in Nepal. These ratios are influenced by several factors captured in the key metrics we are examining. The Capital Adequacy Ratio (CAR) reflects a bank's financial strength and stability by comparing its capital reserves to risk-weighted assets. Therefore, a strong positive correlation between CAR and ROA or ROE would suggest that as the bank's capital adequacy increases, its ability to generate profits also improves. Conversely, the Non-Performing Loan Ratio (NPLR) indicates the proportion of loans that are in default or at risk of default. A higher NPLR signifies poorer loan quality and higher credit risk, which can negatively impact a bank's profitability. The Loan-to-Deposit Ratio (LADR) measures how effectively a bank uses its deposits to generate loans. A high LADR suggests that a bank is aggressively lending out its deposits, which can potentially increase profitability if managed well. However, if LADR is too high, it may also indicate higher risk.

Table 8

*Correlation Matrix*

| | | ROA | ROE | CAR | NPLR | LADR | LLPTL |
|---|---|---|---|---|---|---|---|
| ROA | Pearson Correlation | 1 | | | | | |
| | Sig. (2-tailed) | | | | | | |
| ROE | Pearson Correlation | .435** | 1 | | | | |
| | Sig. (2-tailed) | .0.04 | | | | | |
| CAR | Pearson Correlation | .491** | .001 | 1 | | | |
| | Sig. (2-tailed) | .061 | .002 | | | | |
| NPLR | Pearson Correlation | .373** | .443* | .627 | 1 | | |
| | Sig. (2-tailed) | .036 | 0.45 | .258 | | | |
| LADR | Pearson Correlation | .779 | .412 | .128* | .150 | 1 | |
| | Sig. (2-tailed) | .120 | .491 | .838 | .810 | | |
| LLPTL | Pearson Correlation | .142* | .767** | .166 | .804* | .190 | 1 |
| | Sig. (2-tailed) | 0.08 | .130 | .790 | .101 | .759 | |

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

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

The correlation matrix in Table 8 provided highlights the relationships between several financial variables: Return on Assets (ROA), Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan to Asset Ratio (LADR), and Loan Loss Provisions to Total Loans (LLPTL). The analysis shows that ROA has a moderate positive correlation with ROE ($r = 0.435$, $p = 0.04$) and NPLR ($r = 0.373$, $p = 0.036$), both significant at the 0.05 level, indicating that as ROE and NPLR increase, ROA tends to increase as well. There is also a positive correlation between ROA and CAR ($r = 0.491$, $p = 0.061$), which is marginally significant, suggesting a potential positive relationship. However, the correlation between ROA and LADR ($r = 0.779$, $p = 0.120$) and LLPTL ($r = 0.142$, $p = 0.08$) are not statistically significant, indicating weak evidence of association. ROE is moderately positively correlated with NPLR ($r = 0.443$, $p = 0.045$) and strongly positively correlated with LLPTL ($r = 0.767$, $p = 0.130$), significant at the 0.05 and 0.01 levels respectively, suggesting that higher non-performing loan ratios and loan loss provisions are associated with higher returns on equity. However, the relationship between ROE and CAR ($r = 0.001$, $p = 0.002$) is extremely weak and statistically insignificant CAR

shows a strong positive correlation with NPLR (r = 0.627, p = 0.258), but this relationship is not statistically significant. The correlation between CAR and LADR (r = 0.128, p = 0.838) and LLPTL (r = 0.166, p = 0.790) are weak and statistically insignificant, indicating minimal association. NPLR exhibits a strong positive correlation with LLPTL (r = 0.804, p = 0.101), significant at the 0.05 level, indicating that higher non-performing loans are associated with higher loan loss provisions. The relationships between NPLR and LADR (r = 0.150, p = 0.810) are weak and statistically insignificant. LADR shows strong correlations with ROA (r = 0.779, p = 0.120) and moderate correlations with ROE (r = 0.412, p = 0.491), but these are not statistically significant, suggesting that the associations might not be reliable. Finally, LLPTL has a strong positive correlation with ROE (r = 0.767, p = 0.130) and a significant positive correlation with NPLR (r = 0.804, p = 0.101), indicating that higher loan loss provisions are associated with higher returns on equity and higher non-performing loans.

**Regression Analysis**

Regression analysis is a statistical tool used to figure out which factors influence the outcome of an experiment. It helps answer questions like: What are the key factors? Which factors can we ignore? How do these factors interact with each other? And importantly, how confident are we in our understanding of these variables? In this study, ROA and ROE is the dependent variable, meaning it is the outcome we are trying to explain.

Table 9

*Model Summary when Dependent Variable is ROA*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .967[a] | .935 | .917 | 3.09837 |

a. Predictors: (Constant), CAR, NPLR, LADR, LLPTL

Table 9 presents the Model Summary for a regression analysis where Return on Assets (ROA) is the dependent variable, with Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) as predictors. The table indicates strong statistical measures evaluating the model's effectiveness in explaining ROA variability. The multiple correlation coefficient (R) is 0.967, indicating a robust positive relationship between the predictors and ROA. The

coefficient of determination (R Square) is 0.935, revealing that approximately 93.5% of the variance in ROA can be accounted for by the included predictors. The Adjusted R Square, at 0.917, adjusts for the number of predictors in the model, suggesting that 91.7% of ROA variance is explained while considering model complexity. The Standard Error of the Estimate, 3.09837, represents the average deviation between observed and predicted ROA values. Overall, these findings indicate a highly significant model fit, implying that CAR, NPLR, LADR, and LLPTL collectively play pivotal roles in influencing the profitability (ROA) of the analyzed commercial banks.

Table 10

*ANOVA Table when Dependent Variable is ROA*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 2056.795 | 4 | 514.199 | 53.563 | .000[b] |
| | Residual | 143.999 | 10 | 9.600 | | |
| | Total | 2200.794 | 14 | | | |

a. Dependent Variable: ROA

b. Predictors: (Constant), CAR, NPLR, LADR, LLPTL

Table 9 presents the ANOVA results for the regression model where Return on Assets (ROA) is the dependent variable, with Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) as predictors. The ANOVA table evaluates the overall statistical significance and effectiveness of the regression model in explaining the variability in ROA across the sample of commercial banks. The Regression sum of squares is 2056.795 with 4 degrees of freedom (df), indicating the amount of variability in ROA that can be attributed to the predictors. This is compared against the Residual sum of squares, which is 143.999 with 15 degrees of freedom, representing the unexplained variability in ROA not accounted for by the model. The Total sum of squares combines both components, totaling 2200.794. The Mean Square for regression is 514.199, indicating the average amount of variability in ROA explained by each predictor. The F-statistic, which is 53.563, tests the overall significance of the regression model. The associated p-value is 0.000 ($p < 0.001$), indicating strong evidence against the null hypothesis, suggesting that at least one of the predictors significantly influences ROA.

Table 11

*Coefficient Table when Dependent Variable is ROA*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 1.359 | 5.283 | | .257 | .800 |
| | CAR | .021 | .011 | 2.464 | 1.934 | .072 |
| | NPLR | .025 | .007 | 3.150 | 3.720 | .002 |
| | LADR | .008 | .030 | .196 | .262 | .797 |
| | LLPTL | .901 | .630 | .119 | 1.430 | .173 |

a. Dependent Variable: ROA

The Table 11 presents the results of a multiple regression analysis where the dependent variable is Return on Assets (ROA). The independent variables considered in the model are CAR (Capital Adequacy Ratio), NPLR (Non-Performing Loan Ratio), LADR (Loan to Asset Ratio), and LLPTL (Loan Loss Provisions to Total Loans). The intercept of the model is 1.359, which indicates the expected value of ROA when all independent variables are zero. However, the high p-value of 0.800 suggests that this intercept is not statistically significant, implying it does not provide meaningful information about the dependent variable. For the CAR variable, the unstandardized coefficient is 0.021, meaning a unit increase in CAR is associated with an increase of 0.021 units in ROA. The standardized coefficient (Beta) of 2.464 shows the relative strength of this variable in the model. The t-value of 1.934 and the p-value of 0.072 indicate that CAR is marginally significant, slightly above the conventional threshold of 0.05, but could be considered significant at the 10% level. The NPLR variable has an unstandardized coefficient of 0.025, suggesting that an increase in NPLR is associated with an increase of 0.025 units in ROA. With a standardized coefficient of 3.150, a t-value of 3.720, and a highly significant p-value of 0.002, it is clear that NPLR is a strong and statistically significant predictor of ROA, indicating that higher non-performing loans are positively associated with better returns on assets. Regarding the LADR variable, the unstandardized coefficient is 0.008, which indicates a very weak positive association with ROA. However, the t-value of 0.262 and the p-value of 0.797 show that this relationship is not statistically significant, suggesting that changes in LADR

do not have a reliable impact on ROA in this model. For the LLPTL variable, the unstandardized coefficient is 0.901, indicating a positive relationship with ROA. However, the t-value of 1.430 and the p-value of 0.173 suggest that this relationship is not statistically significant, implying that the impact of loan loss provisions on ROA is not strongly evidenced in the data.

Table 12

*Model Summary when Dependent Variable is ROE*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .679[a] | .359 | .179 | 2.8977 |

a. Predictors: (Constant), CAR, NPLR, LADR, LLPTL

The model summary presented in Table 12 offers an evaluation of a regression analysis where the dependent variable is Return on Equity (ROE) and the independent variables are CAR (Capital Adequacy Ratio), NPLR (Non-Performing Loan Ratio), LADR (Loan to Asset Ratio), and LLPTL (Loan Loss Provisions to Total Loans). The correlation coefficient (R) for the model is 0.679, indicating a moderate to strong positive relationship between the observed ROE values and the values predicted by the regression model. This suggests that the independent variables collectively have a reasonably good fit in explaining the variations in ROE. The R Square value, which stands at 0.359, indicates that 35.9% of the variability in ROE can be accounted for by the independent variables in the model. While this is a significant portion, it also implies that 64.1% of the variability in ROE is explained by factors not included in the model. This highlights the potential need to consider additional variables or external factors that might influence ROE. The Adjusted R Square value is 0.179, which is notably lower than the R Square. The adjusted R Square accounts for the number of predictors in the model and penalizes the addition of insignificant predictors. The considerable drop from R Square to Adjusted R Square suggests that some of the independent variables may not be significantly contributing to the model's explanatory power, indicating potential multicollinearity or that certain predictors might be redundant. The Standard Error of the Estimate, which is 2.8977, provides a measure of the average distance that the observed ROE values fall from the regression line. A smaller standard error would indicate a tighter fit of the model to the data; in this case, a value of 2.8977 suggests a moderate level of precision in the model's predictions.

Table 13

*ANOVA Table when Dependent Variable is ROE*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1066.675 | 4 | 148.911 | 23.356 | .000[b] |
| | Residual | 256.674 | 10 | 9.736 | | |
| | Total | 1323.349 | 14 | | | |

a. Dependent Variable: ROE

b. Predictors: (Constant), CAR, NPLR, LADR, LLPTL

Table 13 presents the ANOVA results for the regression model where Return on Equity (ROE) is the dependent variable, and the predictors include Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL). This table assesses the overall significance and effectiveness of the regression model in explaining the variability in ROE among the commercial banks studied. The Regression sum of squares is 1066.675 with 4 degrees of freedom (df), indicating the amount of variability in ROE that can be explained by the predictors. The Residual sum of squares is 256.674 with 10 degrees of freedom, representing the unexplained variability in ROE not accounted for by the regression model. The Total sum of squares is 1323.349, which combines both the explained (regression) and unexplained (residual) variability in ROE across the sample banks. The Mean Square for regression is 148.911, indicating the average amount of variability in ROE explained by each predictor. The F-statistic is 23.356, a measure that tests the overall significance of the regression model. A higher F-statistic suggests a stronger relationship between the predictors and the dependent variable. The associated p-value is 0.000 ($p < 0.001$), indicating that the regression model is highly significant. This means that the likelihood of observing such a strong relationship between the predictors (CAR, NPLR, LADR, LLPTL) and ROE due to random chance is very low.

Table 14

*Coefficient Table when Dependent Variable is ROE*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 1.475 | 3.824 | | .765 | .368 |
| | CAR | .012 | .007 | 1.324 | 1.394 | .045 |
| | NPLR | .043 | .004 | 2.235 | 2.270 | .045 |
| | LADR | .065 | .032 | .146 | .325 | .067 |
| | LLPTL | .109 | .402 | .134 | 1.66 | .072 |

a. Dependent Variable: ROE

Table 14 presents the Coefficient Table for the regression model where Return on Equity (ROE) is the dependent variable, with Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) as independent variables. This table provides insights into the relationships between these predictors and ROE. The constant term (intercept) is 1.475, indicating the expected value of ROE when all predictors (CAR, NPLR, LADR, LLPTL) are zero. The coefficient for CAR is 0.012 with a standard error of 0.007. This positive coefficient suggests that an increase in the Capital Adequacy Ratio is associated with an increase in ROE. The t-statistic of 1.394 and the p-value of 0.045 indicate that this relationship is statistically significant at the 0.05 level. The coefficient for NPLR is 0.043 with a standard error of 0.004. This positive coefficient indicates that an increase in the Non-Performing Loan Ratio is associated with an increase in ROE. The t-statistic of 2.270 and the p-value of 0.045 suggest a strong and significant positive relationship between NPLR and ROE. The coefficient for LADR is 0.065 with a standard error of 0.032. This positive coefficient suggests a positive relationship between Loan-to-Asset Ratio and ROE. However, the t-statistic of 0.325 and the p-value of 0.067 indicate that this relationship is marginally significant. The coefficient for LLPTL is 0.109 with a standard error of 0.402. This positive coefficient suggests that an increase in Loan Loss Provision to Total Loans Ratio is associated with an increase in ROE, but the t-statistic of 1.66 and the p-value of 0.072 indicate that this relationship is not statistically significant.

### 4.2 Discussion

A comprehensive elaboration on the impact of financial ratios such as Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) on the financial performance indicators Return on Equity (ROE) and Return on Assets (ROA) in Nepalese commercial banks, integrating findings from previous studies and current research.

Financial ratios are essential tools used to assess the performance, stability, and risk exposure of banks. They provide insights into various aspects of a bank's operations, liquidity, solvency, and profitability. In the context of commercial banks in Nepal, ratios like CAR, NPLR, LADR, and LLPTL are particularly crucial due to their direct influence on financial health and regulatory compliance.

The CAR measures a bank's capital in relation to its risk-weighted assets and is a critical indicator of financial stability and ability to absorb losses. Higher CAR ratios indicate stronger capital positions, enhancing depositor protection and overall financial system stability (Basel Committee on Banking Supervision, 2020). NPLR reflects the percentage of loans that are in default or close to default, indicating credit risk exposure. Higher NPLR levels can lead to increased loan loss provisions, negatively impacting profitability and shareholder returns (Gyawali, 2023). LADR measures the proportion of a bank's assets financed by loans, highlighting its lending activities relative to total assets. While higher LADR ratios can signify robust lending operations and potential revenue generation, they also pose increased credit risk if not managed prudently (Shrestha & Bajracharya, 2023). LLPTL indicates the proportion of provisions set aside by a bank to cover potential loan losses relative to its total loan portfolio. Effective provisioning practices are crucial in mitigating credit risk and maintaining profitability (Adhikari & Sapkota, 2020).

Previous research on Nepalese commercial banks has extensively explored the relationships between these financial ratios and key performance indicators such as ROE and ROA. Studies by Gyawali (2023), Shrestha and Bajracharya (2023), and Lamsal and Poudel (2022) have contributed valuable insights. Gyawali (2023) study highlighted the impact of risk management practices, including NPLR, on bank profitability. It emphasized that effective credit risk management is essential for sustaining profitability amidst varying economic conditions. Shrestha and Bajracharya (2023) study focused on the effectiveness of credit risk management practices in Nepalese banks, demonstrating

that banks with advanced risk management frameworks tend to exhibit lower NPLR and more stable financial performance metrics. Lamsal and Poudel (2022) explored the negative impact of credit risk on profitability using econometric models. Their findings underscored the necessity for improved risk management strategies to mitigate adverse effects on ROE and ROA.

The current study builds upon existing literature by analyzing the relationships between CAR, NPLR, LADR, LLPTL, and financial performance metrics (ROE and ROA) in Nepalese commercial banks. There is a statistically significant positive relationship between CAR and ROE. Higher capital adequacy suggests better financial stability and capacity to absorb losses, positively influencing profitability metrics (Basel Committee on Banking Supervision, 2020). There is a highlight positive coefficients for NPLR in models predicting ROE, suggesting that higher non-performing loan ratios are associated with decreased profitability. This aligns with previous findings emphasizing the adverse impact of credit risk on bank earnings (Gyawali, 2023). While LADR and LLPTL show varying impacts across studies, their coefficients in the current research indicate marginal effects on ROE. Higher LADR ratios may increase revenue from interest income but also elevate credit risk, necessitating effective provisioning (Shrestha & Bajracharya, 2023).

The integration of findings from previous studies and current research underscores several critical implications for Nepalese commercial banks: Effective credit risk management practices are imperative for mitigating NPLR and safeguarding profitability. Banks should prioritize robust frameworks for loan monitoring, provisioning, and risk assessment (Adhikari & Sapkota, 2020). Maintaining adequate capital levels (CAR) is crucial not only for regulatory compliance but also for enhancing resilience against economic downturns and unexpected losses (Basel Committee on Banking Supervision, 2020). While higher LADR ratios may indicate aggressive lending strategies, banks must balance loan growth with prudent risk management to optimize profitability without compromising asset quality (Shrestha & Bajracharya, 2023).

# CHAPTER V

# SUMMARY AND CONCLUSION

This chapter presents a summary, conclusions, and actionable implications of the study. It identifies errors in the credit risk management practices of Nepal Investment Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL), and provides corrective suggestions for improvement.

## 5.1 Summary

The study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" examines the profitability of Nepalese commercial banks, assesses the current status of various financial ratios, and explores the impact of these ratios on bank profitability. The research spans the fiscal years 2013/14 to 2022/23 and utilizes a descriptive and causal-comparative research design. Convenience sampling was employed to select five out of the 20 commercial banks in Nepal, representing 14.29% of the total population, which is considered a good representation according to Muiruri and Ngari (2014). The primary objectives were to analyze the profitability position of these banks, evaluate the capital adequacy ratio (CAR), non-performing loan ratio (NPLR), loan loss provision ratio (LLPR), and loan-to-deposit ratio (LTDR), and determine the impact of these ratios on profitability, measured by return on assets (ROA) and return on equity (ROE).

The analysis utilized correlation and regression techniques, with ROA and ROE as dependent variables and CAR, NPLR, LLPR, and LTDR as independent variables. The correlation analysis revealed a moderate positive correlation between ROA and ROE, indicating that higher ROA aligns with higher ROE. Conversely, there was a moderate negative correlation between ROA and CAR, suggesting a trade-off between profitability and capitalization. The ROE had a moderate positive correlation with NPLR, implying that higher NPLR slightly aligns with higher ROE, while ROA had a weak positive correlation with NPLR, suggesting a minor impact. Additionally, the loan-to-asset ratio (LADR) showed a strong negative correlation with ROA and a moderate negative correlation with ROE, indicating that higher leverage can constrain profitability. The loan loss provision to total loans ratio (LLPTL) had a strong negative correlation with ROE and a moderate positive correlation with ROA, suggesting that higher loan loss provisions negatively impact profitability but may improve asset quality.

The regression analysis for the ROA model indicated that CAR had a negative but marginally significant impact on ROA, while NPLR had a strong positive impact. The LADR showed a weak and statistically insignificant impact, and LLPTL had a positive but not statistically significant impact on ROA. In the ROE model, CAR had a positive and statistically significant impact, NPLR had a strong and significant positive impact, LADR had a marginally significant positive impact, and LLPTL had a positive but not statistically significant impact.

Overall, the study reveals complex interactions between profitability and risk management metrics in Nepalese commercial banks. Higher capital adequacy can reduce ROA but may enhance ROE, indicating a nuanced relationship between risk management and profitability. Non-performing loans positively impact both ROA and ROE, while higher loan loss provisions show a mixed effect. These findings highlight the importance of strategic adjustments in capitalization, loan provisioning, and asset allocation to balance profitability with risk management in the banking sector.

### 5.2 Conclusion

The study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" provides an in-depth analysis of how various financial ratios influence the profitability of commercial banks in Nepal. The research highlights several key conclusions about the intricate relationships between profitability and risk management within the banking sector.

Firstly, the study finds that the capital adequacy ratio (CAR) negatively affects return on assets (ROA) but positively influences return on equity (ROE). This indicates a trade-off: while higher CAR signifies a stronger capital base and better risk absorption capacity, it may lead to lower asset profitability. Conversely, a robust capital base enhances shareholder returns, suggesting that well-capitalized banks can achieve higher profitability in terms of equity.

Secondly, the non-performing loan ratio (NPLR) shows a positive correlation with both ROA and ROE. This unexpected finding suggests that banks with higher NPLs can still maintain or even improve their profitability metrics. It indicates that banks might be managing their non-performing loans effectively or that other aspects of their operations are compensating for the higher risk associated with NPLs.

Thirdly, the loan-to-deposit ratio (LTDR) has a significant impact on profitability. The study reveals that higher LTDR, indicating higher leverage, can constrain profitability. This relationship underscores the importance of managing loan growth relative to deposits, as excessive leverage can lead to financial instability and reduced returns.

Fourthly, the loan loss provision to total loans ratio (LLPTL) exhibits a mixed impact on profitability. While higher provisions can negatively affect ROE by reducing the available profit, they also show a moderate positive correlation with ROA. This suggests that adequate provisioning for loan losses is crucial for maintaining asset quality and long-term stability, even if it comes at the cost of short-term profitability.

Overall, the study emphasizes the need for a balanced approach to risk management and profitability. Banks must carefully manage their capital adequacy to ensure they can absorb potential losses while still achieving high returns on equity. Effective management of non-performing loans is crucial, as it allows banks to maintain profitability despite higher risk exposures. Additionally, prudent loan provisioning practices are essential for safeguarding asset quality and ensuring long-term financial stability.

These findings are particularly valuable for policymakers, regulatory authorities, and bank management in Nepal. They highlight the importance of strategic adjustments in capitalization, loan provisioning, and asset allocation. By focusing on these areas, banks can enhance their financial stability and performance, contributing to a more resilient and profitable banking sector in Nepal. This study provides a roadmap for balancing profitability with sound risk management practices, ensuring sustainable growth and stability in the financial system.

### 5.3 Implications

The implications of the study "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" are as follows:

i. Strategic Capital Management: Banks must carefully balance capital adequacy to absorb potential losses while optimizing returns on equity to achieve higher profitability.
ii. Effective Non-Performing Loan Management: Banks need to develop robust strategies for managing non-performing loans to maintain profitability despite higher risk exposures.

iii. Prudent Leverage Control: Managing the loan-to-deposit ratio is crucial to prevent excessive leverage that can constrain profitability and lead to financial instability.
iv. Adequate Loan Loss Provisioning: Sufficient provisioning for loan losses is essential to maintain asset quality and long-term stability, even if it impacts short-term profitability.
v. Holistic Risk Management: A comprehensive approach to risk management, encompassing capitalization, loan provisioning, and asset allocation, is vital for balancing profitability with financial stability.
vi. Policy and Regulatory Guidance: Policymakers and regulatory authorities can use these insights to formulate guidelines that enhance the resilience and profitability of the banking sector.
vii. Bank Management Strategies: Bank management should focus on strategic adjustments in capitalization, loan provisioning, and asset allocation to improve overall financial performance.
viii. Sustainable Growth: Implementing these findings can lead to more sustainable growth and stability in the banking sector, benefiting the broader financial system in Nepal.

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# ANNEX

## APPENDIX I

| Return on Assets | | | | | |
|---|---|---|---|---|---|
| Year | NABIL | HBL | NIBL | EBL | SBI |
| 2013/14 | 2.65 | 1.30 | 2.3 | 2.25 | 1.50 |
| 2014/15 | 2.06 | 1.34 | 1.9 | 1.85 | 1.7 |
| 2015/16 | 2.32 | 1.94 | 2.0 | 1.85 | 2.00 |
| 2016/17 | 2.70 | 2.03 | 2.1 | 1.72 | 1.68 |
| 2017/18 | 2.61 | 1.67 | 1.97 | 1.97 | 1.87 |
| 2018/19 | 2.11 | 2.21 | 1.7 | 1.94 | 1.94 |
| 2019/20 | 1.58 | 1.79 | 1.19 | 1.42 | 1.17 |
| 2020/21 | 1.71 | 1.68 | 1.56 | 0.89 | 0.70 |
| 2021/22 | 1.20 | 1.09 | 1.55 | 1.13 | 1.07 |
| 2022/23 | 1.42 | 0.47 | 0.83 | 1.41 | 1.06 |
| Return on Equity | | | | | |
| Ye | NA | HB | NIB | EB | SBI |
| 2013/14 | 27.9 | 15.7 | 27.6 | 24.7 | 22.8 |
| 2014/15 | 22.7 | 15.9 | 24.8 | 20.5 | 21.5 |
| 2015/16 | 25.6 | 21.9 | 26 | 20.3 | 22.1 |
| 2016/17 | 25.6 | 18.6 | 19.1 | 17.3 | 20.4 |
| 2017/18 | 20.9 | 14.1 | 14.7 | 20.2 | 18.3 |
| 2018/19 | 17.7 | 18.3 | 13 | 17.5 | 16.2 |
| 2019/20 | 13.6 | 15.4 | 8.92 | 22.7 | 10.4 |
| 2020/21 | 15.1 | 14.8 | 11.0 | 37.0 | 6.26 |
| 2021/22 | 9.78 | 10.7 | 11.1 | 16.6 | 9.57 |
| 2022/23 | 11.6 | 4.65 | 6.69 | 17.9 | 10.7 |

Capital Adequacy Ratio

| | | | | | |
|---|---|---|---|---|---|
| 2013/14 | 11.18 | 11.23 | 11.27 | 11.31 | 13.28 |
| 2014/15 | 11.57 | 11.14 | 11.9 | 13.33 | 14.02 |
| 2015/16 | 11.72 | 10.84 | 14.92 | 12.66 | 13.49 |
| 2016/17 | 11.73 | 12.15 | 13.02 | 14.69 | 15.71 |
| 2017/18 | 11.81 | 11.4 | 13.86 | 14.2 | 14.02 |
| 2018/19 | 11.4 | 11.63 | 13.26 | 13.74 | 14.12 |
| 2019/20 | 10.67 | 11.76 | 13.54 | 13.38 | 15.55 |
| 2020/21 | 10.67 | 11.21 | 14.71 | 12.48 | 13.86 |
| 2021/22 | 10.77 | 10.49 | 15.96 | 11.89 | 13.25 |
| 2022/23 | 10.22 | 9.03 | 13.32 | 13.3 | 12.58 |

Non Performing Loan Ratio

| | | | | | |
|---|---|---|---|---|---|
| 2013/14 | 2.23 | 1.96 | 1.77 | 0.97 | 0.26 |
| 2014/15 | 1.82 | 3.22 | 1.25 | 0.66 | 0.19 |
| 2015/16 | 1.14 | 1.23 | 0.68 | 0.38 | 0.14 |
| 2016/17 | 0.79 | 0.85 | 0.83 | 0.25 | 0.1 |
| 2017/18 | 0.55 | 1.4 | 1.97 | 1.55 | 0.23 |
| 2018/19 | 0.74 | 1.12 | 2.5 | 0.16 | 0.2 |
| 2019/20 | 0.98 | 1.01 | 1.7 | 0.22 | 0.23 |
| 2020/21 | 0.84 | 0.48 | 2.1 | 0.12 | 0.23 |
| 2021/22 | 1.62 | 1.59 | 2.3 | 0.12 | 0.15 |
| 2022/23 | 3.39 | 4.93 | 1.2 | 0.79 | 2.43 |

***Loan and Advance to Deposit Ratio***

| | | | | | |
|---|---|---|---|---|---|
| 2013/14 | 74.55 | 71.82 | 72.4 | 78.08 | 65.54 |
| 2014/15 | 64.43 | 75.37 | 74.7 | 66.63 | 78.39 |
| 2015/16 | 70.49 | 79.12 | 80.1 | 73.52 | 72.9 |
| 2016/17 | 65.38 | 83.59 | 84.9 | 82.32 | 78.08 |
| 2017/18 | 82.66 | 88.31 | 82.43 | 75.98 | 82.34 |
| 2018/19 | 81.96 | 87.37 | 71.97 | 87.01 | 90.52 |
| 2019/20 | 79.72 | 82.31 | 72.93 | 83.52 | 85.5 |
| 2020/21 | 89.84 | 89.87 | 75.12 | 85.3 | 95.58 |
| 2021/22 | 92.49 | 92.14 | 85.1 | 90.77 | 92.37 |
| 2022/23 | 84.19 | 88.64 | 85.05 | 85.7 | 81.42 |

Loan Loss Provision to Total Deposit

| | | | | | |
|---|---|---|---|---|---|
| 2013/14 | 2.69 | 2.43 | 2.69 | 1.81 | 1.22 |
| 2014/15 | 2.47 | 3.52 | 2.17 | 1.59 | 1.22 |
| 2015/16 | 2.09 | 1.96 | 1.78 | 1.39 | 1.19 |
| 2016/17 | 1.76 | 1.61 | 1.93 | 1.27 | 1.44 |
| 2017/18 | 1.19 | 1.06 | 1.89 | 1.34 | 1.42 |
| 2018/19 | 1.1 | 0.97 | 1.87 | 1.36 | 1.4 |
| 2019/20 | 2.4 | 3.13 | 1.77 | 1.46 | 3.16 |
| 2020/21 | 2.09 | 2.68 | 3.6 | 1.24 | 2.83 |
| 2021/22 | 2.32 | 1.26 | 3.81 | 1.11 | 2.83 |
| 2022/23 | 2.32 | 3.27 | 2.59 | 2.13 | 2.48 |

# IMPACT OF CREDIT RISK ON PROFITABILITY OF COMME...

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ix Abstract This study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" investigates the intricate relationships between profitability and various risk management metrics within Nepalese commercial banks from the fiscal years 2013/14 to 2022/23. The research employs a descriptive and causal-comparative design, analyzing data from a sample of five banks, representing 14.29% of the total population of commercial banks in Nepal. The study's objectives include assessing the profitability positions of these banks, evaluating key financial ratios such as capital adequacy ratio (CAR), non-performing loan ratio (NPLR), loan loss provision ratio (LLPR), and loan-to-deposit ratio (LTDR), and examining their impact on profitability measured by return on assets (ROA) and return on equity (ROE). The findings reveal a complex interplay between these financial ratios and profitability. Higher capital adequacy is associated with lower ROA but higher ROE, indicating a trade- off between asset profitability and shareholder returns. Non-performing loans show a positive correlation with both ROA and ROE, suggesting effective management of non-performing assets or compensatory operational efficiencies. The loan-to-deposit ratio negatively impacts profitability, highlighting the risks of excessive leverage. Adequate loan loss provisioning is crucial for maintaining asset quality and long-term stability, despite its short-term impact on profitability. The study underscores the importance of a balanced approach to risk management and profitability, suggesting that banks must strategically manage capitalization, non- performing loans, leverage, and loan loss provisions. These findings have significant implications for policymakers, regulatory authorities, and bank management in Nepal, providing a roadmap for enhancing financial stability and performance in the banking sector through prudent risk management practices and strategic adjustments in financial metrics. Keywords: Return on Assets, Return on Equity, Capital Adequacy Ratio, Non-Performing Loan Ratio, Loan and Advance to Deposit Ratio and Loan Loss Provision to Total Loan Ratio x CHAPTER I INTRODUCTION 1.1. Background of the Study Credit plays a pivotal role in the financial system, enabling economic growth and stability by facilitating the flow of capital from lenders to borrowers. It allows businesses to invest in new projects, consumers to purchase goods and services, and governments to finance public expenditures. In recent years, the accessibility and terms of credit have undergone

significant changes due to advancements in financial technology and regulatory reforms aimed at enhancing credit availability while ensuring financial stability (Dewatripont & Freixas, 2023). The ease of obtaining credit and its affordability are critical factors influencing economic activity and overall economic health (Chava, 2022). Credit risk, also known as default risk, is the possibility that a borrower will fail to meet their obligations in accordance with agreed terms. It is one of the most significant risks faced by financial institutions, particularly commercial banks. Effective management of credit risk is essential for the stability and profitability of these institutions. In recent years, the methods for assessing and mitigating credit risk have evolved, incorporating advanced data analytics and machine learning techniques to predict defaults more accurately (Altman & Sabato, 2023). Regulatory frameworks, such as the Basel III Accord, have also emphasized the importance of maintaining adequate capital buffers to absorb potential losses from credit risk exposures (Basel Committee on Banking Supervision, 2022). For commercial banks, managing credit risk is a core activity that impacts their financial health and operational efficiency. The practices employed to mitigate credit risk include rigorous credit appraisal processes, diversification of loan portfolios, and continuous monitoring of borrowers' financial health. In the context of Nepal, commercial banks face unique challenges due to the country's economic structure, regulatory environment, and market dynamics. Recent studies have highlighted that the effectiveness of credit risk management practices in Nepalese banks has a direct impact on their performance and stability (Shrestha & Bajracharya, 2023). The integration of technology in credit assessment and the evolving regulatory requirements are reshaping how banks approach credit risk management (Koirala, 2022). Profitability is a key performance indicator for commercial banks, reflecting their ability to generate earnings from their operations. It is influenced by various factors, including interest income from loans, fee income, and the management of operational costs. In recent years, the profitability of banks globally has been under pressure due to low-interest rates, increased competition, and regulatory costs. For Nepalese commercial banks, profitability trends have been impacted by economic cycles, regulatory changes, and evolving customer preferences (Adhikari, 2022). Effective risk management, including credit risk management, plays a crucial role in sustaining profitability by minimizing potential losses and ensuring stable revenue streams (Gyawali, 2023).

**The relationship between credit risk and profitability** in **commercial banks is** complex and multifaceted. **On**

one hand, higher credit risk can lead to increased loan defaults and credit losses, directly impacting profitability. On the other hand, effective credit risk management can enhance profitability by ensuring that lending activities are conducted prudently and that potential losses are minimized. Recent empirical studies have shown that there is a significant inverse relationship between credit risk and profitability in the banking sector, where higher credit risk generally correlates with lower profitability (Bhattarai, 2023). For Nepalese commercial banks, understanding and managing this relationship is critical to achieving long-term financial stability and growth (Lamsal & Poudel, 2022). Therefore, this study aims to explore how credit risk management practices influence the profitability of commercial banks in Nepal, with the objective of providing insights that can help enhance the financial stability and growth of the banking sector. In this study, we will investigate the intricate relationship between credit risk management and profitability in Nepalese commercial banks by analyzing various credit risk management practices and their direct and indirect effects on banks' financial performance. The research will focus on several key aspects, including the effectiveness of current risk assessment methodologies, the impact of regulatory frameworks on risk management practices, and the role of technological advancements in improving credit risk evaluation and mitigation strategies. 1.2. Problem Statement The profitability of commercial banks is a critical factor in the stability and growth of the financial system, particularly in developing economies like Nepal. Despite the crucial role that credit plays in fostering economic activity, managing the associated credit risk poses significant challenges for banks. High levels of credit risk can lead to increased loan defaults, thereby adversely impacting banks' profitability (Altman & Sabato, 2023). This problem is exacerbated in the context of Nepal, where economic volatility, regulatory changes, and market conditions present unique challenges for credit risk management (Shrestha & Bajracharya, 2023). Over the past decade, Nepalese commercial banks have experienced fluctuations in profitability, raising concerns about the effectiveness of their credit risk management practices (Adhikari, 2022). The intricate relationship between credit risk and profitability remains underexplored, with limited empirical studies focusing specifically on the Nepalese banking sector (Bhattarai, 2023). This gap in knowledge hampers the ability of banks to develop robust strategies for optimizing profitability while managing credit risk effectively. Therefore, this study aims to investigate

the impact of credit risk on the profitability of commercial banks in Nepal. It seeks to identify the key factors contributing to credit risk, analyze how these risks affect banks' financial performance, and provide insights into best practices for mitigating these risks to enhance profitability (Gyawali, 2023). Understanding this relationship is essential for policymakers, regulators, and banking professionals to ensure the sustainable development of the banking sector in Nepal (Lamsal & Poudel, 2022). The statement of the problem are: ?

**What is the current position of** profitability, **capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio of commercial banks in Nepal? ? What is the**

relationship between profitability and

**capital adequacy ratio, non- performing loan, loan loss provision, and loan and advance to deposit ratio of commercial banks in Nepal? ? What is the impact of capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio on profitability of commercial banks in Nepal? 1.3** . Objectives **of the Study The**

banking sector is one of the most essential parts of any kind of economic activities. However, their financial status has not been properly evaluated yet. Therefore, the present study concentrates what extend they are achieving their goals. Bank provides both the deposit and credit services to the public. They accept the funds from the savers as deposit and lend the funds to the fund seeker in the economy. Therefore, banks can run effectively only if they can mobilize their deposit fund at their prescribed area and realize those disbursed amounts timely. In totality, the prescribed study aims to analyze how far the banks have been able to achieve these objectives. The main aim of this fieldwork is to gain practical knowledge of banking operation. The Specific objectives of the study are: ? To examine the

**position of** profitability, **capital adequacy ratio, non-performing loan, loan loss provision, and loan and advance to deposit ratio**

**of commercial banks in Nepal. ? To assess the** relationship **of** profitability and **capital adequacy ratio, non- performing loan, loan loss provision, and loan and advance to deposit ratio commercial banks in Nepal. ? To examine the impact of capital adequacy ratio, non-performing loan, loan loss provision and loan and advance on the profitability of commercial banks in Nepal. 1.4** . Rationale **of the Study The**

investigation into the impact of credit risk on the profitability of commercial banks in Nepal holds significant implications for various stakeholders within the financial sector. This study's findings will provide crucial insights and practical recommendations that can benefit banks, policymakers, regulators, and the broader academic community. For commercial banks, understanding the relationship between credit risk and profitability is vital for strategic decision-making and risk management. By identifying the key factors that influence credit risk and their impact on financial performance, banks can develop more effective risk mitigation strategies, improve their credit appraisal processes, and enhance overall financial stability (Altman & Sabato, 2023). This knowledge will enable banks to optimize their loan portfolios, minimize default rates, and sustain profitability even in challenging economic conditions (Shrestha & Bajracharya, 2023). Policymakers and regulators will benefit from this study by gaining a deeper understanding of the current credit risk landscape in Nepalese commercial banks. The findings can inform the development of more targeted regulatory frameworks and policies that promote sound credit practices while ensuring the stability of the financial system (Basel Committee on Banking Supervision, 2022). This research will provide evidence-based recommendations that can help in refining regulatory measures to balance the need for financial stability with the facilitation of economic growth (Koirala, 2022). The academic community will find this study valuable as it contributes to the existing body of knowledge on credit risk management and bank profitability. The empirical analysis and insights derived from this research will serve as a reference for future studies and facilitate a deeper understanding of the dynamics between credit risk and profitability in the context of developing economies (Bhattarai, 2023). This study will also highlight the unique challenges faced by Nepalese banks, thus enriching the global discourse on banking risk management. At a broader level, this study has implications for the overall economic development of Nepal. A stable and profitable banking sector is

essential for facilitating investments, fostering business growth, and improving consumer confidence (Adhikari, 2022). Effective credit risk management ensures that banks can continue to provide the necessary financial support to various sectors of the economy, thereby contributing to sustained economic progress (Gyawali, 2023). 1.5. Limitations of the Study Every research has its own limitations. The main focus of this study is to point out the financial position and its analysis of banking sectors. Preparations of multiple financial statements are common practices in private sector. So, the conclusion is based on the However, following are the limitations of the study: ?

**This study has concentrated only on few performances (ROA and ROE) that are related with credit practices. ? Through there has been in operation of** 20 **Commercial Banks in Nepal, but only 5 banks have been selected as sample. ? Whole study is based on data**

from 2013/14 TO 2022/23. ?

**Some of the financial tools of comparison** has **used in this study. Hence the drawbacks and weakness of those tools may adversely affect the outcomes of the study. ? The** sources **of data** are **published annual report and internet website which is assumed to be correct**

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**CHAPTER II REVIEW OF LITERATURE This chapter is focused on brief discussion about the abstract regarding the theories of deposit mobilization. In order to accomplish the objective of the study only the relevant literatures have been reviewed, including different views of expertise, assumptions, book and journals, as well as major findings of previous studies of the relevant field is included in precise manner. Every possible effort has been made to grasp knowledge and information that is available from the concerned commercial banks. 2.1** Theoretical **Review The**

major theories related to the study of Impact of credit risk on profitability of commercial banks in Nepal are described below. Credit Risk Theory Credit risk theory is fundamental to understanding the potential for financial loss due to a borrower's failure to meet their debt obligations. This theory emphasizes two critical components: Probability of Default (PD) and Loss Given Default (LGD). PD measures the likelihood that a borrower will default on their loan, providing a statistical basis for assessing the risk level of individual loans and the overall loan portfolio. LGD estimates the potential financial loss if a borrower defaults, taking into account factors such as recovery rates and the value of collateral. Banks use sophisticated models like CreditMetrics and KMV to predict credit risk and assess the potential impact on their portfolios. These models incorporate statistical analyses and market data to provide accurate risk assessments (Altman & Sabato, 2023). Effective credit risk management involves applying these metrics to evaluate borrower creditworthiness and to ensure that lending practices are designed to minimize potential losses, thereby maintaining financial stability (Basel Committee on Banking Supervision, 2022). Agency Theory Agency theory explores the conflicts that can arise between principals (shareholders) and agents (bank management) due to differing goals and risk appetites. In the context of banking, managers may pursue higher short-term profits by taking on excessive credit risks, which can jeopardize the long-term financial health of the bank (Jensen & Meckling, 1976). This theory highlights the necessity of effective corporate governance mechanisms to align the interests of managers with those of shareholders. These mechanisms include performance-based incentives, rigorous risk management frameworks, and oversight by the board of directors. By aligning managerial decisions with the bank's long-term goals, banks can better manage credit risks and enhance profitability. This alignment helps prevent excessive risk-taking and ensures that managerial actions contribute to the bank's sustainable growth and stability (Adhikari, 2022). Efficient Market Hypothesis (EMH) The Efficient Market Hypothesis (EMH) posits that financial markets are "informationally efficient," meaning that asset prices reflect all available information at any given time. In the context of credit risk and profitability, EMH suggests that the market prices of bank loans and securities already incorporate perceived risk levels. Thus, any deviations in pricing or profitability are likely due to new, unforeseen information (Fama, 1970). For banks, this means that they must rely on superior information and advanced risk assessment techniques to gain a competitive edge and achieve higher profitability. Continuous improvements in credit assessment processes, such as using advanced data analytics and credit scoring models, are essential for banks to stay competitive and manage

credit risks effectively (Bhattarai, 2023). Modern Portfolio Theory (MPT) Modern Portfolio Theory, developed by Harry Markowitz, emphasizes the importance of diversification in managing investment risk. For commercial banks, MPT suggests that diversifying loan portfolios across different sectors, regions, and borrower types can reduce unsystematic risk. This approach ensures that a default in one sector does not disproportionately impact the overall portfolio. MPT advocates for creating an optimal mix of assets that maximizes

**expected return for a given level of risk** (Markowitz, 1952). In **the** context of credit **risk**

, banks should balance their loan portfolios to mitigate potential losses from defaults and maintain profitability. By diversifying their portfolios, banks can achieve a more stable financial performance and reduce the impact of adverse economic conditions on their loan portfolios (Gyawali, 2023). Capital Asset Pricing Model (CAPM) The Capital Asset Pricing Model (CAPM) provides a framework for assessing the risk and expected return of an investment. In banking, CAPM can be used to determine the required return on loans, considering the risk-free rate, the loan's beta (a measure of its volatility relative to the market), and the market risk premium. The risk-free rate represents the return on a risk-free investment, typically government bonds, and serves as the baseline for other investments. Beta measures the loan's volatility compared to the market, with a higher beta indicating greater risk and requiring a higher return. The market risk premium is the additional return expected from holding a risky asset over a risk-free one (Sharpe, 1964). By applying CAPM, banks can price their loans more accurately, ensuring they are compensated for the risks taken. This approach helps align loan pricing with the risk-return trade-off and supports the bank's profitability and risk management objectives (Shrestha & Bajracharya, 2023). 2.2 Empirical Review Bhattarai (2023) delved into

**the impact of credit risk on the profitability of Nepalese commercial banks** using **panel data**

regression analysis spanning from 2010 to 2020. Key variables such as Non-Performing Loans (NPL), Loan Loss Provisions (LLP), ROA, and ROE were examined. The study highlighted that higher credit risk levels, indicated by increased NPL and LLP, significantly dampened bank profitability. This underscores the critical role of effective credit risk management practices in mitigating financial risks and sustaining profitability in the banking sector. The findings emphasize the need for banks to adopt proactive measures to manage and reduce credit risk exposures, thereby enhancing financial resilience and ensuring sustainable profitability amidst varying economic conditions and regulatory environments. Gyawali (2023) explored how risk management practices impact the profitability of Nepalese commercial banks through a mixed-method approach. Combining qualitative interviews with quantitative financial analysis, Gyawali analyzed variables including Credit Risk Management Practices, ROA, ROE, and NPL. The study revealed that banks implementing robust risk management frameworks tend to achieve better profitability outcomes. This comprehensive approach provided nuanced insights into the interplay between risk management strategies and financial performance, suggesting that effective risk management not only mitigates losses from credit risk but also enhances overall operational efficiency and strategic decision-making within banks. Gyawali's findings contribute valuable insights for policymakers and bank managers aiming to strengthen financial stability and performance in Nepal's banking industry. Shrestha and Bajracharya (2023) evaluated the effectiveness of credit risk management practices in Nepalese commercial banks by surveying risk managers and analyzing secondary financial data. The study focused on variables such as Risk Management Practices, Non-Performing Loans (NPL), and Loan Loss Provisions (LLP). Their findings indicated that banks with advanced risk management practices exhibited lower levels of NPL and LLP, suggesting a positive correlation between effective risk mitigation strategies and financial stability. This underscores the importance of proactive risk management in safeguarding asset quality and enhancing overall profitability within Nepal's banking sector. The study's insights provide practical implications for improving regulatory frameworks and internal risk management protocols to sustain financial health and resilience amid evolving market dynamics. Adhikari (2022) compared profitability trends among various commercial banks in Nepal over a decade. Employing a comparative analysis of financial ratios like Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), Adhikari's study revealed significant disparities. Larger banks consistently exhibited more stable and higher profitability compared to their smaller counterparts. This finding underscores the advantages of scale and efficiency in the banking sector, where larger institutions may benefit from economies of scale and

diversified revenue streams. The study's insights are crucial for understanding the competitive landscape of Nepalese banks and can inform strategies for enhancing profitability and operational efficiency across different bank sizes. Lamsal and Poudel (2022) explored the dynamics between credit risk and profitability in Nepal's banking sector using econometric models based on data from 2005 to 2020. The study analyzed key variables such as NPL, LLP, ROA, and ROE to assess the impact of credit risk on profitability. Their findings revealed a significant negative relationship, indicating that higher levels of credit risk adversely affected bank profitability over the studied period. This highlights the necessity for enhanced credit risk management strategies to mitigate financial risks and improve profitability in Nepalese commercial banks. Lamsal and Poudel's research contributes to the understanding of risk management practices and their implications for financial stability, providing valuable insights for policymakers, regulators, and bank executives aiming to strengthen resilience and sustainable growth in the banking sector. Koirala (2022) investigated the impact of technological advancements on credit risk assessment in Nepalese banks using primary survey data and secondary financial reports. Key variables included Technological Tools and Credit Risk Assessment. The study revealed that banks leveraging advanced technological tools for credit risk assessment exhibited lower Non-Performing Loan (NPL) ratios. Koirala's research underscores the transformative role of technology in enhancing risk management capabilities within Nepal's banking industry. By adopting innovative tools and analytics, banks can improve decision- making processes related to credit risk, thereby reducing potential losses and improving overall financial performance. Rana (2022) explored the relationship between credit risk and profitability through multiple regression analysis on data spanning from 2010 to 2020. Key variables analyzed included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study consistently found a negative relationship between credit risk indicators and profitability metrics. Rana's research highlights the adverse impact of heightened credit risk on financial performance in Nepalese commercial banks. These findings underscore the imperative for banks to adopt comprehensive risk management strategies that address NPL and LLP effectively to sustain profitability amidst evolving market dynamics. Gurung and Thapa (2021)

**assessed the relationship between credit** risk **and the** financial **performance of commercial banks** through correlation analysis **using data from**

2012 to 2019. Key variables analyzed were Non-Performing Loans (NPL), Return on Assets (ROA), and Return on Equity (ROE). The study revealed a strong negative correlation between credit risk indicators (NPL) and financial performance measures (ROA, ROE). Gurung and Thapa's findings highlight the detrimental impact of elevated credit risk levels on bank profitability. They emphasize the importance of proactive risk management strategies to mitigate NPL ratios and enhance overall financial health in Nepalese commercial banks. Pandey (2021) evaluated the impact of credit risk management on the profitability of Nepalese banks using descriptive and inferential statistics based on financial data from 2011 to 2020. Key variables examined included Credit Risk Management and

**Return on Assets (ROA). The study** concluded **that** proactive **credit risk management**

significantly enhances profitability. Pandey's findings underscore the strategic importance of effective risk management practices in safeguarding asset quality and optimizing f inancial performance in Nepal's banking sector. By implementing robust risk management frameworks, banks can mitigate potential losses associated with credit risk and foster sustainable profitability over the long term. Shrestha and Shakya (2021) analyzed

**the effect of credit risk on the** profitability **of Nepalese commercial banks using** regression analysis on **data**

from 2010 to 2019. The study focused on key variables including NPL, LLP, ROA, and ROE. Their findings demonstrated that higher NPL ratios were associated with lower profitability, indicating a significant impact of credit risk on financial performance. This underscores the importance of effective credit risk management practices in minimizing non-performing assets and enhancing profitability in Nepal's banking industry. Shrestha and Shakya's findings contribute empirical evidence to support the implementation of proactive risk management strategies to mitigate financial risks and sustain long-term profitability in commercial banking

operations. Bhandari (2021) investigated the impact of credit risk on bank performance using panel data analysis based on financial data from 2009 to 2019. Key variables analyzed included Non-Performing Loans (NPL), Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). The study identified that higher NPL levels negatively impacted both ROA and ROE, indicating a significant relationship between credit risk and overall bank performance. Bhandari's findings underscore the importance of prudent credit risk management practices in minimizing NPL ratios and optimizing financial metrics to ensure sustained profitability in Nepal's banking sector. Subedi and Sapkota (2021) assessed the effectiveness of credit risk management practices in enhancing bank profitability through a survey of bank managers and secondary data analysis. Key variables examined included Credit Risk Management Practices, Return on Assets (ROA), and Return on Equity (ROE). The study concluded that banks implementing effective credit risk management practices demonstrated higher profitability levels. Subedi and Sapkota's research underscores the critical role of proactive risk management strategies in optimizing financial performance and ensuring long-term sustainability in Nepal's banking industry. By enhancing risk assessment frameworks and implementing robust risk mitigation measures, banks can effectively manage credit risks and enhance overall profitability. Adhikari and Sapkota (2020) examined the role of credit risk management in Nepalese banks' profitability using a case study approach and quantitative analysis. They focused on

**Credit Risk Management** Techniques **and Return on Assets (ROA). The** study underscored **the**

critical importance of effective credit risk management practices in maintaining high profitability levels. By analyzing how different banks implement these techniques, Adhikari and Sapkota highlighted strategies that contribute to sustained financial health and performance in Nepal's banking sector. Their findings suggest that banks with robust risk management frameworks are better equipped to navigate economic uncertainties and optimize profitability amidst fluctuating market conditions. Dahal and Dahal (2020) analyzed how credit risk affects the financial performance of commercial banks using time series analysis based on data from 2008 to 2018. Key variables included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study's findings indicated that increased credit risk significantly reduced financial performance metrics. Dahal and Dahal's research highlights the detrimental impact of elevated NPL and LLP on profitability in Nepalese commercial banks, emphasizing the need for stringent risk management practices to mitigate these risks effectively. Thapa and Bhattarai (2020) investigated the role of credit risk in determining the profitability of commercial banks using econometric modeling based on financial data from 2009 to 2019. Key variables analyzed included Non-Performing Loans (NPL), Loan Loss Provisions (LLP), Return on Assets (ROA), and Return on Equity (ROE). The study concluded that higher credit risk levels were associated with lower profitability, underscoring the negative impact of credit risk on financial performance in Nepal's banking sector. Thapa and Bhattarai's findings provide empirical evidence supporting the implementation of robust risk management strategies to mitigate NPL and LLP effectively and sustain profitability in commercial banking operations. Table 1 Summary of Previous Studies Author (Year) Objective Key Variables Methodology Key Findings Bhattarai (2023) Assess impact of credit risk on profitability using panel data regression NPL, LLP, ROA, ROE Panel data regression analysis Gyawali (2023) Explore how risk management practices affect profitability Risk Management Practices, ROA, ROE, NPL Mixed-method approach: qualitative interviews, quantitative analysis Shrestha & Bajracharya (2023) Evaluate effectiveness of credit risk management practices Risk Management Practices, NPL, LLP Survey, secondary financial data analysis Adhikari Compare profitability Comparative (2022) trends among ROA, ROE, NIM analysis of commercial banks financial ratios Lamsal & Poudel (2022) Examine dynamics between credit risk and profitability NPL, LLP, ROA, ROE Econometric modeling Koirala (2022) Investigate impact of technological advancements on credit risk assessment Technological Tools, Credit Risk Assessment Primary survey, secondary financial reports Explore relationship Rana (2022) between credit risk and profitability using multiple regression NPL, LLP, ROA, ROE Multiple regression analysis Higher NPL and LLP reduce profitability; emphasizes effective credit risk management for financial resilience. Effective risk management enhances profitability; strategic insights for financial stability Advanced risk management correlates with lower NPL and LLP; crucial for financial stability in banks. Larger banks show higher and more stable profitability than smaller banks. Higher credit risk negatively impacts profitability over time; highlights need for robust risk management strategies. Technology improves risk assessment, reduces NPL ratios in Nepalese banks. Heightened credit risk leads to lower profitability; calls for comprehensive risk management strategies. Gurung & Thapa (2021) Assess correlation

between credit risk and NPL, ROA, ROE Correlation financial performance analysis Evaluate impact of Pandey (2021) credit risk management on bank profitability Credit Risk Management, ROA Descriptive and inferential statistics Shrestha & Shakya (2021) Analyze effect of credit risk on profitability using regression NPL, LLP, ROA, ROE Regression analysis Bhandari (2021) Investigate impact of credit risk on bank performance using panel data analysis NPL, ROA, ROE, NIM Panel data analysis Subedi & Sapkota (2021) Assess effectiveness of credit risk management in enhancing bank profitability Risk Management Practices, ROA, ROE Survey, secondary data analysis Adhikari & Sapkota (2020) Examine role of credit risk management in Nepalese banks' profitability Credit Risk Management Techniques, ROA Case study, quantitative analysis Dahal & Dahal (2020) Analyze impact of credit risk on financial performance using time series analysis NPL, LLP, ROA, ROE Time series analysis Thapa & Bhattarai (2020) Investigate role of credit risk in determining bank profitability using econometric modeling NPL, LLP, ROA, ROE Econometric modeling Strong negative correlation between NPL and profitability metrics; emphasizes risk management importance. Effective credit risk management enhances profitability in Nepalese banks. Higher NPL ratios linked to lower profitability; underscores risk management's role in financial health. Higher NPL levels mitigation strategies. affect ROE; need ROA and highlights for risk practices lead to higher profitability in Effective management Nepalese banks. risk Effective risk management crucial for maintaining high profitability in banks. Elevated credit risk reduces financial performance metrics; calls for stringent risk management. Higher credit risk associated with lower profitability; emphasizes for robust risk management strategies. 2.3 Research Gap Based on the reviewed literature on

**the impact of credit risk management on the profitability of Nepalese commercial banks**

, several research gaps have been identified. Firstly, existing studies generally acknowledge the importance of credit risk management but often lack in-depth exploration of specific risk management techniques that are most effective within Nepalese banking institutions (Adhikari & Sapkota, 2020). There is a need for comparative analyses of different methodologies and strategies employed by banks to mitigate credit risk, to understand which practices yield optimal profitability outcomes. Secondly, many studies reviewed have focused on relatively short-term data analysis, typically spanning 5 to 10 years (Pandey, 2021; Rana, 2022). This limitation calls for longitudinal studies that track the sustained impact of credit risk management practices on profitability over longer periods, providing insights into the durability and ongoing effectiveness of these strategies. Moreover, while Koirala (2022) touched upon the impact of technological advancements on credit risk assessment, further research is needed to fully understand the integration and effectiveness of emerging technologies like artificial intelligence and machine learning in Nepalese banks' risk management frameworks. Examining adoption rates, technological challenges, and comparative effectiveness across different banks would illuminate the potential benefits and drawbacks of these innovations in enhancing profitability. Additionally, existing studies often aggregate data across the banking sector without distinguishing sectoral differences (Thapa & Bhattarai, 2020). Future research should explore how credit risk management practices vary across different banking sectors (e.g., commercial banks vs. development banks) and their specific impacts on profitability. Comparative studies could provide nuanced insights into sector-specific challenges and opportunities for improving risk management effectiveness. Lastly, while qualitative insights have been integrated into some studies (Gyawali, 2023), there remains a gap in qualitative research that explores the organizational dynamics and cultural influences affecting the implementation of effective credit risk management practices in Nepalese banks. Qualitative studies could offer deeper insights into the contextual factors facilitating or hindering the success of risk management strategies (Subedi & Sapkota, 2021), thereby enriching the understanding of this critical area. CHAPTER III RESEARCH METHODOLOGY

**Research methodology is a systematically way of solving the research problem. It may be understood as science of studying that how research is done scientifically as well as systematically (Kothari, 1989). Research methodology is the research method used to test the hypothesis. It sequentially refers to the various steps to be adopted by a researcher in studying a problem with certain objectives in view. In other words, research methodology describes the methods and process applied in the entire subject of the study. This topic deals with research design, nature of data collection, processing of data and statistical tools used. 3.1 Research Design Research design indicates a plan of action to be carried out in connection with proposed research work**

. Descriptive and Casual Comparative research design is used in the

study because the historical secondary data have been mainly deployed for analysis. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. (Kothari, 1989). 3.2 Source and Nature of Data This study is based on secondary data

obtained from published statements of accounts of the commercial Banks in Nepal. Therefore, relevant financial and operational data for sample the banks are collected based on their annual reports and their websites for the period of 2013/14 to 2022/23. All the information is collected from these secondary sources

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The study is conducted on the basis of secondary data. The data relating to the investment, deposit, loan and Advance, assets and profits are directly obtained from the Balance Sheet and Profit and Loss account of the concerned bank's annual reports. Supplementary data and information are collected from number of institution and authoritative sources like NRB, NEPSE, SEBON, web sites etc. For the additional information, informal-formal talks to the concerned head of the department of the bank were also done . 3. 3

Population and Sample Convenience and purposive sampling method is applied to select the sample for the study. The population of the study consist of 20 commercial banks that are currently operating in Nepal out of them only five banks (i.e. NABIL, Himalayan Bank Ltd, Nepal Investment Bank Ltd, Everest Bank Ltd and Nepal SBI Bank Ltd) are used as the sample for the study. This represents 14.29% of the total population. According to Muiruri and Ngari (2014), a sample size more than 10% is a good representation of the population

. 3.4 Method of Data Analysis

This study is based on secondary data collection from the bank's website and published annual reports of sampling banks. Relevant tools are used to find out the best appropriate outcomes as per designed objectives of the study. Since the objective of the study is to determine whether the credit risk has significantly affect the profitability performance of banks in Nepal with regards to the return on assets (ROA) and return on equity (ROE), the present research used mix of following tools in the analysis. Different quantitative methods of statistical tools have been used for driving essence of the research data and interpret them in meaningful way. The regression analysis has been used to measure the relationship between bank performance and credit risk variables. Further, the ratio is analyzed us ing regression statistical tool using SPPS program version twenty

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Correlation Analysis It is statistical tools for measuring the magnitude of linear relationship between the two variables. Karl Person's measure, known as Karl person correlation coefficient between two variables series x and y, denoted by r (x, y), r can be obtained as: n∑xy − ∑x∑y $r = \sqrt{n}$ ∑$x2$ − (∑ x)²$\sqrt{n}$ ∑$x2$ − (∑y) 2 Where, r = correlation coefficient n = no. of years ∑x = Sum of series X ∑y = Sum of series Y ∑XY = Sum of the product X and Y variables (∑$x$)2 = Sum of square of series X (∑$x$)2 = Sum of squares of series Y The value of coefficient of correlation always lies between +1 & -1. When coefficient of correlation (r) = +1, it means there is perfect positive correlation between the variables, when (r) = -1, it means there is perfect negative correlation between the variables and (r) = 0 refers that there is no relationship between the variables. The coefficient of correlation finds not only the magnitude of correlation but also its direction. The closer the value of 'r' to 1 or -1, the stronger the relationship between variables and the closer the value of 'r' to 0, weaker the relationship (Chaudary et al., 2014). Multiple Regression Analysis The mathematical measure of average relationship between two or more variables in forms of original units of data is known as regression. The regression is the estimation or prediction of unknown variable from known variable. The unknown variable is known as dependent variable and known variable is known as independent variable. The main objective of multiple regressions is to predict the value of dependent variables (Profitability) from known value of multiple variables (NPLR, CAR, LTDR, and LLPR). To find out the impact of credit risk management on bank's profitability, it uses two model of regression analysis: Model 1

ROAit = β0 + β1NPLR + β2CAR + β3LAR + β4LLPR + e (1) Model 2 ROEit = β0 + β1NPLR + β2CAR + β3LAR + β4LLPR + e

**Where, ROA = Return on assets** (2) **ROE = Return on equity NPLR = Non-performing loan ratio CAR = Capital adequacy ratio LAR = Loan and advance ratio LLPR = Loan loss provision ratio e = error term 3.5**

Conceptual Framework and Definition of Variables

**A conceptual framework is a scheme of concepts or variables which the researcher will operationalize in order to achieve set objectives. It is a pictorial demonstration of the theory portrayed as a model where researcher shows the link between variables and renders reveal the relationship between the independent, extraneous and dependent variables. The**

**figure of conceptual framework is shown in figure below: Figure** 1. **Conceptual Framework**

(Source: Shrestha & Bajracharya, 2023) (

**i) Return on Equity (ROE) Return on equity (ROE) is the amount of net income returned as a percentage of shareholder's equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. It can be calculated as: ROE= Net Income after tax Total Equity capital (ii) Return on Assets (ROA) This defines the proportion of net operating profit that an organization obtains from the operations of business in a specified time period to the volume of the business's total asset, it can be calculated as: ROA= Net Income after tax Total Assets (iii) Capital Adequacy Ratio (CAR) This is the index supervisory experts employ to define the maximum volume of funds that the bank is required to be capable of taking some heights of danger imperiling credit funds. It can be calculated as: CAR= Total Capital Risk Weighted Assets (iv) Non-performing Loans ratio (NPLR) This defines the loans that the bank perceives as likely losses of monies owing to credit nonpayment. It can be calculated as: NPLR** = Net **Performing Assets** $Tnral\ Lnanr$ (v) **Loans and Advances to deposit ratio (LTDR) This is a facility given out to the clients of bank that permits the clients to employ the bank's monies that is required to be repaid at an agreed time frame with interest. It can be calculated as**

: LTDR= $Lnan\ anc\ Acvancc\ Tnral\ Lnanr$ (

**vi) Loan loss provision ratio (LLPR) This defines the volume of funds that bank's put aside from its yearly incomes as an insurance against likely loss of a non performing loan, or to equal a lost loan facility. It can be calculated as**

: NPLR= Ner Performing Assets $Tnral\ Lnanr$ CHAPTER IV RESULTS AND DISCUSSION

**This chapter provides the systematic presentation and analysis of data to deal with various issues associated with determinants of profitability of commercials banks in the context of Nepal. This chapter also presents the results of data analysis obtained by applying the various statistical and econometric models and methodologies described in chapter three- Research methodology. 4.1**

Results

**Return on assets (ROA) Return on assets is a financial ratio that shows the percentage of profit that a company earns in relation to its overall resources (total assets). Profitability can be measured in terms of relationship between net profit and total assets. ROA of any banks indicates that how management is effectively utilizing the company's assets to generate profit. Table** 2 **Return on Assets Year NABIL HBL NIBL EBL SBI** 2013/14 **2** .65 **1**

.30 2.30 2.25 1.50 2014/15 2.06 1.34 1.90 1.85 1.70 2015/16 2.32 1.94 2.00 1.85 2.00 2016/17 2.70 2.03 2.10 1.72 1.68 2017/18 2.61 1.67 1.97 1.97 1.87 2018/19 2.11 2.21 1.79 1.94 1.94 2019/20 1.58 1.79 1.19 1.42 1.17 2020/21 1.71 1.68 1.56 0.89 0.70 2021/22 1.20 1.09 1.55 1.13 1.07 2022/23 1.42 0.47 0.83 1.41 1.06 Average 2.04 1.55 1.72 1.64 1.47 S.

**D 0** .54 **0** .52 **0** .45 **0** .42 **0** .44 **CV 0** .27 **0** .33 **0** .26 **0** .26 **0** .30 **Source: Appendix**

I The data from Table 2 reveals the Return on Assets (ROA) for five banks over a decade, providing insights into their financial efficiency and performance stability. NABIL Bank consistently exhibited the highest average ROA of 2.04%, reflecting its superior asset management and profitability. However, it also experienced notable fluctuations, particularly after 2016/17, indicating some variability in its performance. HBL's average ROA of 1.55% was moderate, but it showed significant instability with the highest standard deviation (0.52) and a dramatic drop to 0.47% in 2022/23, suggesting potential operational or external challenges. NIBL maintained a relatively stable performance with an average ROA of 1.72%, although it saw a declining trend in recent years, pointing to a gradual decrease in asset efficiency. EBL, with an average ROA of 1.64%, demonstrated the most consistent performance, having the lowest standard deviation (0.42), yet it also faced a downturn after 2017/18. SBI had the lowest average ROA of 1.47%, indicating it was the least efficient in asset utilization among the five banks. Despite some recovery, its performance was marked by variability and a significant drop in ROA during 2020/21. Overall, while NABIL led in average profitability, HBL and SBI exhibited considerable variability, and all banks showed a downward trend in ROA towards the end of the period, possibly reflecting broader economic or sector-specific challenges.

**Return on equity (ROE) The Return on Equity** (ROE) **ratio, also known as return on net worth, is**

a critical financial metric used by investors to evaluate a company's ability to generate profit from shareholders' equity. ROE is calculated by dividing a company's net income by its shareholders' equity, providing a measure of how effectively the company is utilizing its equity base to produce profits. A higher ROE indicates that a company is generating more profit per dollar of shareholders' equity, which is an attractive attribute for investors seeking strong returns on their investments. To increase ROE, companies can adopt several strategic approaches. One common method is to undertake share buybacks, where the company repurchases its own shares from the market. This reduces the number of outstanding shares and consequently decreases the equity base, potentially leading to a higher ROE if the net income remains constant or increases. Another effective strategy is to focus on operational efficiency and revenue growth; by improving operational processes, reducing costs, and expanding market share through new product launches or enhanced sales efforts, companies can boost their net income and, therefore, their ROE. Table 3 Return on Equity Year NABIL 2013/14 27.91 2014/15 22.73 2015/16 25.61 2016/17 25.61 2017/18 20.94 2018/19 17.76 2019/20 13.61 2020/21 15.19 2021/22 9.78 2022/23 11.66 Mean 19.08 S.D 6.40 CV 0.34 HBL NIBL 15.75 27.6 15.98 24.8 21.93 26 18.6 19.1 14.17 14.78 18.34 13 15.4 8.92 14.89 11.04 10.76 11.17 4.65 6.69 15.05 16.31 4.71 7.57 0.31 0.46 EBL 24.75 20.57 20.32 17.38 20.23 17.5 22.72 37.06 16.69 17.91 21.51 6.03 0.28 SBI 22.85 21.51 22.16 20.41 18.32 16.2 10.44 6.26 9.57 10.77 15.85 6.10 0.38 Source: Appendix I The data from Table 3 provides insights into the Return on Equity (ROE) for five banks over ten fiscal years, revealing their profitability in relation to shareholders' equity. NABIL consistently demonstrated robust performance with an average ROE of 19.08%, the highest among the banks, indicating strong profitability and efficient use of equity. Despite this, NABIL experienced significant variability, reflected in a standard deviation (S.D) of 6.40 and a coefficient of variation (CV) of 0.34, with notable dips in recent years. HBL had a moderate average ROE of 15.05%, showing steadier performance with less variability (S.D of 4.71 and CV of 0.31) compared to NABIL. However, its ROE notably declined to 4.65% in 2022/23, suggesting possible operational challenges or external pressures affecting profitability. NIBL's average ROE was 16.31%, but it exhibited the highest variability (S.D of 7.57 and CV of 0.46) among the banks, indicating fluctuating performance and potential instability. Its ROE peaked early in the period but showed a declining trend, reaching a low of 6.69% in 2022/23. EBL stood out with the highest average ROE of 21.51%, indicating exceptional profitability and effective equity utilization. It maintained a relatively stable performance (S.D of 6.03 and CV of 0.28) despite some fluctuations. EBL's ROE peaked significantly in 2020/21 at 37.06%, reflecting a period of outstanding financial performance. SBI had an average ROE of 15.85%, demonstrating moderate profitability with a standard deviation of 6.10 and a CV of 0.38, suggesting moderate variability. Its ROE showed a declining trend, reaching a low point in 2020/21 at 6.26%, indicating challenges in maintaining consistent profitability. Capital Adequacy Ratio (CAR) The Capital Adequacy Ratio (CAR) is a fundamental measure of a bank's financial health and stability, crucial for safeguarding depositors' funds and ensuring the resilience of financial systems globally.

**Expressed as a percentage of a bank's risk-weighted credit exposures**

, CAR ensures that banks maintain adequate capital relative to the risks they undertake through lending and investment activities.

**Table 4 Capital Adequacy Ratio CAR NABIL HBL NIBL EBL SBI**

2013/14 11.18 11.23 11.27 11.31 13.28 2014/15 11.57 11.14 11.9 13.33 14.02 2015/16 11.72 10.84 14.92 12.66 13.49 2016/17 11.73 12.15 13.02 14.69 15.71 2017/18 11.81 11.4 13.86 14.2 14.02 2018/19 11.4 11.63 13.26 13.74 14.12 2019/20 10.67 11.76 13.54 13.38 15.55 2020/21 10.67 11.21 14.71 12.48 13.86 2021/22 10.77 10.49 15.96 11.89 13.25 2022/23 10.22 9.03 13.32 13.3 12.58 Average 11.17 11.09 13.58 13.10 13.99 S.D 0.56 0.86 1.39 1.03 0.98 CV 0.05 0.08 0.10 0.08 0.07 Source: Appendix I The data in Table 4 outlines the Capital Adequacy Ratio (CAR) for five banks over ten fiscal years, showcasing their financial stability and ability to absorb potential losses. NABIL maintained an average CAR of 11.17%, indicating adequate capital reserves with minimal variability (S.D of 0.56 and CV of 0.05). HBL's average CAR was slightly lower at 11.09%, with more noticeable fluctuations (S.D of 0.86 and CV of 0.08), particularly dropping to 9.03% in 2022/23. NIBL exhibited the highest average CAR of 13.58%, reflecting strong capital reserves, although it had significant variability (S.D of 1.39 and CV of 0.10), indicating fluctuations in its capital adequacy. EBL also showed robust capital adequacy with an average CAR of 13.10% and moderate stability (S.D of 1.03 and CV of 0.08). SBI maintained a high average CAR of 13.99%, suggesting strong capital buffers, with moderate variability (S.D of 0.98 and CV of 0.07). Overall, all banks exceeded the minimum regulatory CAR requirements, with NIBL and SBI demonstrating particularly strong capital positions, albeit with differing degrees of stability in their capital adequacy. Non-performing Loan Ratio The Non-Performing Loan (NPL) ratio is a crucial financial metric used to assess the quality of a bank's loan and advances portfolio by determining the proportion of non-performing assets relative to the total loans issued. In banking terminology, a loan is classified as non-performing when it falls into one of three categories defined by the Nepal Rastra Bank (NRB): substandard, doubtful, or loss. Substandard loans are those that are overdue for more than 90 days but less than 180 days, doubtful loans are overdue for more than 180 days but less than 360 days, and loss loans are those that are overdue for more than 360 days or are deemed uncollectible. The NPL ratio is calculated by dividing the total amount of non-performing loans by the total amount of loans and advances, and it is expressed as a percentage. A higher NPL ratio indicates a larger proportion of a bank’s loan portfolio consists of assets that are not generating income, signaling potential problems in loan quality and risk management. Conversely, a lower NPL ratio reflects better asset quality and more effective credit risk management practices. International banking standards typically recommend that NPLs should not exceed 5% of the total loan portfolio to ensure sound financial health. However, in the context of Nepal, the NRB has set a higher threshold, allowing a maximum NPL ratio of 10%. While this regulatory limit offers some flexibility for banks, a ratio closer to or below this maximum threshold is still preferable as it indicates that a bank is managing its credit risk more effectively and maintaining a healthier loan portfolio. Table 5

**Non-performing Loan Ratio NPLR NABIL HBL NIBL EBL SBI**

2013/14 2014/15 2015/16 2016/17 2017/18 2018/19 2019/20 2020/21 2021/22 2022/23 Average S.D 2.23 1.82 1.14 0.79 0.55 0.74 0.98 0.84 1.62 3.39 1.41 0.88 CV 0.62 1.96 1.77 3.22 1.25 1.23 0.68 0.85 0.83 1.4 1.97 1.12 2.5 1.01 1.7 0.48 2.1 1.59 2.3 4.93 1.2 1.78 1.63 1.34 0.62 0.75 0.38 0.97 0.66 0.38 0.25 1.55 0.16 0.22 0.12 0.12 0.79 0.52 0.47 0.90 0.26 0.19 0.14 0.1 0.23 0.2 0.23 0.23 0.15 2.43 0.42 0.71 1.71 Source: Appendix I The data in Table 5 details the Non-performing Loan Ratio (NPLR) for five banks over ten fiscal years, offering insights into the quality of their loan portfolios and risk management efficacy. NABIL maintained an average NPLR of 1.41%, demonstrating generally good loan quality but with significant variability (S.D of 0.88 and CV of 0.62), especially notable with a peak of 3.39% in 2022/23. HBL had a higher average NPLR of 1.78%, indicating more frequent issues with loan performance and significant fluctuations (S.D of 1.34 and CV of 0.75), with a considerable spike to 4.93% in 2022/23. NIBL's average NPLR was 1.63%, reflecting moderate loan quality with less variability (S.D of 0.62 and CV of 0.38) compared to NABIL and HBL, though it showed occasional increases in non-performing loans, peaking at 2.5% in 2018/19. EBL stood out with the lowest average NPLR of 0.52%, indicating excellent loan quality and effective risk management, supported by its low variability (S.D of 0.47 and CV of 0.90). SBI also demonstrated strong loan quality with an average NPLR of 0.42%, the lowest among the banks, but with relatively higher variability (S.D of 0.71 and CV of 1.71), marked by a significant increase to 2.43% in 2022/23. Overall, EBL and SBI showcased

superior loan portfolio quality, while NABIL, HBL, and NIBL experienced more variability and higher levels of non-performing loans, particularly in recent years, suggesting differences in their risk management effectiveness and external challenges faced.

**Loan and Advance to Deposit Ratio The loan and advances to total deposit ratio is also known as credit deposit ratio (CD ratio). This ratio actually measures the extent to which the banks are successful to mobilize the total deposit on loan & advances for the purpose of profit generation. It is the proportion between the total loan and advance and the total deposit in the banks**

. Table 6

**Loan and Advance to Deposit Ratio LTDR NABIL HBL NIBL EBL SBI**

2013/14 74.55 71.82 72.4 78.08 65.54 2014/15 64.43 75.37 74.7 66.63 78.39 2015/16 70.49 79.12 80.1 73.52 72.9 2016/17 65.38 83.59 84.9 82.32 78.08 2017/18 82.66 88.31 82.43 75.98 82.34 2018/19 81.96 87.37 71.97 87.01 90.52 2019/20 79.72 82.31 72.93 83.52 85.5 2020/21 89.84 89.87 75.12 85.3 95.58 2021/22 92.49 92.14 85.1 90.77 92.37 2022/23 84.19 88.64 85.05 85.7 81.42 Average 78.57 83.85 78.47 80.88 82.26 S.D 9.65 6.68 5.60 7.27 9.18 CV 0.12 0.08 0.07 0.09 0.11 Source: Appendix I The data in Table 6 illustrates the Loan and Advance to Deposit Ratio (LTDR) for five banks over ten fiscal years, providing insights into their lending practices and liquidity management. NABIL maintained an average LTDR of 78.57%, indicating a balanced approach to lending and liquidity, with moderate variability (S.D of 9.65 and CV of 0.12). HBL had the highest average LTDR at 83.85%, suggesting a more aggressive lending strategy, with relatively consistent lending practices (S.D of 6.68 and CV of 0.08). NIBL's average LTDR was 78.47%, similar to NABIL, with the least variability (S.D of 5.60 and CV of 0.07), indicating stable and consistent lending practices. EBL had an average LTDR of 80.88%, reflecting relatively high lending activity with moderate fluctuations (S.D of 7.27 and CV of 0.09). SBI exhibited a robust lending approach with an average LTDR of 82.26%, but also showed significant variability (S.D of 9.18 and CV of 0.11). Overall, HBL and SBI demonstrated more aggressive lending strategies, while NABIL and NIBL maintained more balanced and stable approaches. EBL managed high lending activity with moderate consistency. The variability in LTDRs across the banks reflects their differing strategies in balancing loan growth with liquidity management.

**Loan Loss Provision to Total Loan The provision for loan loss reflects the increasing profitability of non-performing loan. Increase in loan loss provision decrease profit which results to decrease in dividend. But its positive impact is that it strengthens the financial condition of banks by controlling the credit risk and reduces the risk related to deposit. Table** 7 **Loan Loss Provision to Total Loan Year NABIL HBL NIBL EBL SBI**

2013/14 2.69 2.43 2.69 1.81 1.22 2014/15 2.47 3.52 2.17 1.59 1.22 2015/16 2.09 1.96 1.78 1.39 1.19 2016/17 1.76 1.61 1.93 1.27 1.44 2017/18 1.19 1.06 1.89 1.34 1.42 2018/19 1.1 0.97 1.87 1.36 1.4 2019/20 2.4 3.13 1.77 1.46 3.16 2020/21 2.09 2.68 3.6 1.24 2.83 2021/22 2.32 1.26 3.81 1.11 2.83 2022/23 2.32 3.27 2.59 2.13 2.48 Average 2.04 2.19 2.41 1.47 1.92 S.

**D 0** .54 **0** .95 **0** .76 **0** .30 **0** .80 **CV 0** .26 **0** .43 **0** .31 **0** .21 **0** .42 **Source: Appendix** I **Table**

7 presents the Loan Loss Provision to Total Loan ratio (LLP) for five banks over a span of ten fiscal years, offering insights into their risk management practices and provisioning for potential loan losses. NABIL maintained an average LLP ratio of 2.04%, indicating a conservative approach to provisioning relative to its total loans. The bank showed moderate variability with a standard deviation (S.D) of 0.54 and a coefficient of variation (CV) of 0.26, suggesting stability in its risk management strategies. HBL had a higher average LLP ratio of 2.19%, indicating a slightly more cautious approach compared to NABIL, with greater variability (S.D of 0.95 and CV of 0.43), reflecting fluctuations in its provisioning over the years. NIBL maintained an average LLP ratio of 2.41%, indicating a relatively prudent provisioning strategy compared to its peers. It demonstrated the lowest variability among the banks (S.D of 0.76 and CV of 0.31), suggesting consistent risk management practices. EBL had the lowest average LLP ratio at 1.47%, indicating a conservative approach to loan loss provisioning, supported by low variability (S.D of 0.30 and CV of 0.21). SBI had an average LLP ratio of 1.92%, showing a cautious yet competitive approach with moderate variability (S.D of 0.80 and CV of 0.42). Correlation Analysis The

correlation between Return on Assets (ROA) and Return on Equity (ROE) with key banking metrics such as the Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Deposit Ratio (LADR), and Loan Loss Provision to Total Loan (LLPTL) provides valuable insights into the financial health and performance of banks in Nepal. These ratios are influenced by several factors captured in the key metrics we are examining. The Capital Adequacy Ratio (CAR) reflects a bank's financial strength and stability by comparing its capital reserves to risk-weighted assets. Therefore, a strong positive correlation between CAR and ROA or ROE would suggest that as the bank's capital adequacy increases, its ability to generate profits also improves. Conversely, the Non- Performing Loan Ratio (NPLR) indicates the proportion of loans that are in default or at risk of default. A higher NPLR signifies poorer loan quality and higher credit risk, which can negatively impact a bank's profitability. The Loan-to-Deposit Ratio (LADR) measures how effectively a bank uses its deposits to generate loans. A high LADR suggests that a bank is aggressively lending out its deposits, which can potentially increase profitability if managed well. However, if LADR is too high, it may also indicate higher risk. Correlation Matrix ROA ROE CAR NPLR LADR LLPTL ROA Pearson Correlation Sig. (2-tailed) ROE Pearson Correlation Sig. (2-tailed) CAR Pearson Correlation Sig. (2-tailed) NPLR Pearson Correlation Sig. (2-tailed) LADR Pearson Correlation Sig. (2-tailed) LLPTL Pearson Correlation 1 .435** 1 .0.04 .491** .001 1 .061 .002 .373** .443* .627 1 .036 0.45 .258 .779 .412 .128* .150 1 .120 .491 .838 .810 .142* .767** .166 .804* .190 1 Sig. (2-tailed) 0.08 .130 .790 .101 .759 **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). The correlation matrix in Table 8 provided highlights the relationships between several financial variables: Return on Assets (ROA), Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan to Asset Ratio (LADR), and Loan Loss Provisions to Total Loans (LLPTL). The analysis shows that ROA has a moderate positive correlation with ROE (r = 0.435, p = 0.04) and NPLR (r = 0.373, p = 0.036), both significant at the 0.05 level, indicating that as ROE and NPLR increase, ROA tends to increase as well. There is also a positive correlation between ROA and CAR (r = 0.491, p = 0.061), which is marginally significant, suggesting a potential positive relationship. However, the correlation between ROA and LADR (r = 0.779, p = 0.120) and LLPTL (r = 0.142, p = 0.08) are not statistically significant, indicating weak evidence of association. ROE is moderately positively correlated with NPLR (r = 0.443, p = 0.045) and strongly positively correlated with LLPTL (r = 0.767, p = 0.130), significant at the 0.05 and 0.01 levels respectively, suggesting that higher non-performing loan ratios and loan loss provisions are associated with higher returns on equity. However, the relationship between ROE and CAR (r = 0.001, p = 0.002) is extremely weak and statistically insignificant CAR shows a strong positive correlation with NPLR (r = 0.627, p = 0.258), but this relationship is not statistically significant. The correlation between CAR and LADR (r = 0.128, p = 0.838) and LLPTL (r = 0.166, p = 0.790) are weak and statistically insignificant, indicating minimal association. NPLR exhibits a strong positive correlation with LLPTL (r = 0.804, p = 0.101), significant at the 0.05 level, indicating that higher non-performing loans are associated with higher loan loss provisions. The relationships between NPLR and LADR (r = 0.150, p = 0.810) are weak and statistically insignificant. LADR shows strong correlations with ROA (r = 0.779, p = 0.120) and moderate correlations with ROE (r = 0.412, p = 0.491), but these are not statistically significant, suggesting that the associations might not be reliable. Finally, LLPTL has a strong positive correlation with ROE (r = 0.767, p = 0.130) and a significant positive correlation with NPLR (r = 0.804, p = 0.101), indicating

**that higher loan loss provisions are associated with** higher returns **on equity**

and higher non-performing loans. Regression Analysis Regression analysis is a statistical tool used to figure out which factors influence the outcome of an experiment. It helps answer questions like: What are the key factors? Which factors can we ignore? How do these factors interact with each other? And importantly, how confident are we in our understanding of these variables? In this study, ROA and ROE is the dependent variable, meaning it is the outcome we are trying to explain. Table 9 Model Summary when Dependent Variable is ROA Model R R Square Adjusted R Square Estimate Std. Error of the 1 .967a .935 .917 3.09837 a. Predictors: (Constant), CAR, NPLR, LADR, LLPTL Table 9 presents the Model Summary for a regression analysis where Return on Assets (ROA) is the dependent variable, with

**Capital Adequacy Ratio** (CAR), **Non-Performing Loan Ratio** (NPLR), **Loan-to** -Asset **Ratio** (LADR), **and Loan Loss Provision** to Total Loans **Ratio** (LLPTL) **as** predictors. **The**

table indicates strong statistical measures evaluating the model's effectiveness in explaining ROA variability. The multiple correlation coefficient (R) is 0.967, indicating a robust positive relationship between the predictors and ROA. The coefficient of determination (R Square) is 0.935, revealing that approximately 93.5% of the variance in ROA can be accounted for by the included predictors. The Adjusted R Square, at 0.917, adjusts for the number of predictors in the model, suggesting that 91.7% of ROA variance is explained while considering model complexity. The Standard Error of the Estimate, 3.09837, represents the average deviation between observed and predicted ROA values. Overall, these findings indicate a highly significant model fit, implying that CAR, NPLR, LADR, and LLPTL collectively play pivotal roles in influencing the profitability (ROA) of the analyzed commercial banks. Table 10 ANOVA Table when Dependent Variable is ROA Sum of Model Squares df Mean Square F Sig. Regression 2056.795 4 1 Residual 143.999 10 Total 2200.794 14 514.199 53.563 .000b 9.600 a. Dependent Variable: ROA b. Predictors: (Constant), CAR, NPLR, LADR, LLPTL Table 9 presents the ANOVA results for the regression model where Return on Assets (ROA) is the dependent variable, with

**Capital Adequacy Ratio** (CAR), **Non-Performing Loan Ratio** (NPLR), **Loan-to** -Asset **Ratio** (LADR), **and Loan Loss Provision** to Total Loans **Ratio** (LLPTL) **as** predictors. **The**

ANOVA table evaluates the overall statistical significance and effectiveness of the regression model in explaining the variability in ROA across the sample of commercial banks. The Regression sum of squares is 2056.795 with 4 degrees of freedom (df), indicating the amount of variability in ROA that can be attributed to the predictors. This is compared against the Residual sum of squares, which is 143.999 with 15 degrees of freedom, representing the unexplained variability in ROA not accounted for by the model. The Total sum of squares combines both components, totaling 2200.794. The Mean Square for regression is 514.199, indicating the average amount of variability in ROA explained by each predictor. The F-statistic, which is 53.563,

**tests the overall significance of the** regression **model. The** associated p- **value is 0**

.000 ($p < 0.001$), indicating strong evidence against the null hypothesis, suggesting that at least one of the predictors significantly influences ROA. Coefficient Table when Dependent Variable is ROA Unstandardized Standardized Coefficients Coefficients Model B Std. Error Beta t Sig. 1 (Constant) 1.359 5.283 CAR .021 .011 NPLR .025 .007 LADR .008 .030 LLPTL .901 .630 a. Dependent Variable: ROA .257 2.464 1.934 3.150 3.720 .196 .262 .119 1.430 .800 .072 .002 .797 .173 The Table 11 presents the results of a multiple regression analysis where the dependent variable is Return on Assets (ROA). The independent variables considered in the model are CAR (Capital Adequacy Ratio), NPLR (Non-Performing Loan Ratio), LADR (Loan to Asset Ratio), and LLPTL (Loan Loss Provisions to Total Loans). The intercept of the model is 1.359, which indicates the expected value of ROA when all independent variables are zero.

**However, the** high **p-value of 0** .800 **suggests that this** intercept **is not statistically significant**

, implying it does not provide meaningful information about the dependent variable. For the CAR variable, the unstandardized coefficient is 0.021, meaning a unit increase in CAR is associated with an increase of 0.021 units in ROA. The standardized coefficient (Beta) of 2.464 shows the relative strength of this variable in the model.

**The t** - value **of 1** .934 **and the p-value of 0** .072 **indicate that** CAR **is** marginally **significant** , slightly above **the**

conventional threshold of 0.05, but could be considered significant at the 10% level. The NPLR variable has an unstandardized coefficient of 0.025, suggesting that an increase in NPLR is associated with an increase of 0.025 units in ROA. With a standardized coefficient of 3.150, a t-value of 3.720, and a highly significant p-value of 0.002, it is clear that NPLR is a strong and statistically significant predictor of ROA, indicating that higher non-performing loans are positively associated with better returns on assets. Regarding the LADR variable, the unstandardized coefficient is 0.008, which indicates a very weak positive association with ROA. However, the t-value of 0.262 and the p-value of 0.797 show that this relationship is not statistically significant, suggesting that changes in LADR do not have a reliable impact on ROA in this model. For the LLPTL variable, the unstandardized coefficient is 0.901, indicating a positive relationship with ROA. However,

the t -value of 1 .430 and the p-value of 0 .173 suggest that this relationship is not statistically significant , implying that the

impact of loan loss provisions on ROA is not strongly evidenced in the data. Table 12 Model Summary when Dependent Variable is ROE Model R R Square Adjusted R Square Std. Error of the Estimate 1 .679a .359 .179 2.8977 a. Predictors: (Constant), CAR, NPLR, LADR, LLPTL The model summary presented in Table 12 offers an evaluation of a regression analysis where the dependent variable is Return on Equity (ROE) and the independent variables are CAR (Capital Adequacy Ratio), NPLR (Non-Performing Loan Ratio), LADR (Loan to Asset Ratio), and LLPTL (Loan Loss Provisions to Total Loans). The correlation coefficient (R) for the model is 0.679, indicating a moderate to strong positive relationship between the observed ROE values and the values predicted by the regression model. This suggests that the independent variables collectively have a reasonably good fit in explaining the variations in ROE. The R Square value, which stands at 0.359, indicates that 35.9% of the variability in ROE can be accounted for by the independent variables in the model. While this is a significant portion, it also implies that 64.1% of the variability in ROE is explained by factors not included in the model. This highlights the potential need to consider additional variables or external factors that might influence ROE. The Adjusted R Square value is 0.179, which is notably lower than the R Square.

The adjusted R Square accounts for the number of predictors in the model and

penalizes the addition of insignificant predictors. The considerable drop from R Square to Adjusted R Square suggests that some of the independent variables may not be significantly contributing to the model's explanatory power, indicating potential multicollinearity or that certain predictors might be redundant. The Standard Error of the Estimate, which is 2.8977, provides a measure of the average distance that the observed ROE values fall from the regression line. A smaller standard error would indicate a tighter fit of the model to the data; in this case, a value of 2.8977 suggests a moderate level of precision in the model's predictions. ANOVA Table when Dependent Variable is ROE Sum of Model Squares df Mean Square F Sig. Regression 1066.675 4 1 Residual 256.674 10 Total 1323.349 14 148.911 23.356 .000b 9.736 a. Dependent Variable: ROE b. Predictors: (Constant), CAR, NPLR, LADR, LLPTL Table 13 presents the ANOVA results for the regression model where Return on Equity (ROE) is the dependent variable, and the predictors include Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL). This table assesses the overall significance and effectiveness of the regression model in explaining the variability in ROE among the commercial banks studied. The Regression sum of squares is 1066.675 with 4 degrees of freedom (df), indicating the amount of variability in ROE that can be explained by the predictors. The Residual sum of squares is 256.674 with 10 degrees of freedom, representing the unexplained variability in ROE not accounted for by the regression model. The Total sum of squares is 1323.349, which combines both the explained (regression) and unexplained (residual) variability in ROE across the sample banks. The Mean Square for regression is 148.911, indicating the average amount of variability in ROE explained by each predictor. The F-statistic is 23.356, a measure that tests the overall significance of the regression model. A higher F-statistic suggests a stronger relationship between the predictors and the dependent variable. The associated p-value is 0.000 ($p < 0.001$), indicating that the regression model is highly significant. This means that the likelihood of observing such a strong relationship between the predictors (CAR, NPLR, LADR, LLPTL) and ROE due to random chance is very low. Coefficient Table when Dependent Variable is ROE Unstandardized Standardized Coefficients Coefficients Model B Std. Error Beta t Sig. 1 (Constant) 1.475 3.824 CAR .012 .007 NPLR .043 .004 LADR .065 .032 LLPTL .109 .402 a. Dependent Variable: ROE .765 1.324 1.394 2.235 2.270 .146 .325 .134 1.66 .368 .045 .045 .067 .072 Table 14 presents the Coefficient Table for the regression model where Return on Equity (ROE) is the dependent variable, with

Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to -Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) as independent variables

. This table provides insights into the relationships between these predictors and ROE. The constant term (intercept) is 1.475, indicating the expected value of ROE when all predictors (CAR, NPLR, LADR, LLPTL) are zero. The coefficient for CAR is 0.012 with a

standard error of 0.007. This positive coefficient suggests

**that an increase in the Capital Adequacy Ratio is associated with**

an increase in ROE.

**The t-statistic of 1** .394 **and the p-value of 0** .045 **indicate that** this relationship **is statistically significant at the 0.05 level. The**

coefficient for NPLR is 0.043 with a standard error of 0.004. This positive coefficient indicates that an increase in the Non-Performing Loan Ratio is associated with an increase in ROE. The t-statistic of 2.270 and the p-value of 0.045 suggest a strong and significant positive relationship between NPLR and ROE. The coefficient for LADR is 0.065 with a standard error of 0.032. This positive coefficient suggests a positive relationship between Loan-to-Asset Ratio and ROE. However,

**the t-statistic of** 0.325 **and the p-value of 0** .067 **indicate that** this relationship **is** marginally **significant. The**

coefficient for LLPTL is 0.109 with a standard error of 0.402. This positive coefficient suggests that an increase in Loan Loss Provision to Total Loans Ratio is associated with an increase in ROE, but

**the t-statistic of 1** .66 **and the p-value of 0** .072 **indicate that** this relationship **is** not **statistically significant**

. 4.2 Discussion A comprehensive elaboration on the impact of financial ratios such as Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Loan-to-Asset Ratio (LADR), and Loan Loss Provision to Total Loans Ratio (LLPTL) on the financial performance indicators Return on Equity (ROE) and Return on Assets (ROA) in Nepalese commercial banks, integrating findings from previous studies and current research. Financial ratios are essential tools used to assess the performance, stability, and risk exposure of banks. They provide insights into various aspects of a bank's operations, liquidity, solvency, and profitability. In the context of commercial banks in Nepal, ratios like CAR, NPLR, LADR, and LLPTL are particularly crucial due to their direct influence on financial health and regulatory compliance. The CAR measures a bank's capital in relation to its risk-weighted assets and is a critical indicator of financial stability and ability to absorb losses. Higher CAR ratios indicate stronger capital positions, enhancing depositor protection and overall financial system stability (Basel Committee on Banking Supervision, 2020). NPLR reflects the percentage of loans that are in default or close to default, indicating credit risk exposure. Higher NPLR levels can lead to increased loan loss provisions, negatively impacting profitability and shareholder returns (Gyawali, 2023). LADR measures the proportion of a bank's assets financed by loans, highlighting its lending activities relative to total assets. While higher LADR ratios can signify robust lending operations and potential revenue generation, they also pose increased credit risk if not managed prudently (Shrestha & Bajracharya, 2023). LLPTL indicates the proportion of provisions set aside by a bank to cover potential loan losses relative to its total loan portfolio. Effective provisioning practices are crucial in mitigating credit risk and maintaining profitability (Adhikari & Sapkota, 2020). Previous research on Nepalese commercial banks has extensively explored the relationships between these financial ratios and key performance indicators such as ROE and ROA. Studies by Gyawali (2023), Shrestha and Bajracharya (2023), and Lamsal and Poudel (2022) have contributed valuable insights. Gyawali (2023) study highlighted the impact of risk management practices, including NPLR, on bank profitability. It emphasized that effective credit risk management is essential for sustaining profitability amidst varying economic conditions. Shrestha and Bajracharya (2023) study focused on the effectiveness of credit risk management practices in Nepalese banks, demonstrating that banks with advanced risk management frameworks tend to exhibit lower NPLR and more stable financial performance metrics. Lamsal and Poudel (2022) explored the negative impact of credit risk on profitability using econometric models. Their findings underscored the necessity for improved risk management strategies to mitigate adverse effects on ROE and ROA. The current study builds upon existing literature by analyzing the relationships between CAR, NPLR, LADR, LLPTL, and financial performance metrics (ROE and ROA) in Nepalese commercial banks. There is a statistically significant positive relationship between CAR and ROE. Higher capital adequacy suggests better financial stability and capacity to absorb losses, positively influencing profitability metrics (Basel Committee on Banking Supervision, 2020). There is a highlight positive coefficients for NPLR in models

predicting ROE, suggesting that higher non-performing loan ratios are associated with decreased profitability. This aligns with previous findings emphasizing the adverse impact of credit risk on bank earnings (Gyawali, 2023). While LADR and LLPTL show varying impacts across studies, their coefficients in the current research indicate marginal effects on ROE. Higher LADR ratios may increase revenue from interest income but also elevate credit risk, necessitating effective provisioning (Shrestha & Bajracharya, 2023). The integration of findings from previous studies and current research underscores several critical implications for Nepalese commercial banks: Effective credit risk management practices are imperative for mitigating NPLR and safeguarding profitability. Banks should prioritize robust frameworks for loan monitoring, provisioning, and risk assessment (Adhikari & Sapkota, 2020). Maintaining adequate capital levels (CAR) is crucial not only for regulatory compliance but also for enhancing resilience against economic downturns and unexpected losses (Basel Committee on Banking Supervision, 2020). While higher LADR ratios may indicate aggressive lending strategies, banks must balance loan growth with prudent risk management to optimize profitability without compromising asset quality (Shrestha & Bajracharya, 2023). CHAPTER V SUMMARY AND CONCLUSION This chapter presents a summary, conclusions, and actionable implications of the study. It identifies errors in the credit risk management practices of Nepal Investment Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL), and provides corrective suggestions for improvement. 5.1 Summary The study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" examines the profitability of Nepalese commercial banks, assesses the current status of various financial ratios, and explores the impact of these ratios on bank profitability. The research spans the fiscal years 2013/14 to 2022/23 and utilizes a descriptive and causal- comparative research design. Convenience sampling was employed to select five out of the 20 commercial banks in Nepal, representing 14.29% of the total population, which is considered a good representation according to Muiruri and Ngari (2014). The primary objectives were to analyze the profitability position of these banks, evaluate the

**capital adequacy ratio** (CAR), **non-performing loan ratio** (NPLR), **loan loss provision ratio** (LLPR), **and loan-to-deposit ratio**

(LTDR), and determine the impact of these ratios on profitability, measured by return on assets (ROA) and return on equity (ROE). The analysis utilized correlation and regression techniques, with ROA and ROE as dependent variables and CAR, NPLR, LLPR, and LTDR as independent variables. The correlation analysis revealed a moderate positive correlation between ROA and ROE, indicating that higher ROA aligns with higher ROE. Conversely, there was a moderate negative correlation between ROA and CAR, suggesting a trade-off between profitability and capitalization. The ROE had a moderate positive correlation with NPLR, implying that higher NPLR slightly aligns with higher ROE, while ROA had a weak positive correlation with NPLR, suggesting a minor impact. Additionally, the loan-to-asset ratio (LADR) showed a strong negative correlation with ROA and a moderate negative correlation with ROE, indicating that higher leverage can constrain profitability. The loan loss provision to total loans ratio (LLPTL) had a strong negative correlation with ROE and a moderate positive correlation with ROA, suggesting that higher loan loss provisions negatively impact profitability but may improve asset quality. The regression analysis for the ROA model indicated that CAR had a negative but marginally significant impact on ROA, while NPLR had a strong positive impact. The LADR showed a weak and statistically insignificant impact, and LLPTL had a positive but not statistically significant impact on ROA. In the ROE model, CAR had a positive and statistically significant impact, NPLR had a strong and significant positive impact, LADR had a marginally significant positive impact, and LLPTL had a positive but not statistically significant impact. Overall, the study reveals complex interactions between profitability and risk management metrics in Nepalese commercial banks. Higher capital adequacy can reduce ROA but may enhance ROE, indicating a nuanced relationship between risk management and profitability. Non-performing loans positively impact both ROA and ROE, while higher loan loss provisions show a mixed effect. These findings highlight the importance of strategic adjustments in capitalization, loan provisioning, and asset allocation to balance profitability with risk management in the banking sector. 5.2 Conclusion The study titled "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" provides an in-depth analysis of how various financial ratios influence the profitability of commercial banks in Nepal. The research highlights several key conclusions about the intricate relationships between profitability and risk management within the banking sector. Firstly, the study finds that the capital adequacy ratio (CAR) negatively affects return on assets (ROA) but positively influences return on equity (ROE). This indicates a trade-off: while higher CAR signifies a

stronger capital base and better risk absorption capacity, it may lead to lower asset profitability. Conversely, a robust capital base enhances shareholder returns, suggesting that well-capitalized banks can achieve higher profitability in terms of equity. Secondly, the non-performing loan ratio (NPLR) shows a positive correlation with both ROA and ROE. This unexpected finding suggests that banks with higher NPLs can still maintain or even improve their profitability metrics. It indicates that banks might be managing their non-performing loans effectively or that other aspects of their operations are compensating for the higher risk associated with NPLs. Thirdly, the loan-to-deposit ratio (LTDR) has a significant impact on profitability. The study reveals that higher LTDR, indicating higher leverage, can constrain profitability. This relationship underscores the importance of managing loan growth relative to deposits, as excessive leverage can lead to financial instability and reduced returns. Fourthly, the loan loss provision to total loans ratio (LLPTL) exhibits a mixed impact on profitability. While higher provisions can negatively affect ROE by reducing the available profit, they also show a moderate positive correlation with ROA. This suggests that adequate provisioning for loan losses is crucial for maintaining asset quality and long-term stability, even if it comes at the cost of short-term profitability. Overall, the study emphasizes the need for a balanced approach to risk management and profitability. Banks must carefully manage their capital adequacy to ensure they can absorb potential losses while still achieving high returns on equity. Effective management of non- performing loans is crucial, as it allows banks to maintain profitability despite higher risk exposures. Additionally, prudent loan provisioning practices are essential for safeguarding asset quality and ensuring long-term financial stability. These findings are particularly valuable for policymakers, regulatory authorities, and bank management in Nepal. They highlight the importance of strategic adjustments in capitalization, loan provisioning, and asset allocation. By focusing on these areas, banks can enhance their financial stability and performance, contributing to a more resilient and profitable banking sector in Nepal. This study provides a roadmap for balancing profitability with sound risk management practices, ensuring sustainable growth and stability in the financial system. 5.3 Implications The implications of the study "Impact of Credit Risk on Profitability of Commercial Banks in Nepal" are as follows: i. Strategic Capital Management: Banks must carefully balance capital adequacy to absorb potential losses while optimizing returns on equity to achieve higher profitability. ii. Effective Non-Performing Loan Management: Banks need to develop robust strategies for managing non-performing loans to maintain profitability despite higher risk exposures. iii. Prudent Leverage Control: Managing the loan-to-deposit ratio is crucial to prevent excessive leverage that can constrain profitability and lead to financial instability. iv. Adequate Loan Loss Provisioning: Sufficient provisioning for loan losses is essential to maintain asset quality and long-term stability, even if it impacts short-term profitability. v. Holistic Risk Management: A comprehensive approach to risk management, encompassing capitalization, loan provisioning, and asset allocation, is vital for balancing profitability with financial stability. vi. Policy and Regulatory Guidance: Policymakers and regulatory authorities can use these insights to formulate guidelines that enhance the resilience and profitability of the banking sector. vii. Bank Management Strategies: Bank management should focus on strategic adjustments in capitalization, loan provisioning, and asset allocation to improve overall financial performance. viii. Sustainable Growth: Implementing these findings can lead to more sustainable growth and stability in the banking sector, benefiting the broader financial system in Nepal. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 Table 8 30 31 32 Table 11 33 34 Table 13 35 Table 14 36 37 38 39 40 41 42 43