THE RELATIONSHIP BETWEEN NON-PERFORMING LOAN, LOAN LOSS PROVISION AND PROFITABILITY IN NEPALESE DEVELOPMENT BANKS

A Dissertation submitted to the Office of the Dean, Faculty of Management in Partial Fulfilment of the requirements for the Master's Degree

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Certificate of Authorship

I hereby corroborate that I have researched and submitted the final draft of the dissertation entitled **"The Relationship between Non-Performing Loan, Loan Loss Provision and Profitability in Nepalese Development Banks".** 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 have been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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Report of Research Committee

Ms. Sajina Rai has defended the research proposal entitled **"The Relationship between Non-Performing Loan, Loan Loss Provision and Profitability in Nepalese Development Banks"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per the suggestions and guidance of supervisors Laxman Raj Kandel and Ramesh Kafley and submit the thesis for evaluation and viva voce examination.

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We have examined the dissertation entitled **"The Relationship between Non-Performing Loan, Loan Loss Provision and Profitability in Nepalese Development Banks"** presented by Sajina Rai for the degree of Master of Business Studies (MBS Semester) and conducted the Viva-voce examination of the candidate. We hereby certify that the dissertation is acceptable for the award of the degree.

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ABBREVIATIONS

ANOVA	Analysis of Variance
BS	Bank Size
CAR	Capital Adequacy Ratio
GDP	Gross Domestic Product
INF	Inflation Rate
LAG	Loan and Advance Growth
LLP	Loan Loss Provision
MFIs	Microfinance Institutions
MPT	Market Portfolio Theory
NABIL	Nabil Bank
NPA	Non-performing Assets
NPLs	Non-performing Loans
NPLTLR	Non-performing Loan to Total Loan Ratio
NRB	Nepal Rastra Bank
RMP	Relative Market Power
ROA	Return on Assets
ROE	Return on Equity
SCBL	Standard Charted Bank Limited
SCP	Structure Conduct Performance
SMEs	Small and Medium Enterprises
TLTD/LDR	Total Loan to Total Deposit Ratio

ABSTRACT

The main objective of this study is to examine the relationship between non-performing loans, and loan loss provisions on the profitability of development banks and to assess the impact of non-performing loans, and loan loss provisions on the profitability of development banks. The descriptive and causal research design was employed in this study. This study covers ten years of data starting from 2013/2014 to 2022/2023. This study used secondary data from the annual reports of respective banks. The collected data has been analyzed using statistical tools such as descriptive statistics, correlation analysis, ANOVA and multiple linear regression analysis. return on assets and return on equity are the indicator of the profitability of development banks. Whereas non-performing loan-to-total loan ratio, loan loss provision, total loan-to-total deposit ratio, and bank size are the independent variables. The collected information and the numerical data have been analyzed by using the SPSS 27.0 version to show the data and results clearly.

From the regression analysis, the value of the R square of return on assets is 0.738 which indicates that 73.8% of the systematic variation in return on assets can be explained by independent variables such as non-performing loan to total loan ratio, loan loss provision, total loan to total deposit ratio and bank size. The remaining percentage is due to the effect of other factors. The value of the R square of return on equity is 0.281 which indicates that 28.1% of the systematic variation in return on equity can be explained by independent variables such as non-performing loan-to-total loan ratio, loan loss provision, total loan-to-total deposit ratio and bank size. The remaining percentage is due to the effect of other factors. The return on assets and return on equity are negatively and statistically significantly influenced by the non-performing loan to total loan ratio. The loan loss provision has a positive and statistically significant impact on the return on assets but an insignificant impact on the return on equity. The total loan to total deposit ratio has a negative but not statistically significant impact on the performance of development banks. The bank size has a positive and significant impact on the performance of development banks represented by return on assets. However, the bank size has a negative and insignificant impact on the performance of development banks represented by return on equity

Keywords: *Non-performing loans, loan loss provisions, Bank size, Return on Assets, Return on Equity*

CHAPTER I
INTRODUCTION

1.1 Background of the Study

Banks and other financial entities have a simple time disbursing loans; however, recovering this sum could be more difficult. Banks want to lend as much money as they can to demonstrate that they have a large number of customers, but regardless of the caliber of those customers, they will eventually go bankrupt (Baselega-Pascual et al. 2015). This is a crucial matter that impacts the bank's operations and performance. This effect is shown in the quantity of non-performing loans, also known as default loans or NPLs. As the quantity of NPAs rises, banks are predicted to perform poorly, which has an impact on their total profitability. Numerous writers have provided varying definitions of non-performing loans (NPLs); the International Monetary Fund (IMF) defines an NPL as a loan that has missed payments on its principle and interest for a period of three months or more after the due date (Dimitras et al, 2016). NPLs are defined clearly, but banks are supposed to respond differently to ratios of NPLs over or below a threshold, with NPLs above the threshold hurting lending (Tracey, 2011). The biggest stake in the economy is held by development banks, who are actively involved. The primary sources of income and business assets for development banks are loans and advances, which need to be properly handled (Kipyego and Moses, 2013). Due to improper handling of the loans and advances they grant to their consumers and clients, development banks may be subject to credit risk, which might lower the banks' profitability (Ali, 2013).

The financial industry in Nepal faces a considerable problem with non-performing loans (NPLs), which poses serious difficulties for banks. Non-performing loans (NPLs) are advances or loans that do not produce income and cannot be turned into cash within a predetermined period of time, rendering them as unproductive assets. Bank loans that default become non-performing assets (NPLs). A bank's loan portfolio's percentage of non-performing loans (NPLs) shows the health of the bank; a high percentage might negatively impact the bank's performance. Since loans and advances are a bank's main source of revenue, a rise in NPLs may eventually cause the bank to fail (Nepal, 2023).

Through their promotion of rural development, financial inclusion, and economic

advancement, "B" class development banks have a major effect on Nepal's financial and economic environment. These banks, which are governed by the Nepal Rastra Bank (NRB), offer a range of services to different demographic groups, such as individuals, SMEs, and rural communities, including loans, savings accounts, and LLP accounts. Loans that are past due by three months or more are considered non-performing assets (NPA) by the NRB. NPAs don't produce income and have to be provisioned heavily depending on how long they have been past due, which lowers earnings. NPAs also have a detrimental impact on staff morale, decision-making, the bank's image, and investor trust. They also raise borrowing costs, opportunity losses, administrative and legal expenditures (NRB, 2022).

Every country's ability to prosper economically is largely dependent on how well-functioning its financial system is. As a major component of the nation's financial system, banks have an impact on how quickly a country's economy grows. As such, the total economic prosperity of a country greatly depends on the soundness of its banking system as a whole. Repayment history is currently seen to be one of the most significant indicators of the overall financial health of the banking sector. An essential metric for assessing a bank's overall financial health is the size of its non-performing loan portfolio. Nonperforming loans are one of the primary factors that impede the development and stability of banks (Ramli et al., 2018).

There are three components to the impact of NPL on efficacy. First things first, a provision for losses resulting from failed loans has to be made. This will put a cap on banks' capacity to continue lending (Rajeev & Mahesh, 2010). Second, should the borrower neglect to return the loan principle as well as the interest, the expected flow of cash into the lender's account would diminish. Ultimately, the actual loss resulting from the loans that were not repaid would be subtracted from the earnings. When there is a significant level of nonperforming loans (NPL), it will initially affect the individual commercial banks, but in the long term, it will destroy the whole nation's financial system and economy.

The current state of the Nepalese banking sector is extremely risky due to a number of factors, including the frequently recurrent shortage of loanable funds as well as irregularities and unethical practices displayed by banks and other financial institutions in their corporate governance when conducting business, as well as ineffective regulations and directives imposed on them by the monetary authority.

Aside from this, the loanable fund issue and an increase in the quantity of bad loans are the outcomes of the banks' reckless lending. As a result, the growing number of non-performing loans is continuously straining Nepal's commercial banking sector. Bad loans are steadily eating away at banking profitability, which damages banks' reputations. Over the past several years, several banks and financial institutions in Nepal have failed and are currently undergoing the liquidation process (Sapkota, 2011). Many companies have previously made large-scale mergers and acquisitions, and many more are now in the process of doing so, in order to maintain their capital levels and maintain their financial stability. The profitability of banks and the effectiveness of managers in producing revenue from firm assets are gauged by return on assets (ROA) and return on equity (ROE). ROA and ROE are emphasized by Gnwali (2018), Ekwe and Daru (2012), and Khrawish (2011) as measures of management performance. Therefore, this study examines the relationship between non-performing loans, loan loss provision and the profitability of development banks in Nepal.

1.2 Problem Statement

Since bank lending is essential for economic growth, high levels of non-performing assets (NPA) are a severe worry for the public as well as banks. A sharp increase in non-performing assets (NPAs) depresses the economy. For banks to stay in the market permanently, they need to be vigilant in keeping nonperforming assets (NPAs) within acceptable bounds. Deposits are gathered by development banks, which then use them to provide loan advances that provide money to businesses. The quality of collateral, legal procedures, the owners' views, and the economic and financial stability of the borrowing businesses all affect how well these loans are repaid.

The impact of non-performing loans (NPLs) on bank sustainability and profitability has drawn a lot of attention in recent decades. Effective management of poor loans is essential for banks to avoid non-performing loans (NPLs). Their survival is at danger if they don't act. Development banks in Nepal have difficulty making investments in the industrial sector since many loans are not repaid on time, which forces the banks to move their portfolios to less hazardous government assets. This change impairs GDP, employment prospects, and economic growth and may even spark social unrest in the nation.

By gathering deposits and providing loans to profitable industries, development banks in Nepal are essential to the country's economic growth. However, serious investing issues have arisen as a result of a lack of experience with risk analysis and portfolio management. Due to mergers and acquisitions, the number of development banks is declining, and despite the central bank's regulatory actions, real performance has not improved. A competitive climate, few investment prospects, insufficient deposits, maintaining permitted capital, and an increase in non-performing loans are some of the difficulties these banks must deal with (NPLs). Rising non-performing loans (NPLs) are mostly caused by inadequate deposits, devalued collateral, inadequate credit monitoring, and political pressure. NPLs result in missed investment opportunities as well as hazards related to liquidity, credit, and operations.

Even in times of economic expansion, a large number of loans defaulted, demonstrating subpar repayment histories. Entrepreneurs are in charge of their company's earnings and losses, and they should adjust operations to stop losses from happening or sell assets to pay off debt. The majority of non-performing assets (NPAs) come from development banks, which is a major issue for the country's economy. Studying the underlying causes and consequences of non-performing assets (NPAs) on bank profitability is crucial. Despite having solid credit manuals, Garima, Jyoti, and Muktinath Bikash banks nonetheless suffer with significant non-performing assets (NPAs) in a competitive financial climate. At order to shed light on the NPA problem, this study concentrates on NPLs in these institutions.

The existence of a high percentage of non-performing assets (NPAs) is a significant issue for banks, threatening their continuity and sustainability. An increase in gross non-performing loans poses substantial risks to banks, the financial sector, and the economy (Kaaya & Pastory, 2013). The severity of NPAs is evident when banks must set aside provisions to cover potential losses, leading to decreased profitability (Kithinji, 2010) and diminishing the banking sector's ability to contribute to economic development (Karim et al., 2010). High levels of NPAs can undermine the stability of the banking industry and the broader financial system (Boudriga et al., 2010). Adverse selection in lending, where high-quality borrowers are replaced by low-quality ones, exacerbates this issue by deteriorating the overall quality of bank loan portfolios (Bofondi & Gobbi, 2003; Bofondi & Ropele, 2011; Makri et al., 2014). High NPAs reflect a higher probability of loss and negatively impact banks' net worth,

whereas low NPAs indicate higher profitability (Ahmed & Ariff, 2007). NPAs block income and force banks to incur additional borrowing costs (Balasubramaniam, 2013), significantly affecting financial institutions, especially commercial banks with large loan portfolios (Bloem & Gorter, 2001). NPAs also serve as indicators of a bank's financial stability (Ranjan & Dhal, 2003). The performance of the banking sector is crucial for economic prosperity and growth (Khan & Senhadji, 2001).

High levels of non-performing assets (NPLs), careless lending practices, and excessive loan exposure to real estate markets all contributed to the collapse of Nepal's banking system (Sapkota, 2011). NPLs provide serious obstacles for the banking sector and, as the financial crisis of 2008 shown, can grow from a domestic to an international concern (Tmava, 2019). NPLs have the ability to collapse the whole economy and cause havoc in the real estate and finance industries. Both developed and developing economies are impacted by this issue (Ahmad et al., 2016). Analyzing the present state of NPLs and their effect on Nepal's economy's financial performance is therefore essential. Specifically, this study is connected to search answers to the following questions related to the selected banks.

- What is the current position of non-performing loans, loan loss provision and profitability in development banks?
- Is there any relationship between non-performing loans, loan loss provision and the profitability of development banks?
- How do the non-performing loans and loan loss provisions affect the profitability of development banks?

1.3 Objectives of the Study

The major objective of this study is to identify the relationship between non-performing loans, loan loss provision and profitability. The other specific objectives are:

- To examine the current position of non-performing loans, loan loss provision and profitability in development banks.
- To analyze the relationship between non-performing loans, loan loss provisions and the performance of development banks.
- To assess the impact of non-performing loans, and loan loss provisions on the profitability of development banks.

1.4 Rationale of the Study

In order to present a contemporary view of the problem, this study focuses on the examination of non-performing loans (NPL) in Nepalese development banks, namely middle-class private commercial banks. This study attempts to provide a novel and relevant analysis, in contrast to earlier research that either only looked at large government-owned banks or was done before the new Nepal Rastra Bank (NRB) guidelines were put into effect. The research aims to ascertain if these banks are complying with NRB criteria for loan loss provisions by looking at the amounts of non-performing loans (NPL) in total assets, deposits, and lending. The results will help bank management pinpoint the internal and external factors contributing to the increase in non-performing loans (NPLs), direct policy decisions and regulatory changes made by the government, and provide insightful information for interested parties and future scholars. While there are many different groups to which this study is undoubtedly important, it is particularly focused on the following: the management team of the bank, shareholders, customers, financial institutions, and stock exchanges; government bodies and policymakers; and other parties, such as competitors, stockbrokers, dealers, and market makers. It would benefit management to examine the causes and effects of non-performing loans. They are able to observe both external and internal factors contributing to their organization's rising NPL. By looking over this study, they may evaluate the state of banks and determine if it is wise or not. By looking over recent research, the government may determine what rules are needed and make changes to existing standards and policies. They have the authority to decide depending on whether or not the commercial banks abide by their rules and regulations. Through study, they can examine several elements of NPL-related concerns. They will find this study useful for their syllables and future research.

1.5 Limitations of the Study

No study is free of limitations, so this study does have its limitations. The following are the limitations of this study:

- This study is only focused on the impact of non-performing loans on the profitability of development banks.
- This study is concerned with the non-performing loan, loan loss provision and profitability of only three development banks namely; Garima, Jyoti and

Muktinath Bikash Bank.

- The period of the study is limited to ten years starting from fiscal year 2013/2014 to 2022/2023.
- The study is based on secondary data, articles, publications and journals of the respective banks.

CHAPTER II

LITERATURE REVIEW

To achieve this thesis's goal, this chapter essentially reviews a range of publications, ideas, and concepts as well as a range of research pertaining to the idea of capital structure and, more specifically, the loan management of development banks. The literature review serves as a means of gaining knowledge in one's field, examining potential new contributions, and reviewing concepts for the development of design (Wolf & Pant, 2002). In addition to evaluations of similar papers, journals, and prior theses, a variety of book reviews for conceptual frameworks are completed in preparation for the purchase of the literature review.

2.1 Theoretical Review

2.1.1 Theories of profitability

The theories that are reviewed in this study are bankruptcy cost theory, market power theory and efficiency theory, balanced portfolio theory, risk-return hypothesis.

1. The efficiency theory

The efficiency hypothesis suggests that banks make large profits because they are more efficient than other financial institutions. Additionally, there are two different theories on efficiency: The Scale-efficiency and X-efficiency hypotheses. The X-efficiency method holds that more profitable businesses have lower expenses due to increased efficiency. Larger market shares are typically acquired by these companies, which may lead to higher levels of market concentration; nevertheless, there is no correlation between concentration and profitability (Athanasoglou et al., 2008).

2. The market power theories

The market power hypothesis, as mentioned in Tregena (2009), states that the industry's market structure affects a bank's performance. The Structure Conduct Performance (SCP) and Relative Market Power (RMP) hypotheses are two different ways that make up the market power hypothesis. The SCP method states that banks have the potential to gain market power due to the degree of market concentration in the banking industry, which might increase banks' profitability. Regardless of their efficiency, banks operating in more concentrated markets are more likely to generate abnormal profits from their capacity to cut LLPs rates and charge higher loan rates

due to monopolistic or collusive (explicit or implicit) reasons than businesses in less concentrated markets (Tregenna 2009).

3. The balanced portfolio theory

In bank performance research, the portfolio theory method is the most pertinent and significant (Olweny & Shipo, 2011). The optimal holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors, including the size of the portfolio, the vector of risks associated with owning each financial asset, and the rates of return on all assets held in the portfolio, according to the portfolio balance model of asset diversification.

It suggests that actions made by the bank management are what lead to portfolio diversification and the intended portfolio composition of development banks. Additionally, the management's determination of a workable set of assets and liabilities as well as the unit expenses spent by the bank in creating each asset component affect the potential to achieve maximum earnings (Olweny & Shipo, 2011).

4. Bankruptcy cost theory

Aremu et al., (2013) propose that the positive correlation between capital adequacy and profitability may be explained by the Bankruptcy Cost Theory. Banks will need to retain more equity and raise their capital ratio in order to lower the estimated value of bankruptcy expenses and prevent financial distress if the costs of bankruptcy are unexpectedly large due to environmental changes.

5. Risk return hypothesis

Olweny and Shipho (2011) claimed that the risk-return hypothesis explains why there is a negative correlation between profitability and capital adequacy. A bank's decision to take on greater risk in order to maximize projected returns will result in a rise in leverage or debt, which will improve profitability. This implies that a bank would have to lower its equity-to-asset ratio in order to raise leverage (capital). This hypothesis therefore illustrated how a bank's preference for using leverage over equity might have a detrimental impact on capital sufficiency and bank profitability.

6. Portfolio theory

The Portfolio Theory is often described as modern portfolio theory. Financial

institutions have been dealing with credit defaults for a very long time. Modern portfolio theory was developed by Markowitz in 1952 and is extensively utilized by MFIs and the banking industry. The value at risk and portfolio at risk are used by the majority of MFIs to manage exposure resulting from changes in interest rates and market conditions. With the use of this theory, investors may evaluate the projected risk and return on their investment holdings (Wong, 2013). Financial institutions and investors have come to realize that MPT is a sophisticated method to investing that helps them construct their asset portfolios. Markowitz measured exposure and provided mathematical evidence of how portfolio diversity lowers risk and boosts investors' return on investment. By adopting a statistical measure for their asset portfolios, investors may use modern portfolio theory to predict both the expected return and their risk exposure. Markowitz (1952) provided examples of how to combine assets to create portfolios that are well diversified. According to this idea, the majority of investors failed to properly account for the high connection between security earnings. The idea posits that by pooling assets with diverging value actions, a portfolio's exposure may be reduced and its predicted rate of return can be increased. According to Markowitz, diversity reduces vulnerability when assets are combined and their prices move at different times or in opposition to one another.

2.2 Conceptual Review

2.2.1 Return on assets

Since return on assets demonstrates management efficacy, it is utilized as a dependent variable (Ekwe & Daru, 2012). It also shows how well a company's management uses all of the institution's resources to generate net income (Khrawish, 2011). According to Wen (2010), a greater ROA shows that the business is employing its resources more effectively.

2.2.2 Return on equity

Return on equity (ROE) is a measure of bank profitability that essentially quantifies the return that shareholders can receive from the management of the company's capital structure. According to King and Santor (2008), the variable that is used to represent the capital structure is thought to be the primary variable. It is calculated by dividing the entire book value of assets by the total book value of liabilities.

2.2.3 Firm size

Size is thought to be a good indicator of many good things, including profitability. When examining US non-manufacturing enterprises, Ha-Brookshire (2009) showed a positive and substantial association between size and profitability. When Stierwald (2010) looked at big Australian corporations, he found similar effects. According to the resource-based hypothesis, capital costs decrease with increased access to financial resources. This is relevant to large businesses. The company's ability to get additional financial resources becomes simpler as it grows, which lowers its cost of capital and boosts profits. Firm size and profitability were found to be positively correlated by Punnose (2008) and Malik (2011). Nguyen (1985) discovered that big, foreign-owned businesses often make more money than big, local businesses. However, based on his analysis of 38 tiny manufacturing enterprises in Scotland's Tayside Region, size is not a very useful indicator of profitability. In 2005, Goddard, Tavakoli, and Wilson looked into the factors that affect manufacturing and service companies' profitability in Belgium, France, Italy, and the United Kingdom. The findings show that size, gearing ratio, and profitability are negatively correlated. The relationship between business size and profitability is investigated in this study. Total sales are the same metric used by to determine the size of a firm (Kajüter, 2006).

2.2.4 Total loan to total deposit ratio

The Total Loan to Total Deposit (TLTD) ratio calculates how much of a bank's collected deposits have been turned into loans in order to assess bank liquidity. The TLTD hypothesis test has to do with ROA and ROE. The loan-to-deposit ratio is used to measure it. Kithinji (2010), Gul et al. (2011), and Aghababaei1 et al. (2017) discovered a favorable correlation between return on assets and total loan to total deposit (TLTD) (ROA).

2.2.5 Non-performing loan to total loan

Credit risk management is crucial, especially for financial institutions that are attempting to improve the quality of their bank portfolios by creating their own credit risk models (Poudel, 2013). Of all the risks, credit risk is the main one that leads to bank failures (Bhattacharya & Roy, 2008). Loan loss ratio provisions and non-performing loan ratios serve as a stand-in for credit risk. NPL and profitability have a negative relationship, according to Mamman and Oluyemi (1994).

2.2.6 Loan loss provision

The costs put aside as a contingency for poor loans, such as defaults by customers, are known as loan loss provisions. Mustafa, Ansari, and Younis (2012) investigated how bank loan loss provisions affected the banks' overall performance and found that well-managed banks are thought to have fewer loan loss provisions, which translates into increased profitability. Likewise, Funso et al. (2012) found that loan loss provision (LLP), return on equity (ROE), and return on asset are negatively correlated (ROA).

2.1.7 Non-performing loan

The percentage of loans and advances that default is known as non-performing loans, or NPL. According to Gizaw, Kebede, and Selvaraj (2015), the primary measure of credit risk for commercial banks is non-performing loans (NPLs). They discover that, as determined by ROA, NPLR has a statistically significant big negative impact on profitability. Nonetheless, it was discovered by Felix and Claudine (2008), Kargi (2011), and Kodithuwakku (2015) that non-performing loans had a negative effect on profitability.

2.2.8 Causes of non-performing loans (NPLs)

Because of the numerous long-term negative impacts that non-performing loans (NPLs) may have on a bank's balance sheet, including losses in capital, profits, profit, liquidity, and overall financial health, NPLs have become a major source of worry for the banking sector. Deliberate carelessness, a lack of motivation to repay loans, and the fair evaluation of credit authorities are some of the factors that lead to loan defaults (Waqas et al., 2017). Higher NPL ratios can also result from banks' readiness to modify loans or allow defaults in the face of difficulties with liquidity or profitability (European Central Bank, 2020). Poor entrepreneur selection, failing project assessments, inadequate collateral, too long payment periods, non-compliance, and natural variables are the main culprits in the industrial sector (Murshed et al., 2018). Inadequate internal governance and controls can provide room for fraud and poor management, which can ultimately result in non-performing loans (NPLs) (World Bank, 2019). NPLs are caused by a number of economic variables, including declining borrower income, company bankruptcies, and more unemployment during recessions. In addition, rising borrowing prices and volatile currency rates can play a role (Claessens and Laeven, 2013; International Monetary Fund, 2019).

2.2.9 Relationship between NPLs and bank profitability

It is commonly known that Non-Performing Loans (NPLs) have a negative impact on bank profitability. A bank's performance and financial health are greatly impacted by non-performing loans (NPLs), which are loans that are unlikely to be fully repaid because of borrower failure or delay. Since non-performing loans (NPLs) can cause lending institutions to incur losses, this link is essential to the soundness of financial institutions. In Indonesian state-owned banks, Adiatmayani and Panji (2021) discovered a small but negative link between non-performing loans (NPLs) and profitability, highlighting the impact of other factors including operational performance. NPLs have a significant influence on post-tax earnings, as seen by the strong negative correlation ($r = -0.754$) that Isabwa and Mabonga (2020) found between NPLs and profitability in Kenyan banks. The ongoing problem of non-performing loans (NPLs) threatens the banking sector's crucial role in economic growth, raising questions about its sustainability and profitability in the face of economic volatility. This study fills a research void by attempting to thoroughly examine the complex linkages between non-performing loans (NPLs) and important profitability metrics. The findings will be useful for risk management and strategic decision-making in the banking industry. Understanding the intricate link between non-performing loans (NPLs) and profitability is the main goal, and fundamental mechanisms and variables influencing observable impacts will be identified. The study specifically aims to analyze the impact of NPLs on the profitability of sampled banks in Nepal.

2.2.10 Review of NRB directives relating to loan

1. Classifications of loan and advances: Beginning in fiscal year 2080, banks will categorize loans and advances according on their ageing principal amounts. All loans and advances must fall into one of the following five categories, under NRB directives:

a. **Pass Loan:** This category will cover loans and advances whose principal amount is not past due and has been past due for a maximum of one month. These fit the definition and classification of performing loans.

b. **Watch List:** Loans that have not been repaid for three months are likewise included in the Watch List. However, loans whose principal and interest

have not been repaid within the allotted time are included.

c. Sub-Standard Loan: This category will cover any loans and advances that are three to six months past due.

d. Doubtful Loan: This category will contain all loans and advances that are past due for a duration of six months to a year.

e. Loss: This category will comprise all loans and advances that are over due by more than a year, as well as advances that are thought to be unrecoverable or have the lowest chance of recovery, as well as those with the slim chance of even a partial recovery in the future.

2. Loan loss provisioning: The loan loss provisioning, based on the outstanding loans and advances and bills purchases classified as per this directive, shall be provided as follows:

Table 2.1

Loan Loss Provisioning

Classification of Loan	Past due period	Other indicators of credit risk/bases	Minimum Loan Loss Provision (%)
Performing loans (General loan Loss Provision)			
Pass loan	Current and up to 1 month	• Loan against FD and government bonds • Gold and Silver loans up to 10 lakhs with adequate security	1.25
Watch List	1 to 3 months	• Negative net worth or net loss for consecutive 3 years (with some exceptions) • Debt-equity ratio greater than 80:20 • Inadequate debt income ratio • Loans at multiple banks without consortium (> 2 billion) • Non-performing loans at other BFs • Based on NRB inspection	5
Non-performing loans (Specific Loan Loss Provision)			
Sub-standard	3 to 6 months		25
Doubtful	6 months to 1 year		50
Loss	> 1 year	• Borrower not in contact • Misuse of credit • Business/Project not in operation • More than 90 days past due force loans, credit cards and purchased/discounted bills • Loans to blacklisted persons • Diversion of loans to related persons • Inadequate security coverage over loan	100
Restructured/ Rescheduled			• 12.5 to 25 passes • 5 for loans to be restructured/ rescheduled within 2080 Poush & Chaitra meeting various conditions • Respective Provision for Others as per category

(Source: NFRS 9- Expected Credit Loss Related Guidelines, 2024)

2.3 Empirical Review

Rijal et al. (2024) conducted a research on assessing non-performing loans affect the profitability of Nepalese commercial banks. The researcher used regression analysis to investigate the impact of non-performing loans on the profitability of Nepalese banks. The research revealed inconsistent correlations between return on assets (ROA) and variables such as bank size (BS) and the capital adequacy ratio (CAR), indicating that NABIL and SCBNL have different strategic goals for profitability and expansion in the context of Nepalese banking. According to the data and cited study, NABIL has a strong model that significantly improves its ability to explain ROA variance, but SCBNL's less successful model indicates notable variations in their financial performance.

Sharma (2024) analyzed the effect of non-performing loans and operational efficiency on profitability of Nepalese commercial banks. The researcher used correlation analysis and regression analysis to examine the effect of non-performing loans and operational efficiency on the profitability of Nepalese commercial banks. According to the study, the non-performing loan ratio, capital adequacy ratio, and loan loss provision ratio all positively affect return on assets (ROA). It showed that the bank return on assets (ROA) of Nepal's commercial banks will increase with increasing loan loss provision ratios, non-performing loan ratios, and capital adequacy ratios. Likewise, the analysis demonstrated that the operational income, operating expenditure, and loan-to-deposit ratios all had a negative effect on return on assets (ROA). It showed that Nepalese commercial banks' return on assets decreased with increasing loan-to-deposit, operational income, and operating expenditure ratios. Nevertheless, the analysis also demonstrated that the profitability as determined by return on equity is positively impacted by both the operating income and operating expense ratios. It suggested that Nepalese commercial banks' return on equity will increase with operational income and operating expenditure ratios. Similarly, the return on equity is negatively impacted by the loan loss provision ratio, non-performing loan ratio, capital adequacy ratio, and loan-to-deposit ratio (ROE). It showed that Nepalese commercial banks' return on equity (ROE) decreased with increasing loan loss provision ratios, non-performing loan ratios, capital adequacy ratios, and loan-to-deposit ratios.

Dahal (2023) analyzed the Impact of non-performing assets on profitability: a panel

regression analysis of commercial banks in Nepal. The main objective of the study was to investigate the impact of non-performing assets on the profitability of Nepalese commercial banks. The results demonstrated a strong inverse relationship between bank profitability and non-performing assets. This result has a major impact on the operational and policy issues. It placed a strong emphasis on the use of comprehensive creditworthiness assessments, continual credit monitoring, and the creation of suitable lending policies in compliance with regulatory requirements in order to mitigate the negative effects of an increase in non-performing loans and increases in the profitability of Nepal's commercial banks.

Gurung et al. (2023) conducted a research on exploring the impact of loan loss provision on profitability: an analysis of commercial banks in Nepal. the main purpose of the study was to analyze the influence of loan loss provision on the profitability of commercial banks. The fixed effect panel regression has been chosen as an appropriate model as suggested by the Haussmann test. The findings indicated a significant and negative correlation between the loan loss provisions and the profitability of Nepalese commercial banks. The research findings indicate that the augmented allowance for loan losses has a negative impact on the profitability of commercial banks operating in Nepal. To maximize profit and maintain financial stability, commercial banks should thus carefully review their loan portfolios, conduct in-depth credit risk assessments, and implement prudent policies.

Reshmi (2023) analyzed the Non-performing loans and profitability of commercial banks in Nepal. The main purpose of the study was to examine the impact of Non-performing loans and the profitability of the commercial banking sector. A Pooled OLS model, random effect model and fixed effect model were used to analyze the data. According to the study's findings, return on equity and return on asset are both negatively and statistically significantly impacted by the nonperforming loan ratio. Bank profitability is negatively, but negligibly, impacted by loan loss provisions (ROA and ROE). While the impact on ROE is negligible but nonetheless favorable, the interest revenue to total loan ratio has a positive and considerable influence on ROA. ROA is significantly positively impacted by the total loan-to-deposit ratio, whereas ROE is negatively impacted. ROA and ROE are negatively and statistically significantly impacted by bank size. CAR has a little effect on ROA but a large effect on ROE. According to the study, nonperforming loan ratios—which also happen to

have the highest negative coefficient and be the most significant—are the main factor affecting the profitability of Nepalese commercial banks. This suggested that a drop in the Nepalese bank's profitability is the root cause of the pressing problem of the growth in non-performing loans.

Msomi (2022) conducted research on factors affecting non-performing loans in financial institutions of selected West African countries. This paper examines the macroeconomic and bank-specific factors affecting non-performing loans in development banks. The researcher used a fixed and random effect model to analyse the data. The fixed effect model was selected based on the Hausman test, and the estimate revealed a strong relationship between non-performing loans and the inflation rate, capital adequacy ratio, and liquidity ratio. Therefore, it is recommended that banks rely not only on their capacity to meet the capital adequacy ratio but also ensure that loans are carefully reviewed before to being disbursed to borrowers. Bank management should make sure that employees aren't only giving out loans to keep their employment by collecting long-term preferred loans (LLPs) from customers at the expense of the bank's long-term equity. Furthermore, West African countries must to maintain low rates of inflation in order to make timely loan repayment affordable and feasible.

Ranabhat and Subedi (2022) examined the impact of non-performing loans and macroeconomic variables on the financial performance of commercial banks in Nepal. the main purpose of the study was to measure the impact of non-performing loans and macroeconomic variables on the financial performance of commercial banks. In this study, the data were analyzed using multiple linear regression analysis, correlation analysis, and descriptive statistics. The correlation study of secondary data showed a negative and negligible association between ROA, ROE, and CAR and NPL. Similarly, for JV and NJV banks, there is no substantial correlation between macroeconomic factors and NPL. For joint venture banks, there is a favorable and noteworthy correlation between ROA and ROE and GDP growth and interest rates. An boost in GDP growth and interest rates eventually improves the financial performance of JV banks, according to the favorable impact of these factors on profitability. According to the regression study, NJV bank's NPL and ROE have a negative and significant association, which suggests that rising NPL lowers ROE. Similarly, this study provides fresh data and samples for future research on the

influence of non-performing loans (NPLs) on business performance.

Uddin (2022) analyzed the effect of non-performing loans on State-owned commercial banks' profitability with operating efficiency as a mediating variable. Descriptive statistics and regression analysis were used to investigate the effect of non-performing loans on profitability. According to the study, operational efficiency has a small and negative influence on profitability, whereas non-performing loans have a positive but negligible effect on operating efficiency. The statistical analysis of the direct impact of non-performing loans on profitability revealed that, in the presence of operating efficiency, non-performing loans significantly and negatively affect profitability. Operating efficiency has no mediating impact on the connection between non-performing loans and the profitability of state-owned commercial banks, according to the PROCESS Macro mediation effect findings. The study suggested that in order to increase banks' profitability, bank management should use efficient strategies to reduce the percentage of non-performing loans and the operating expenditure to operating revenue ratio.

Yeasin (2022) researched the impact of credit risk management on financial performance: A study of commercial banks in Bangladesh. As credit risk is affecting the banking industry of Bangladesh, the study aims to analyze the impact of credit risk management on financial performance of commercial banks. To evaluate the data, the study used a panel regression analysis approach. The outcome demonstrated that the Capital Adequacy Ratio (CAR) and Non-performing Loan (NPL) had a statistically significant negative influence on the financial performance of commercial banks. On the other hand, the Loan to LLP ratio (LDR) positively and statistically significantly affected the commercial banks' financial performance. As a result, credit risk has a detrimental impact on commercial banks' financial performance.

Zaid and Khan (2022) analyzed the Non-performing loans effects on profitability and lending behaviour of commercial banks: empirical evidence. The main purpose of the study was to examine the effects of non-performing loans on the profitability and lending behaviour of commercial banks. Regression analysis was used in this study to examine the data. The study's findings demonstrated that the percentage of non-performing loans (NPLs) had a favorable and significant impact on Yemen's commercial banks' return on equity (ROE). However, the study discovered no correlation between NPLs and Yemeni commercial banks' loan and advance growth

(LAG) or return on assets (ROA).

Jati (2021) examined the study on the effect of non-performing loan and capital adequacy ratio on return on assets in bank Victoria international, Tbk Period 2009-2018. This study aims to determine the effect of Non-Performing Loans and Capital Adequacy Ratio on Return on Assets at PT. Bank Victoria International, Tbk. 2009-2018 period. Explanatory research is the methodology employed. Regression testing, correlation, determination, and hypothesis testing are all used in the statistical analysis approach. This study's findings demonstrated that non-performing loans significantly affect return on equity. Return on Equity is significantly impacted by Capital Adequacy Ratio and Non-Performing Loans at the same time.

Singh et al. (2021) analyzed the effect of non-performing loan on profitability: empirical evidence from Nepalese commercial banks. The main objective of the study was to find out the effect of non-performing loans on the profitability of commercial banks. Multiple linear regression analysis was employed to analyze the data. The study's findings demonstrated that while CAR has no discernible impact on bank NPL, bank size, GDP, inflation, and ROA all significantly affect NPL. Put another way, although other research indicated a negative effect, the GDP influence on NPL in this study demonstrates a positive and substantial effect. It showed that, despite no appreciable changes in income growth, there is a large increase in the expansion of Nepalese banks as GDP growth increases. As a result, the NPL of commercial banks is positively and significantly impacted by GDP growth. Therefore, while making choices on non-performing loans (NPLs), lenders and policymakers must carefully evaluate GDP growth.

Alshebmmi et al. (2020) analyzed the Assessing the non-performing loans and their effect on banks profitability: empirical evidence from the Saudi Arabia banking sector. The main objective of the study was to investigate the relationship between non-performing loans and selected specific bank determinants (internal factors) and macroeconomic determinants (external factors) in the Saudi banking sector. The data was analyzed by the researcher using regression analysis, correlation analysis, and descriptive statistics. The correlation analysis revealed a modest negative association between the increase in the gross domestic product (GGDP), bank liquidity risk (BLQ), credit risk, and the ratio of nonperforming loans (NPLs). Additionally, it showed a small but positive correlation between the capital adequacy ratio and the

non-performing loans (NPL) (CAR).

Bhattarai (2020) examined the study on effect of non-performing loan on profitability of commercial banks in Nepal. The study deals with the Non-performing loan (NPL) and its major problem in banking industry. It has play major role for making profit and bank success or failure. The study has examined the effects of non-performing loan on profitabilityof commercial banks in Nepal. The multiple regression model has been used to analysis of the data. To assess profitability, the fixed effect model, random effect model, and pooled ordinary least square model have all been used. Three distinct models' results showed that ROE is significantly and adversely correlated with NPL, CAR, and LIQ. Likewise, there is a strong positive correlation between SIZE and ROE. With regard to ROE, the INF, CD shows a favorable but negligible outcome. The investigation came to the conclusion that the variables NPL, CAR, LIQ, and SIZE had a significant impact on profitability. Profitability is not greatly impacted by the INF. Nonetheless, nonperforming loans have a significant negative impact on profitability. The bankers have honestly accepted payment for the last ninety days' due. It also rationally affects the country's economy.

Nwosu et al. (2020) analyzed the Non-performing loans and profitability of the Nigerian commercial banks. The main objective of the study was to examine the extent to which non-performing loans affect commercial banks profitability. Panel fixed analysis and Auto regressive distributed lag model were employed to analyze the data. The study indicated that poorer bank profitability may be explained by a larger volume of non-performing loans, increased liquidity ratio and inflation, while better profitability might be a result of an increase in bank size and capital adequacy ratio. Based on the findings, the study advised the need for the risk management team of banks to strengthen their credit management strategies, and consider offering professional advice to the loan customers on possible ways of efficiently investing their loan to ensure the needed return on investment is attained.

Patwary and Tasneem (2019) analyzed the Impact of non-performing loans on the profitability of banks in Bangladesh: a study from 1997 to 2017. The main purpose of the study was to discover the impact of non-performing loan ratio, capital adequacy ratio and provision maintenance ratio on the return on assets (ROA). The researcher employed the ordinary least square (OLS) and vector autoregression (VAR) models to analyze the data. The study's findings indicate that various short-run causalities exist

between variables. The OLS regression analysis validates the statistical significance of two independent variables, namely the non-performing loan ratio and provision maintenance ratio, with respect to the dependent variable, return on asset (ROA).

Bhattarai (2018) investigated the determinants of loan loss provisions of commercial banks in Nepal. The main objective of the study was to derive determinants of loan loss provisions (LLPs) of commercial banks. The data was analyzed using regression analysis, correlation analysis, and descriptive statistics. The loan-to-deposit ratio and the non-performing loan ratio (NPL) both significantly increase loan loss provisions, according to the derived regression model. The study came to the conclusion that the primary factors influencing the loan loss provisions of Nepali commercial banks are the non-performing loan ratio (NPL) and the loan-to-deposit ratio.

Bhattarai (2018) conducted a research on assessing bank's internal and macroeconomic factors as determinants of non-performing loans: evidence from Nepalese commercial banks. The main objective of the study was to ascertain the factors affecting non-performing loans in Nepalese commercial banks. The data was analyzed by the researcher using regression analysis, correlation analysis, and descriptive statistics. High NPL levels would prevent the county from benefiting from ineffective financial intermediation. As a result, banks have a national obligation to control the NPL ratio at a reasonable level. Finding "what causes NPLs and the relevance of these factors on NPLs" is crucial as a result. Thus, this research would aid in gaining understanding of the macroeconomic and bank-specific factors that influence non-performing loans (NPLs) in commercial banks and the extent to which these factors contribute to NPLs. According to the estimated ordinary least square (OLS) regression model, the macroeconomic variables GDP and the bank-specific variables ROA, LTD, and CAR significantly affect nonperforming loans in Nepalese commercial banks.

Gautam (2018) analyzed the Impacts of non-performing loans on the profitability of Nepalese commercial banks. The researcher used regression analysis to examine the impact of non-performing loans on the profitability of Nepalese commercial banks. The credit to deposit ratio, net profit to loan and advances, non-performing loan to total loan, and interest income to loan and advance all had positive beta coefficients for return on assets, according to the results. Similarly, the beta coefficient is negative for the non-performing loan to total loan and interest income to loan and advances on

return on equity, but positive for the credit-to-deposit ratio, net profit to loan, and advances. The credit-to-deposit ratio, net profit to loan and advance, interest income to loan and advance, and the percentage of non-performing loans to total loans are all significant factors that affect the profitability of Nepal's commercial banks.

Gnawali (2018) conducted a research on the Non-performing assets and its effect on profitability of Nepalese commercial banks. The main objective of the study was to examine the impact of non-performing loans on the profitability of Nepalese commercial banks. Regression analysis was employed by the researcher to examine the data. According to the regression analysis, there was a positive relationship between ROA and ROE and the CAR, TLTD, LLP, and SIZE. It showed that ROA and ROE increased with larger CAR, TLTD, LLP, and SIZE. Additionally, the results demonstrated a negative association between NPL and NPLTL and ROA and ROE, indicating that an increase in NPL and NPLTL would result in an increase in ROA and ROE.

Panta (2018) analyzed the non-performing loans and bank profitability: a study of joint venture banks in Nepal. The researcher employed a fixed effect panel model to investigate the bank-specific and macroeconomic determinants of non-performing loans as well as its impact on profitability. The study discovered that the non-performing loan was determined by the net interest margin and bank size. It also revealed that the link between the two variables is substantial and negative, with the net interest margin having a positive influence. The macroeconomic factors, however, are unrelated. Moreover, a noteworthy impact on profitability is shown when non-performing loans, bank size, and net interest margin are included as independent variables. When considering solely the size of the bank, there is a negligible correlation between it and return on equity. Three findings may be drawn from this study: firstly, banks' bankability to collect interest revenue improves as their net interest margin does, increasing their profitability. Furthermore, when asset sizes rise and the bank must manage larger operations, poor management practices also increase, impeding profitability. Secondly, an increase in non-performing loans erodes interest revenue and lowers profitability.

Koju et al. (2017) analyzed the Macroeconomic and bank-specific determinants of non-performing loans: evidence from the Nepalese banking system. The main purpose of the study was to evaluate the macroeconomic and bank-specific determinants of

non-performing loans in the Nepalese banking system. The data was analyzed by the researcher using panel estimation techniques. The results demonstrated that NPLs had a negative link with the rate of GDP growth, capital adequacy, and inflation rate and a strong positive relationship with the export-to-import ratio, inefficiency, and asset size. The empirical study's findings demonstrated that poor economic development is the main factor contributing to Nepal's high non-performing loan (NPL) rate and that sound financial regulations and efficient management are necessary for a healthy financial system and economy. This is the first comprehensive analysis of the banking sector in Nepal. Moreover, it is the first to assess how interest spreads, governmental debt, and remittances affect non-performing loans (NPLs). The results of this study will be useful in developing Nepal's fiscal and macroprudential policy.

Alhadab and Alsahawneh (2016) conducted on the loan loss provision and the profitability of commercial banks: evidence from Jordan. The researcher used descriptive statistics, correlation analysis and regression analysis to examine the impact of loan loss provision on the profitability of Jordanian commercial banks. This study offered the first proof that Jordanian commercial banks' profitability is negatively impacted by loan loss provisions. Return on assets (ROA) and return on equity (ROE), which are used in this study as proxies for profitability, indicate that Jordanian banks modify their loan loss provision for a variety of reasons, which has a detrimental impact on their profitability.

Basnet (2016) conducted a thesis entitled on non-performing assets of Nepalese commercial banks. The main objective was to analyze the non-performing assets of the commercial banks. To examine the level of NPAs in total assets, LLPs and lending of commercial banks. To examine whether the Nepalese commercial banks are following theNRB directives regarding nonperforming assets or not. In this study, panel data comparisons between two variables were employed. Based on the study, Nepal Bangladesh Bank Limited seemed to have a higher level of non-performing assets than any of the other banks included in the analysis. Similarly, Bank of Kathmandu and Nepal SBI Banks are ranked second and third, respectively. Because NABIL Bank Limited has been lowering its net present value (NPA) annually and Nepal Investment Bank's NPA has decreased to the lowest level of all other banks, the bank's position appears to be quite satisfactory. However, it has been discovered that none of the banks have been adhering to the NRB's instructions regarding the loan

loss provision.

Kingu et al. (2015) analyzed the Impact of non-performing loans on a bank's profitability: empirical evidence from commercial banks in Tanzania. The main purpose of the study was to examine the impact of non-performing loans on a bank's profitability. To evaluate the data, the researcher employed Fixed Effects (FE), Random Effects (RE), Ordinary Least Squares (OLS) Regression, Multiple Regression Analysis, and Descriptive Statistics. According to the study, Tanzanian commercial banks' profitability is inversely correlated with the number of non-performing loans they have. The findings strengthen the theories of knowledge asymmetry and poor management. The study's conclusions have management and theoretical ramifications for professionals and decision-makers.

Table 2.2

Summary Table

Authors	Topic	Objective	Methodology	Findings
Rijal et al. (2024)	Assessing non-performing loans affects the profitability of Nepalese commercial banks	To investigate the impact of non-performing loans on the profitability of Nepalese banks	Regression Analysis	The analysis indicates that NABIL and SCBNL have different strategic aims for development and profitability in the context of Nepalese banking. It does this by highlighting different correlations between ROA and characteristics such as capital adequacy ratio (CAR) and bank size (BS). Based on the data and analysis cited, NABIL demonstrates a strong model that significantly improves its ability to explain ROA variation, whereas SCBNL's less successful model indicates notable disparities in their financial performance.
Sharma (2024)	Effect of non-performing Loan and Operational Efficiency on Profitability of Nepalese Commercial Banks	To examine the effects of non-performing loans and operational efficiency on the profitability of Nepalese commercial banks	Correlation Analysis, Regression Analysis	The study demonstrated that the return on assets is positively impacted by the loan loss provision ratio, non-performing loan ratio, and capital adequacy ratio (ROA). The study also demonstrates that the operational income, operating expenditure, and loan-to-deposit ratios all have a negative effect on return on assets (ROA). On the other hand, the analysis also demonstrates that the profitability as determined by return on equity is positively impacted by both the

				operating income and operating expense ratios. Similarly, the return on equity is negatively impacted by the loan loss provision ratio, non-performing loan ratio, capital adequacy ratio, and loan-to-deposit ratio (ROE).
Dahal (2023)	Impact of non-performing assets on profitability: a panel regression analysis of commercial banks in Nepal	To investigate the impact of non-performing assets on the profitability of Nepalese commercial banks	Panel Regression, Correlation Analysis, Data Stationary, Descriptive Statistics	The results demonstrated a strong inverse relationship between bank profitability and non-performing assets. This result has important implications for operational and policy concerns. to mitigate the adverse consequences of rising non-performing loan levels and rising commercial bank profitability in Nepal.
Gurung et al. (2023)	Exploring the impact of loan loss provision on profitability: an analysis of commercial banks in Nepal	To analyze the influence of loan loss provision on the profitability of commercial banks	Fixed Effect (FE) Panel Regression	A panel regression model has discovered a significant and negative correlation between the loan loss provisions and the profitability of Nepalese commercial banks.
Reshmi (2023)	Non-performing loan and profitability of commercial banks in Nepal	To examine the impact of Non-performing loans and the profitability of the commercial banking sector	Pooled OLS Model, Random Effect Model, Fixed Effect Model	The study's conclusions show that return on equity and return on asset are both negatively and statistically significantly impacted by the non-performing loan ratio. Bank profitability is negatively, but negligibly, impacted by loan loss provisions (ROA and ROE). While the impact on ROE is negligible but nonetheless favorable, the interest revenue to total loan ratio has a positive and considerable influence on ROA. ROA is significantly positively impacted by the total loan-to-deposit ratio, whereas ROE is negatively impacted. ROA and ROE are negatively and statistically significantly impacted by bank size. CAR has a little effect on ROA but a large effect on ROE.
Msomi (2022)	Factors affecting non-performing loans in financial institutions of selected West African countries	To examine the macroeconomic and bank-specific factors affecting non-performing loans in development banks	Hausman Test, Fixed Effect Model	Therefore, it is recommended that banks rely not only on their capacity to meet the capital adequacy ratio but also ensure that loans are carefully reviewed before to being disbursed to borrowers. Bank management should make sure that employees aren't only giving out loans to keep their employment by collecting long-term preferred loans (LLPs) from customers at the expense of the bank's long-term equity.

Ranabhat and Subedi (2022)	Impact of non-performing loan and macro-economic variables on the financial performance of commercial banks in Nepal	To measure the impact of non-performing loan and macro-economic variables on the financial performance of commercial banks	Descriptive Statistics, Correlation Analysis, Multiple Linear Regression Analysis	The correlation study of secondary data shows that there is a negligible and negative association between ROA, ROE, and CAR and NPL. Similarly, for JV and NJV banks, there is no substantial correlation between macroeconomic factors and NPL. For joint venture banks, there is a favorable and noteworthy correlation between ROA and ROE and GDP growth and interest rates. Regression research showed that NJV Bank's NPL and ROE had a negative and significant association.
Uddin (2022)	The effect of non-performing loans on State-owned commercial banks' profitability with operating efficiency as a mediating variable	To investigate the effect of non-performing loans on profitability	Descriptive Analysis, Regression Analysis	According to the study, operational efficiency has a small and negative influence on profitability, whereas non-performing loans have a positive but negligible effect on operating efficiency. In the presence of operating efficiency, non-performing loans have a negative and considerable influence on profitability, according to the statistical finding on the direct effect of non-performing loans on profitability. Operating efficiency has no mediating impact on the connection between non-performing loans and the profitability of state-owned commercial banks, according to the PROCESS Macro mediation effect findings.
Yeasin (2022)	Impact of credit risk management on financial performance: A study of commercial banks in Bangladesh	To analyze the impact of credit risk management on the financial performance of commercial banks	Panel Regression Model	The outcome demonstrated that the Capital Adequacy Ratio (CAR) and Non-performing Loan (NPL) had a statistically significant negative effect on the financial performance of commercial banks. On the other hand, the financial performance of commercial banks was positively and statistically significantly impacted by the Loan to LLP ratio (LDR). As a result, credit risk has a detrimental impact on commercial banks' financial performance.
Zaid and Khan (2022)	Non-performing loans effects on profitability and lending behaviour of commercial banks: empirical evidence	To examine the effects of non-performing loans on the profitability and lending behaviour of	Regression Analysis	The study's findings demonstrated that the percentage of non-performing loans (NPLs) had a favorable and significant impact on Yemen's commercial banks' return on equity (ROE). However, the

		commercial banks		study discovered no correlation between NPLs and Yemeni commercial banks' loan and advance growth (LAG) or return on assets (ROA).
Jati (2021)	The effect of non-performing loan and capital adequacy ratio on return on assets in Bank Victoria International	To determine the effect of Non-Performing Loans and Capital Adequacy Ratio on Return on Assets	Regression Testing, Correlation, Determination, Hypothesis Testing	This study's findings demonstrated that non-performing loans significantly affect return on equity. Return on Equity is significantly impacted by Capital Adequacy Ratio and Non-Performing Loans at the same time.
Singh et al. (2021)	The effect of non-performing loan on profitability: empirical evidence from Nepalese commercial banks	To find out the effect of non-performing loans on the profitability of commercial banks	Multiple Linear Regression Analysis	The study's findings demonstrated that while CAR has no discernible impact on bank NPL, bank size, GDP, inflation, and ROA all significantly affect NPL. Put otherwise, this study demonstrates a positive and noteworthy impact of GDP on NPL, whereas the majority of studies indicate a negative impact. As a result, the NPL of commercial banks is positively and significantly impacted by GDP growth.
Alshebmmi et al. (2020)	Assessing the non-performing loans and their effect on banks profitability: empirical evidence from the Saudi Arabia banking sector	To investigate the relationship between non-performing loans and selected specific bank determinants (internal factors) and macroeconomic determinants (external factors) in the Saudi banking sector	Descriptive Statistics, Correlation Analysis, Regression Analysis	The findings indicated that there was a weak and negative correlation between the ratio of nonperforming loans (NPLs), growth in the gross domestic product (GGDP), bank liquidity risk (BLQ), and credit risk. Additionally, it shows a small but positive correlation between the capital adequacy ratio and the non-performing loan (NPL) (CAR).
Bhattarai (2020)	Effect of non-performing Loan on Profitability of Commercial Banks in Nepal	To examine the effect of non-performing loans on the profitability of commercial banks in Nepal	Multiple Regression Analysis, Pooled Ordinary Least Square Model, Fixed Effect Model, Random Effect Model	The results revealed that the NPL, CAR, and LIQ are significant and negatively associated with ROE. Similarly, the SIZE has a significant and positive associate with ROE. The INF has positive but insignificant results with ROE.
Nwosu et al. (2020)	Non-performing loans and profitability of the Nigerian commercial banks	To examine the extent to which non-performing loans affect commercial banks profitability	Panel Fixed Analysis, Autoregressive Distributed Lag Models	The study showed that lower bank profitability can be explained by a higher volume of non-performing loans, increased liquidity ratio and inflation, while higher profitability could be a result of an increase in bank size and capital adequacy ratio.
Patwary and Tasneem (2019)	Impact of non-performing loan on the profitability of banks in Bangladesh: a study	To discover the impact of non-performing loan ratio, capital adequacy ratio and	Ordinary Least Square (OLS), Vector Auto Regression (VAR)	The results of the study revealed that there are different directional short-run causalities exist between variables and the OLS regression analysis confirms

	from 1997 to 2017	provision maintenance ratio on the return on assets (ROA)	Model	that two independent variables; the non-performing loan ratio and provision maintenance ratio are statistically significant to the dependent variable; return on asset (ROA).
Bhattarai (2018)	Determinants of loan loss provision of commercial banks in Nepal	To derive determinants of loan loss provisions of commercial banks	Descriptive Statistics, Correlation Analysis, Regression Analysis	The estimated regression model reveals that nonperforming loan ratio (NPL) and loan to deposit ratio are significant positive impact of loan loss provisions. This study concluded that nonperforming loan ratio (NPL) and loan to deposit ratio are the mainly determinants of loan loss provisions of commercial banks in Nepal.
Bhattarai (2018)	Assessing bank's internal and macroeconomic factors as determinants of non-performing loans: evidence from Nepalese commercial banks	To ascertain the factors affecting non-performing loans in Nepalese commercial banks	Descriptive Statistics, Correlation Analysis, Regression Analysis	The estimated ordinary least square (OLS) regression model revealed that the bank specific: ROA, LTD and CAR and macroeconomic factors GDP have a significant impact on nonperforming loans in Nepalese commercial banks
Gautam (2018)	Impacts of non-performing loans on profitability of Nepalese commercial banks	To examine the impact of non-performing loans on the profitability of Nepalese commercial banks	Regression Analysis	The result showed that the beta coefficient for credit to deposit ratio, net profit to loan and advances, non-performing loan to total loan, and interest income to loan and advance are positive on return on assets. Likewise, the beta coefficient is positive for the credit-to-deposit ratio, net profit to loan and advances whereas negative for the non-performing loan to total loan and interest income to loan and advances on return on equity.
Gnawali (2018)	Non-performing assets and its effect on profitability of Nepalese commercial banks	To examine the impact of non-performing loans on profitability of Nepalese commercial banks	Regression Analysis	The regression models were estimated to test the significance and impact of the non-performing loan on the profitability of Nepalese commercial banks.
Panta (2018)	Non-performing loans and bank profitability: a study of joint venture banks in Nepal	To investigate the bank-specific and macroeconomic determinants of non-performing loans as well its impact on the profitability	Fixed Effect Panel Model	The study found the net interest margin and bank size as the determinants of the non-performing loan & suggest that net interest margin has a positive and significant effect while the bank size has a negative and significant relationship. However, the macroeconomic variables do not relate. Furthermore, when the net interest margin, bank size & non-performing loan are used as an independent

				variable, its significant effect is seen with the profitability. An insignificant relationship is seen with the return on equity in terms of only bank size.
Koju et al. (2017)	Macroeconomic and bank-specific determinants of non-performing loans: evidence from Nepalese banking system	To evaluate the macroeconomic and bank-specific determinants of non-performing loans in Nepalese banking system	Panel Estimation Approaches	The findings showed that NPLs have a significant positive relationship with the export-to-import ratio, inefficiency, and asset size and a negative relationship with the GDP growth rate, capital adequacy, and inflation rate.
Alhadab and Alsahawneh (2016)	Loan loss provision and the profitability of commercial banks: evidence from Jordan	To examine the impact of loan loss provision on the profitability of Jordanian commercial banks	Descriptive Statistics, Correlation Analysis, Regression Analysis,	This study provided the first evidence that loan loss provision has a negative impact on the profitability of Jordanian commercial banks. This evidence suggests that Jordan banks adjust their loan loss provision due to several motives and, this in turn, leads to negative consequences for their profitability. Return on assets (ROA) and return on equity (ROE) are employed as a proxy of the profitability in this study.
Kingu et al. (2015)	Impact of non-performing loans on bank's profitability: empirical evidence from commercial banks in Tanzania	To examine the impact of non-performing loans on a bank's profitability	Descriptive Statistics, Multiple Regression Analysis, Ordinary Least-Squares (OLS) Regression, Fixed Effects (FE), Random Effects (RE)	The study found that the occurrence of non-performing loans is negatively associated with the level of profitability in commercial banks in Tanzania.

2.4 Research Gap

The term "research gap" describes the difference between this study and earlier research. a few studies examining how operating efficiency and non-performing loans (NPLs) affect profitability (Dewi & Badjra, 2020; Kusumastuti & Alam, 2019). NPL's impact on profitability was discovered in some research, and the capital adequacy ratio (CAR) was revealed to be a mediating variable (Adiatmayani & Panji, 2021; Simbolon & Simanjuntak, 2020; Swandewi & Purnawati, 2021). Most developing banks in the world deal with categorized loans or non-performing loans, which are typically the result of inefficient banking practices or inefficient operations. The profitability of banks is considerably impacted. A little amount of research was conducted abroad to examine the impact of capital structure, operating efficiency, and credit/financial risks on the profitability of private banks (Hasmiana & Pintor, 2022;

Nur & Emanuel, 2018). The mediation role of development banks in the link between non-performing loans and profitability has not yet been thoroughly studied. The current study aims to address this constraint by examining the impact of non-performing loans on the profitability of development banks. The study project's goal differs greatly from the investigations conducted by the aforementioned individuals (related to development banks). The first area of research difference between the current study and the other studies is the sample bank and the fiscal years. The investigation of non-performing loans, LLP, and their effects on Garima, Jyoti, and Muktinath's profitability are the main topics of this study. In this study, many statistical and financial approaches have been applied. Regression analysis and ratio analysis are two effective financial instruments among them. This study differs slightly from earlier research. It could be one of the rare study papers on non-performing loans that focuses on other industries. The purpose of this study is to evaluate the effects of loan loss provisions and non-performing loans on the bottom lines of the participating banks.

CHAPTER III

RESEARCH METHODOLOGY

A methodical approach to addressing the research topic is called research methodology. It outlines the many steps a researcher must follow in order to investigate an issue with certain objectives in mind. Stated differently, research methodology outlines the methods and approaches used during the duration of the investigation. There are several reasons why research is done. A strong and well-planned research process is the foundation of every excellent study outcome. In order to conduct research and determine its goal, it has to be handled methodically. This study intends to assess the influence of loan loss provisions and non-performing loans on profitability, investigate the correlation between loan loss provisions, non-performing loans, and profitability, and assess the state of development banks' loan loss provisions, non-performing loans, and profitability. The several sequential processes a researcher takes when examining an issue with specific goals in mind are referred to as research technique.

3.1 Research Design

The term "research design" refers to a comprehensive framework or plan that addresses the methodologies, tools, and sampling strategy to be used in the data gathering and analysis process. Research design is the process, strategy, and structure used in an investigation to regulate variation and provide answers to research questions. Research designs that are descriptive and causal are used. A study design's core elements are the problem, the methodology, the data collecting, the data analysis, and the report writing.

Descriptive and causal research designs serve distinct purposes. Descriptive research systematically describes situations, problems, phenomena, services, or programs, focusing on the "what" rather than the "why." It involves gathering data to test hypotheses or answer questions about the current status of subjects, offering a detailed snapshot of the present scenario. In contrast, causal research seeks to identify and understand cause-and-effect relationships by manipulating one variable and observing the effect on another. This design often involves controlled experiments to infer causality, providing insights into the underlying mechanisms and reasons for observed conditions.

3.2 Population and Sample

The population data for this study comprises all listed 17 development banks, which are currently operating in Nepal from mid-July 2023 (NRB Report). Among them, only three development banks i.e. Garima Bikas Bank Ltd., Jyoti Bikas Bank Ltd. and Muktinath Bikas Bank Ltd. This sampling method referred to as the purposive sampling method is to be used while selecting sample organizations for this study.

3.3 Nature and Sources of Data

Secondary data served as the study's foundation. The balance sheet and the profit and loss accounts of the relevant banks are the direct sources of the data needed for analysis, which is obtained from the annual report. To determine if the examined microfinance is adhering to the central bank's norms and regulations or not, the NRB study report has also been compared. The main data sources for the study are collected from the websites of Garima Bikas Bank Ltd., Jyoti Bikas Bank Ltd. and Muktinath Bikas Bank Ltd. Ten years of data are taken to conduct the study from 2013/2014 to 2022/2023.

3.4 Method of Data Analysis

In this study, data analysis is carried out in accordance with the data's existing pattern. Several statistical and financial approaches are used in this study to show how various study-related aspects are correlated. The computed results are presented in a readable manner under many titles, and they are compared with one another to determine their interpretation. Correlation analysis, regression, and mean are used to look at the relationship between the variables. The data analysis and presentation are the primary parts of the study effort. The raw data are first methodically presented in tabular form in order to achieve the study purpose, and they are then analyzed utilizing a range of statistical and financial techniques. In addition, a few tables and graph charts have been included for analysis and interpretation of the research. Various Financial & statistical tools are used for data analysis.

3.5 Data Analysis Tools

To improve the convenience, authenticity, and reliability of the study, statistical and financial methods are employed. After that, calculations are made and their ratio, percentage, mean, standard deviation, and coefficients of variation are shown in the tables. Regression and correlation coefficients are also computed to examine the

relationship between two or more variables. Similarly, trend analysis is employed to determine the tendency of certain ratios. An overview of the statistical and financial instruments utilized in this investigation is provided below.

3.5.1 Financial tools

A certain yardstick is required by the financial analyst in order to assess the performance and financial state of a firm. A frequently used metric is an index ratio that contrasts two sets of financial data. Through the inspection and interpretation of various ratios, skilled and qualified analysts should be able to obtain a more profound understanding of the company's financial performance and status than they would from a basic financial data analysis. The type of analysis that is employed depends on the specific interests of the parties concerned. Liquidity is the primary concern of trade creditors. They make short-term claims, and the best method to determine a company's ability to pay is to carefully review its liquidity. Bondholders' claims, however, are long-term. Their primary worry is thus the company's long-term ability to pay down debt with cash flow. Bondholders can evaluate this capacity by looking at the financial structure of the firm, its main sources and uses of money, its historical profitability, and its anticipated future profitability.

Non-performing loan to total loan Ratio (NPLTLR)

The ratio of non-performing loans (NPLs) to total loans is a crucial measure of the quality of a bank's assets and financial stability. It calculates the percentage of loans that are past due or at risk of defaulting out of all existing loans. Stakeholders can evaluate the efficacy of the bank's loan portfolio management and the degree of credit risk by using this ratio. An elevated non-performing loan (NPL) ratio implies that a considerable segment of the bank's loans are not yielding returns, thereby impairing profitability and liquidity. Conversely, a reduced NPL ratio signifies superior asset quality and efficient risk mitigation. In order to preserve the stability and soundness of a bank's financial operations, this ratio must be closely watched.

It is calculated as

$$Non-performing\ Loan\ to\ Total\ loan\ Ratio\ = \frac{Non-performing\ loans}{Total\ Loan}$$

Total loan to total deposit ratio (LDR)

A financial indicator used by banks to assess their liquidity and the effectiveness of their use of deposits to create loans is the Total Loan to Total Deposit Ratio (LDR). It is computed by dividing the total number of loans that the bank has made by the total number of deposits that it has received. This percentage sheds light on a bank's lending policies and capacity to handle depositor withdrawal requests. A bank with a high loan-to-deposit ratio (LDR) is lending out a significant amount of its deposits, which can result in greater interest revenue but also raise the risk of liquidity problems if too many loans default or if there are unexpected big withdrawals. Low LDR Suggests that the bank has a conservative lending strategy, possibly resulting in lower profitability as fewer deposits are being used to generate interest income.

The formula is:

$$Total\ Loan\ to\ Total\ Deposit\ Ratio = \frac{Total\ \ Loan}{Total\ Deposit}$$

Return on assets (ROA):

Return on assets (ROA), a financial statistic, measures how profitable a company is able to utilize all of its assets. It reveals how well a company is utilizing its resources to turn a profit. The proportion of the ROA is provided. A higher return on assets (ROA) is frequently indicative of efficiency as it shows that the company is operating more profitably for each dollar of assets it owns. A lower ROA, however, indicates that the business may not be making the most of its resources to turn a profit.

The formula for calculating Return on Assets is:

$$Return\ on\ Assets\ (ROA) = \frac{Net\ Income}{Total\ Assets}$$

Return on equity (ROE):

Return on equity (ROE), a financial metric, measures a company's profitability based on the equity that its owners possess. It provides details on how profitable a company is operating on the equity that its investors have contributed. The percentage of the ROE is provided. A greater return on equity (ROE), which is often indicative of robust financial performance, indicates greater earnings from the equity invested by shareholders. A lower ROE, however, indicates that the business may not be profitably utilising its equity basis.

The formula for calculating Return on Equity is:

$$Return\ on\ Equity\ (ROE) = \frac{Net\ Income}{Shareholder's\ Equity}$$

3.5.2 Statistical tools

A range of statistical approaches, which are explained below, are used to assess and understand the loan management policies of the pertinent institutions. Likewise, statistical instruments are helpful in spotting trends in the financial health of the microfinance sector and in investigating the correlations between variables that facilitate the bank's decision-making regarding loan management strategies that maximize earnings, deposit acquisition, fund utilization through loan and advance provision, and investment in other companies. Utilizing statistical techniques such as trend analysis of relevant elements and the coefficient of correlation between different variables, the financial data in this study have been examined and evaluated. This basis of statistical analysis related to this study is discussed below: -

(i) Arithmetic mean

One number from the data range that is used to represent every value in the series is the mean, or average value. An average value is sometimes referred to as a measure of center value as it falls somewhere within the data's range. To find the average value, take the total of all the words and divide it by the total number of items. This formula is given below: -

$$\overline{X} = \frac{\sum X}{n}$$

Where, $\sum$ X= $X_1+X_2+X_3+\ldots\ldots\ldots+X_n$=Sum of given set of observation

n = Number of items observed.

X= Variables

(ii) Standard deviations

In 1893, Karl Pearson proposed the standard deviation (SD) as a metric for dispersion. Sigma is typically used to indicate it (σ). Dispersion is the measurement of the sauternes of the mass of figures in a series around an average; the absolute dispersion is determined by the standard deviation. The standard deviation increases with

increasing dispersion and vice versa. A low standard deviation indicates both good observational consistency and series homogeneity. A high standard deviation indicates that the series is not very homogeneous or uniform.

Symbolically,

$$\mathrm{SD}\,(\sigma) = \sqrt{\frac{\sum\left(\mathrm{X} - \overline{\mathrm{X}}\right)^2}{\mathrm{N}}}$$

(iii) Coefficient of variation

The coefficient of standard deviation is the relative measure of dispersion based on the standard deviation. The coefficient of variation is the coefficient of dispersion based on standard deviation multiplied by 100 (CV) .

$$\mathrm{CV} = \frac{\mathrm{SD}}{\mathrm{Mean}} \times 100\,\%$$

The link between the standard deviation and mean is shown in the coefficient of variation. Given that C.V. is unit-independent, it may be used to compare the variability of two distributions in a harsh way. Greater variability, or less consistency and uniformity, is indicated by greater CV, and vice versa.

(iv) Correlation coefficient

The "connection" (or association) between one dependent variable (or factor) and one (or more than one) independent variable (s) or factor is known as correlation (s). Stated differently, correlation may be defined as the association between two or more variables, meaning that there is only one dependent variable and one or more independent variables.

$$\text{Correlation of coefficient, r} \quad = \quad \frac{n.\sum XY - \left(\sum X\right).\left(\sum Y\right)}{\sqrt{n.\sum X^2 - \left(\sum X\right)^2}.\sqrt{n.\sum Y^2 - \left(\sum Y\right)^2}}$$

Where,

n Number of pairs of observation.

X= Variable

Y = Variable

r = correlation of coefficient

(v) Regression coefficient

Modeling the link between a dependent variable and one or more independent variables is done statistically using regression. Finding the line or curve that best fits the data and forecasts the dependent variable's values from the independent variables' values is the main goal. Regression facilitates inference and prediction by assisting in the comprehension of correlation and in measuring the direction and degree of the connection between variables.

The equation of a linear regression line is given as $Y = a + bx$,

Where,

Y: This is the dependent variable

X: This is the independent variable

b: This is the coefficient or slope of the regression equation.

a: This is the intercept term or the constant term in the regression equation.

Multiple regression analysis

A statistical method for examining the connection between two or more independent variables and a dependent variable is multiple regression analysis. It is an advancement above basic linear regression, which looks at the connection between one independent variable and one dependent variable. Finding out how the independent variables affect the dependent variable as a whole while accounting for their influence on one another is the aim of multiple regression.

The equation for a multiple regression model with 'p' independent variables is generally represented as:

$$Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$$

Where:

Y = dependent variable.

X1, X2, ..., X4 = independent variables.

$\beta0$ = Intercept.

$\beta1, \beta2, ..., \beta4$ = coefficients that represent the effect of each independent variable.

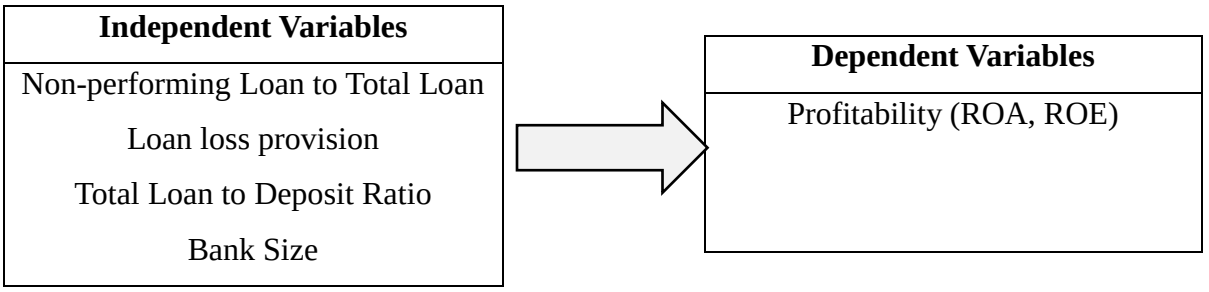
ε = Error term.

3.6 Research Framework and Definition of Variables

A conceptual framework is a paradigm for study that is created by the researcher based on their thoughts and subject-matter knowledge. The theoretical framework is the cornerstone of the theory's foundation. This hypothesis provides the overall structure for the investigation. Considering that the primary goals of research are to conduct investigations and develop theories about issues. A well-crafted and well-articulated theoretical framework is needed to answer the problems. The features or variables chosen for inclusion in a theoretical model can be graphically depicted. Following is the frameworkfor this study:

Figure 3.1

Research Framework



(Source: Gnawali, 2018)

Definitions of Variables

Return on assets (ROA): Since it is a measure of managerial efficacy, it is utilized as a dependent variable (Ekwe & Daru, 2012). It also shows how well a company's management uses all of the institution's resources to generate net income (Khrawish, 2011). According to Wen (2010), a greater ROA shows that the business is employing its resources more effectively.

Return on equity (ROE): It is also a tool for gauging bank performance as it calculates the return on investment that shareholders can receive when management of the company uses the capital structure effectively. According to King and Santor (2008), the variable that is used to represent the capital structure is thought to be the primary variable. It is calculated by dividing the total liabilities' book value by the total assets' book value.

Non-performing loan to total loan (NPLTLR): One of the most crucial aspects of risk management is credit risk. It is crucial, especially for financial institutions that are working to improve the quality of their bank portfolios by developing their credit

risk models (Poudel, 2013). Among the several kinds of risk, credit risk is the main factor that leads to bank collapse (Bhattacharya & Roy, 2008). Loan loss ratio provisions and non-performing loan ratios serve as a stand-in for credit risk. NPL has a negative relationship with profitability, according to Mamman and Oluyemi (1994).

Loan loss provision (LLP): The costs put aside as a contingency for poor loans, such as defaults by customers, are known as loan loss provisions. Mustafa, Ansari, and Younis (2012) investigated how bank loan loss provisions affected the banks' overall performance and found that a bank with good management is thought to have less loan loss provisions, which translates into increased profitability. Likewise, Funso et al. (2012) found that loan loss provision (LLP), return on equity (ROE), and return on asset are negatively correlated (ROA).

Total loan to total deposit ratio (LDR): It measures the amount of money a bank has put into loans from the deposits it has received in order to assess bank liquidity. The TLTD hypothesis test has to do with ROA and ROE. The loan-to-deposit ratio is used to measure it. Kithinji (2010), Gul et al. (2011), and Aghababaei1 et al. (2017) discovered a favorable correlation between return on assets (ROA) and total loan to total deposit (TLTD).

Bank size (BS): Size is frequently used as a stand-in for favorable characteristics like profitability. Size and profitability have a positive and substantial link in US non-manufacturing enterprises, according to Ha-Brookshire (2009) and Stierwald (2010) in major Australian companies. According to the resource-based approach, larger businesses may obtain financial resources more easily, which lowers their capital expenses and increases their earnings (Punnose, 2008; Malik, 2011). Nguyen (1985) discovered that although size has little predictive power for profitability in small manufacturing enterprises, large foreign-owned companies usually make better profits than domestic ones. In contrast, Goddard, Tavakoli, and Wilson (2005) discovered that profitability, size, and gearing ratio were negatively correlated in Belgian, French, Italian, and UK manufacturing and service companies. This study investigates the relationship between profitability and business size as determined by total sales (Kajüter, 2006).

CHAPTER IV

RESULTS AND DISCUSSIONS

Findings and data discussion constitute a crucial phase of the research project. The process of arranging the available data in a logical format and tabulating it is called presentation. The financial numbers are analyzed and presented in tabular or graphical form so that suggestions for corrective action may be made. In order to provide recommendations for corrective action, the current chapter will address the numerous parts of factors impacting profitability and their real output. The financial year's income statement and balance sheet have been provided for study.

4.1 Results

4.1.1 Descriptive statistics

Statistical techniques known as descriptive statistics are used to provide a brief summary of the sample and its measurements by summarizing and describing the key characteristics of a dataset. They include measures of variability or dispersion, like range, variance, and standard deviation, which characterize the spread of the data, and measures of central tendency, like mean, median, and mode, which show the center of the data. These statistics are extensively used in many sectors, including research, business, and social sciences, to offer a clear and brief summary of data. They are crucial for understanding the fundamental properties of data before further analysis.

Table 4.3

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPLTLR	30	0.0040	3.4300	0.7955	0.8601
LLP	30	0.0384	2.0559	0.5627	0.6049
LDR	30	0.7674	0.9907	0.8584	0.0489
BS	30	4.6124	131.6112	43.1048	36.3364
ROA	30	0.0041	0.0279	0.0155	0.0056
ROE	30	0.0185	0.2688	0.1452	0.0550
Valid N (listwise)	30				

(Source: Appendix II)

Table 4.3, shows the descriptive statistics table that presents a summary of key

characteristics for each variable in the dataset related to the NPLTLR, LLP, LDR, BS, ROA and ROE of development banks in Nepal.

The dataset's lowest level of observations is indicated by the non-performing loan to total loan ratio (NPLTLR), which has a minimum value of 0.0040. The non-performing loan to total loan ratio has a maximum value of 3.4300, indicating the greatest quantity of observations in the dataset. The average value of the ratio of non-performing loans to total loans is 0.7955, or the mean value of NPLTLR. The non-performing loan to total loan ratio's standard deviation, or the distribution of data points around the mean, is 0.8601.

The minimum value of the non-performing loan to total loan ratio (NPLTLR) is 0.0040, which indicates the lowest level of observations among the dataset. The maximum value of the non-performing loan to total loan ratio is 3.4300, which indicates the highest level of observations among the dataset. The mean value of NPLTLR is 0.7955, which represents the average value of the non-performing loan to total loan ratio. The standard deviation of the non-performing loan to total loan ratio is 0.8601, which represents the spread or dispersion of data points around the mean.

The loan loss provision (LLP) has a minimum value of 0.0384, signifying the dataset's lowest number of observations. The loan loss provision has a maximum value of 2.0559, indicating the greatest level of observations in the dataset. The average value of the loan loss provision is represented by the mean value, which is 0.5627. The spread or dispersion of data points around the mean is represented by the loan loss provisions standard deviation, which is at 0.6049.

The minimum value of the total loan to total deposit ratio (LDR) is 0.7674, which indicates the lowest level of observations among the dataset. The maximum value of the total loan to total deposit ratio (LDR) is 0.9907, which indicates the highest level of observations among the dataset. The mean value of the total loan to total deposit ratio is 0.8584, which represents the average value of the total loan to total deposit ratio. The standard deviation of the total loan to total deposit ratio is 0.0489, which represents the spread or dispersion of data points around the mean.

The minimum value of the bank size (BS) is 4.6124, which indicates the lowest level of observations among the dataset. The maximum value of the bank size is 131.6112, which indicates the highest level of observations among the dataset. The mean value

of bank size is 43.1048, which represents the average value of the bank size. The standard deviation of the bank size is 36.3364, which represents the spread or dispersion of data points around the mean.

The minimum value of the return on assets (ROA) is 0.0041, which indicates the lowest level of observations among the dataset. The maximum value of the return on assets is 0.0279, which indicates the highest level of observations among the dataset. The mean value of return on assets is 0.0155, which represents the average value of return on assets. The standard deviation of the return on assets is 0.0056, which represents the spread or dispersion of data points around the mean.

The minimum value of the return on equity (ROE) is 0.0185, which indicates the lowest level of observations among the dataset. The maximum value of the return on equity is 0.2688, which indicates the highest level of observations among the dataset. The mean value of return on equity is 0.1452, which represents the average value of return on equity. The standard deviation of the return on equity is 0.0550, which represents the spread or dispersion of data points around the mean.

4.1.2 Correlation analysis

Pearson Correlation analysis is used in research to determine the link between the many independent and dependent variables. One may calculate the linear correlation between any two variables. The link is positive in direction and rises in reaction to the other's increase when there is a positive correlation. Positive correlation indicates a decline in one while increasing in the other, whilst negative correlation shows the reverse. A statistical technique for analyzing the relationship between four variables is correlation analysis. The performance of development banks and non-performing loans are correlated, and the significance of this relationship is ascertained by correlation analysis.

Table 4.4

Correlation Analysis

		NPLTLR	LLP	LDR	BS	ROA	ROE
NPLTLR	Pearson Correlation	1					
LLP	Pearson Correlation	.375*	1				
LDR	Pearson Correlation	-0.292	0.128	1			
BS	Pearson Correlation	0.078	.896**	0.106	1		
ROA	Pearson Correlation	-.554**	-.679**	0.074	-.658**	1	
ROE	Pearson Correlation	-.499**	-0.208	0.175	-0.121	.690**	1
	N	30	30	30	30	30	30

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

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

(Source: Appendix III)

Table 4.4, represents the correlation analysis of non-performing loans and the profitability of development banks. The Pearson correlation coefficient of the non-performing loan to total loan ratio is negative i.e. - 0.554 and -0.499, which means the non-performing loan to total loan ratio is significant at 0.01 level of significance with return on assets and return on equity, thus there is a negative and significant relationship between the non-performing loan to total loan ratio and the profitability of development banks measured by return on assets and return on equity respectively. The Pearson correlation coefficient of the loan loss provision is negative i.e. - 0.679 and -0.208, which means the loan loss provision is significant at 0.01 level of significance with return on assets, thus there is a negative and significant relationship between the loan loss provision and return on assets but insignificant relationship with return on equity.

The Pearson correlation coefficient of the total loan to total deposit ratio (LDR) is positive i.e. 0.074 and 0.175, which means that there is a positive and insignificant

relationship between the total loan to total deposit ratio and the profitability of development banks. The Pearson correlation coefficient of the bank size is negative i.e. - 0.658 and -0.121, which means that the bank size is significant at 0.01 level of significance with return on assets, thus there is a negative and significant relationship between the bank size and return on assets but insignificant with return on equity.

4.1.3 Regression analysis with return on assets

A collection of statistical techniques called regression analysis is used to estimate the associations between a dependent variable and one or more independent variables. It may be used to simulate the future relationship between variables and evaluate how strongly the variables are related to one another. The study regards return on assets (ROA) as the dependent variable, while the independent factors are bank size, loan loss provision, total loan to total deposit ratio, and the percentage of non-performing loans to total loans.

1. Model summary

Table 4.5

Model Summary of ROA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.859[a]	0.738	0.696	0.00311

a. Predictors: (Constant), BS, NPLTLR, LDR, LLP

(Sources: Appendix IV)

Table 4.5, indicates the model summary of regression analysis. The strength of the linear link between the dependent and independent variables is indicated by the correlation coefficient, or R. The return on assets (ROA) multiple R is 0.859. The R square of return on assets is 0.738, meaning that independent factors such the non-performing loan to total loan ratio, loan loss provision, total loan to total deposit ratio, and bank size can account for 73.8 percent of the systematic variance in return on assets. The impact of additional factors accounts for the remaining proportion. The difference between the projected value of the dependent variable—the return on assets—and the actual value is reflected in the standard error of return on assets (ROA), which is at 0.00311. The number of observations in this study is 30.

2. ANOVA analysis

ANOVA (Analysis of Variance) in regression provides insights into the overall significance of the model and individual variables contributions. The following table shows the ANOVA analysis.

Table 4.6

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.001	4	0.000	17.573	.000[b]
	Residual	0.000	25	0.000		
	Total	0.001	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), BS, NPLTLR, LDR, LLP

(Sources: Appendix V)

Table 4.6, represents the ANOVA analysis, which shows the significance F of return on assets (ROA) is 0.000, the significance F value of return on assets is lower than the level of significance i.e. 0.05 it is concluded that there is a significant relationship between dependent variable i.e. return on assets and independent variables. The value of F of return on assets is 17.573, which is a measure used in the analysis of variance (ANOVA) and regression analysis to assess the significance of the difference between group means or the significance of the overall regression model.

3. Multiple regression coefficient

A statistical method for determining the association between one dependent variable and two or more independent variables is multiple linear regression analysis. Multiple predictors are used, which expands the capabilities of simple linear regression and allows the model to take into account more complicated data.

The multiple linear regression model can be represented as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

$$Y\ (ROA) = 0.036 - 0.005NLTLR + 0.007LLP - 0.013LDR + 0.000BS \ldots\ldots\ldots \text{(i)}$$

Where,

Y (ROA) = Return on assets as a dependent variable

β_0 = Intercept

$\beta_1 \ldots\ldots \beta_4$ = coefficient of independent variables

ϵ = Error term

Table 4.7

Regression Coefficients

Model		Unstandardised Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.036	0.012		2.921	0.007
	NPLTLR	-0.005	0.001	-0.777	-4.765	0.000
	LLP	0.007	0.003	0.767	2.193	0.038
	LDR	-0.013	0.014	-0.117	-0.984	0.335
	BS	0.000	0.000	-1.272	-4.025	0.000

a. Dependent Variable: ROA

(Source: Appendix VI)

Table 4.7, represents the regression analysis of ROA showing that some of them have positive and some of them have negative coefficients. The constant value of the regression line with return assets is 0.036. The non-performing loan to total loan ratio has a negative coefficient i.e. -0.005 and the p-value is 0.000 with return on assets. This indicates that the return on assets is negatively and statistically significantly influenced by the non-performing loan to total loan ratio. However, the regression coefficient of loan loss provision is 0.007 and the significance value is 0.038 which is less than the level of significance i.e. 0.05. This indicates that the loan loss provision has a positive and statistically significant impact on the performance of development banks measured by return on assets. The regression coefficient of the total loan to total deposit ratio is negative i.e. -0.013 and the significance value is more than the level of significance i.e. 0.335>0.05, this indicates that the total loan to total deposit ratio has a negative but not statistically significant impact on the performance of development banks i.e. return on assets. The negative but statistically insignificant impact of the total loan to total deposit ratio on the performance of development banks, measured by return on assets (ROA), could be due to several factors. These include a lack of variability in the loan-to-deposit ratio among sampled banks, unobserved factors influencing ROA, a small sample size limiting statistical power,

economic conditions, regulatory changes, differences in bank management practices creating data noise, and the analysis period not capturing long-term effects, as the relationship may vary across economic cycles. The regression coefficient and the significance value of bank size is 0.000 and 0.000 respectively, this indicates that the bank size has a positive and significant impact on the performance of development banks represented by return on assets.

The standard error shows the deviation between the actual value and the estimated value of dependent variables. The positive regression coefficient shows the positive relationship between dependent variables and independent variables which means if the value of independent variables increases the dependent variable value will also increase. However, the negative regression coefficient inverse relationship between dependent variables and independent variables.

4.1.4 Regression analysis with return on equity

One or more independent variables and a dependent variable can be related to one another using a set of statistical techniques called regression analysis. It may be used for modeling the future relationship between variables and evaluating the strength of the current link between them. The study regards return on equity (ROE) as the dependent variable, while the independent factors are bank size, loan loss provision, non-performing loans to total loan, and the ratio of total loans to total deposits.

1. Model summary

Table 4.8

Model Summary of ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.530[a]	0.281	0.166	0.05023

a. Predictors: (Constant), BS, NPLTLR, LDR, LLP

(Sources: Appendix VII)

Table 4.8, indicates the model summary of regression analysis. The strength of the linear link between the dependent and independent variables is indicated by the correlation coefficient, or R. Return on equity (ROE) has a multiple R of 0.530. The R square of return on equity is 0.281, meaning that independent factors such bank size, loan loss provision, non-performing loan to total loan ratio, and total loan to total

deposit ratio may account for 28.1 percent of the systematic variation in return on equity. The impact of additional factors accounts for the remaining proportion. The difference between the projected value of the dependent variable—the return on equity—and the actual value is reflected in the standard error of return on equity (ROE), which stands at 0.05023. The number of observations in this study is 30.

2. ANOVA analysis

ANOVA (Analysis of Variance) in regression provides insights into the overall significance of the model and individual variables contributions. The following table shows the ANOVA analysis.

Table 4.9

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.025	4	0.006	2.444	.073[b]
	Residual	0.063	25	0.003		
	Total	0.088	29			

a. Dependent Variable: ROE

b. Predictors: (Constant), BS, NPLTLR, LDR, LLP

(Sources: Appendix VIII)

Table 4.9, represents the ANOVA analysis which shows the significance F of return on equity (ROE) is 0.073, the significance F value of return on equity is higher than the level of significance i.e. 0.05 it is concluded that there is an insignificant relationship between dependent variable i.e. return on equity and independent variables. The value of F of return on equity is 2.444, which is a measure used in the analysis of variance (ANOVA) and regression analysis to assess the significance of the difference between group means or the significance of the overall regression model.

3. Multiple regression coefficient

Multiple linear regression analysis is a statistical technique used to understand the relationship between one dependent variable and two or more independent variables. It extends simple linear regression by allowing for multiple predictors, enabling the model to account for more complexity in the data.

The multiple linear regression model can be represented as;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$ ..... (i)

$Y\ (ROE) = 0.215 - 0.042NLTLR + 0.047LLP - 0.032LDR - 0.001BS$ ..... (i)

Where,

Y (ROE) = Return on Equity as a dependent variable

β_0 = Intercept

$\beta_1 \ldots\ldots \beta_4$ = coefficient of independent variables

ϵ = Error term

Table 4.10

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.215	0.197		1.089	0.287
	NPLTLR	-0.042	0.017	-0.662	-2.453	0.021
	LLP	0.047	0.053	0.522	0.903	0.375
	LDR	-0.032	0.221	-0.029	-0.146	0.885
	BS	-0.001	0.001	-0.534	-1.021	0.317

a. Dependent Variable: ROE

(Source: Appendix IX)

Table 4.10, the regression analysis of ROA shows that some of them have positive and some of them have negative coefficients. The constant value of the regression line with return equity is 0.215. The non-performing loan to total loan ratio has a negative coefficient i.e. -0.042 and the p-value is 0.021 with return on equity. This indicates that the return on equity is negatively and statistically significantly influenced by the non-performing loan to total loan ratio. However, the regression coefficient of loan loss provision is 0.047 and the significance value is 0.375 which is less than the level of significance i.e. 0.05. This indicates that the loan loss provision has a positive and statistically insignificant impact on the performance of development banks measured by return on equity. The positive but statistically insignificant impact of loan loss provisions on the return on equity (ROE) of development banks can be due to several

reasons. These include insufficient variability in provision levels among banks, unmeasured variables or external factors influencing ROE, a small sample size limiting statistical power, and variability introduced by economic conditions, regulatory changes, or differences in bank management practices. Additionally, the study's timeframe might not capture long-term effects, as the impact of loan loss provisions on ROE can vary across different economic conditions. The regression coefficient of the total loan to total deposit ratio is negative i.e. -0.032 and the significance value is more than the level of significance i.e. 0.885>0.05, this indicates that the total loan to total deposit ratio has a negative but not statistically significant impact on the performance of development banks i.e. return on equity. The negative but statistically insignificant impact of the total loan to total deposit ratio on the performance of development banks, measured by return on equity (ROE), could be due to several factors. These include a lack of variability in the loan-to-deposit ratio among sampled banks, unobserved factors influencing ROE, a small sample size limiting statistical power, economic conditions, regulatory changes, differences in bank management practices creating data noise, and the analysis period not capturing long-term effects, as the relationship may vary across economic cycles. The regression coefficient and the significance value of bank size are - 0.001 and 0.317 respectively, this indicates that the bank size has a negative and insignificant impact on the performance of development banks represented by return on equity. The negative but statistically insignificant impact of the bank size on the performance of development banks, measured by return on assets (ROE), could be due to several factors. These include a lack of variability in the bank size among sampled banks, unobserved factors influencing ROE, a small sample size limiting statistical power, economic conditions, regulatory changes, differences in bank management practices creating data noise, and the analysis period not capturing long-term effects, as the relationship may vary across economic cycles.

The standard error shows the deviation between the actual value and the estimated value of dependent variables. The positive regression coefficient shows the positive relationship between dependent variables and independent variables which means if the value of independent variables increases the dependent variable value will also increase. However, the negative regression coefficient inverse relationship between dependent variables and independent variables.

4.2 Discussions

The findings of the study are discussed below;

The return on assets and return on equity are negatively and statistically significantly influenced by the non-performing loan to total loan ratio. The non-performing loans have been found significantly negatively associated with return on equity in all three models. The result indicates that the nonperforming loans do decrease profitability in the context of Nepal. The results are consistent with prior expectations and support the finding of the study Achou and Tenguh (2008), Kargi (2011), Poudel (2012), and Gizaw, Kebede and Selvaraj (2015), Bhattarai, (2016), Kingu et al. (2018) and Nyarko-Baasi (2018), Bhattarai (2019) and Patwary and Tasneem, (2019). The result is contrary to the findings of Li and Zou (2014) and Alshatti (2015).

The return on assets and return on equity are negatively and statistically significantly influenced by the non-performing loan to total loan ratio. The study's conclusions contradict those of Sharma (2024) and Amalia (2021), who found that non-performing loans increased return on assets. The results corroborate Sharma's (2024) findings, which show that non-performing loans have a detrimental effect on return on equity. This result conflicts with Nedelescu and Ciulei's findings (2022). The study's findings are consistent with those of Reshmi (2023), who found that while non-performing loans (NPLs) had a little effect on the return on total assets of Nepalese development banks, they have a major impact on the banks' return on equity. The study performed by Gnawali (2018) and Pant (2018) on the effect of non-performing loans (NPLs) on the profitability of commercial banks in Nepal is consistent with the negative impact of NPLs on return on equity (ROE). The findings of earlier studies, such as those by Claudine (2008), Kargi (2011), and Selvaraj et al. (2015), who discovered a negative impact of NPLs on the return on assets, are in direct opposition to the ludicrous positive relationship between NPLs and the return on assets. Nonetheless, the outcome is consistent with the research conducted by Alshatti (2015) and Li and Zou (2014), who discovered that nonperforming loans had a beneficial impact on banks' financial performance.

This indicates that the loan loss provision has a positive and statistically significant impact on the return on assets but an insignificant impact on the return on equity. The study's conclusions contradict those of Sharma (2024), who found that the loan loss

provision increased return on assets. This result runs counter to Mennawi's results (2020). In a similar vein, the loan loss provision's beta coefficients decrease with return on equity. This result is consistent with Quoc and Tang's findings (2022). The study's findings conflict with those of Reshmi (2023), who found that loan loss provision had a negative correlation with Nepalese banks' profitability (as determined by ROA and ROE). This suggests that more loan loss provision lowers a bank's profitability. This finding is consistent with the finding of Aziz et al. (2014) who studied the impact of loan loss provision on bank profitability in Pakistan. Similar is the result of Alhadab and Alsahawneh (2014) who studied the impact of loan loss provision on the profitability of commercial banks in Jordan.

The total loan to total deposit ratio has a negative but not statistically significant impact on the performance of development banks. There is a return on assets and a negative loan-to-deposit ratio. It suggests that the return on assets is negatively impacted by the loan-to-deposit ratio. This result conflicts with the result of Jibreel et al. (2022). In relation to return on equity, the beta coefficients for a loan-to-deposit ratio are negative. It suggests that the return on equity is negatively impacted by the loan to deposit ratio. This result is in line with the findings of Lawal et al. (2022). The study's findings refute the statistically significant conclusions of Reshmi (2023), Rengasamy (2014), Pradhan (2016), Anggari and Dana (2018), and Gnawali (2018) that the loan-to-deposit ratio positively affects Nepalese development banks' return on assets (ROA). The finding aligns with the findings of Pant (2018).

The bank size has a positive and significant impact on the performance of development banks represented by return on assets. However, the bank size has a negative and insignificant impact on the performance of development banks represented by return on equity. The result of this study is consistent with the findings of Bhattarai (2020), Demnirguc-Kunt and Huizinga (2000), and Nyarko-Baasi (2018) that size has a significant and positive effect on profitability. It shows that size has a positive role play to increasing profitability.

CHAPTER V

SUMMARY AND CONCLUSION

The summary, conclusions, and practical suggestions have all been included in this chapter. This serves as both a concise overview of each research chapter and a comprehensive synopsis of the pertinent data analysis. A study wouldn't be complete without any suggestive findings, so in an effort to provide guidance for future development and enhancement of the loan policy, the study has also attempted to identify non-performing loans and loan loss provisions, along with the corrective recommendations for their removal.

5.1 Summary

The primary duties of banks and other financial organizations are deposit collection and loan and advance making. The bank incurs costs while collecting deposits since it must pay interest to depositors. Banks earn interest on the money they receive as deposits when it is converted into loans and advances. Banks must use their little interest spread during this transition period to cover their operating costs, bad loan charges, and low profit margins. The borrowers must make timely principle and interest payments on their loans according to the prearranged timetable in order to pay the interest to the depositors and cover their withdrawals. Banks need to hold all of the loans as performing assets, or quality loans, in order to disrupt this system. Almost all of a bank's and financial institution's financial assets should be performing assets, or quality loans. Performing assets are advances and loans that are good. In order to maintain soundness, sustainability, profitability, and systemic health, banks and other financial institutions always strive to have almost all of their financial assets as performing assets. Unfavorable internal economic shocks and other disparities can occasionally have an impact on these assets' quality. Non-performing assets and loans are the result of declining quality in other assets, which eventually triggers a financial crisis.

To deal with these financial issues and solve the financial problems, this study aimed to examine the relationship between non-performing loans and the profitability of development banks and also assess the impact of non-performing loans on the profitability of development banks. While analyzing the non-performing loans on the profitability of development banks, some brief journals, articles and thesis reviews

were performed. To find out the impact of non-performing loans on the profitability of development banks descriptive and causal research designs were used in this study. Currently, 17 development banks are operating in Nepal out of them three banks were selected as a sample using a random sampling technique. The secondary data used in this study is available in the development bank's annual reports posted on the selected bank's websites. This study covers only ten years of data starting from 2013/2014 to 2022/2023. The collected information and numerical data have been analyzing by using SPSS 27.0 version software and various statistical tools such as descriptive statistics, correlation analysis, ANOVA and multiple linear regression analysis and tables were used to show the data and result clearly. The non-performing loan to total loan ratio, loan loss provision, total loan to total deposit ratio and bank size were selected as independent variables whereas, return on assets and return on equity were the dependent variables.

From the regression analysis, the value of the R square of return on assets is 0.738 which indicates that 73.8% of the systematic variation in return on assets can be explained by independent variables such as non-performing loan to total loan ratio, loan loss provision, total loan to total deposit ratio and bank size. The remaining percentage is due to the effect of other factors. The value of the R square of return on equity is 0.281 which indicates that 28.1% of the systematic variation in return on equity can be explained by independent variables such as non-performing loan-to-total loan ratio, loan loss provision, total loan-to-total deposit ratio and bank size. The remaining percentage is due to the effect of other factors. The return on assets and return on equity are negatively and statistically significantly influenced by the non-performing loan to total loan ratio. The loan loss provision has a positive and statistically significant impact on the return on assets but an insignificant impact on the return on equity. The total loan to total deposit ratio has a negative but not statistically significant impact on the performance of development banks. The bank size has a positive and significant impact on the performance of development banks represented by return on assets. However, the bank size has a negative and insignificant impact on the performance of development banks represented by return on equity.

5.2 Conclusion

The study reveals that the non-performing loan (NPL) to total loan ratio negatively and significantly impacts both return on assets (ROA) and return on equity (ROE) in banks. High levels of NPLs indicate greater credit risk and potential losses, adversely affecting banks' profitability and financial health. Specifically, a higher NPL ratio reduces the efficiency of asset utilization, leading to lower ROA, and compromises shareholders' returns, resulting in lower ROE. This underscores the importance of rigorous credit risk management to mitigate the negative effects of non-performing loans and maintain financial performance. The impact of loan loss provisions (LLPs) on bank performance shows a positive and statistically significant effect on ROA, while its effect on ROE is statistically insignificant. Higher LLPs suggest that banks are better prepared to absorb potential losses from non-performing loans, enhancing asset-based profitability. However, the lack of significant impact on ROE implies that LLPs do not directly influence shareholder returns, possibly due to the complex nature of equity returns influenced by various factors beyond LLPs alone.

The total loan to total deposit (LTD) ratio exhibits a negative but not statistically significant impact on the performance of development banks. This suggests that higher LTD ratios, indicating a higher proportion of loans relative to deposits, do not have a discernible effect on development banks' financial performance in this study. The insignificance of this relationship highlights that other factors may play a more critical role, emphasizing the need for a holistic approach to assess the financial health and performance of development banks. Bank size shows a positive and statistically significant impact on ROA but a negative and statistically insignificant impact on ROE. Larger development banks benefit from economies of scale, improved resource allocation, and operational efficiencies, leading to higher ROA. However, the negative and insignificant impact on ROE indicates that while larger banks excel in asset performance, this does not necessarily translate to better returns for shareholders, possibly due to increased complexities and higher overhead costs. Future research should explore the mechanisms through which bank size affects various performance aspects and strategies for balancing asset and equity returns.

5.3 Implications

Based on findings and analysis following recommendations are proposed for both banksto perform better;

- In order to limit non-performing loans, implement strict credit risk assessment and monitoring procedures. You should also build comprehensive methods for early detection and resolution of prospective loan defaults in order to lower the ratio of non-performing loans to total loans.
- Sustain sufficient loan loss provisions in order to mitigate the risk of future loan defaults and maximize asset return. Make that provisioning rules are in line with industry best practices by periodically reviewing and adjusting them to suit the current risk environment.
- The ratio of total loans to total deposits was not shown to have a substantial effect on performance; nonetheless, careful management of this ratio is necessary to preserve liquidity and sound financial standing. Investigate methods for striking a balance between deposit mobilization and loan expansion to guarantee long-term financial operations.
- Utilize the benefits of larger bank size to improve operational efficiencies and asset utilization, thereby enhancing return on assets. Focus on scaling up operations in a manner that maximizes resource allocation and minimizes costs.
- Development banks should investigate alternative factors impacting equity returns, such as cost management, income diversification, and investment strategies, as bank size does not significantly affect return on equity. Create and put into action plans that are expressly designed to increase shareholder returns, such as sensible capital allocation and efficient risk management.
- Engage with policymakers and regulators to create a favourable operating environment that supports the unique needs of development banks. Advocate for regulations that encourage sustainable growth and provide flexibility in managing loan loss provisions and credit risk.
- This study only focused on three samples further researcher can enhance their sample size to find a better result.

- This study investigates only non-performing loan to total loan ratio, loan loss provision, total loan to total deposit ratio and bank size as independent variables and return on assets and return on equity were the indicators of profitability of development banks. Further researcher used these variables and also add more independent and dependent variables for their research.

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APPENDICES

Appendix I

Raw Data

(Amount in Billion)

Year	Bikas Banks	NPLTLR	LLP	LDR	BS	ROA	ROE
2013/2014	Garima	0.12	0.0384	0.8612	4.6124	0.0226	0.199
2014/2015	Garima	0.29	0.0657	0.8655	7.4524	0.0194	0.1481
2015/2016	Garima	0.31	0.0983	0.8677	10.5788	0.0210	0.1847
2016/2017	Garima	0.24	0.1558	0.8951	17.6949	0.0197	0.1223
2017/2018	Garima	0.27	0.2321	0.8883	25.2865	0.0186	0.1422
2018/2019	Garima	0.2	0.3287	0.8583	38.7491	0.0153	0.1568
2019/2020	Garima	0.79	0.1151	0.7777	50.2936	0.0115	0.1328
2020/2021	Garima	0.72	0.9732	0.8204	72.9476	0.0115	0.1564
2021/2022	Garima	0.85	1.2172	0.8531	80.0305	0.0129	0.1561
2022/2023	Garima	1.75	1.6434	0.8289	89.1628	0.0142	0.1621
2013/2014	Jyoti	2.67	0.1233	0.8065	6.1948	0.0101	0.0694
2014/2015	Jyoti	1.98	0.1111	0.7827	7.4231	0.0139	0.1024
2015/2016	Jyoti	2.39	0.1179	0.7674	8.9179	0.0170	0.1313
2016/2017	Jyoti	0.96	0.1615	0.8536	13.1884	0.0173	0.0895
2017/2018	Jyoti	0.4	0.2230	0.8120	23.3468	0.0127	0.1029
2018/2019	Jyoti	0.54	0.3630	0.9907	36.4599	0.0146	0.1326
2019/2020	Jyoti	0.92	0.5238	0.8512	42.3611	0.0115	0.1084
2020/2021	Jyoti	0.84	0.9473	0.9251	59.8790	0.0111	0.1266
2021/2022	Jyoti	1.47	1.1092	0.9471	71.4079	0.0094	0.1189
2022/2023	Jyoti	3.43	2.0559	0.8810	72.7860	0.0041	0.0522
2013/2014	Muktinath	0.45	0.0633	0.8422	6.0294	0.0252	0.2549
2014/2015	Muktinath	0.19	0.0784	0.8514	9.0005	0.0242	0.2239
2015/2016	Muktinath	0.09	0.1062	0.8689	12.9368	0.0279	0.2688
2016/2017	Muktinath	0.02	0.1570	0.9037	19.5923	0.0249	0.2127
2017/2018	Muktinath	0.004	0.2570	0.8237	34.6493	0.0166	0.0185
2018/2019	Muktinath	0.07	0.4031	0.9198	51.9914	0.0165	0.1924
2019/2020	Muktinath	0.46	0.7199	0.8422	66.3481	0.0107	0.1216
2020/2021	Muktinath	0.25	1.2152	0.8792	101.1268	0.0114	0.1694
2021/2022	Muktinath	0.21	1.2899	0.8554	121.0835	0.0111	0.1661
2022/2023	Muktinath	0.98	1.9886	0.8329	131.6112	0.0095	0.1333

Appendix II

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPLTLR	30	0.0040	3.4300	0.7955	0.8601
LLP	30	0.0384	2.0559	0.5627	0.6049
LDR	30	0.7674	0.9907	0.8584	0.0489
BS	30	4.6124	131.6112	43.1048	36.3364
ROA	30	0.0041	0.0279	0.0155	0.0056
ROE	30	0.0185	0.2688	0.1452	0.0550
Valid N (listwise)	30				

Appendix III

Correlation Analysis

		NPLTLR	LLP	LDR	BS	ROA	ROE
NPLTLR	Pearson Correlation	1					
LLP	Pearson Correlation	.375*	1				
LDR	Pearson Correlation	-0.292	0.128	1			
BS	Pearson Correlation	0.078	.896**	0.106	1		
ROA	Pearson Correlation	-.554**	-.679**	0.074	-.658**	1	
ROE	Pearson Correlation	-.499**	-0.208	0.175	-0.121	.690**	1
	N	30	30	30	30	30	30

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

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

Regression Analysis of ROA

Appendix IV

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.859[a]	0.738	0.696	0.00311

a. Predictors: (Constant), BS, NPLTLR, LDR, LLP

Appendix V

ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.001	4	0.000	17.573	.000[b]
	Residual	0.000	25	0.000		
	Total	0.001	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), BS, NPLTLR, LDR, LLP

Appendix VI

Regression Coefficient of ROA

Model		Unstandardised Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.036	0.012		2.921	0.007
	NPLTLR	-0.005	0.001	-0.777	-4.765	0.000
	LLP	0.007	0.003	0.767	2.193	0.038
	LDR	-0.013	0.014	-0.117	-0.984	0.335
	BS	0.000	0.000	-1.272	-4.025	0.000

a. Dependent Variable: ROA

Regression Analysis of ROE

Appendix VII

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.530[a]	0.281	0.166	0.05023

a. Predictors: (Constant), BS, NPLTLR, LDR, LLP

Appendix VIII

ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.025	4	0.006	2.444	.073[b]
	Residual	0.063	25	0.003		
	Total	0.088	29			

a. Dependent Variable: ROE

b. Predictors: (Constant), BS, NPLTLR, LDR, LLP

Appendix IX

Regression Coefficient of ROE

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.215	0.197		1.089	0.287
	NPLTLR	-0.042	0.017	-0.662	-2.453	0.021
	LLP	0.047	0.053	0.522	0.903	0.375
	LDR	-0.032	0.221	-0.029	-0.146	0.885
	BS	-0.001	0.001	-0.534	-1.021	0.317

a. Dependent Variable: ROE

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