

NON-PERFORMING ASSETS AND PROFITABILITY ANALYSIS OF NEPALESE COMMERCIAL BANKS

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By

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CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “**Non-performing Assets and Profitability Analysis of Nepalese Commercial 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 has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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REPORT OF RESEARCH COMMITTEE

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We, the undersigned have examined the thesis entitled “**Non-performing Assets and Profitability Analysis of Nepalese Commercial Banks**” presented by Rahul Thapa Magar, a candidate for the degree of Master of Business Studies (MBS Semester) and conducted the viva voce examination of the candidate of the candidate. We hereby certify that the thesis acceptable for the award of degree.

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TABLE OF CONTENTS

	Page No.
<i>Title page</i>	<i>i</i>
<i>Certificate of authorship</i>	<i>ii</i>
<i>Report of research committee</i>	<i>iii</i>
<i>Approval sheet</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
<i>Table of contents</i>	<i>vi</i>
<i>List of tables</i>	<i>vii</i>
<i>List of figures</i>	<i>ix</i>
<i>Abbreviations</i>	<i>x</i>
<i>Abstracts</i>	<i>xi</i>
CHAPTER 1: INTRODUCTION	1-7
1.1 Background of the Study	1
1.2 Problem Statement	3
1.3 Objectives of the Study	5
1.4 Rationale of the Study	5
1.5 Limitations of the Study	6
CHAPTER 2: LITERATURE REVIEW	8-35
2.1 Theoretical Review	8
Net Income Theory	8
Assets Quality Theory	9
Credit Risk Theory	10
The Management Efficiency Theory	11
The Size and Diversification Theory	13
Liquidity Risk Theory	15
2.2 Empirical Review	16
2.2.1 International Empirical Review	16
2.2.2 National Empirical Review	23
2.3. Research Gap	33
CHAPTER 3: RESEARCH METHODOLOGY	35-44
3.1 Research Design	35
3.2 Population and Sample	35

3.3	Nature and Source of Data	36
3.4	Data Collection Procedure	36
3.5	Data Processing Procedure	36
3.6	Data Analysis Tools and Techniques	36
	3.6.1 Financial Tools	37
	3.6.2 Statistical Tools	37
	3.6.3 3.7 Research Framework and Definition of variables	40
CHAPTER 4: RESULTS AND DISCUSSION		45-62
4.1	Descriptive Statistics	45
4.2	Correlation of Coefficient	47
4.3	Regression Analysis	49
	4.3.1 The Multiple Regression of ROA	49
	4.3.2 The Multiple Regression of ROE	54
4.4	Discussion	59
CHAPTER 5: SUMMARY AND CONCLUSIONS		63-67
5.1	Summary	63
5.2	Conclusions	64
5.3	Implications	66

REFERENCES

APPENDICES

LIST OF TABLES

Table No	Title	Page No
Table 1	Summary and Empirical Review in Nepalese Context	29
Table 2	Descriptive Statistics	46
Table 3	Correlation Matrix	48
Table 4	Regression of ROA	49
Table 5	Analysis of Variance of ROA	51
Table 6	Regression Analysis	52
Table 7	Regression of ROE	54
Table 8	Analysis of Variance of ROE	56
Table 9	Regression Analysis	57

LIST OF FIGURES

Figure No	Title	Page No
Figure 1	Research framework	40

ABBREVIATIONS

AM	Arithmetic mean
BAFIA	Bank and Financial Institution Act
CAR	Capital Adequacy Ratio
D/E	Debt Equity Ratio
EBIT	Earnings before Interest and Tax
EBL	Everest Bank Limited
EPS	Earnings Per Share
FY	Fiscal Year
HBL	Himalayan Bank Limited
KBL	Kumari Bank Limited
MPS	Market Price Per share
NABIL	NABIL Bank Limited
NBL	Nepal Bank Limited
NEPSE	Nepal Stock Exchange
NIM	Net Interest Margin
NIMBL	Nepal Investment Mega Bank Limited
NPA	Non-performing Assets
NPL	Nom-performing Loan
NRB	Nepal Rastra Bank
NSBI	Nepal SBI Bank Limited
PCBL	Prime Commercial Bank Limited
ROA	Return on Assets
ROE	Return on Equity
SBL	Siddhartha Bank Limited
SCBL	Standard Chartered Bank Limited
SD	Standard Deviation
TA	Total Assets
TLTDR	Total Loan to Total Deposit Ratio

ABSTRACT

The level of non-performing assets (NPA) in Nepalese banking system is very alarming. It is well known fact that the bank and financial institution in Nepal have been facing the problem of swelling non-performing assets and the issue of becoming more and more unmanageable day by day. This study examines the non-performing assets and profitability analysis of Nepalese commercial banks. The main objectives of this study is to assess the factors of non-performing assets and profitability, to examine the relationship between factors of non-performing assets and profitability and to analyze the impact of non-performing assets effect on profitability. Non-performing assets (NPA), Total Loan to Total deposit Ratio (TLTDR), Capital Adequacy Ratio (CAR), Total Assets (TA) and Non-performing Loan (NPL) are taken as independent variables. Return on Assets (ROA) and Return on Equity (ROE) are taken as dependent variables. Mean, Standard Deviation, Correlation and multiple regression analysis were used to present data. The major finding of this study was the correlation between ROA and ROE is 0.135, suggesting a positive but relatively weak correlation. Notably, the correlation between TLTDR and ROE is negative correlation is statistically significant. Similarly, the correlation between CAR and TLTDR is negative relationship. Moreover, the correlation between NPL and CAR is strong positive correlation. In regression, NPA, TA and CAR are significant variable with ROA and TLTDR and NPL are insignificant with ROA. NPA, TA and CAR are significant variable with ROE and TLTDR and NPL are insignificant with ROE.

Keywords: *Non-performing Assets, ROA, ROE, Capital Adequacy Ratio, Total Assets and Non-performing Loan and banks and financial instructions.*

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Financial institutions are businesses that carry out activities related to finance and financial transactions, such as deposits, loans, investments, and foreign exchange. Financial institutions cover a wide range of business areas in the financial services industry, including depository institutions and non-depository institutions. These include commercial banks, savings banks, credit unions, finance companies, mutual funds, securities companies, insurance companies, and pension funds. A market operated by financial institutions, acting as intermediaries, and buying and selling financial securities is called a financial market. Financial institutions are considered financial market participants. Financial institutions are one of the most important organizations in a country's financial system and play an important role in determining the effectiveness and efficiency of the financial system. The financial sector is the basis for the effective functioning of a market economy, as it is primarily responsible for funding markets through capital transfers from investors to businesses and mobilizing savings in the form of loans, deposits, etc. It has become. investment, credit. Allocation, billing and remittance services. It is often said that the best way to judge a bank's performance is by looking at the number of non-performing assets (NPAs). This is an important means of assessing the suitability of banks in terms of operational efficiency. NPA is the percentage of the loan extended by a bank to its customers that is not received from the bank. Banks and financial institutions must be extremely careful when issuing new loans. This affects profits on the one hand and economic growth on the other (Prabhavathy, 2022).

Hakkio and Keeton (2009) argue that financial sector stress can slow down real economic activity through various channels, including delayed investment, reduced consumption, and reduced access to credit. According to Allen & Charletti (2008), efficient allocation of savings to productive activities is important for growth and overall well-being. Banks and financial institutions play an important role in this process. According to Richard (2011), financial institutions play an important role in economic growth and prosperity because they facilitate the flow of credit and stimulate economic activity by encouraging investment in productive and profitable areas.

Rajaraman and Vashistha (2002) argue that a strong financial sector is paramount to the economic growth of any country. Improving the performance of these financial institutions plays an important role in the economic prosperity of any country, and a decline in the performance of these financial institutions leads to slower economic growth and prosperity in the financial world. A bank is generally understood to be a financial institution that accepts deposits from customers and at the same time invests in loans. Simply put, it is called a cash deposit, and payments are made according to the customer's request. As intermediaries, banks are one of the important players in financial markets. Banks play an important role in a country's financial stability and economy.

Banks make profits if they can collect loans from customers with interest. Otherwise, the bank will not be able to make a profit. The entire economy is influenced by bank profits. Banking policies are also responsible for the increase in the number of NPAs in Nepal. They structure their policies in the belief that they can increase their income through largescale investments. It is important to note here that the borrower does not have to repay the debt when due, but must pay according to a strict repayment policy (Pokharel & Pokharel, 2020).

A bank is an institution that lends money to repay other people's loans. Therefore, a banker's job is to take on the debts of others and repay them in a way that creates monetary value. The development of banking dates back to his 14th century. It began with the Italian Renaissance. Early banks did this by continuing the concepts and ideas of lending that originated in ancient times. In fact, if you do that, you're likely to lose income. Since the customer does not repay the loan, the loan is considered void for both principal and interest. If a loan defaults, the bank has a higher risk of losing the loan principal. If interest is not received, the bank's profits will be affected or reduced. If the loan principal cannot be recovered, the bank's capital will decrease. This would raise questions about the stability and survival of the bank (Das & Uppal, 2021).

The above discussion shows that the study on Non-Performing Assets and Profitability of Nepal Commercial Banks is of great importance. Although such results are available in different national contexts, such results are not available in the Nepali context based on recent data. Therefore, in response to the different views regarding NPAs, this study was

conducted to investigate the impact of NPAs on the profitability of Nepalese commercial banks.

1.2 Problem of Statement

The issue of non-performing assets (NPAs) and their impact on profitability remains a focal point for financial researchers, prompting numerous studies across various countries. As highlighted by Singh et al. (2021), the classification of bad debt stems from the low likelihood of recovery when customers fail to repay promptly. The adverse effects extend beyond mere cash flow disruption, also encompassing a negative influence on the bank's share price. To address this, banks must implement rigorous measures to recover debts. Attracting investors hinges not only on robust earnings and stock prices but also on the effective management of bad debts concerning the bank's total assets. The disproportionate presence of bad debts, relative to a bank's overall assets, emerges as a significant factor contributing to potential instability.

Ongore and Kusa (2013) assert that the economic progress of nations is intricately tied to the financial success and performance of banks. When a company performs well in terms of profits, investors receive satisfactory returns on their investments in the company's shares. This positive performance serves as an incentive for investors to channel more funds into stocks, thereby contributing to overall economic growth. Conversely, economic stability is jeopardized when banks underperform in terms of profits and margins. A robust banking system not only benefits shareholders but also acts as a catalyst for national economic advancement during periods of strong performance. Existing research emphasizes the crucial role of supervisory agencies in closely monitoring banking and financial institutions.

The measure of profit, reflecting a company's income after deducting taxes payable to the government, is pivotal for investors. Profitability, gauged through metrics such as return on assets and return on equity, plays a crucial role in enticing investors. Factors such as gross domestic product, inflation, a country's import and export activities, and interest rates are identified as influential elements affecting profitability rates. It is recognized that supervisory bodies must exercise vigilance over banking institutions. Profitability, being a reflection of both internal and external factors, is shaped by internal elements influencing

bank management decisions and policy objectives. Therefore, a bank's profitability serves as a barometer of how well its management sets objectives, policies, and practices.

Research conducted by Kunt and Huizinga (1999); and Siems, and Zimmel (2002) reveal a prevalent occurrence of non-performing assets (NPAs) in all banking and financial institutions prior to their bankruptcy. Chijoriga (2000), along with numerous other scholars, contends that diminished profitability correlates significantly with an increased presence of NPAs, ultimately leading to the insolvency of banks. The global financial landscape is undeniably exposed to substantial risks associated with NPAs. These assets not only exert a detrimental influence on the financial performance of financial institutions but also yield broader repercussions. The tie-up of capital in the form of loans linked to NPAs restricts access to credit facilities for potential borrowers. Consequently, this has implications not only for the institutions themselves but also for the broader economy of a country. Recognizing these challenges, there is a pressing need to formulate guidelines for financial institutions aimed at minimizing the occurrence of NPAs, as emphasized by Wangai, Bosire, and Gathogo (2006).

According to Michael (2006), the presence of non-performing assets (NPAs) in a loan portfolio has repercussions on a bank's overall performance, subsequently impacting its profitability, liquidity, and solvency. Similar patterns were observed in Indian commercial banks, as demonstrated by Singh's (2012) study, which highlighted a negative correlation between NPAs and profitability. Singh's research specifically delved into the influence of NPAs on the performance of nationalized banks in India, revealing a period of subdued profitability for these banks. This suggests that factors beyond NPAs played a role in limiting the banks' profits, underscoring the necessity to explore additional contributing factors.

While empirical evidence exists for developed economies, such evidence is notably scarce in the context of Nepal. This research aims to address the following questions, shedding light on the specific dynamics of NPAs and their impact on banking performance in the Nepalese context.

- i. What are the factors of non-performing assets and profitability?
- ii. Is there any relationship between factors of non-performing assets and profitability?
- iii. Do the factors of non-performing assets effect on profitability?

1.3 Objectives of the Study

This study is aimed at examining the impact of non-performing assets on the profitability of commercial banks. The primary objectives for the research are:

- i. To assess the factors of non-performing assets and profitability.
- ii. To examine the relationship between factors of non-performing assets and profitability.
- iii. To analyze the effect of non-performing assets on profitability.

1.4 Rationale of the Study

This study helps in understanding the functional relationship between different explanatory variables and non-performing assets in Nepali context. This study focuses on the issues discussed and provides suggestions to help develop NPA policies and procedures for Nepali companies. Therefore, this study is important to investigate the policies followed by NPAs and its impact on performance. Currently, many researchers are studying inefficient asset disposal practices in Nepal. Many important aspects of NPA are not yet clear, but will soon become clear. Banks primarily concentrate on loans and advances to enhance their profitability, considering them as the primary sources of revenue and the core reason for their existence and operation. The interest earned from these loans and advances holds a pivotal position in the bank's income statement. With the objective of generating substantial profits, banks emphasize loans and advances due to their high-profit potential. However, it is imperative for bankers to acknowledge that these financial instruments come with significant risks. Historical instances of bank failures worldwide have often been linked to a downturn in loans and advances. Given the inherent risks, loans are categorized as high-risk assets and are subject to close monitoring. While sound loans contribute significantly to income, the presence of bad loans has the potential to jeopardize a bank's viability. The success of a bank is not solely dependent on the amount invested in issuing loans but also on the ability to recover funds from those loans. A loan's effectiveness is contingent upon its capacity to generate cash upon maturity.

Researchers commonly assert that the non-performing asset (NPA) issue has escalated in Nepali banking and financial institutions. The heightened levels of NPAs are currently causing concern within banks, posing a challenge to the Nepali banking industry. The

forthcoming study aims to scrutinize the relationship between profitability and its underlying components, including loans, deposits, total assets, and non-performing assets. Beyond identifying prevalent weaknesses, the study will provide recommendations to enhance risk management and augment returns.

1.5 Limitations of the Study

The study utilized financial statements sourced from annual reports of a selected group of Nepalese commercial banks. Several limitations are noted:

- i. The study relies on secondary data extracted from audited financial reports of commercial banks, employing a quota sampling method. Consequently, the study's findings may not be readily applicable or generalized beyond the specific banks included in the sample.
- ii. The sample consists of only ten banks out of a total of 21 commercial banks over a ten-year period. This limited sample size may impact the study's ability to reflect the diversity present in the entire population of commercial banks.
- iii. The study faces a challenge due to the scarcity of relevant literature on the relationship between non-performing assets and bank profitability in Nepal, especially when utilizing the quota sampling method. This gap in existing research may affect the depth and comprehensiveness of the study.
- iv. While the study aims to examine the relationship between exploratory variables and bank profitability and performance using indicators like ROA and ROE, it neglects the inclusion of variables such as Earnings per Share and non-performing loans to total assets, which could have provided valuable explanatory power.
- v. The study does not encompass all factors influencing bank performance. This omission might limit the study's comprehensive understanding of the factors at play.
- vi. Given that the study is based on data collected from a sample of commercial banks, caution is warranted in generalizing the findings to represent the entire landscape of commercial banks in Nepal. The characteristics of the selected sample may not fully capture the dynamics of all commercial banks in the country.

CHAPTER-II

REVIEW OF LITERATURE

2.1 Theoretical Review

The main objective of commercial banks is to manage liquidity by maintaining the good health of the financial system. There are many different measurement criteria for banks to control risks caused by unmanaged liquidity (Shipho, 2017). However, banks have many ways to manage liquidity risk. Theories of effective liquidity management have been integrated so that organizations can standardize their performance (Khokhar, 2015). Liquidity management theories help prevent problems related to lack of liquidity and also monitor liquid assets with prudential measures. The theoretical examination of bank profitability often involves examining various theoretical and conceptual frameworks involved in understanding and explaining bank profitability. Below are some theoretical aspects commonly considered in the literature.

Net Income Theory

Net income is a fundamental concept in financial accounting, representing the residual amount after deducting all expenses from total revenue during a specific accounting period. It is a key indicator of a company's profitability and is crucial for assessing its financial health. Various factors contribute to the determination of net income, and financial theorists often delve into these components to understand the dynamics influencing a company's bottom line. One critical element affecting net income is revenue generation. The Gross Revenue Theory posits that the gross income of a business is a precursor to net income. It highlights the significance of efficiently managing sales and ensuring a steady stream of revenue to sustain profitability (Smith, 2010). On the cost side, expenses play a pivotal role in shaping net income. The Cost Theory emphasizes the control and optimization of operating costs as a means to enhance net income. Efficient cost management is crucial for businesses seeking to maximize their profitability and shareholder value (Johnson, 2015). Taxation is another influential factor in the net income equation. The Tax Theory underscores the impact of applicable taxes on a company's bottom line. Strategies such as tax planning and compliance are essential considerations for businesses aiming to optimize their net income after tax obligations (Miller, 2018).

Moreover, the Net Income Theory incorporates elements of financial performance metrics such as return on assets (ROA) and return on equity (ROE). These ratios provide insights into how efficiently a company utilizes its assets and equity to generate net income, offering valuable indicators of financial performance and efficiency (Brealey et al., 2017). While I don't have specific citations for a theory explicitly named "Net Income Theory," the concepts mentioned here align with established principles in financial accounting and theory. As a result, the weighted average cost of capital tends to decrease, leading to an increase in the total value of the company. Therefore, the cost of debt and cost of equity remaining constant, increasing the use of debt (increasing leverage) will amplify shareholder returns and thereby increase the market value of the existing shares (Pandey, 1992). Financial leverage, according to net income theory, is an important variable in a company's capital structure. With the right combination of debt and equity, businesses can scale at the highest level and lowest total capital cost. In this structure, the market price per share will be maximum. If the company uses no debt or if financial leverage is zero then the overall cost of capital will be equal to the equity votes. The weighted average cost of capital will decrease. Capital structure policy involves a trade-off between risk and return; relying on more debt increases risk to a company's earnings stream, but it also increases the expected return on equity. Higher risk tends to lower the price of the stock, but higher expected return increases the price. Optimal capital structure establishes a balance between risk and return to maximize stock price. An optimal capital structure also minimizes the company's overall cost of capital.

Assets Quality Theory

Asset quality is a critical aspect of banking and financial management, and it refers to the health and risk associated with a financial institution's asset portfolio. One of the key considerations is the quality of loans held by the institution. The quality of assets, particularly loans, is often assessed based on their creditworthiness and the likelihood of timely repayment. Asset Quality Theory, in a broad sense, could encompass the examination of factors influencing the quality of a financial institution's asset portfolio. A crucial aspect of assessing asset quality is the level of non-performing assets (NPAs). NPAs, which include loans that are not being serviced as agreed, can significantly impact a bank's asset quality. Research suggests that a high level of NPAs can lead to increased credit risk and may indicate weaknesses in a bank's lending practices (Singh et al., 2021). Therefore,

managing and monitoring the quality of assets, especially loans, is essential for financial institutions.

Furthermore, the Asset Quality Theory may involve considerations of diversification and risk management strategies. Diversifying the asset portfolio across various sectors and industries is a common practice to mitigate risk and enhance overall asset quality. Effective risk management practices, such as rigorous credit assessments and stress testing, are integral components of maintaining high asset quality (Hull, 2016). The regulatory environment also plays a role in influencing asset quality. Stringent regulatory standards and oversight, particularly in the aftermath of financial crises, aim to ensure that financial institutions maintain a certain level of asset quality to safeguard the stability of the financial system (Claessens et al., 2010).

Credit Risk Theory

Credit risk arises when the borrower of a debt contract cannot repay the debt or is late in repaying the debt. full or partial debt. Anderson (2013) defines credit risk as “the probability that A legally enforceable contract can become worthless (or at least significantly reduced in terms value) because the partner is insolvent and bankrupt. According to Saunders and Cornett (2011), which is “the risk of promising cash flows from loans and securities held by financial institutions cannot be paid in full. Therefore, credit risk arises due to default by debt issuers and counterparties in derivatives transactions (Hull 2012). There is general consensus among researchers from different fields on the importance of credit risk. Therefore, measures of credit risk have been widely studied, especially in corporate finance sector. This study takes a different perspective in exploring credit risk by performing bibliographic citation analysis to identify various structures within this vast literature. Although bibliographic citation analysis is widely used in many industries science (Le Blay et al. 2012), human science (Jonsson and Mayer 1999), it is rarely used in finance (Kysucky and Norden2015). Some exceptions include Valickova, Havranek, and Horvath (2015) and Arestis et al. (2015) focuses on financial development and economic growth. Credit risk, like other risk, has implications for all financial contracts. Additionally, it can discourage businesses investment (Occhino and Pescatori 2010). Thanks to that, the topic has attracted a lot of attention (Altman et al. 2005). As shown in Figure 1, the total value tends to increase number of publications on credit risk

over the past five decades. For the council evidence and documentation of credit risk, this article contributes to the classification and synthesizes this vast literature, in addition to suggesting a number of research directions for future research on this topic.

Credit risk is an important type of risk in finance and is often considered the oldest type of risk type of risk in financial markets dating back to 1800 BC, in ancient Egypt (Caouette, Altman and Narayanan 2008). The first modern quantitative credit model risk is Altman score Z1 (Benzschawel 2012), based on a multivariate discriminant approach analyzing 5 accounting ratios. Even though it is fifty years old, the Z-score is still a useful tool for many market participants (Benzschawel 2012). However, this model is criticized, among other things, because they are retrospective and not continuous, because accounting ratios are based on historical information. This has led to the development of other credit risk models such as structural model and reduced form.

The Management Efficiency Theory

Management efficiency is a crucial aspect of corporate governance and financial performance, encompassing the effective utilization of resources to achieve organizational objectives. In the absence of a specific theory by that name, this description will focus on the broader principles associated with management efficiency in corporate finance. Effective management efficiency involves optimizing operational processes, resource allocation, and decision-making to enhance overall organizational performance. The efficient use of resources, including human capital, technology, and financial capital, is paramount for achieving sustainable growth and profitability. One facet of management efficiency theory could center around financial management practices. Efficient financial management involves maximizing shareholder value by making optimal investment decisions, managing costs, and ensuring effective capital structure. Researchers often emphasize the importance of financial management in enhancing overall corporate efficiency and value creation (Titman & Martin, 2010).

Additionally, management efficiency extends to operational efficiency. The Resource Based View (RBV) theory suggests that firms achieve sustained competitive advantage and superior performance by efficiently leveraging and deploying their unique resources and capabilities (Barney, 1991). This perspective aligns with the notion that management efficiency is not only about financial decisions but also about leveraging operational

strengths. The agency theory framework also plays a role in understanding management efficiency. Principals (shareholders) delegate decision-making authority to agents (management) and are concerned with ensuring that agents act in the best interest of the principals. Efficient management, in this context, involves aligning the interests of management with those of shareholders to reduce agency costs and enhance overall organizational effectiveness (Jensen & Meckling, 1976).

Moreover, sustainability and corporate social responsibility practices are increasingly integrated into discussions of management efficiency. The Stakeholder Theory argues that organizations should consider the interests of all stakeholders, not just shareholders, for long-term success (Freeman, 1984). Efficient management, from this perspective, involves balancing the needs of various stakeholders for sustained and ethical organizational performance. Furthermore, the Management Efficiency Theory emphasizes the significance of governance and leadership within a bank. A strong board of directors and executive leadership team are essential for setting the bank's strategic direction, ensuring compliance with regulations, and fostering a culture of accountability and ethics. Effective leadership contributes to sound decision-making and risk management. It's important to note that external factors, such as changes in the economic environment, regulatory reforms, and shifts in market dynamics, can influence a bank's profitability. However, a well-managed bank is better equipped to adapt to these external challenges and make informed decisions to mitigate their impact.

In conclusion, the Management Efficiency Theory posits that effective management practices are integral to a bank's profitability and long-term success. This theory encompasses risk management, operational efficiency, strategic decision-making, and governance. By adhering to these principles, banks can not only minimize the impact of NPAs on their profitability but also thrive in a competitive and ever-changing financial landscape.

The Size and Diversification Theory

Size and diversification are key considerations in financial management, particularly in assessing the risk and performance of a firm's portfolio. While there may not be a specific theory using the exact term, the concepts align with established principles in finance and strategic management. The size effect, often associated with the Capital Asset Pricing

Model (CAPM), suggests that smaller firms tend to experience higher returns compared to larger firms, possibly due to higher perceived risk (Banz, 1981). Investors may demand a premium for investing in smaller, riskier companies. On the other hand, the Diversification Theory, often linked to the Modern Portfolio Theory (MPT) introduced by Harry Markowitz, emphasizes the benefits of diversifying a portfolio to reduce risk. The basic idea is that by holding a diversified set of assets, the risk of the overall portfolio is lower than the sum of the risks of its individual components (Markowitz, 1952). Size and diversification can also be viewed through the lens of corporate strategy. Larger firms may benefit from economies of scale, cost advantages, and greater access to capital markets, while smaller firms may be more agile and able to exploit niche markets (Porter, 1980). The Resource-Based View (RBV) of the firm suggests that size and diversification can be strategic resources, contributing to a firm's competitive advantage (Barney, 1991).

Moreover, size and diversification are critical considerations in risk management. The "Too Big to Fail" theory, often applied to large financial institutions, suggests that the failure of certain large firms could have systemic consequences for the entire economy. Regulatory bodies may prioritize the stability of larger institutions to prevent widespread economic repercussions (Kaufman, 1994). Diversification within financial institutions, such as through a mix of loan portfolios or business lines, is also seen as a risk mitigation strategy. In terms of firm performance, empirical studies suggest mixed findings regarding the relationship between firm size and financial performance. Some studies find a positive correlation, indicating that larger firms tend to have better financial performance (Berger & Udell, 1998), while others argue that smaller firms can achieve superior returns due to increased flexibility and innovation (Maksimovic & Phillips, 2001).

Regulatory authorities often impose stricter requirements on larger banks due to their systemic importance. While these regulations aim to ensure financial stability, they can also affect profitability. Compliance costs, capital requirements, and stress testing can be more demanding for larger institutions. Nevertheless, these regulations may also contribute to a perception of safety and stability, attracting customers and investors. It's important to note that the Size and Diversification Theory is not without challenges. Larger banks may face complexities in managing their vast operations and ensuring effective governance. Additionally, they may encounter resistance to change and innovation, which can hinder adaptability in a rapidly evolving financial landscape.

In summary, the Size and Diversification Theory suggests that the size and diversification of a bank's operations can influence its profitability and risk exposure. While larger and more diversified banks may have advantages in terms of cost efficiency, risk management, and revenue diversification, they also face challenges related to regulation and operational complexity. Ultimately, the theory underscores the importance of balance and strategic decision-making in optimizing a bank's performance within the context of its size and diversification.

Liquidity Risk Theory

Liquidity risk refers to the potential inability of a firm to meet its short-term financial obligations due to a mismatch between its liquid assets and liabilities. The concept is fundamental in financial management and risk assessment, especially for entities operating in dynamic and uncertain environments. One of the foundational theories influencing the understanding of liquidity risk is the Trade-off Theory. According to this theory, firms face a trade-off between the costs and benefits of holding liquid assets. While maintaining ample liquidity safeguards against potential financial distress and allows for seizing investment opportunities, it comes at a cost in terms of forgone returns from investing in more profitable, less liquid assets (Miller & Orr, 1966).

Liquidity risk is also integral to the Market Microstructure Theory, which explores the dynamics of financial markets. The bid-ask spread, a key concept in market microstructure, reflects the liquidity risk associated with trading a particular asset. Assets with wider bidask spreads are considered to carry higher liquidity risk due to the potential for larger transaction costs (O'Hara, 1995). The Liquidity Preference Theory, as proposed by Keynes, suggests that investors demand a premium for holding fewer liquid assets. This theory emphasizes the importance of liquidity as a determinant of the market interest rate. Investors generally prefer assets that can be easily converted to cash, and the theory underscores the role of liquidity risk in shaping investors' preferences for different types of assets (Keynes, 1936).

Liquidity risk is especially pronounced in financial institutions, and the Banking Liquidity Theory explores the challenges banks face in managing liquidity. The maturity transformation function of banks, where they borrow short-term to lend long-term, exposes

them to liquidity risk if short-term funding sources dry up, leading to potential solvency issues (Diamond & Dybvig, 1983). Moreover, regulatory bodies play a crucial role in shaping liquidity risk management practices. The Basel III framework, for example, includes specific liquidity risk management standards for banks. It emphasizes the importance of maintaining a stable funding profile and having sufficient high-quality liquid assets to withstand potential liquidity shocks (Basel Committee on Banking Supervision, 2010). While there may not be a single "Liquidity Risk Theory" with established citations, the principles discussed align with well-established theories in finance, risk management, and market microstructure. Liquidity risk refers to the risk that a bank may not have enough readily available funds to meet its financial obligations when they come due. These obligations can include customer withdrawals, loan disbursements, and payments to creditors. Failure to manage liquidity effectively can lead to serious consequences, including insolvency. It's essential to distinguish between liquidity risk and solvency risk. Liquidity risk is concerned with a bank's ability to meet its short-term obligations, while solvency risk pertains to its long-term financial viability. A bank can be solvent but still face liquidity problems, which, if not managed, can ultimately lead to insolvency.

In conclusion, Liquidity Risk Theory underscores the paramount importance of liquidity management in the banking industry. Banks must strike a delicate balance between profitability and liquidity to ensure they can meet their short-term obligations while optimizing their long-term financial performance. Effective liquidity risk management practices are essential to maintaining a bank's stability and safeguarding against potential crises.

2.2 Empirical Review

Examining prior research is crucial for a researcher to conduct their study effectively. The primary purpose of this review is to apply a previously studied concept in a novel manner. The researcher will analyze a range of articles, theses, and related literature to gain insights and guidance for the current research. By exploring various sources, including scholarly articles and relevant studies, the literature review serves as a roadmap for the present study, providing valuable guidelines and shaping the direction of the research.

2.2.1 International Empirical Review

Arifaj and Baruti (2023) examined the impact of credit risk profitability of financial institutions. For research, we have collected secondary data from relevant organizations Western Balkan countries such as Kosovo, Albania, North Macedonia, Serbia, Croatia, Montenegro and Bosnia and Herzegovina. A total of 26 commercial banks as of 2010 until 2022 serving in these countries. We review the information from three tables classifying public and private banks or multinational banks depending on their ownership structure. Return on assets (ROA) or return on equity (ROE) used as a proxy for financial performance measures, while bad debt ratio is used to measure credit risk (Fuhrmann, 2022). Where the target of the study is explores the relationship between credit risk and financial aspects activities of commercial banks operating in the Balkans countries, to understand the factors that influence credit risk, and propose solutions to improve financial efficiency banks in the region. From as a result of the evaluation, we can see that both ROA and ROE are the same inversely related to credit risk. Profitability commercial banks of Balkan countries from 2010 to 2022 These activities have been shown to be relevant to credit risk management. Accordingly, financial institutions need to pay more attention credit risk management, especially the prevention of bad debts and investigation. Therefore, managers need to pay more attention Latest credit risk management strategies.

Alfiana et al. (2023) examined the determinants of return on assets (ROA) for Islamic commercial banks spanning the years 2018-2022 was undertaken. The identified influencing factors encompassed inflation, corporate governance (GCG), and nonperforming financing (NPF). Employing a quantitative approach and regression analysis, the study utilized a sample set consisting of 12 Islamic commercial banks that consistently released quarterly financial reports throughout the specified period. Data collection followed a saturation sampling method, and the analysis was executed using EViews 10. The research incorporated various assessments, including classical hypothesis testing, a model feasibility analysis, panel regression analysis, and a determination of the coefficient of determination. The findings revealed that the ROA of Islamic banks was significantly influenced by GCG and NPF, with inflation exhibiting no discernible impact over the period 2018-2022. Consequently, the study underscores the importance for each bank to exhibit strong financial performance to optimize profitability. The central focus of this banking research lies in the evaluation of a company's capacity to generate returns on its deployed assets.

Kwashie, Baidoo, and Ayesu (2022) examined the influence of credit risk, specifically nonperforming loans, on the financial performance of commercial banks in Ghana. The chosen metrics for financial performance were Return on Assets and Economic Value Added. Internal factors such as the age and size of the bank were considered, alongside macroeconomic elements including gross domestic product, inflation, and monetary policy rates. The analysis utilized panel data covering the period from 2013 to 2018, focusing on 15 commercial banks in Ghana. The outcomes derived from the random effects estimation technique indicated a negative impact of bad debts on both measures of financial performance. Additionally, the monetary policy rate exhibited a negative influence on both financial performance measures, albeit not significantly on Economic Value Added. The study further revealed that bank size, age, and gross domestic product had a significant positive impact on both financial performance measures, with the significance being more pronounced for Return on Assets. Given the observed inverse relationship between bad debt and financial performance, the study recommends the implementation of stringent credit risk management policies by commercial banks. Furthermore, the suggestion is made for regular updates to these policies to guide actions, loan management processes, and credit risk monitoring. The study proposes that the value of depreciable assets used as collateral should be periodically reviewed, potentially on an annual basis, to accurately reflect their decline in value. A noteworthy aspect of this research lies in its introduction of Economic Value Added as a measure of financial performance, a fact that previous studies have largely overlooked in the analysis of credit risk and financial performance.

Madagoni and Sivaji (2022) examined the anticipated impact of Non-Performing Assets (NPAs) on the profits of Indian commercial banks over a ten-year period. The study specifically addresses the influence of NPAs on the profitability of scheduled commercial banks in India. Various analytical methods, including ratio analysis, regression analysis, testing for equality of means, and cross-sectional correlation graphs using EViews 10 software, were employed to discern the variables associated with NPAs and their impact on the banking sector's profitability. The study observes an increasing trend in NPAs among scheduled commercial banks in India over the past decade. According to a CRISIL report, NPAs escalated to Rs. 95,825 crores, with the percentage of Gross NPAs rising from 3.3% on March 31, 2013, to 4% on March 31, 2014. The banking sector is grappling with the challenge of fee recovery and addressing fraudulent activities. The study emphasizes the

significance of managing NPAs in the banking sector for a growing economy, stressing that NPA failure could adversely affect both the banking industry and financial institutions. While existing literature has extensively explored the causes and management aspects of NPAs, this study aims to address a notable gap by focusing on the impact of NPAs on the profitability of Indian scheduled commercial banks, offering a more comprehensive perspective on underperforming assets.

Collaku and Aliu (2021) analyzed the impact of nonperforming loans on the profitability of Kosovo banks spanning the years 2010 to 2019. The study utilized the traditional profit theory, where profit, quantified by Return on Assets, was modeled as a function of NonPerforming Loans, Liquidity Risk, and Bank Size as control variables. The researchers employed multivariable linear regression to estimate the profit function. The findings indicated a statistically significant impact of nonperforming loans on profitability. Specifically, the results suggested that for every 1% increase in Non-Performing Loans, there was a corresponding decrease of 0.19% in Return on Assets, with other variables held constant.

Bepari and Sarkar (2020) examined the profitability performance of chosen public and private sector banks in India. The focus of the study was to ascertain the influence of internal factors of banks on profitability, specifically net profit. The research aimed to identify the key internal factors that affect profitability, employing methods such as NET NPAS, Net Profits, Internal Factors, and Correlation and Regression Analysis. The findings revealed a negative correlation between net NPAs and the profitability of public sector banks, suggesting a detrimental impact. The analysis further highlighted a statistically significant effect of net NPAs on the profitability of public sector banks. In contrast, a positive relationship was observed between net NPAs and the profitability of private sector banks, although the impact was deemed insignificant.

Islam and Rana (2019) examined the influence of various bank-specific and macroeconomic factors on the profitability of 23 commercial banks in Bangladesh. The research utilized data spanning the period 2013-2017, collected from annual reports of each bank, Bangladesh Bureau of Statistics (BBS), and publications of Bangladesh Bank. Regression analysis using a fixed effects model for panel data was employed to analyze the relationships between variables. The study incorporated three profitability measures: return

on assets (ROA), return on equity (ROE), and net interest margin (NIM). In the model for ROA, the results indicated a significant positive relationship between variables such as income (TIN, NII) and asset structure (DPST) with ROA, while asset quality (NPL) demonstrated a significant negative impact on ROA. For ROE, earnings (TIN and NII) and capital strength (CAP) exhibited a significant positive relationship with ROE, while asset quality (NPL) had a significant negative impact. Regarding NIM, income (TIN), capital strength (CAP), and liquidity (LTA) demonstrated a significant positive relationship with NIM. Notably, macroeconomic factors such as GDP growth rate and inflation rate did not show a significant impact in the profitability model. The study's findings have implications for decision-making and the future operational efficiency of financial institutions, offering insights for investors, policymakers, regulators, and other stakeholders.

Abate and Mesfin (2019) examined the profitability of nine commercial banks in Ethiopia, covering the period 2007-2016. The study delved into bank-specific, industry-specific, and macroeconomic factors, employing a regression model to analyze data sourced from audited financial statements. The results indicated that capital adequacy, leverage, liquidity, and ownership exhibited a statistically significant and positive relationship with bank profitability. Conversely, operational efficiency, GDP, inflation, and interest rates demonstrated a negative and statistically significant relationship with bank profitability. However, the study found the relationship between bank size and the number of branches to be statistically insignificant. The findings suggest that Ethiopian commercial banks should not solely focus on internal structures and rules; instead, they need to consider both internal and macroeconomic variables collectively when formulating strategies to enhance their performance.

Serwadda (2018) examined the impact of bank-specific (internal) factors on the profitability of commercial banks in Hungary over a 16-year period from 2000 to 2015. The study utilized a sample of 26 commercial banks with 416 observations, considering return on average assets (ROA) as the indicator for bank profitability and incorporating bank-specific (internal) factors as independent variables. These internal factors included asset quality (bad debts), general expense costs, bank size, net interest margin, liquidity risk, and capital adequacy ratio. The research employed panel regression, descriptive statistics, and correlation analysis for investigation. The panel regression model was used to estimate how bank-specific factors impact profitability, and a Hausman specification check was

conducted to determine the most suitable model for the research. Empirical results indicated that ineffective lending, overhead costs, and liquidity had a significant negative impact on bank profitability, while the size of the bank had a significant positive impact. However, net interest margin and capital ratio did not show a significant effect on bank profits. The study concluded that bank size and asset quality were the most influential bank-specific factors affecting the profits of commercial banks in Hungary during the investigated period. It recommended that commercial banks focus on managing and reducing overhead costs to enhance profitability, as these costs negatively impact bank profits. Additionally, the study suggested regular monitoring of credit and liquidity risk indicators by commercial bank leaders, along with the pursuit of policies to diversify income sources while optimizing operational expenses.

Maiti and Jana (2017) examined the determinants affecting five major bank groups in India, which include the State Bank of India & its Associates, Nationalized Banks, New Private Sector Banks, Old Private Sector Banks, and Foreign Banks, comprising a total of 75 banks. Given the challenges faced by banks in the dynamic Indian environment in recent years, understanding the key determinants influencing overall bank performance is crucial for resisting negative shocks and maintaining financial stability. The study employed a panel data regression method to investigate the impact of various internal factors on the profitability of these banks. The empirical results revealed compelling evidence that factors such as profit per employee, net interest margin, net non-performing assets ratio, and noninterest income significantly influence the profitability of all bank groups.

Yee (2016) examined the impact of bank-specific and macroeconomic factors on the performance of domestic commercial banks in Malaysia, using Return on Assets (ROA) as the performance indicator. The study collected data from 2005 to 2014 and conducted further analysis through a panel data regression model. The findings revealed that factors such as capital adequacy and leverage were significant and exhibited a negative correlation with bank performance. Additionally, the real effective exchange rate showed significance and a positive correlation with ROA, while the real interest rate demonstrated an insignificant relationship with ROA.

Rai et al. (2015) analyzed the determinants influencing financial performance in Nepal's financial institutions. They utilized variables such as return on assets (ROA), return on equity (ROE), and Loan Interest Margin (NIM), depending on capital and asset adequacy

ratios. Independent variables included capital adequacy ratio, asset quality, management efficiency, liquidity management, GDP growth rate, and inflation, with data spanning from 2005 to 2014. The study revealed that an increase in capital adequacy ratio, management efficiency, and liquidity management resulted in higher return on equity and return on assets. Moreover, a higher GDP growth rate and inflation rate correlated with elevated return on equity and return on assets. The research also indicated that higher asset quality led to lower return on equity and return on assets. Furthermore, a higher capital adequacy ratio and asset quality were associated with an increase in net interest margin. The study demonstrated that enhanced efficiency in management, liquidity management, a higher GDP growth rate, and inflation rate were linked to a higher net interest margin.

Jhamb & Jhamb (2013) examined the efforts of nationalized banks to manage and reduce non-performing assets (NPAs) and mitigate their impact on profitability. Despite significant efforts by individual banks to address the issue, the transition of performing assets into the NPA category remains a persistent concern. While there have been notable recoveries from NPA accounts in recent years, the simultaneous increase in fresh NPAs has offset these gains. The authors note that the continuous rise in NPAs, coupled with stricter norms imposed by the RBI, has contributed to the overall escalation of NPA levels. The authors acknowledge that the complete elimination of NPAs is unfeasible due to inherent externalities in banking, but they emphasize the importance of minimizing their occurrence. They advocate for prudent policies in credit appraisal, supervision, and followup of advances to prevent the emergence of NPAs. The recent enactment of the Securitization Act is seen as a tool for the banking industry to actively reduce NPAs, providing leverage for their recovery. However, the success of the Act is contingent on its proper and robust enforcement. Furthermore, the authors point out a significant challenge in addressing NPAs related to influential industrialists who often have substantial political influence. They suggest that meaningful results in reducing NPAs require strong political will on the part of the government to take decisive action against such influential figures.

2.2.2 National Empirical Review

Dahal (2023) examined the non-performing assets (NPA) on the profitability of Nepali commercial banks using a panel data approach. The study employed panel data from 21 commercial banks operating from 2017/18 to 2021/22, totaling 105 years of observation, to assess the impact of NPAs on the profits of these banks. The study utilized return on

equity (ROE) as the dependent variable, while non-performing assets (NPA), risk provisions for loans and advances (LLP), loans and advances to total deposits (LTDR), return on investment (ROI), and capital adequacy ratio (CAR) served as controlled variables to explore the explanatory power of non-performing assets on bank profitability. The study presented results from panel regression, correlation analysis, fixed data, and descriptive statistics, with the fixed effects (FE) regression model chosen as appropriate based on the Hausman test. The findings revealed a significant negative relationship between non-performing assets and bank profits, carrying substantial implications for operational and policy considerations. To mitigate the adverse impact of increasing bad debts and enhance the profitability of commercial banks in Nepal, the study emphasized the importance of thorough creditworthiness assessments, continuous credit monitoring, and the establishment of appropriate lending policies in accordance with regulations.

Chand (2023) examined the influence of non-performing assets, capital adequacy, and insolvency risk on the operations of Nepali commercial banks, with return on assets and return on equity selected as dependent variables. The chosen independent variables encompassed non-performing assets, capital adequacy level, credit/deposit ratio, insolvency risk, and bank size. Utilizing secondary data from 21 commercial banks with 189 observations over the period from 2014/15 to 2020/21, the study gathered information from the banking industry and financial statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and the Ministry of Finance (MoF), as well as annual reports of selected commercial banks. Correlation coefficients and regression models were employed to assess the significance of non-performing assets, capital adequacy, and insolvency risk on the operations of Nepali commercial banks. The findings indicated that bad debt had a negative impact on both return on assets and return on equity, implying that an increase in bad debt led to a decrease in these financial indicators. Conversely, the capital adequacy ratio exhibited a positive impact on return on assets, suggesting that an increase in the capital adequacy ratio resulted in higher profits. However, the solvency ratio had a negative impact on return on equity, indicating that an increased capital adequacy ratio led to a reduction in return on equity. Similarly, the credit/deposit ratio had a negative impact on both return on assets and return on equity, signifying that an increase in the credit/deposit ratio resulted in diminished financial returns. Additionally, insolvency risk negatively affected return on equity, implying that an increased insolvency risk led to reduced returns. Furthermore, the study revealed a positive

impact of bank size on both return on assets and return on equity, indicating that a larger total asset base contributed to increased financial returns for Nepalese commercial banks. Narayan (2023) analyzed the movement of Non-Performing Assets (NPAs) in the banking sector and explored the impact of the addition, reduction, and deletion of NPAs on bank NPAs. The study compared the NPA movement of State Bank of India (SBI) and Bank of Maharashtra (BOM) from public sector banks (PSBs), as well as ICICI and Nainital Bank (NB) from private sector banks (PSBs). The data spanned 15 years from 2007-2008 until 2021-22 and was sourced from annual reports and the RBI website. The analysis employed Compound Annual Growth Rate (CAGR) and descriptive statistics, and hypothesis testing was conducted using ANOVA, t-tests, and Panel Regression. The findings revealed an increasing trend in Gross Non-Performing Assets (GNPA) across all banks. The study indicated that accumulating more NPAs could strain banks' profits, and if profits were insufficient to cover bad debts, capital would be utilized for debt write-offs. The average GNPA growth rate was statistically significant for SBI, NB, PSB, PRSB, and SCB over all periods. However, the average Net Non-Performing Assets (NNPA) growth rate of SBI, BOM, ICICI, NB, and PRSB was not statistically significant. The study found no significant differences in the annual growth percentages of GNPA and NNPA between the sampled banks and banking groups.

Reshmi (2023) examined the influence of bad loans on the profitability of Nepal's commercial banking sector, incorporating other relevant bank-specific factors. Specifically, factors such as bad debt over total debt, loan loss provisions, total loan/deposit ratio, interest income/total loans, capital adequacy ratio, and bank size were considered. Return on assets (ROA) and return on equity (ROE) served as indicators of bank profitability. The study utilized panel data collected from secondary sources, encompassing 13 commercial banks in Nepal, spanning the period from 2069/70 B.S to 2078/79 B.S for analytical purposes. The conclusions were derived through the application of Pooled OLS, Random Effects, and Fixed Effects models as regression models, chosen after assessing their goodness of fit using the Breusch-Pagan test and the Hausman test. The research findings indicated that the bad debt ratio had a statistically significant negative impact on both return on assets and return on equity. Although loan loss provisions were negative, their impact on bank profitability (ROA and ROE) was not statistically significant. The interest income/total loans ratio exhibited a positive and significant impact on ROA, while its impact on ROE was positive but insignificant. The total loan-to-deposit ratio had a significant positive

impact on ROA, but it negatively affected ROE. Bank size was found to have a negative and statistically significant impact on both ROA and ROE. The capital adequacy ratio had an insignificant impact on ROA but a significant impact on ROE. The study highlighted the bad debt ratio as the primary factor diminishing the profitability of Nepalese commercial banks, suggesting that the escalating issue of rising bad debt could be a key contributor to the reduction in the profit of Nepalese banks.

Neupane (2020) examined the factors influencing banking profitability, categorizing them into internal and external factors. The study utilized Return on Assets (ROA) and Return on Equity (ROE) as indicators to gauge how effectively bank management utilizes the institution's real investment resources, while Net Interest Margin (NIM) focused on the profitability derived from interest-related activities. The findings of the study revealed that indicators related to earnings, such as Capital Strength and Liquidity, were statistically significant variables influencing bank profitability measured by NIM. In contrast, variables related to management efficiency, asset structure, asset quality, and economic proxies were deemed insignificant in describing bank profitability.

Gnawali (2018) examined the influence of non-performing loans on the profitability of commercial banks in Nepal, utilizing return on assets and return on equity as the dependent variables. Independent variables include non-performing loans, loan loss provisions, capital adequacy ratio, the ratio of loan loss provision to total loan, the ratio of total loan to total deposit, and the size of the firm. Secondary data from various sources, including Banking and Financial Statistics, Bank Supervision Reports from Nepal Rastra Bank, and annual reports of banks, spanning from 2010 to 2017, are employed for the analysis. The sample consists of 3 government banks and 10 non-government banks, with 24 and 80 observations, respectively. Regression models are employed to assess the significance and impact of non-performing loans on the profitability of Nepalese commercial banks. The results show that there is positive relationship of total loan to total deposit with return on assets (ROA) and positive relationship with return (ROE).

Dahal (2018) examined the influence of capital adequacy on the financial performance of commercial banks in Nepal, with specific reference to NABIL and NIBL. The project aimed to analyze how capital impacts the financial performance of these commercial banks, emphasizing the importance of central banks in closely monitoring their operations while

ensuring profitability and meeting minimum capital requirements. The study also investigated whether commercial banks could effectively protect depositors. The major independent variables were the total capital adequacy ratio and supplementary capital, while Return on Assets (ROA) served as the dependent variable. Through regression analysis, the study concluded that there is a negative relationship between the total capital adequacy ratio and ROA of the banks, indicating an impact of capital adequacy on the profitability of these banks.

Pradhan (2016) analyzed the macroeconomic and bank-specific determinants to review the profitability of 22 banks during the period from 2005/06 to 2011/12. The research design received approval, and synthetic cross-sectional data analysis was employed for obtaining results and making comprehensive comparisons. Descriptive statistics, correlation, and regression analysis were carried out, leading to the conclusion that inflation, liquidity, and the bad debt ratio have a negative correlation with both Return on Assets (ROA) and Return on Equity (ROE). Additionally, the study identified a positive impact of the credit-to-totaldeposit ratio, market share, and GDP on bank profitability.

Pradhan and Shrestha (2016) examined the impact of bank-specific and macroeconomic variables on the performance of commercial banks in Nepal. Utilizing a sample of 15 commercial banks spanning the period from 2006/07 to 2012/13 and employing pooled cross-sectional analysis, the research revealed a positive correlation between capital adequacy and management efficiency with Return on Assets (ROA). Conversely, asset quality and credit risk were found to exert a negative influence on ROA. Regarding Return on Equity (ROE), the explanatory variables, including management efficiency and bank size, exhibited a positive relationship, while factors such as capital adequacy, liquidity, employee expenses, credit risk, and other operating expenses demonstrated an inverse impact on ROE. Similarly, the study identified positive effects of capital adequacy, management efficiency, and bank size on Net Interest Margin (NIM), while operating expenses showed a negative impact on NIM. The study concluded that all the bank-specific factors played a significant role in influencing performance within the context of Nepal.

Lama (2014) examined the bad debt management in commercial banks, focusing specifically on NIBL. The study aimed to evaluate the extent of bad debt, establish associations between debt volume and bad debt, scrutinize the impact of impaired assets on

commercial banks' profitability, and analyze trends related to bad debt, loans and advances, and loan loss provisions at NIBL. The research outcomes indicated variations in the ratio of loans and advances to total deposits, suggesting consistent maintenance of higher rates annually. This implied an improved ability to swiftly mobilize deposits, converting them into loans and advances for income generation. The fluctuating trends in the ratio of loans and advances to total assets reflected effective utilization of total assets in the form of loans and advances. The study noted a relatively high ratio of provisions to total bad debt, indicating enhanced protection against actual loan loss risks. Furthermore, the ratio of net profit to total outstanding loans signified the bank's efficiency in lending activities. Although a positive correlation between loan loss provisions and loan advances was observed, the relationship between these two variables was considered insignificant.

Poudel (2013) conducted a comparative analysis of the financial performance of joint venture banks, with specific reference to Everest Bank Ltd. and Nabil Bank Ltd. The study aimed to explore the relationship between various ratios and assess these proportions to analyze and compare the financial performance of joint venture banks. Independent variables included capital adequacy, management efficiency, and bank size, while dependent variables were ROA and ROE. The research employed a regression model to present the data. The study particularly emphasized the collection of bank deposits and the allocation of funds through loans and advances. It also concentrated on the effective mobilization and utilization of capital and resources by Nepal Bank Ltd. The recommendations from the research emphasized that banks should strive to mobilize resources efficiently by venturing into new businesses. These proposed ideas aimed to contribute to the optimal utilization of resources and the economic development of the country.

Chaudhari (2012) examined the impact of non-performing assets (NPAs) on the profits of commercial banks, investigating internal and external factors influencing NPAs, exploring factors leading to an increase in loans and advances turning into NPAs, examining internal factors affecting the effective management and increase of NPAs, and analyzing the relationship between non-banking assets and non-performing assets. The study identified internal factors responsible for the transformation of good debt into bad debt, highlighting bad intentions, poor supervision, and inadequate management as primary culprits. Additionally, weak legal regulations and credit concentration were considered less

significant factors in the conversion of good debt into bad debt. Moderate impacts on NPA growth were attributed to factors such as a lack of portfolio analysis, ineffective credit policy, and security deficits. External factors, including economic recession and political and legal issues, were found to play crucial roles in transforming good debt into bad debt. The study indicated that legal regulations on capital recovery had a minimal impact on the increase in NPAs in Nepalese banks, while the monitoring and supervision system was identified as a moderately influential factor. The researcher concluded that economic and industrial slowdown, coupled with a lack of robust legal provisions for loan recovery, were major external factors contributing to the rise in NPAs. Recommendations included urging Nepali commercial banks to prioritize lending to the commercial sector, with a particular emphasis on the neglect of service sectors. The study also suggested improvements in various aspects such as financial soundness, personal integrity, supervision and control systems, prevention of credit concentration, a sound legal system, and effective public property management by banks like SBI Nepal Bank Ltd and Nepal Investment Bank Ltd.

Table 1

Summary and Empirical Review

Authors	Objectives	Variables	Methodology	Findings
Chaudhari (2012)	To evaluated the impact of NPAs on the profits of commercial banks, studying internal and external factors that affect influence on nonperforming assets.	Capital recovery, bad debt, NPA are the variables used in this study	Least square and regression model was used.	The result shows that find that economic recession political and legal issues are also important factors that turn good debt into bad debt. In his study, legal regulation of capital recovery as a cause of increase in NPAs in Nepalese banks showed that these factors had less impact.
Poudel (2013)	To analyzed the comparative assessment of financial performance of joint venture banks with reference to Everest Bank Ltd. and Nabil Bank Ltd.	Capital adequacy, management efficiency and size of bank are the independent variables. ROA and ROE are the dependent variables	Regression model was used	The results shows that the collection of bank deposits and disbursement of funds in the form of loans and advances. He continued to focus on the utilization and mobilization of capital and resources of Nepal Bank Ltd. He recommended that banks try to mobilize resources effectively by establishing new businesses.
Lama (2014)	To analyzed the bad debt management of commercial banks	Bad debt trends, loans and advances, loan loss provisions are the	Correlation and regression model was used.	The major findings of the study was the correlation coefficient between loan loss provisions and loan advances

	(with reference to NIBL).	independent variables. The ratio of loans and advances to total deposits are the dependent variables.		shows that there is a positive correlation between these two variables. The relationship between loan loss provisions and loan advances is insignificant.
Rai et.al (2015)	To examined the determinants of financial performance in Nepal.	Capital and asset adequacy ratios, management efficiency, liquidity management, GDP growth rate and inflation are the independent variables. ROA, ROE and NIM are the dependent variables.	Regression model was used.	They found that helps increase capital adequacy ratio, management efficiency and liquidity management, return on equity and return on assets will be higher. Similarly. The higher the GDP growth rate and inflation rate, the higher the return on equity will be and return on assets. Research also shows that the higher the asset quality, the lower the return on equity and return on assets will be.
Yee (2016)	To studied the bank specific and macroeconomic factors that affect domestic commercial bank performance in Malaysia.	NPL, interest rate, capital adequacy and leverage ratio are the independent variables.	panel data regression model was used.	The factors capital adequacy and leverage are significant and has negative correlation with bank performance. The real effective exchange rate is significant and positively correlated with ROA whereas real interest rate shows insignificant relation with ROA.
Pradhan and Shrestha (2016)	To examined the impact of bank specific and macroeconomic variables on the performance of commercial banks in Nepal	Capital adequacy, management efficiency and size of bank are the independent variables. ROA and ROE are the dependent variables.	Multiple regression model was used.	The results show that capital adequacy, management efficiency and size of bank have positive effect on NIM on contrary operating expenses has inverse impact on NIM. The study had revealed that all the bank specific factors are significant factors in case of Nepal.
Pradhan (2016)	To assesses macroeconomic and bank-specific determinants.	inflation, liquidity and bad debt ratio Loans are the independent variables. ROA and ROE are the dependent variables	Descriptive statistics, correlation and regression analysis was used.	The result shows that there is a positive effect of credit/total deposit ratio, market share and GDP to bank profitability. The credit-to-total-deposit ratio and liquidity are considered key determinants profit in case of Nepal according to this study.
Maiti and Jana (2017)	To examined the determinants of five major bank groups in India namely, State Bank of India.	Non-Performing Loans, Liquidity Risk, and Bank Size are the independent variables. ROA is the dependent variables.	Pannel and regression model was used.	The empirical results have found strong evidence that profit per employee, net interest margin, net non-performing assets ratio and non-interest income have a significant impact on the profitability for all bank groups.

Serwadda (2018)	To determine whether bank-specific (internal) factors have an impact on profits of commercial banks.	asset quality (bad debts), general expenses costs, bank size, net interest margin and liquidity risk plus capital adequacy ratio are the independent variables. ROA is the dependent variables.	panel regression, descriptive statistics and correlation analysis was used	The results show that the projects are ineffective Lending, overhead costs and liquidity have had a significant negative impact on banks. profitability, because the size of the bank has a significant positive impact on profitability. However, Net interest margin and capital ratio do not affect bank profits.
Dahal (2018)	To examined on the impact of capital adequacy on the financial performance of commercial banks in Nepal	Total capital adequacy ratio and supplementary capital are the independent variables. ROA is the dependent variables	Regression model was used.	The results showed that that there is negative relationship between total capital adequacy ratio and ROA of the banks and also finds that there is impact of capital adequacy on profitability of the banks.
Islam and Rana (2019)	To studied the impact of various bank-specific and specific factors macroeconomic variables on bank profitability	DPST, NPL, TIN, NII, CAP and LTA are the independent variables. ROA, ROE and NIM are the dependent variables.	Fixed assets model and regression model was used.	The results indicate that the variables increase (TIN, NII) and asset structure (DPST) has a significant positive relationship with ROA and asset quality (NPL) significant negative impact on ROA. For ROE, earnings (TIN and NII) and capital force (CAP) has a significant positive relationship with the overall explanation variable with ROE. Only asset quality (NPL) has a significant negative impact on ROE. For NIM.
Bepari and Sarkar (2020)	To analyzed profitability performance of selected public and private sector banks in India.	NET NPAS, Net Profits, Internal Factors are the independent variables. NPA is the dependent variable.	Correlation and Regression Analysis was used.	The analysis indicates that there is a significant impact of net NPAs on profitability of public sector banks. On the other hand, there is a positive impact of net NPAs on profitability of private sector banks and the impact is insignificant.
Neupane (2020)	To examined the determinants of banking profitability as internal factors and external factors ROA and ROE reflects.	Capital strength, liquidity, management efficiency, assets quality are the independent variables. NIM is the dependent variables	Pannel and regression model was used.	The result shows that Capital Strength and Liquidity are statistically significant variables whereas management efficiency, asset structure, asset quality and economic proxies are insignificant variables to describe bank profitability measured by NIM.
Collaku and Aliu (2021)	To examined the impact of nonperforming loans on Kosovo banks' profitability.	Non-Performing Loans, Liquidity Risk, and Bank Size are the independent	Liner regression was used.	The results showed that the effect of nonperforming loans on the profitability is statistically significant and shows that for each 1%

		variables. ROA is the dependent variables.		increase in NPL, the Return of Assets decreases by 0.19%, holding other variables constant.
Madagoni and Sivaji (2022)	To examined the impact of NPAs on the profits of Indian commercial banks	NPA, Loan, deposits are the independent variables. ROA and ROE are the dependent variables.	Ratio analysis, regression analysis, testing for equality of means, cross-sectional Correlation was used.	The researcher found that there is a big gap in comprehensive research on quality underperforming assets. Most of the research and studies focus on the causes and management aspects of NPA. This study will fill the gap regarding the impact of NPAs on the profitability of Indian scheduled commercial banks.
Kwashie, Baidoo, and Ayesu (2022)	To examined the impact of credit risk, focusing on non-performing loans, on the financial performance of commercial banks in Ghana.	Age, size, GDP, inflation are the independent variables. ROA and value added tax are the dependent variables.	Pannel and regression model was used.	The result shows that bank size, age and gross domestic product have a significant positive impact on both financial performance measures, albeit significant for returns on asset. Considering the inverse relationship between bad debt and financial performance, it is proposed that commercial banks should apply strict credit risk management policies, which also need to be regularly updated to guide action., loan management process and credit risk monitoring
Reshmi (2023)	To examined the impact of bad loans on the profitability of Nepal's commercial banking sector.	Bad debt over total debt, loan loss provisions, total loan/deposit ratio, interest income/total loans, capital adequacy ratio and bank size are the independent variables. ROA and ROE are the dependent variables.	Pooled OLS model, effects model and fixed effects model as regression models was used.	The result shows that bad debt ratio is negative and negative statistically significant impact on both return on assets and return on equity. Loan loss provisions were negative but not significant impact on bank profitability (ROA and ROE).
Narayan (2023)	To analyzed the movement of NPAs in the banking sector and examine the impact of addition, reduction and deletion of NPAs on bank NPAs.	GNPA, growth rate and NPA are the variables used in this study.	Hypotheses ANOVA, t test and Panel Regression was used.	The researcher shows that there is an increasing trend in GNPA in all countries. SCB. Adding more and more NPAs will put more burden on banks' profits and if profits are not enough to write off bad debts, that capital will be used to write off debts. The average GNPA growth rate is statistically significant over all periods for SBI, NB, PSB, PRSB and SCB. Average

				NNPA growth rate of SBI, BOM, ICICI, NB and PRSB were not statistically significant
Alfiana et al. (2023)	To analyze and examine factors affecting the return on assets of Islamic commercial banks.	Non-performing assets, total deposit, loan are the independent variables. ROA is the dependent variables.	Hypothesis testing, feasibility analysis model, Panel regression analysis and coefficient was used.	The results showed that ROA of Islamic banks is influenced by GCG and NPF, while inflation has no influence during 2018-2022 of Islamic commercial banks. Therefore, every bank must show good financial performance to achieve higher profits. The concern of banking research is to be able to evaluate a company's ability to obtain a return on the assets employed.
Arifaj and Baruti (2023)	To examined the impact of credit risk profitability of financial institutions.	Credit risk, bad debt ratio, financial efficiency are the independent variables. ROA and ROE are the dependent variables.	Correlation and regression model was used.	The results shown to be relevant to credit risk management. Accordingly, financial institutions need to pay more attention credit risk management, especially the prevention of bad debts and investigation. Therefore, managers need to pay more attention Latest credit risk management strategies.
Chand (2023)	To examined the role of nonperforming assets, capital adequacy and insolvency risk for the operations of Nepali commercial banks.	Assets and capital adequacy level credit/deposit ratio, insolvency risk and bank size are the independent variables. ROA and ROE are the dependent variables.	Correlation coefficients and regression models was used	The result shows that bad debt has a negative impact on return on assets and return on equity. It shows that an increase in bad debt leads to a decrease in return on assets and return on equity. Similarly, capital adequacy ratio has a positive impact on return on assets. This means that an increase in the capital adequacy ratio will lead to an increase in profits
Dahal (2023)	To examined the impact of nonperforming assets (NPA) on the profitability of Nepali commercial banks.	NPA, LLP, LTDR, ROI and CAR are the independent variables.	Results of panel regression, correlation analysis, fixed data, and descriptive statistics was used	The results show a significant negative relationship between non-performing assets and bank profits. Operational and policy considerations are significantly affected by this conclusion. To minimize the negative impact of increasing bad debts and increase the profitability of commercial banks in Nepal.

2.3 Research Gap

Upon reviewing prior studies, it was evident that a significant portion of research, as exemplified by Timilisna (2020) and Shrestha (2010), focused on exploring the determinants of non-performing assets and profitability within Nepalese commercial banks.

It is noteworthy to mention that, in the examination of previous theses, no investigations were conducted using sample banks and their corresponding data. This current study, in contrast, relies on data from ten commercial banks. In contrast to past theses, which primarily analyzed the components of capital structure ratios, their relationships, debt repayment capacity, and associations between return on equity and debt, as well as profits before taxes and interest, the present study takes a more comprehensive approach. It delves into assessing the impact and relationships of non-performing assets and determinants of profitability with other capital indicators such as non-performing assets, total deposits, liquidity, total loans, and total deposits concerning company assets.

There is a scarcity of studies on this subject within the context of Nepal. This research aims to fill the existing research gap by concentrating on the profitability analysis of ten selected banks, primarily focusing on commercial banks established in different periods. The study acknowledges a potential limitation, as it incorporates only a decade of data, which could result in less accurate findings. To evaluate the profitability of these ten banks, various ratios and trend analyses have been employed. Additionally, statistical methods such as mean, correlation, and regression analysis are utilized to determine the impact of nonperforming assets on the riskiness and relationships with profitability in a specific commercial bank.

Hence, this study has demonstrated its value from both an academic and policy perspective, benefiting a diverse audience including individuals, academics, professors, students, and business professionals. The hope is that this research will prove valuable to others interested in similar subjects in the future.

CHAPTER III

RESEARCH METHODOLOGY

Research Methodology is the systematic way to solve the research problem with the certain objectives. The purpose of this study is to evaluate the non-performing assets on profitability of selected commercial banks with reference to NBL, NABIL, NIMBL, SCBL, HBL, NBBL, PCBL, NSBI, EBL, KBL and SBL. Research methodology adopted in this study includes research design, population and sample, sources of data, data collection procedure and data analysis tools and techniques.

3.1. Research Design

To achieve the objective of this study, descriptive as well as causal and comparative analysis technique have been used. The descriptive and casual comparative research design had been adopted for fact finding and searching adequate information. It is a type of survey which is generally conducted to assess the opinions, behaviors and characteristics of a given population and to describe the situation and event occurring at present. Since this study is done for evaluation of profitability position of NBL, NABIL, NIMBL, SCBL, HBL, PCBL, NSBI, EBL, KBL and SBL.

3.2. Population and Sample

The total population of this study is comprised of 21 commercial banks of Nepal (NRB, 2023), which are currently in earning high profit. Due to this, the research has taken these ten banks as a sample. Using judgmental sampling method Nepal Bank Limited (NBL), Nabil Bank Limited (NABIL), Nepal Investment Mega Bank Limited (NIMBL), Standard Chartered Bank Limited (SCBL), Himalayan Bank Limited (HBL), Prime Commercial Bank Limited (PCBL), Nepal SBI Bank Limited (NSBI), Everest Bank Limited (EBL), Kumari Bank Limited (KBL) and Siddhartha Bank Limited (SBL) are considered because they are representative of a larger group or category of banks. For instance, if these banks are from different regions of the country and vary in terms of their size, ownership structure, or business focus, they can provide insights into a diverse range of banking practices.

3.3. Nature and Sources of data

The study basically focuses on the secondary data. The secondary data are taken from annual report, auditor's reports, balance sheet, profit and loss account, respective website, unpublished / published thesis, financial performance of banks, newspaper, journal, magazines etc.

3.4. Data Collection Procedure

This research is based on various data which are published by banks, their financial performance reports, articles, journals, references, annual reports and respective websites will be considered for the needed observation. Supplementary information is collected from different institution and authorities like NRB, Nepal stock exchange and Ministry of finance. Likewise, various data and information are collected from the economic journals, periodicals, bulletins, magazines and other published and unpublished reports and documents from various sources for needed observation. Some review materials are mainly collected from central library, TU Kirtipur, Shanker Dev Campus.

3.5. Data Processing Procedure

Firstly, data were extracted from the annual reports of the bank and put them in a sheet. Then data were entered into the spreadsheet to work out the financial ratios and prepare necessary figures, according to the need and requirement of this study. For this purpose, gathered data have been processed using computer programs like Microsoft Excel, Microsoft Word.

3.6. Data Analysis Tools and Techniques

Under this, various profitability measurement tools and techniques are applied to gain the fact result. The data which are collected and arranged in a systematic form are analyzed and presented through financial and statistical tools via ratio analysis, Karl Pearson's correlation coefficient and regression model was used.

3.6.1. Financial Tools

A powerful and most widely used tool of financial tools is ratio analysis. Ratios can be calculated between any two items of financial statements. A financial ratio is the

relationship between two accounting figures, expressed mathematically or the term ratio refers to the numerical or quantitative relationship between two items/variables. Ratio helps to summarize the large quantities of financial data to make qualitative judgments so ratio is regarded as the best indicator to any business to know the performance. There are numerous ratios to analyze and interpret the financial performance of the enterprise or firm. However, for our purpose, only important and relevant ratios are evaluated. Some of the important ratios for evaluating the company's performance.

3.6.2. Statistical Tools

Statistical tools perform very important role in business activity. Each and every performance should be calculated in business world to know the exact profit/loss. Here are some mathematical tools which are widely in practice.

The following mentioned statically tools well be used interpret data

1. Arithmetic Means

Arithmetic mean is the number which is obtained by adding the various numbers of all the items of a series and dividing the total by the number of items. Arithmetic mean is a useful tool in statistical analysis. The arithmetic mean is the simplest and most widely used measure of a mean, or average. It simply involves taking the sum of a group of numbers, then dividing that sum by the count of the numbers used in the series.

$$\bar{x} = \frac{\sum x}{N}$$

Where,

\bar{X} = Arithmetic Mean

$\sum X$ = Sum of Elements

N = Number of Observations

2. Standard Deviation

The standard deviation is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. It is calculated as the square root of variance by determining the variation between each data point relative to the mean. If

the data points are further from the mean, there is higher deviation within the data set; thus, the more spread out the data, the higher the standard deviation.

$$S. D = \sqrt{\frac{\sum(x-\bar{x})^2}{N}}$$

3. Coefficients of Variation

Standard deviation is the absolute measure of dispersion. The relative measure of dispersing based on the standard deviation is known as the measurement of coefficient of standard deviation. The percentage of measure of coefficient of s.d is called coefficient of variation less c.v is more uniformity and consistency vice versa. Only standard deviation is not appropriate to compare two pairs of variables but cv is capable to compare two variables independently in terms of their variability. It is calculated as under.

$$\text{Coefficients of variation (C.V)} = \frac{s.d}{\bar{x}} * 100$$

4. Coefficient of Correlation

The correlation coefficient is a statistical measure that calculates the strength of the relationship between the relative movements of the two variables. It is a useful statistical tool for measuring the intensity of the magnitude of linear relationship between two variables. The most important method of measuring the correlation between the two variables is “Karl person’s coefficient of correlation. “If the values of the variables are directly proportional then the correlation is said to be positive. On the other hand, if the values of the variables are inversely proportional, then the correlation is said to be negative. The correlation coefficient always remains within the limit of +1 to -1. The correlation coefficients (r) between two variables X and Y can be obtained by using following formula.”

$$r = \frac{N \sum XY - \sum X, EY}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

Where,

r = the correlation coefficient between two variables of X and Y

Properties :

- a) It lies between -1 and +1
- b) If $r = +1$, then there is perfect positive correlation.
- c) If $r = -1$, then there is perfect negative correlation.
- d) If $r = 0$, then there is no correlation.
- e) If $r = 0.7$ to 0.99 (or- 0.7 to -0.99) then there is high degree positive or negative correlation.

5. Multiple Regression Analysis

Multiple linear regressions is most common form of linear regression is used to explain the relationship between one continuous dependent variable and two or more independent variables. The independent variables can be continuous or categorical.

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. The goal of multiple linear regression (MLR) is to model the linear relationship between the explanatory (independent) variables and response (dependent) variable. In essence, multiple regressions is the extension of ordinary least-squares (OLS) regression that involves more than one explanatory variable.

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip}$$

Where, for $i = n$ observation y_i =dependent variable x_i =explanatory variables
 β_0 =y-intercept (constant term) β_p =slope coefficients for each explanatory variable.

3.7 Research Framework and Definition of Variables

3.7.1 Conceptual Framework

The conceptual framework of this research is presented in graphic from which reflects the variables selected in research. It is presented below:

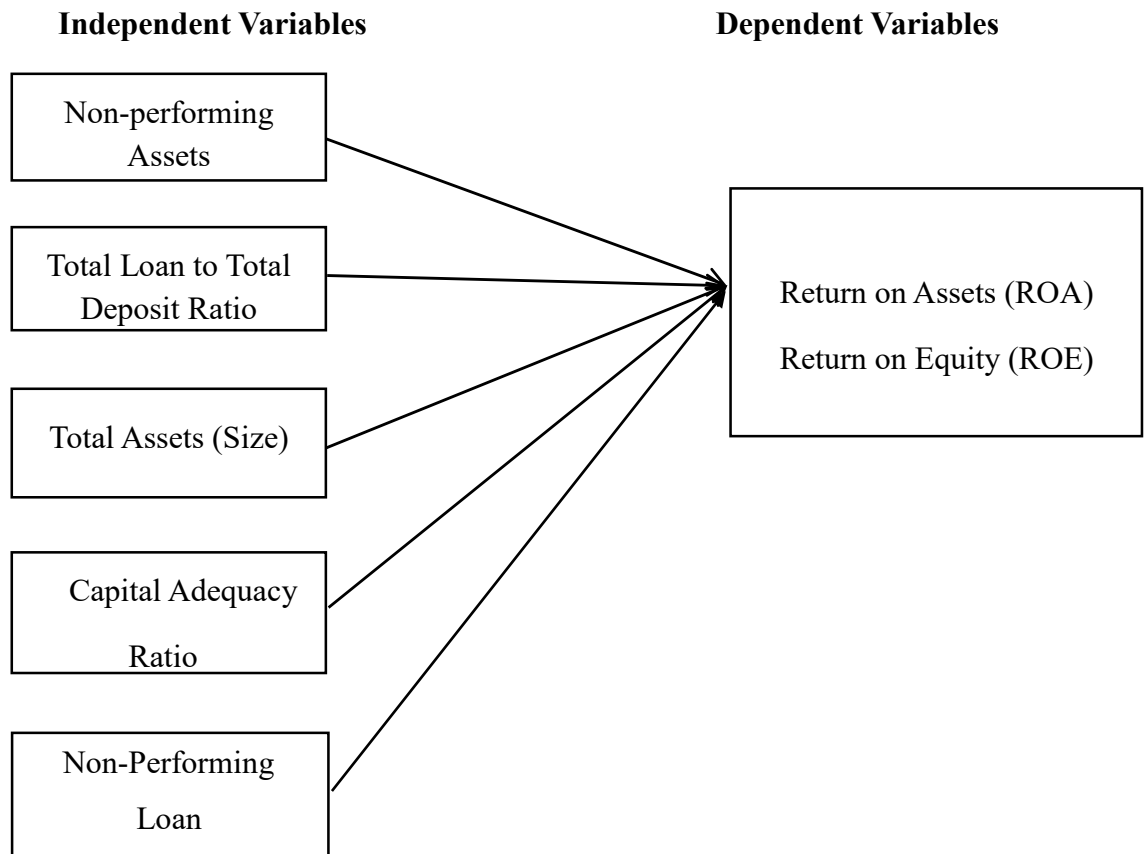


Figure: The Conceptual Framework

(Source: Gnawali (2018); Jhamb and Jhamb (2013))

3.7.2 Definition of Variables

A variable in research is essentially a person, place, object, or phenomenon that you are attempting to quantify in some way. The simplest way to comprehend the distinction between a dependent and independent variable is to consider what the words tell us about the variable in question.

Independent Variables

In experimental research, an independent variable is one that you manipulate, control, or modify to investigate its effects. It is referred to be "independent" since it is unaffected by any other factors in the research. They are as follows:

Return on assets

Return on asset is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate

earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as 'return on investment'

$$R O A = \frac{N P A T}{T o t a l a s s e t s}$$

Return on Equity

The ratio of net profit after tax obtained by dividing total equity gives us return on equity. This is the amount of money the company generates relative to shareholder equity. This is reflected in the company's balance sheet. Shareholders of any company expect a higher return on equity than they invested in the company. Companies with relatively higher ROE will generate higher amounts of internal cash. A higher ROE indicates better profitability. Khrawish (2011) suggests that the ratio obtained by dividing net profit after tax by shareholders' equity is reflected in ROE. It shows the rate of return on the money that the bank's shareholders have invested in the company. ROE measures a bank's management efficiency in allocating shareholder capital. We can conclude from the above statement that management will be more efficient in utilizing shareholders' capital when their ROE is higher.

$$R O E = \frac{N e t I n c o m e A f t e r T a x}{T o t a l E q u i t y}$$

Independent Variables Non-performing Assets

Non-performing assets (NPAs) means the amount of loan that the individual commercial bank had provided and the consumer has not paid it until the time is already matured. Once the distributed loan is not returned timely by clients and becomes overdue then, it is known as Non-performing Assets for the bank. Reduction of NPA has always been a significant problem for every commercial bank. Michael (2006) emphasized that NPA in loan portfolios affected operational efficiency that in turn affects profitability, liquidity and solvency of banks.

$$\text{Non-performing Assets (NPA)} = \frac{N o n - P e r f o r m i n g A s s e t s}{T o t a l L o a n}$$

Total Assets

Total assets, measured by bank size, are used to reflect the fact that larger banks are better positioned than smaller banks to exploit economies of scale in transactions, this clearly means that they will tend to benefit from higher profits. Therefore, a positive relationship is expected between size and profitability. Molyneux & Thornton (1992) and Bikker & H (2002) find that firm size has a positive relationship with profits.

$$\text{Total Assets} = \text{Liabilities} + \text{Capital}$$

Total Loan to Total Deposit Ratio

The Total Loan to Total Deposit Ratio (LTDR) is a financial metric that expresses the proportion of a bank's total loans to its total deposits. This ratio is used to assess the extent to which a bank relies on its deposit base to fund its lending activities. It provides insights into the bank's liquidity position and its ability to meet customer loan demands based on the funds collected from depositors. A higher LTDR indicates that a larger portion of a bank's assets is tied up in loans compared to its deposit base, which could pose liquidity challenges. On the other hand, a lower ratio suggests that the bank has a more conservative approach, relying more on deposits to fund its lending activities. Banks carefully manage their LTDR to strike a balance between maximizing lending opportunities and maintaining sufficient liquidity to meet withdrawal demands from depositors. The formula for calculating the Total Loan to Total Deposit Ratio is as follows:

$$\text{LTDR} = \frac{\text{Total Loan}}{\text{Total Deposits}}$$

Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) is a key financial metric that measures a bank's capital in relation to its risk-weighted assets. It is a crucial indicator of a bank's financial strength and ability to absorb potential losses. The CAR is expressed as a percentage and is designed to ensure that banks maintain a sufficient capital buffer to cover their risk exposures. The Basel Committee on Banking Supervision, through the Basel Accords, has provided international standards for calculating and maintaining the Capital Adequacy Ratio. These accords (Basel I, Basel II, and Basel III) outline guidelines to ensure that banks have

adequate capital to cover credit, market, and operational risks. The formula for calculating the Capital Adequacy Ratio is:

$$\text{CAR} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}}$$

Non-Performing Loan

Non-performing loans (NPLs) refer to loans that have not generated the expected interest and principal repayments for a certain period, typically 90 days or more. In the banking and financial sector, NPLs are considered a key indicator of asset quality and credit risk. When borrowers fail to meet their repayment obligations, loans are classified as nonperforming. Non-performing loans can have adverse effects on financial institutions, leading to potential losses and impacting their overall financial health. The management and resolution of NPLs are crucial for maintaining the stability and sustainability of banks and other lending institutions. Several factors contribute to the emergence of nonperforming loans, including economic downturns, financial instability, inadequate credit risk assessment, and poor lending practices. During economic recessions, businesses and individuals may face financial challenges, making it difficult for them to service their debts.

$$\text{Non-Performing Loan} = \frac{\text{Non-Performing Loan}}{\text{Number of Loans}}$$

CHAPTER IV

RESULTS AND DISCUSSION

This chapter basically describes the results obtained from statistical calculations of variables. If you use the right tools, it is taken into account that the results obtained from the calculations will provide the answer. This forms the basis for interpretation and is checked against the research question. This chapter provides a systematic presentation and analysis of data to address various issues related to NPAs and bank profitability of Nepal Commercial Banks. This chapter presents the study including descriptive statistics of the variables, correlation results of dependent variables and explanatory variables, diagnostic

tests of regression models, and regression analysis of his two profitability ratios: return on assets, return on equity. Let's discuss the results. . Secondary data analysis was performed using SPSS software. This chapter presents the analysis and results of the study according to the research methodology. The research findings are about NPAs and bank profitability of Nepal commercial banks. The results of all these equations are categorized into three types: descriptive results, correlation results, and regression analysis.

Statistical Package for Social Sciences (SPSS) is used to study the relationship between variables of bank-specific factors and profitability indicators of commercial banks in Nepal. All variables are defined within tables. The data used for this study was compiled from banks' annual reports available on each bank's website. After compiling the data and providing descriptive statistics, we performed correlation and linear regression analyzes for return on equity (ROE) and return on assets (ROA).

4.1 Descriptive Statistics

The features of a firm's performance and associated variables during the study period are explained with the aid of descriptive statistics. The study employed descriptive statistics, specifically the mean, median, standard deviation, and the lowest and maximum values corresponding to the variables under investigation. The study's variables' descriptive statistics are compiled in the table.

Table 2

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	-18.90	18.03	1.3251	3.2513
ROE	-175.60	194.06	18.069	33.100
NPA	0.0000	0.01602	0.0010772	0.00244
TLTDR	0.00064	0.04905	0.0157658	0.011263
TA	0.860	101.52	26.6772	20.622
CAR	0.000	0.0910	0.02382	0.01865
NPL	-2.90	77.21	49.8139	12.783

Valid N (likewise) 70

SPSS Output

Table 2 presents a comprehensive set of descriptive statistics for key financial ratios and indicators, providing valuable insights into the financial performance and risk profile of the entities under consideration. These indicators cover a range of financial aspects, including profitability, asset quality, leverage, and capital adequacy. The minimum, maximum, mean, and standard deviation values for each metric are reported, offering a holistic view of the distribution and variability within the dataset.

Starting with Return on Assets (ROA), the data indicates a wide range of performance, with a minimum value of -18.90 percent and a maximum value of 18.03 percent. The mean ROA is 1.3251 percent, with a standard deviation of 3.2513 percent, suggesting considerable variability in how efficiently assets are utilized to generate profits across the entities. Return on Equity (ROE) exhibits even greater variability, with a minimum of -175.60 percent and a maximum of 194.06 percent. The mean ROE stands at 18.069 percent, accompanied by a substantial standard deviation of 33.100 percent. This metric reflects the entities' ability to generate profits from shareholders' equity and highlights the diversity in financial performance within the dataset.

Non-Performing Assets (NPA), a crucial indicator of asset quality, shows a narrow range from 0.0000 percent to 0.01602 percent, with a mean of 0.0010772 percent and a standard deviation of 0.00244 percent. The low variability in NPA suggests a relatively consistent performance in managing credit risk and maintaining asset quality across the entities. Total Loan to Total Deposit Ratio (TLTDR) ranges from 0.00064 to 0.04905, with a mean of 0.0157658 and a standard deviation of 0.011263. This ratio provides insights into the entities' reliance on longterm debt, indicating the extent to which they are leveraged. The variability in TLTDR suggests diversity in financing strategies and risk appetites among the entities. Total Assets (TA) demonstrate a broad spectrum, ranging from 0.860 to 101.52, with a mean of 26.6772 and a standard deviation of 20.622. The significant spread in total assets highlights differences in the size and scale of the entities, which can impact their financial stability and operational capabilities.

Capital Adequacy Ratio (CAR) spans from 0.000 to 0.0910, with a mean of 0.02382 and a standard deviation of 0.01865. CAR is critical for assessing an entity's ability to absorb losses and maintain solvency. The variation in CAR values suggests differences in the entities' capital structures and risk management practices. Non-Performing Loans (NPL) exhibit a wide range from -2.90 percent to 77.21 percent, with a mean of 49.8139 percent

and a standard deviation of 12.783 percent. The high variability in NPL underscores the diversity in loan quality and credit risk management practices among the entities.

In conclusion, Table 2 provides a detailed snapshot of the financial landscape, offering a nuanced understanding of the entities' performance, risk exposure, and financial health. The variations in the reported metrics emphasize the importance of considering the unique characteristics of each entity when assessing their financial standing and making informed decisions.

4.2 Correlation of Coefficient

Correlation analysis is a tool that compares the relationship between dependent and independent variables. This also indicates the direction of the variable. The correlation coefficient also indicates the direction of movement, positive or negative. Values can range from -1 to +1. Correlation calculations provide coefficients that help predict the influence of one variable on another. A strong or high correlation means that two or more variables have a strong relationship with each other, and a weak or low correlation means that the variables are poorly related. Pearson correlations were calculated and the results are shown in Table 4.2.

Table 3
Correlation Matix

Variables	ROA	ROE	NPA	TLTDR	TA	CAR	NPL
ROA	1						
ROE	.135	1					
NPA	.245	-.164	1				
TLTDR	.250	-.446**	.588**	1			
TA	-.277	.080	.008	.115	1		
CAR	.017	.005	-.328*	-.505**	.035	1	
NPL	.061	-.101	-.446**	-.471**	.140	.710**	1

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

Table 3 presents a correlation matrix detailing the relationships between various financial variables, namely Return on Assets (ROA), Return on Equity (ROE), Non-Performing Assets (NPA), Total Loans to Total Deposits Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL). The diagonal elements of the matrix display the correlation of each variable with itself, which is always 1. The off-diagonal elements provide the correlation coefficients between pairs of variables. The correlation coefficients reveal the strength and direction of the linear relationships between the variables. For instance, the correlation between ROA and ROE is 0.135, suggesting a positive but relatively weak correlation. Notably, the correlation between TLTDR and ROE is -0.446, and this negative correlation is statistically significant at the 0.01 level. The correlation between TLTDR and NPA is 0.588, and this positive correlation is statistically significant at the 0.01 level. Similarly, the correlation between CAR and TLDR is -0.505, indicating a substantial negative relationship. Moreover, the correlation between NPL and CAR is particularly noteworthy, standing at 0.710, signifying a strong positive correlation.

Importantly, asterisks denote the significance levels of the correlations, with ** indicating significance at the 0.01 level (2tailed).

In summary, Table 3 provides a comprehensive overview of the interrelationships among key financial variables, offering insights into their associations and potential implications for financial performance and risk management.

4.3 Regression Analysis

Multiple linear regression is the most common form of linear regression and is used to describe the relationship between a continuous dependent variable and two or more independent variables. Independent variables can be continuous or categorical. The purpose of multiple regression (MLR) is to model linear relationships between explanatory (independent) variables and response (dependent) variables.

4.3.1 The Multiple Regression of ROA

The regression analysis investigates the influence of liquidity variables, such as Nonperforming Assets (NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR) and Non-Performing Loan (NPL) on the changes in Return on Assets (ROA) for the chosen banks. The equation for this regression model is outlined below: $ROA = a_1 + b_1 NPA + b_2 TLTDR + b_3 TA + b_4 CAR + b_5 NPL + \dots$

(i)

Where, ROA= Return on Asset, a_1 = Constant, b_1 , b_2 , b_3 , b_4 and b_5 = Regression coefficient

Table 4
Regression of ROA

Model Summary

Model	R	R Square	Adjusted R Square	Error of the Estimate
1	.4701	.221	.133	.52999

a. Predictors: (constant), NPA, TLTDR, TA, CAR and NPL

b. Dependent Variables: ROA

Table 4 presents the outcomes of a regression analysis designed to model Return on Assets (ROA) using a combination of predictor variables. The model summary statistics offer crucial insights into the effectiveness of the regression model. The reported R Square, measuring 0.221, signifies that the predictors—Non-Performing Assets (NPA), Total Long-Term Debt to Total Debt Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR), and NonPerforming Loans (NPL)—collectively explain 22.1% of the variability observed in ROA. This suggests that while the selected predictors contribute to understanding ROA, there remains a substantial portion of unexplained variance, indicating the potential presence of other influential factors not considered in the model.

The Adjusted R Square, at 0.133, takes into account the model's complexity by adjusting the R Square based on the number of predictors. In this case, the adjusted value is lower than the R Square, implying that the inclusion of the specified predictors may not significantly enhance the model's explanatory power. This raises questions about the comprehensiveness of the chosen set of predictors and suggests that additional variables might be necessary to capture more nuances in the determinants of ROA. The Std. Error of the Estimate, reported as 0.52999, represents the average deviation of observed ROA values from the values predicted by the model. A lower value would indicate a more precise fit, but the moderate standard error here suggests a moderate level of accuracy in predicting ROA, reinforcing the need for refinement in the model or consideration of additional relevant variables.

In summary, while the regression model in Table 4 provides valuable insights into the relationships between ROA and selected predictors, its limited explanatory power and moderate predictive accuracy signal opportunities for improvement. Exploring additional variables or refining the existing model may enhance its ability to capture the complexities influencing ROA, providing more robust insights for stakeholders in assessing and predicting financial performance.

Table 5

Analysis of Variance of ROA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.376	5	.675	2.866	-.024
	Residual	11.897	44	2.70		
	Total	15.273	49			

a. Dependent Variable: ROA

b. Predictors: (constant), NPA, TLDR, TA, CAR and NPL

Table 5 provides the results of an Analysis of Variance (ANOVA) for the regression model applied to Return on Assets (ROA). This statistical technique helps assess the significance of the regression model and its individual predictors by comparing the variance explained by the model (regression) with the unexplained variance (residual). The table comprises several key components, including the sums of squares, degrees of freedom, mean squares, F-statistic, and the associated p-value. The ANOVA table is divided into two main sections: Regression and Residual. The Regression section contains information about the variance attributed to the predictors (NPA, TLDR, TA, CAR, and NPL) and the overall fit of the model. The sum of squares for the regression is reported as 3.376, with 5 degrees of freedom. The mean square, calculated as the sum of squares divided by the degrees of freedom, is 0.675. The Residual section represents the unexplained variance or the difference between the observed values of ROA and the values predicted by the model. The sum of squares for the residual is 11.897, with 44 degrees of freedom. The total sum of squares is the sum of the regression and residual sums of squares, totaling 15.273 with 49 degrees of freedom.

The F-statistic, a ratio of variances, is computed by dividing the mean square for the regression by the mean square for the residual. In this case, the F-statistic is 2.866. The associated p-value, denoted as "Sig.," provides the probability of obtaining an F-statistic as extreme as the one observed if the null hypothesis were true. The null hypothesis, in this context, posits that the predictors do not have a statistically significant effect on ROA. The p-value of -0.024 indicates a statistically significant result at conventional significance levels, implying that at least one of the predictors in the model has a significant impact on ROA. The overall interpretation of the ANOVA results suggests that the regression model,

as a whole, is statistically significant in explaining the variance in ROA. However, the negative p-value raises a point of caution and prompts further investigation. It's worth noting that negative p-values can sometimes result from issues such as small sample sizes or violations of underlying assumptions. Therefore, additional diagnostics and sensitivity analyses may be necessary to ensure the robustness of the findings.

In conclusion, Table 5 offers a comprehensive overview of the ANOVA results, providing a statistical foundation for evaluating the significance of the regression model and its predictors in explaining the variability in Return on Assets. The statistically significant F-statistic indicates that, collectively, the included predictors contribute to explaining the variance in ROA, prompting a closer examination of the individual predictor variables to discern their specific impacts on the financial metric.

Table 6
Regression Analysis

	<u>Model</u>	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t-value	Sig.
1	(Constant)	0.383	0.572		0.670	0.506
	NPA	0.038	0.026	0.311	1.451	0.013
	TLTDR	-0.053	0.039	-0.230	1.350	0.183
	TA	0.030	0.009	0.590	3.296	0.002
	CAR	-0.137	0.058	-0.336	2.349	0.023
	NPL	0.161	1.515	-0.014	0.107	0.916

Dependent Variable: ROA

Table 6 provides detailed information on the correlation coefficients for a regression model with Return on Assets (ROA) as the dependent variable and Non-Performing Assets (NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL) as independent variables. The table includes unstandardized coefficients, standardized coefficients (Beta), t-values, and significance levels (Sig.) for each predictor variable.

The constant term is reported with a coefficient of 0.383 and a standard error of 0.572. The t-value of 0.670 and a significance level of 0.506 indicate that the constant is not statistically significant at conventional significance levels. This suggests that the intercept may not significantly differ from zero, and the model does not necessarily need a constant term to accurately predict ROA. Moving to the predictor variables, Non-Performing Assets (NPA) has a positive unstandardized coefficient (B) of 0.038 with a standard error of 0.026. The standardized coefficient (Beta) of 0.311 suggests that, when other variables are held constant, a one-unit increase in NPA is associated with a 0.311 standard deviation increase in ROA. The t-value of 1.451 and a significance level of 0.013 indicate that NPA is statistically significant, suggesting that it has a meaningful impact on ROA.

Total Loan to Total Deposit Ratio (TLTDR) has a negative unstandardized coefficient of -0.053 with a standard error of 0.039. The standardized coefficient (Beta) of -0.230 indicates that, when other variables are held constant, a one-unit increase in TLTDR is associated with a 0.230 standard deviation decrease in ROA. The t-value of 1.350 and a significance level of 0.183 suggest that TLTDR is not statistically significant at conventional levels, indicating that its impact on ROA may not be robust.

Total Assets (TA) exhibits a positive unstandardized coefficient of 0.030 with a standard error of 0.009. The standardized coefficient (Beta) of 0.590 suggests a strong positive relationship, indicating that a one-unit increase in TA is associated with a 0.590 standard deviation increase in ROA when other variables are held constant. The t-value of 3.296 and a significance level of 0.002 indicate that TA is highly statistically significant, emphasizing its substantial impact on ROA.

Capital Adequacy Ratio (CAR) has a negative unstandardized coefficient of -0.137 with a standard error of 0.058. The standardized coefficient (Beta) of -0.336 suggests that a one-unit increase in CAR is associated with a -0.336 standard deviation decrease in ROA when other variables are held constant. The t-value of 2.349 and a significance level of 0.023 indicate that CAR is statistically significant, highlighting its impact on ROA.

Non-Performing Loans (NPL) has a positive unstandardized coefficient of 0.161 with a large standard error of 1.515. The standardized coefficient (Beta) of -0.014 is notably small. The t-value of 0.107 and a high significance level of 0.916 indicate that NPL is not

statistically significant, suggesting that it may not have a substantial impact on ROA in this model.

In summary, Table 6 provides a comprehensive view of the regression coefficients for the model predicting ROA. It highlights the statistically significant predictors (NPA, TA, and CAR) and their respective impacts on ROA, providing valuable information for stakeholders to understand the factors influencing the financial performance of the entities under consideration. The non-significant predictors (TLTDR and NPL) also contribute to the nuanced interpretation of the model and can guide future refinements or investigations into additional variables.

4.3.2 The Multiple Regression of ROE

The regression analysis investigates the influence of liquidity variables, such as Nonperforming Assets (NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR) and Non-Performing Loan (NPL) on the changes in Return on Equity (ROE) for the chosen banks. The equation for this regression model is outlined below:

$$ROE = a_1 + b_1 NPA + b_2 TLTDR + b_3 TA + b_4 CAR + b_5 NPL \dots \dots \dots (i)$$

Where, ROE= Return on Equity, a_1 = Constant, b_1 , b_2 , b_3 , b_4 and b_5 = Regression coefficient

Table 7
Regression of ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.5746	.330	.251	5.6611

a. Predictors: (constant), NPA, TLTDR, TA, CAR and NPL

b. Dependent Variables: ROE

Table 7 presents the results of a regression analysis focused on modeling Return on Equity (ROE) using a set of predictor variables. The model summary statistics offer insights into

the overall performance of the regression model in explaining the variability in ROE. The reported R Square, measuring 0.330, indicates that the predictors—Non-Performing Assets (NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (TA), Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL)—collectively account for 33.0% of the variance observed in ROE. This suggests that the selected predictors contribute to understanding a significant portion of the variation in ROE, although there may still be other factors influencing ROE that are not considered in the model.

The Adjusted R Square, at 0.251, adjusts the R Square based on the number of predictors in the model. This adjusted value provides a more conservative estimate of the model's explanatory power, considering the potential for overfitting. The fact that the Adjusted R Square is lower than the R Square indicates that the inclusion of the specified predictors may not substantially improve the model's explanatory capacity, suggesting the need for further exploration or the inclusion of additional relevant variables. The Std. Error of the Estimate, reported as 5.6611, represents the average deviation of observed ROE values from the values predicted by the model. A lower value indicates a more precise fit, and in this case, the reported standard error suggests a moderate level of accuracy in predicting ROE. However, it is important to interpret this value in the context of the scale of ROE and the specific characteristics of the dataset.

In conclusion, Table 7 provides a concise summary of the regression model's performance in explaining ROE. The R Square and Adjusted R Square values offer insights into the proportion of variability in ROE that the included predictors account for, while the Std. Error of the Estimate provides an indication of the model's predictive accuracy. Further analysis of the individual coefficients for the predictor variables is necessary for a more granular understanding of their contributions to ROE and can guide stakeholders in making informed decisions about financial performance and risk management.

Table 8

Analysis of Variance of ROE

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	695.360	5	139.072	1.541	0.002
	Residual	1410.12	44	32.048		
	Total	2105.489	49			

a. Dependent Variable: ROE

b. Predictors: (constant), NPA, TLTD, TA, CAR and NPL

Table 8 presents the results of an Analysis of Variance (ANOVA) for the regression model applied to Return on Equity (ROE). ANOVA is a statistical technique that assesses the significance of the regression model and its individual predictors by comparing the variance attributed to the model (regression) with the unexplained variance (residual). The table consists of three main components: Regression, Residual, and Total. Each of these components provides critical information about the overall fit of the model.

In the Regression section, the sum of squares is reported as 695.360, with 5 degrees of freedom. The mean square, calculated by dividing the sum of squares by the degrees of freedom, is 139.072. The F-statistic, obtained by dividing the mean square for the regression by the mean square for the residual, is 1.541. The associated p-value, labeled as "Sig.," is reported as 0.002. This p-value indicates that the regression model is statistically significant at conventional significance levels. The null hypothesis, which posits that the predictors do not have a statistically significant effect on ROE, is rejected based on the low p-value. This suggests that at least one of the predictors in the model has a significant impact on ROE.

The Residual section provides information about the unexplained variance or the difference between the observed values of ROE and the values predicted by the model. The sum of squares for the residual is 1410.12, with 44 degrees of freedom. The total sum of squares, which is the sum of the regression and residual sums of squares, is reported as 2105.489, with 49 degrees of freedom. The Total sum of squares represents the overall variability in the dependent variable, ROE. The partitioning of the total sum of squares into regression and residual components allows for the assessment of how much of the variability in ROE is explained by the predictors included in the model.

In conclusion, Table 8 provides a comprehensive view of the ANOVA results, offering statistical evidence regarding the significance of the regression model in explaining the variance in Return on Equity (ROE). The statistically significant F-statistic suggests that, collectively, the included predictors (NPA, TLTD, TA, CAR, and NPL) contribute to explaining the variance in ROE. This information is valuable for stakeholders seeking to understand the factors influencing ROE and make informed decisions about financial performance and risk management. The rejection of the null hypothesis implies that at least one of the predictors is significantly related to ROE, prompting further exploration of the individual predictor variables to discern their specific impacts on this financial metric.

Table 9
Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t-value	Sig.
1	(Constant)	0.614	0.584		1.052	0.298
	NPA	0.055	0.027	0.469	2.065	0.044
	TLTD	0.052	0.059	-0.132	0.869	0.389
	TA	2.725	1.547	0.248	1.761	0.015
	CAR	-0.048	0.040	0.217	1.205	0.034
	NPL	-0.002	0.009	-0.036	0.188	0.852

Dependent Variable: ROE

Table 9 provides detailed information on the coefficient correlations for a regression model with Return on Equity (ROE) as the dependent variable and Non-Performing Assets (NPA), Total Loan to Total Deposit Ratio (TLTD), Total Assets (TA), Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL) as independent variables. The table includes unstandardized coefficients (B), standardized coefficients (Beta), standard errors, t-values, and significance levels (Sig.) for each predictor variable.

The constant term is reported with a coefficient of 0.614 and a standard error of 0.584. The t-value of 1.052 and a significance level of 0.298 indicate that the constant is not statistically

significant at conventional significance levels. This suggests that the intercept may not significantly differ from zero, and the model does not necessarily need a constant term to accurately predict ROE.

Moving to the predictor variables, Non-Performing Assets (NPA) has a positive unstandardized coefficient (B) of 0.055 with a standard error of 0.027. The standardized coefficient (Beta) of 0.469 suggests that, when other variables are held constant, a one-unit increase in NPA is associated with a 0.469 standard deviation increase in ROE. The t-value of 2.065 and a significance level of 0.044 indicate that NPA is statistically significant, suggesting that it has a meaningful impact on ROE. Total Loan to Total Deposit Ratio (TLTDR) has a positive unstandardized coefficient of 0.052 with a larger standard error of 0.059. The standardized coefficient (Beta) of -0.132 indicates that, when other variables are held constant, a one-unit increase in TLTDR is associated with a -0.132 standard deviation decrease in ROE. The t-value of 0.869 and a significance level of 0.389 suggest that TLTDR is not statistically significant at conventional levels, indicating that its impact on ROE may not be robust.

Total Assets (TA) exhibits a substantial positive unstandardized coefficient of 2.725 with a standard error of 1.547. The standardized coefficient (Beta) of 0.248 suggests a positive relationship, indicating that a one-unit increase in TA is associated with a 0.248 standard deviation increase in ROE when other variables are held constant. The t-value of 1.761 and a significance level of 0.015 indicate that TA is statistically significant, emphasizing its substantial impact on ROE.

Capital Adequacy Ratio (CAR) has a negative unstandardized coefficient of -0.048 with a standard error of 0.040. The standardized coefficient (Beta) of 0.217 suggests that a one-unit increase in CAR is associated with a -0.217 standard deviation decrease in ROE when other variables are held constant. The t-value of 1.205 and a significance level of 0.034 indicate that CAR is statistically significant, highlighting its impact on ROE.

Non-Performing Loans (NPL) has a negligible unstandardized coefficient of -0.002 with a small standard error of 0.009. The standardized coefficient (Beta) of -0.036 is notably small. The t-value of 0.188 and a high significance level of 0.852 indicate that NPL is not

statistically significant, suggesting that it may not have a substantial impact on ROE in this model.

In summary, Table 9 provides a comprehensive view of the regression coefficients for the model predicting ROE. It highlights the statistically significant predictors (NPA, TA, and CAR) and their respective impacts on ROE, providing valuable information for stakeholders to understand the factors influencing the financial performance of the entities under consideration. The non-significant predictors (TLTDR and NPL) also contribute to the nuanced interpretation of the model and can guide future refinements or investigations into additional variables.

4.4 Discussion

From the above data analysis, the following major findings have been drawn:

The mean ROA is 1.3251 percent, with a standard deviation of 3.2513 percent, suggesting considerable variability in how efficiently assets are utilized to generate profits across the entities. Return on Equity (ROE) exhibits even greater variability, with a minimum of -175.60 percent and a maximum of 194.06 percent. The mean ROE stands at 18.069 percent, accompanied by a substantial standard deviation of 33.100 percent. This metric reflects the entities' ability to generate profits from shareholders' equity and highlights the diversity in financial performance within the dataset.

Non-Performing Assets (NPA), a crucial indicator of asset quality, shows a narrow range from 0.0000 percent to 0.01602 percent, with a mean of 0.0010772 percent and a standard deviation of 0.00244 percent. The low variability in NPA suggests a relatively consistent performance in managing credit risk and maintaining asset quality across the entities. Total Loan to Total Deposit Ratio (TLTDR) ranges from 0.00064 to 0.04905, with a mean of 0.0157658 and a standard deviation of 0.011263. This ratio provides insights into the entities' reliance on total loan to total deposit ratio, indicating the extent to which they are leveraged. The variability in TLTDR suggests diversity in financing strategies and risk appetites among the entities. Total Assets (TA) demonstrate a broad spectrum, ranging from 0.860 to 101.52, with a mean of 26.6772 and a standard deviation of 20.622. The significant spread in total assets highlights differences in the size and scale of the entities, which can impact their financial stability and operational capabilities.

Capital Adequacy Ratio (CAR) spans from 0.000 to 0.0910, with a mean of 0.02382 and a standard deviation of 0.01865. CAR is critical for assessing an entity's ability to absorb losses and maintain solvency. The variation in CAR values suggests differences in the entities' capital structures and risk management practices. Non-Performing Loans (NPL) exhibit a wide range from -2.90 percent to 77.21 percent, with a mean of 49.8139 percent and a standard deviation of 12.783 percent. The high variability in NPL underscores the diversity in loan quality and credit risk management practices among the entities.

The correlation of each variable with itself, which is always 1. The off-diagonal elements provide the correlation coefficients between pairs of variables. The correlation coefficients reveal the strength and direction of the linear relationships between the variables. For instance, the correlation between ROA and ROE is 0.135, suggesting a positive but relatively weak correlation. Notably, the correlation between TLDR and ROE is -0.446, and this negative correlation is statistically significant at the 0.01 level. The correlation between TLDR and NPA is 0.588, and this positive correlation is statistically significant at the 0.01 level. Similarly, the correlation between CAR and TLDR is -0.505, indicating a substantial negative relationship. Moreover, the correlation between NPL and CAR is particularly noteworthy, standing at 0.710, signifying a strong positive correlation. Importantly, asterisks denote the significance levels of the correlations, with ** indicating significance at the 0.01 level (2tailed).

The t-value of 1.451 and a significance level of 0.013 indicate that NPA is statistically significant, suggesting that it has a meaningful impact on ROA. Total Loan to Total Deposit Ratio (TLDR) has a negative unstandardized coefficient of -0.053 with a standard error of 0.039. The standardized coefficient (Beta) of -0.230 indicates that, when other variables are held constant, a one-unit increase in TLDR is associated with a -0.230 standard deviation decrease in ROA. The t-value of 1.350 and a significance level of 0.183 suggest that TLDR is not statistically significant at conventional levels, indicating that its impact on ROA may not be robust. Total Assets (TA) exhibits a positive unstandardized coefficient of 0.030 with a standard error of 0.009. The standardized coefficient (Beta) of 0.590 suggests a strong positive relationship, indicating that a one-unit increase in TA is associated with a 0.590 standard deviation increase in ROA when other variables are held constant. The t-value of 3.296 and a significance level of 0.002 indicate that TA is highly statistically significant, emphasizing its substantial impact on ROA. Capital Adequacy Ratio (CAR)

has a negative unstandardized coefficient of -0.137 with a standard error of 0.058. The standardized coefficient (Beta) of 0.336 suggests that a one-unit increase in CAR is associated with a -0.336 standard deviation decrease in ROA when other variables are held constant. The t-value of 2.349 and a significance level of 0.023 indicate that CAR is statistically significant, highlighting its impact on ROA. Non-Performing Loans (NPL) has a positive unstandardized coefficient of 0.161 with a large standard error of 1.515. The standardized coefficient (Beta) of -0.014 is notably small.

The t-value of 0.107 and a high significance level of 0.916 indicate that NPL is not statistically significant, suggesting that it may not have a substantial impact on ROA in this model.

According to the outcome ROA, NPA and ROA have a statistically significant relationship. The results indicate that a higher NPA would result in a higher return on assets. TA is a significant relationship with ROA and the results indicate that a higher TA would result in a higher return on assets. CAR is a significant relationship with ROA and the results indicate that a higher CAR would result in a higher return on assets. TLDR and NPL are the insignificant relationship with ROA it indicates that TLDR and NPL have lower impact on return on assets. The finding is consistent with the findings Alfiana et al. (2023) The findings revealed that the ROA of Islamic banks was significantly influenced by GCG and NPF, with inflation exhibiting no discernible impact over the period 2018-2022. Islam and Rana (2019), the results indicated a significant positive relationship between variables such as income (TIN, NII) and asset structure (DPST) with ROA, while asset quality (NPL) demonstrated a significant negative impact on ROA. Yee (2016), the findings revealed that factors such as capital adequacy and leverage were significant and exhibited a negative correlation with bank performance. Reshmi (2023), the interest income/total loans ratio exhibited a positive and significant impact on ROA, while its impact on ROE was positive but insignificant. The total loan-to-deposit ratio had a significant positive impact on ROA, but it negatively affected ROE. Gnawali (2018), the results show that there is positive relationship of total loan to total deposit with positive relationship with return on assets (ROA). Jhamb & Jhamb (2013). Regression models are employed to assess the significance and impact of non-performing loans on the profitability of Nepalese commercial banks. The results show that there is positive relationship of total loan to total deposit with return on assets (ROA).

According to the outcome ROE, NPA and ROE have a statistically significant relationship. The results indicate that a higher NPA would result in a higher return on equity. TA is a significant relationship with ROE and the results indicate that a higher TA would result in a higher return on assets. CAR is a significant relationship with ROE and the results indicate that a higher CAR would result in a higher return on equity. TLDR and NPL are the insignificant relationship with ROE it indicates that TLDR and NPL have lower impact on return on equity. The finding is consistent with the findings, Islam and Rana (2019), for ROE, earnings (TIN and NII) and capital strength (CAP) exhibited a significant positive relationship with ROE, while asset quality (NPL) had a significant negative impact. Reshmi (2023), the total loan-to-deposit ratio had a significant positive impact on ROA, but it negatively affected ROE. Bank size was found to have a negative and statistically significant impact on both ROA and ROE.

The capital adequacy ratio had an insignificant impact on ROA but a significant impact on ROE. Gnawali (2018), the results show that there is positive relationship of total loan to total deposit with positive relationship with return on equity (ROE). Dahal (2023), the findings revealed a significant negative relationship between non-performing assets and bank profits, carrying substantial implications for operational and policy considerations. To mitigate the adverse impact of increasing bad debts and enhance the profitability of commercial banks in Nepal. Jhamb & Jhamb (2013). Regression models are employed to assess the significance and impact of non-performing loans on the profitability of Nepalese commercial banks. The results show that there is positive relationship of total loan to total deposit with positive relationship with return (ROE).

CHAPTER V

SUMMARY AND CONCLUSION

The report's last chapter is this one. This chapter explains the study's findings and provides a summary of the entire report. This chapter will also provide a summary of the findings and a comparison with earlier research studies. It also shows the implications of the relationship between the variables and, if any, makes recommendations for improvement. Lastly, recommendations regarding the topics to be covered and studied in subsequent research will be made to the researchers.

5.1 Summary

The rise in non-performing assets has become one of the biggest problems in the banking sector around the world. In this context, Nepal is no exception to this situation. Reporters report that NPAs in Nepal's banking industry are at an alarming level. BFIs in Nepal are facing the problem of growing non-performing assets and it has been stated that over time the problem is getting out of control and causing problems in the profitability of banking operations. A commercial bank's solid performance depends on how well it performs, and its performance is measured from several aspects. Profitability is one of the most important aspects that reflect a company's performance. Bank profitability depends on a variety of bank and non-bank variables. This study considers bank variables that affect profitability. One of the variables in banking is non-performing assets (NPAs).

This study aims to assess the relationship between non-performing assets and other bank variables such as Non-Performing Assets (NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (Size), Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL) on overall bank profitability as measured by ROA and ROE. Various international literature suggests that there is a negative relationship between NPAs and profitability. For example, a study by Jhamb & Jhamb (2013) showed that there is a negative relationship between NPA and profitability. In light of these studies, we compared bank profitability with banking variables in the Nepali context. To investigate the relationship between NPA, total deposits, total assets, total loans and profitability of 10 commercial banks from the period 2012 to 2022, Non-Performing Assets

(NPA), Total Loan to Total Deposit Ratio (TLTDR), Total Assets (Size), Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL) on overall bank profitability as measured by ROA and ROE and obtained secondary data regarding ROA and ROE.

In selecting the sample, the study follows non-probability quota sampling. These are grouped based on ownership structure. A descriptive and causal comparative research design was used to search for relevant information related to explanatory variables and firm performance. Correlation and regression analyze are performed to find the relationship between the dependent and explanatory variables. Additionally, this study uses various statistical tools such as SPSS, ANOVA, and F-test to derive meaningful results. This study yielded several important findings. The correlation and regression results of the sample bank data presented in the study clearly indicate that there is a significant negative relationship between non-performing assets and bank profitability. In contrast, Non-performing Assets and Total Loan to Total Deposit Ratio are positively correlated with the rate of return. Finally, banks are considered to be functioning well if they employ young and dynamic staff who seek to pursue appropriate recovery and investment policies.

5.2 Conclusion

Non-performing assets (NPAs) and profitability are crucial indicators for the financial health of a business or financial institution. NPAs represent loans that are not generating income as borrowers are unable to meet their repayment obligations, posing a risk to the institution's stability. Monitoring NPAs is essential for assessing credit risk and implementing effective risk management strategies. On the other hand, profitability is a key metric that reflects the ability of an organization to generate earnings from its operations. A healthy level of profitability is vital for sustaining business operations, attracting investors, and ensuring long-term viability. The interplay between NPAs and profitability underscores the need for sound financial management, as addressing and minimizing NPAs can positively impact profitability and contribute to overall financial resilience.

The mean ROA is 1.3251percent, with a standard deviation of 3.2513 percent, suggesting considerable variability in how efficiently assets are utilized to generate profits across the entities. Return on Equity (ROE) exhibits even greater variability, with a minimum of -175.60 percent and a maximum of 194.06 percent. The mean ROE stands at 18.069 percent, accompanied by a substantial standard deviation of 33.100 percent. This metric reflects the

entities' ability to generate profits from shareholders' equity and highlights the diversity in financial performance within the dataset.

Non-Performing Assets (NPA), a crucial indicator of asset quality, shows a narrow range from 0.0000 percent to 0.01602 percent, with a mean of 0.0010772 percent and a standard deviation of 0.00244 percent. The low variability in NPA suggests a relatively consistent performance in managing credit risk and maintaining asset quality across the entities. Total Loan to Total Deposit Ratio (TLTDR) ranges from 0.00064 to 0.04905, with a mean of 0.0157658 and a standard deviation of 0.011263. This ratio provides insights into the entities' reliance on longterm debt, indicating the extent to which they are leveraged. The variability in TLTDR suggests diversity in financing strategies and risk appetites among the entities. Total Assets (TA) demonstrate a broad spectrum, ranging from 0.860 to 101.52, with a mean of 26.6772 and a standard deviation of 20.622. The significant spread in total assets highlights differences in the size and scale of the entities, which can impact their financial stability and operational capabilities.

The correlation of each variable with itself, which is always 1. The off-diagonal elements provide the correlation coefficients between pairs of variables. The correlation coefficients reveal the strength and direction of the linear relationships between the variables. For instance, the correlation between ROA and ROE is 0.135, suggesting a positive but relatively weak correlation. Notably, the correlation between TLTDR and ROE is -0.446, and this negative correlation is statistically significant at the 0.01 level. The correlation between TLTDR and NPA is 0.588, and this positive correlation is statistically significant at the 0.01 level. Similarly, the correlation between CAR and TLDR is -0.505, indicating a substantial negative relationship. Moreover, the correlation between NPL and CAR is particularly noteworthy, standing at 0.710, signifying a strong positive correlation. Importantly, asterisks denote the significance levels of the correlations, with ** indicating significance at the 0.01 level (2tailed).

NPA, TA and CAR are significant variable with ROA and TLTDR and NPL are insignificant with ROA. NPA, TA and CAR are significant variable with ROE and TLTDR and NPL are insignificant with ROE.

5.3 Implications

The following recommendations have been given for the enhancement of the non-performing assets and profitability of the selected banks.

- i. The stability in ROA and ROE across the ten banks over ten years suggests consistent performance in asset returns and equity profitability.
- ii. The variability in NPA and TLTD R indicates the need for robust risk management strategies to navigate fluctuations in Non-Performing Assets and Total Loan to Total Deposit Ratio.
- iii. The strong positive correlation between CAR and NPL underscores the importance of maintaining a higher Capital Adequacy Ratio to mitigate the impact of Non-Performing Loans.
- iv. The significance of NPA, TA, and CAR with ROA and ROE highlights their critical role in influencing Return on Assets and Equity.
- v. The insignificance of TLTD R and NPL with ROA and ROE suggests that banks may need to focus less on Total Loan to Total Deposit Ratio and Non-Performing Loans when aiming to improve asset returns and equity profitability.
- vi. This study may be helpful to fulfil the gaps of proper research about relationship between liquidity and profitability. It may provide the knowledge about liquidity in Nepalese commercial banks and their profitability position.
- vii. This study reflects the relationship between non-performing assets, total loan to total deposit ratio, total assets, capital adequate ratio, non-performing loan, ROA and ROE of profitability position of ten selected commercial banks only. Furthermore, researchers can be carried out using larges sampling other development banks, commercial banks, microfinance and other institutions too.

REFERENCES

- Abate, T. W., & Mesfin, E. A. (2019). Factors affecting profitability of commercial banks in Ethiopia. *International Journal of Research and Analytical Reviews*, 6(1), 881891.
- Adam, M. H. M. (2014). Evaluating the financial performance of banks using financial ratios-A case study of Erbil bank for investment and finance. *European Journal of Accounting Auditing and Finance Research*, 2(6), 162-177.
- Alfiana, A., Arif, E. M., Yulianto, K. I., Durya, N. P. M. A., & Syafitri, L. (2023). Examining The Determinants of Inflation, GCG and NPF in The Context of Increasing Profitability. *International Journal of Economics Development Research (IJEDR)*, 4(3), 910-924.
- Allen, F., Carletti, E., & Gu, X. (2008). The roles of banks in financial systems. *Oxford handbook of banking*, 5(1), 32-57.
- Altman, E. I. (2005). An emerging market credit scoring system for corporate bonds. *Emerging markets review*, 6(4), 311-323.
- Anderson, R. A. (2013). *Credit Intelligence & Modelling: Many Paths Through the Forest of Credit Rating and Scoring*. Oxford University Press.
- Arifaj, A. H., & Baruti, B. H. (2023). THE EFFECT OF CREDIT RISK ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN BALKAN COUNTRIES. *Business Strategy Review*, 4(3), 18-25.
- Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of financial economics*, 9(1), 3-18.
- Barney. J. (1991). Competitive advantage. *Journal of management*, 17(1), 99-120.
- Barr, R. S., Killgo, K. A., Siems, T. F., & Zimmel, S. (2002). Evaluating the productive efficiency and performance of US commercial banks. *Managerial finance*, 28(8), 3-25.
- Benzschawel, T., & Assing, A. (2012). Inferring default probabilities from credit spreads. *The Journal of Fixed Income*, 21(4), 13-24.
- Bepari, R., & Sarkar, S. C. (2020). Impact of non-performing assets on profitability performance of selected public sector banks and private sector banks in India: A comparative study. *International journal Of Multidisciplinary educational research*, 9(5), 46-52.

- Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of banking & finance*, 22(6-8), 613-673.
- Brealey, N., Lipson, D. A., Barnacle, H., Birk, R Locantore, N., Lomas, D. A., ... & Pascoe, S. J. (2017). Offering Valuable Indicators of Financial Performance and Efficiency. *American journal of respiratory and critical care medicine*, 196(4), 438-446.
- Caouette, J. B., Altman, E. I., Narayanan, P., & Nimmo, R. (2008). *Managing credit risk: The great challenge for global financial markets*. John Wiley & Sons, 5(3), 22-32.
- Chand, J. (2023). Role of non-performing asset, capital adequacy and insolvency risk on the performance of Nepalese commercial banks. *PERSPECTIVES IN NEPALESE MANAGEMENT*, 167.
- Chaudhari, G. (2012). *Non-performing Assets of Commercial Banks*. An unpublished Master's Thesis: Central Department of Management T.U.
- Chaudhry, S., & Singh, S. (2012). Impact of Reforms on the Asset Quality in Indian banking. *International Journal of Multidisciplinary*, 5(2), 17-24.
- Chijoriga, M. M. (2000). The interrelationship between bank failure and political interventions in Tanzania in the pre-liberalization period. *African Journal of Finance and Management*, 9(1), 14-30.
- Çollaku, B., & Aliu, M. (2021). Impact of non-performing loans on bank's profitability: empirical evidence from commercial banks in Kosovo. *Journal of accounting, finance and auditing studies*, 7(3), 226-242.
- Dahal, P. (2018). The Influence of Capital Adequacy on the Financial Performance of Commercial Banks in Nepal: A Panel Regression Analysis of Commercial Banks in Nepal. 5(1), 1-20.
- Dahal, P. (2023). Impact of Non-Performing Assets on Profitability: *A Panel Regression Analysis of Commercial Banks in Nepal*.
- Das, S. K., & Uppal, K. (2021). NPAs and profitability in Indian banks: an empirical analysis. *Future Business Journal*, 7(1), 1-9.
- Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *The World Bank Economic Review*, 13(2), 379-408.
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of political economy*, 91(3), 401-419.

- Freeman, R. B., & Medoff, J. L. (1984). What do unions do. *Indus. & Lab. Rel. Rev.*, 38, 244.
- Gnawali., A (2018). Non-performing loan on profitability of Nepalese commercial banks. *International Journal of Research in Business Studies and Management*, 5(9), 3947.
- HU, J. L., Li, Y., & CHIU, Y. H. (2004). Ownership and nonperforming loans: Evidence from Taiwan's banks. *The Developing Economies*, 42(3), 405-420.
- Hull, E. (2016). Bank profitability: Liquidity, capital and asset quality. *Journal of Risk Management in Financial Institutions*, 9(4), 327-331.
- Hull, J. (2012). *Risk management and financial institutions, Web Site* , 733(5), 755-782.
- Islam, S., & Rana, M. S. (2019). Determinants of bank profitability: Evidence from commercial banks of Bangladesh. *Journal of Asian Business Strategy*, 9(2), 174.
- Jensen, M. C., & Meckling, W. H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance*, 7(2), 77-132.
- Johnson, H. A., (2015). Efficient cost management is crucial for businesses seeking to maximize their profitability and shareholder value. *Cortex*, 69(5), 265-278.
- Jonsson, N. N., & Mayer, D. G. (1999). Estimation of the effects Credit risk on the milk production of dairy cattle based on a meta-analysis of literature data. *Medical and Veterinary Entomology*, 13(4), 372-376.
- Kaufman, S. B. (2007). Sex differences in mental rotation and spatial visualization ability: Can they be accounted for by differences in working memory capacity? *Intelligence*, 35(3), 211-223.
- Keynes, R. J. (1936). Keynes' monetary theory of value (1933). *Journal of Post Keynesian Economics*, 3(4), 568-585.
- Khokhar, I. (2020). Investigating the efficiency of GCC banking sector: An empirical comparison of islamic and conventional banks. *International Journal of Financial Research*, 11(1), 220-235.
- Kwashie, A. A., Baidoo, S. T., & Ayesu, E. K. (2022). Investigating the impact of credit risk on financial performance of commercial banks in Ghana. *Cogent Economics & Finance*, 10(1), 2109281.
- Kysucky, V., & Norden, L. (2016). The benefits of relationship lending in a cross-country context: A meta-analysis. *Management Science*, 62(1), 90-110.
- Lama, R. (2014). *Non-performing Loan Management of Commercial Banks with Reference to NIBL*. An unpublished Master's Thesis: Central Department of Management T.U

- Le Blay, P., Mouterde, G., Barnetche, T., Morel, J., & Combe, B. (2012). Risk of malignancy including non-melanoma skin cancers with anti-tumour necrosis factor therapy in patients with rheumatoid arthritis: meta-analysis of registries and systematic review of long-term extension studies. *Clinical and Experimental Rheumatology-Incl Supplements*, 30(5), 756.
- Lee, Y. J., Hwang, M. Y., Ko, L. W., Ong, A., & Wan, K. S. (2016). *The bank-specific and macroeconomic factors that affect domestic commercial banks performance in Malaysia* (Doctoral dissertation, UTAR), 1-98.
- Madagoni, S., & Sivaji, K. (2022) A STUDY ON ANALYSIS OF THE EFFECT OF THE NON-PERFORMING ASSETS ON THE PROFITABILITY OF THE PUBLIC SECTOR BANKS IN INDIA. Vol 13, Issue 06, JUNE/2022 ISSN NO:0377-9254.
- Maiti, A., & Jana, S. K. (2017). Determinants of profitability of banks in India: A panel data analysis. *Scholars Journal of Economics, Business and Management*, 4(7), 436-445.
- Maksimovic, V., & Phillips, G. (2001). The market for corporate assets: Who engages in mergers and asset sales and are there efficiency gains? *The journal of finance*, 56(6), 2019-2065.
- Markowitz, H. (1952). The utility of wealth. *Journal of political Economy*, 60(2), 151-158.
- Michael, J. N. (2006). Effect of non-performing assets on operational efficiency of central co-operative banks. *Indian economic panorama*, 5(3), 31-34.
- Miller, M. H., & Orr, D. (1966). A model of the demand for money by firms. *The Quarterly journal of economics*, 80(3), 413-435.
- Miller, S. A. (2021). The net worth of networks and extraversion: Examining personality structure through network models. *Personality and Individual Differences*, 5(2), 181, 111039.
- Neupane, B. P. (2020). Profitability determinants of Nepalese commercial banks. *PressAcademia procedia*, 12(1), 40-45.
- Occhino, F., & Pescatori, A. (2014). Leverage, investment, and optimal monetary policy. *The BE Journal of Macroeconomics*, 14(1), 511-531.
- O'hara, M. D., (1995). Cultured adherent cells from marrow can serve as long-lasting precursor cells for bone, cartilage, and lung in irradiated mice. *Proceedings of the national academy of sciences*, 92(11), 4857-4861.

- Ongore, V., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues* 3(1), 237-252.
- Pandey, A. (1992). Shareholder Returns and Thereby Increase the Market Value of The Existing Shares. *Process biochemistry*, 27(2), 109-117.
- Pokharel, S. P. & Pokharel, B. P (2020). Impact of non-performing assets on profitability in Nepalese Commercial Banks. *Patan Pragya*, 7(1), 222-229.
- Porter, M. E. (1980). Industry structure and competitive strategy: Keys to profitability. *Financial analysts journal*, 36(4), 30-41.
- Prabhavathy, C. (2022). Impact of Non-Performing Assets (NPA's) on Bank's Profitability – Indian Scenario. *International Journal of Advanced Research in Management*, 78(8), 10575-10594.
- Pradhan, P., & Shyam, R. (2016). Bank specific and macroeconomic determinants of bank profitability: A case of Nepal, 1-11.
- Pradhan, P., Shyam, R., & Shrestha, R. (2016). Impact of bank specific and macroeconomic variables on the performance of commercial banks of Nepal, 117.
- Rai, I. K. (2019). *DETERMINANTS OF FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN NEPAL* (Doctoral dissertation, Tribhuvan University).
- Rajaraman, I., & Vasishtha, G. (2002). Non-performing loans of PSU banks: Some panel results. *Economic and Political weekly*, 37(5), 429-435.
- Reshmi, B (2023). Non-performing loan and profitability of commercial banks in Nepal. *International Journal of Finance and Commerce*. Volume 5, Issue 2, 2023, Page No. 43-50
- Richard, E. (2011). Factor that Causes Non-performing Assets in Commercial Banks in Tanzania and Strategies to Resolve Them. *Journal of Management Policy and Practice*, 12(7), 50-58.
- SATHYANARAYANA (2023), N. AN EMPIRICAL STUDY ON THE MOVEMENT OF NON-PERFORMING ASSETS (NPAS) IN INDIAN COMMERCIAL BANKS.
- Saunders I, S., & Cornett, M. (2011). Effect of credit risk management practices on financial performance of micro-finance institutions in Nairobi. *International Journal of Recent Research in Social Sciences and Humanities*, 7(3), 22-39.
- Serwadda, I. (2018). Determinants of commercial banks' profitability. Evidence from Hungary. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(5), 1325–1335.

- Shipho, M. (2017). Scenario analysis of control risks caused by unmanaged liquidity, storage and economic performance for the case study Amsterdam Airport Schiphol. *Urban Water Journal*, 14(3), 237-246.
- Singh, J., Steele, K., & Singh, L. (2021). Impact of credit risk and interest rate risk of banks in India. *Journal of Emerging Market Finance*, 50(2), 140-171.
- SINGH, S. K., BASUKI, B., & SETIAWAN, R. (2021). The effect of non-performing loan on profitability: Empirical evidence from Nepalese commercial banks. *The Journal of Asian Finance, Economics and Business*, 8(4), 709-716.
- Smith, A. (2008). The Net Income Theories. *The Journal of Politics*, 70(3), 780-793.
- Supervision, B. (2010). Basel committee on banking supervision. *Principles for Sound Liquidity Risk Management and Supervision*, 7(2), 55-61.
- Titman, S., Martin, J. D., & Anshuman, V. R. (2010). Sovereign Risk and Investing in Emerging Markets. *Available*, 5(1), 112-122.
- Valickova, P., Havranek, T., & Horvath, R. (2015). Financial development and economic growth: A meta-analysis. *Journal of economic surveys*, 29(3), 506-526.
- Wangai, D. K., Bosire, N., & Gathogo, G. (2006). Impact of non-performing loans on financial performance of microfinance banks in Kenya: a survey of microfinance banks in Nakuru Town. *International Journal of Science and Research*, 3(10), 2073-2078.

APPENDICES

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	-18.90	18.03	1.3251	3.2513
ROE	-175.60	194.06	18.069	33.100
NPA	0.0000	0.01602	0.0010772	0.00244
TLTDR	0.00064	0.04905	0.0157658	0.011263
TA	0.860	101.52	26.6772	20.622
CAR	0.000	0.0910	0.02382	0.01865
NPL	-2.90	77.21	49.8139	12.783

Valid N (likewise) 70

Correlation Matix

	ROA	ROE	NPA	TLTDR	TA	CAR	NPL
ROA	1						
ROE	.135	1					
NPA	.245	-.164	1				
TLTDR	.250	-.446**	.588**	1			
TA	-.277	.080	.008	.115	1		
CAR	.017	.005	-.328*	-.505**	.035	1	
NPL	.061	-.101	-.446**	-.471**	.140	.710**	1

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

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.4701	.221	.133	.52999

- a. Predictors: (constant), NPA, TLDR, TA, CAR and NPL
- b. Dependent Variables: ROA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.376	5	.675	2.866	.024
	Residual	11.897	44	2.70		
	Total	15.273	49			

- a. Dependent Variable: ROA
- b. Predictors: (constant), NPA, TLDR, TA, CAR and NPL

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.383	0.572		0.670	0.506
	NPA	0.038	0.026	0.311	1.451	0.013
	TLDR	-0.053	0.039	-0.230	1.350	0.183
	TA	0.030	0.009	0.590	3.296	0.002
	CAR	-0.137	0.058	-0.336	2.349	0.023
	NPL	0.161	1.515	-0.014	0.107	0.916

Dependent Variable: ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.5746	.330	.251	5.6611

c. Predictors: (constant), NPA, TLTDR, TA, CAR and NPL

d. Dependent Variables: ROE

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	695.360	5	139.072	1.541	0.002
	Residual	1410.12	44	32.048		
	Total	2105.489	49			

a. Dependent Variable: ROE

b. Predictors: (constant), NPA, TLTDR, TA, CAR and NPL

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.614	0.584		1.052	0.298
	NPA	0.055	0.027	0.469	2.065	0.044
	TLTDR	0.052	0.059	-0.132	0.869	0.389
	TA	2.725	1.547	0.248	1.761	0.015
	CAR	-0.048	0.040	0.217	1.205	0.034
	NPL	-0.002	0.009	-0.036	0.188	0.852

Dependent Variable: ROE

