

**IMPACT OF NPA ON THE PROFITABILITY OF PUBLIC
COMMERCIAL BANKS IN NEPAL**

A Thesis

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RECOMMENDATION

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DECLARATION

I hereby declare that this thesis work entitled “**Impact of NPA on the Profitability of Public Commercial Banks in Nepal**” submitted to Office of the Dean, Faculty Management, Tribhuvan University, is my original work done in the form in partial fulfillment of the requirement for the degree of Master of Business Studies which is prepared under the supervision of respected supervisor **Bhoj Raj Ojha** Lecturer of Shanker Dev Campus.

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ABBREVIATIONS

ADBL	:	Agricultural Development Bank Limited
AQ	:	Assets Quality
BS	:	Bank Size
CAR	:	Capital Adequacy Ratio
CV	:	Coefficient of Variance
Ltd	:	Limited
MBS	:	Master in Business Studies
NPA	:	Non-Performing Assets
NPL	:	Non-Performing Loan
NBL	:	Nepal Bank Limited
NRB	:	Nepal Rastra Bank
RBB	:	Rastriya Banijya Bank
ROA	:	Return on Assets
SCB	:	Standard Chartered Bank Nepal Limited
SD	:	Standard Deviation
SPSS	:	Statistical Package for Social Science
TU	:	Tribhuvan University

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Non-performing assets (NPAs) are a global concern that threatens the stability of financial markets in general and the sustainability of the banking sector in particular (World Bank, 2020). These assets have clearly documented credit vulnerabilities that risk the liquidation of obligations and may endure some losses to the bank (World Bank, 2020). One of the primary concerns of the present banking business is credit risk which has been exposing the fast-growing industry to accumulating non-performing assets (IMF, 2009). An effective and well-functioning financial sector is crucial for the development of any economy, and the accomplishment of high and sustained growth (World Bank, 2020). Asset quality is one of the markers of financial sector health, with unsound financial sectors of nations demonstrating a significant degree of non-performing assets (Machiraju, 2003).

Non-Performing Assets (NPAs) have become a critical issue for commercial banks, significantly affecting their financial performance and stability. NPAs are loans or advances where the borrower has defaulted on repayment for a specified period, thus becoming a liability for the bank (Kumar, 2017). These assets not only erode bank profitability but also pose a substantial risk to the overall financial system. Loans are the major asset and constitute 50-75 percent of the total amount at most banks, creating the highest portion of operational income and representing the banks' larger risk exposure. Moreover, the contribution of loans to the progress of any nation is considerable in that banks are the major mediators between depositors and those in need of cash for their feasible ideas (World Bank, 2020). This contributes to ensuring that the money available in the economy is always used effectively for the purpose for which it was designed. Properly managing loans not only benefits banks and borrower enterprises but also has a positive impact on the performance of a nation as a whole (Machiraju, 2003).

The presence of high NPAs reduces the capital available for further lending, limiting the bank's ability to generate income from interest. As banks allocate more resources towards provisioning for bad debts, their profitability diminishes (Singh, 2016). This

provisioning directly impacts the bank's balance sheet, as funds that could have been used for productive lending are instead held against potential losses. The preservation of a low level of non-performing assets, among other things, is essential for a healthy financial system, which in turn enables the economic growth of a nation (World Bank, 2020). Non-performing assets (NPAs) are a significant concern and difficulty for the banking sector, since they have the potential to reduce profitability via the loss of interest revenue and the write-off of the principal loan amount itself, among other consequences (IMF, 2009). Furthermore, the issue of non-performing assets NPAs in financial institutions has been a source of serious worry not just for banks but also for the real economy in general, since NPAs have the potential to suffocate future credit expansion, impeding the country's economic progress (Machiraju, 2003).

Furthermore, high levels of NPAs can lead to a loss of confidence among investors and stakeholders, which may result in decreased stock valuations and reduced capital inflows (Ranjan & Dhal, 2003). This loss of confidence can also affect the bank's reputation, making it challenging to attract deposits and other forms of funding. As investor sentiment declines, the bank may face increased scrutiny from regulators and market participants.

Addressing the NPA issue is vital for the sustainability of the banking sector. Effective management and recovery strategies are essential to reduce the incidence of NPAs and mitigate their impact on financial stability (Rajeev & Mahesh, 2010). Various approaches, such as restructuring loans, enhancing credit risk management, and improving recovery processes, are crucial in managing NPAs. A focused effort to curtail NPAs not only helps in stabilizing banks but also promotes economic growth by ensuring the availability of credit for productive sectors.

Profitability is a benchmark for any business enterprise, including the banking industry. However, increasing non-performing assets have a direct impact on the profitability of a bank because banks are legally prohibited from recording income on these accounts while also being required to make provisions for these assets. Profitability is a metric used to assess a company's efficiency, earning potential, and operational efficiency, among other things. In order to assess profitability, ratios are employed, providing valuable insights for management, creditors, and owners (IMF, 2009).

The presence of high NPAs reduces the capital available for further lending, limiting the bank's ability to generate income from interest. As banks allocate more resources towards provisioning for bad debts, their profitability diminishes (Singh, 2016). This provisioning directly impacts the bank's balance sheet, as funds that could have been used for productive lending are instead held against potential losses. Consequently, the return on assets (ROA) and return on equity (ROE) metrics suffer, indicating weaker financial performance.

Moreover, increased NPAs result in higher operational costs due to the need for more stringent credit monitoring and recovery processes. Banks also face additional administrative costs associated with managing distressed assets, which further impacts their profitability (Ranjan & Dhal, 2003). The pressure to maintain capital adequacy ratios can lead to a reduction in risk-weighted assets, affecting overall growth potential.

1.2 Profile of Sample Banks

The profile of public sample banks Rastriya Banijya Bank Limited (RBB), Agricultural Development Bank Limited (ADBL) and Nepal Bank Bank Limited (NBL) under the study is presented in the following manner.

1.2.1 Rastriya Banijya Bank Limited (RBB)

Rastriya Banijya Bank (RBB), a government-owned institution, recently celebrated its 59th year since its establishment on January 23, 1966. Committed to providing modern banking services, the bank has demonstrated significant growth and stability. By mid-July 2023, RBB's authorized share capital stood at Rs 30 billion, with issued and paid-up share capital at Rs 15.64 billion. The bank's capital structure is predominantly government-owned, with the government holding 99.97 percent of the shares and the general public holding 0.03 percent. The capital fund has reached Rs 50.74 billion. As of mid-July 2023, RBB's non-performing loan ratio was 3.77 percent. By mid-January 2023, the bank held deposits totaling Rs 338.5 billion from over 4,140,000 depositors, both individual and institutional. Loan disbursements amounted to Rs 256.70 billion, serving more than 194,000 customers. In the fiscal year 2079/80 BS, RBB earned a net profit of Rs 3.59 billion, securing the second-highest net profit among banks for that year. The bank distributed a 5.50 percent cash dividend from its accumulated profit. RBB also made a significant contribution to the

government's revenue by paying Rs 2.18 billion in income tax. RBB's extensive network includes 286 branch offices, 64 extension counters, and 95 branchless banking units, covering 77 district headquarters. Additionally, the bank services 50 out of the 81 federal government treasury and accounting controller offices, 51 out of the 77 provincial government offices, and 128 local level offices (RBB, 2024).

1.2.2 Agricultural Development Bank Limited (ADBL)

The Agricultural Development Bank, Nepal (ADBN), established in 1968 under the ADBN Act 1967 as the successor to the Cooperative Bank, primarily aims to provide institutional credit to enhance agricultural production and productivity. The merger with the Land Reform Savings Corporation in 1973 and subsequent amendments to the Act allowed ADBN to extend credit to small farmers under group liability and finance cottage industries, while also engaging in commercial banking to mobilize domestic resources. Initially a premier rural credit institution, ADBN has been involved in commercial banking since 1984. With 51% of its shares owned by the Government of Nepal and 49% by the general public, including customers and employees, ADBN now operates as a public limited company under the Companies Act 2006, licensed as an "A class financial institution" by Nepal Rastra Bank. Over its more than 53-year history, ADBN has become one of Nepal's leading commercial banks, serving over 1.2 million satisfied customers. With a network of 278 offices across all 7 provinces and 77 districts, the bank offers comprehensive banking solutions, especially promoting rural agriculture, productive, and deprived sectors, embodying its slogan: "Sampurna Banking Suvidha sahitko Tapai Hamro Ghar Aanganko Bank" (The bank with complete banking solution at your own doorstep) (ADBL, 2024).

1.2.3 Nepal Bank Limited (NBL)

Nepal Bank Limited (NBL), the first bank of Nepal, was established on Kartik 30, 1994 (November 15, 1937 A.D.) under the Nepal Bank Act 1937, marking the formal beginning of the banking system in Nepal. Inaugurated by King Tribhuvan with the support of Prime Minister Juddha Shumsher Jung Bahadur Rana, the bank began with an authorized capital of Rs. 10 million, an issued capital of Rs. 2.5 million, and a paid-up capital of Rs. 0.842 million, with shares held 60% by the government and 40% by the private sector. Initially, NBL faced challenges such as limited trust in the

banking system and difficulty in raising deposits. However, the bank has since evolved, overcoming early economic barriers to become a leading and reputable financial institution in Nepal. It has continuously adapted to technological advancements, national economic developments, and changing customer preferences. With a vision to be the most preferred bank in the nation and a mission to design and deliver innovative banking solutions, NBL is committed to operational efficiency, ethical practices, and customer satisfaction. Its core values emphasize dignity, responsibility, ethics, employee empowerment, and innovation. The bank's strategic goals focus on business growth, profitability, HR productivity, technological transformation, and robust risk management, aligning with its aim for secured and sustainable growth (NBL, 2024).

1.3 Statement of the Problems

The preservation of a low level of non-performing assets, among other things, is essential for a healthy financial system, which in turn enables the economic growth of a nation. Non-performing assets (NPAs) are a significant concern and difficulty for the banking sector, since they have the potential to reduce profitability via the loss of interest revenue and the write-off of the principal loan amount itself, among other consequences. Furthermore, the issue of non-performing assets [NPAs] in financial institutions has been a source of serious worry not just for banks but also for the real economy in general, since NPAs have the potential to suffocate future credit expansion, so impeding the country's economic progress.

Banks operate to offer financial intermediation services while also attempting to optimize the return on their shareholders' investments via various means. Lending is regarded to be the most essential function of commercial banks in terms of money usage, since a significant amount of their revenue is derived through loan and advance transactions (Radha & Bashudevan, 1980). However, lending is also the riskiest operation in the banking business, which necessitates the inclusion of credit risk management as one of the key activities of financial institutions. When we look at all of the risks that banks face, credit risk is believed to be the most dangerous since nonperforming assets would have a negative impact on the financial performance of the bank. A solid financial system, among other things, requires the preservation of a low level of non-performing assets in order to support a country's economic progress.

One of the most significant causes of financial fragility is the decline in the asset quality of banks. A quick buildup of bad loans has also been seen in the past, and this has been shown to play an important part in banking crises (DemirgüçKunt & Detragiache, 1998).

Abale and Ingale (2017) examined Nabil Bank Limited in Nepal, highlighting the impact of provisioning strategies on profitability and asset quality. Their study revealed fluctuations in NPAs and emphasized the delicate balance between risk mitigation and financial performance. Gautam (2018) explored Nepalese commercial banks over a decade, identifying variables like credit-to-deposit ratio and NPLs to total loans as influencing return on assets (ROA) and return on equity (ROE). Effective NPL management was crucial for profitability. Ganwali (2018) focused on government-owned banks in Nepal, finding that higher NPAs negatively impacted ROA, suggesting that improving asset quality and risk management practices were essential for profitability.

Arrawatia et al. (2019) investigated Indian banks, identifying factors such as operational efficiency and macroeconomic indicators like GDP growth affecting asset quality. Their findings underscored the need for robust risk management and regulatory oversight. Nachimuthu and Veni (2019) analyzed Indian scheduled commercial banks, highlighting a negative association between gross NPA and profitability indicators. Prudent loan portfolio management was critical for financial performance. Sile et al. (2019) studied Kenyan banks, showing correlations between NPL ratios and financial stability. Effective credit risk management and loan portfolio strategies were essential for sustainable operations.

Bhattarai (2020) focused on Nepalese banks, using regression models to link NPLs, capital adequacy, liquidity, and inflation with ROE. Effective NPL management and financial health indicators were crucial for profitability. Khan et al. (2020) scrutinized Pakistani banks, finding that operational efficiency and profitability negatively correlated with NPLs. Improved operational practices were recommended for mitigating NPL risks. Mishra et al. (2021) analyzed Indian public and private banks, identifying macroeconomic factors and internal variables like gross loans and provisions influencing NPAs. Their study highlighted the complex interactions shaping NPA levels.

Fogila (2022) investigated Italian banks, showing how GDP and public debt influenced NPLs. Economic stability and policy interventions were crucial for managing credit risk in the banking sector. Akhter (2023) examined Bangladeshi banks, emphasizing efficient operational practices and adherence to capital requirements in reducing NPLs. Regulatory oversight and prudent lending were critical for financial stability. Jamshed and Siddiqui (2023) studied Pakistani banks, identifying various risks impacting asset quality and NPL ratios. They highlighted the need for robust risk management strategies amidst economic challenges.

The financial statements of government commercial banks reflected a large amount of provision held for doubtful loans and advances. Such unfavorable records observed in commercial banks caught the attention of the researcher to investigate the impact of non-performing assets on the financial performances of commercial banks in Nepal. Moreover, few existences of adequate related empirical studies on the research topic motivated the researcher to assess the impacts of non-performing assets on the financial performance of commercial banks in the country. The problems statements will be as follows:

- What is the present scenario of NPA in public commercial banks in Nepal.
- What is the relationship existing between NPA, loan loss provision, capital adequacy, size and financial performance of public commercial banks in Nepal?
- What is the impact of NPA, loan loss provision, capital adequacy, size on financial performance on public commercial banks in Nepal?

1.4 Objectives of Study

The major objective of this research is to examine the level of assets (NPAs) in sample banks. The specific objectives will be as follows:

- To access the present scenario of NPA in public commercial banks in Nepal.
- To examine the relationship between NPA, loan loss provision, capital adequacy, size, credit to deposit ratio and financial performance of public commercial banks in Nepal.
- To analyze the impact of NPA, loan loss provision, capital adequacy, size and credit to deposit ratio on financial performance of public commercial banks in Nepal.

1.5 Significance of the Study

The research will be useful in gaining a better understanding of the difficulties faced by company operations in the actual world. It also provides the researcher with a chance to apply the information he or she has received during his or her academic studies to a practical context, allowing him or her to further increase their understanding of banking operations. The research may be able to give helpful up-to-date information on the subject. Furthermore, this knowledge is likely to be very important as a source of information for future study into banking-related problems. According to studies, the current global financial crisis and the ensuing recession in many industrialized nations have increased the number of defaults by consumers and businesses, resulting in large losses for financial institutions. Regular monitoring of loan quality, perhaps in conjunction with an early warning system capable of alerting regulatory authorities to possible bank stress, is required in order to maintain a healthy financial system and avert systemic catastrophes. Understanding the ramifications of non-performing assets is critical to putting in place effective credit management instruments. This research would benefit Nepalese commercial banks by providing them with insight into the impact of non-performing assets on their financial performance, as well as the Nepalese central bank (NRB) by examining its policy on banking supervision in order to ensure the preservation of asset quality in banks (as a result of the study). Aside from that, the study will contribute to the existing body of information about the effect of nonperforming assets and will serve as a catalyst for additional research into the banking environment in Nepal.

1.6 Limitations of the Study

The research study will have some limitations. The main limitations of the study will be follows: -

- This study has concerned with non-performing assets of three government commercial banks namely, Rastriya Banijya Bank, Agricultural Development bank limited and Nepal bank limited.
- The period of the study will have limited from fiscal year 2013/14 to 2022/23.
- The study is based on secondary data, articles, publication and journals of the respective banks.
- The result of the study would not be thoroughly applied over all types of commercial banks.

1.7 Organization of the Study

The study is divided into five chapters, each addressing a different aspect of the research. Chapter I, Introduction, provides the background of the study, the statement of problems, the objectives, the significance, the limitations, and the organization of the study. Chapter II, Review of Literature, deals with the review of available literature, including books, reports, theses, and journals, and identifies research gaps. Chapter III, Research Methodology, outlines the methodology used in the study, covering the research design, data sources, population and sample, and methods of data analysis. Chapter IV, Data Presentation and Analysis, is crucial to the study, focusing on the presentation, analysis, and interpretation of data using various statistical and financial tools and techniques. This chapter also includes the major findings of the study. Finally, Chapter V, Summary, Conclusion, and Recommendations, discusses the major findings, draws conclusions, and offers recommendations based on the study. The study concludes with references and appendices.

CHAPTER II

REVIEW OF LITERATURE

A thorough literature review is an essential component of any investigation as it provides valuable insights into previous discoveries and serves as the foundation for the current study. Neglecting past research would disregard the knowledge and experience gained by researchers in the field. By reviewing the existing literature, researchers can establish a new research framework based on previous findings. The primary objective of a literature review is to identify what research has already been conducted on the subject and to understand the perspectives and hypotheses proposed by other scholars. This process helps researchers gain a comprehensive understanding of the existing knowledge and identify gaps or areas that require further exploration. To achieve this, researchers typically consult a wide range of publications, papers, journals, and research studies published by various institutions. Additionally, unpublished dissertations submitted by master's level students can also provide valuable insights.

2.1 Theoretical Review

Asset quality is a crucial indicator of a financial institution's soundness and is widely used to assess its performance and stability (Berger & DeYoung, 1997). It refers to the credit risk associated with the institution's loan portfolio. High-quality assets, particularly loans, are those that are performing well and have a low probability of default. On the other hand, low-quality assets are non-performing or have a high probability of default, which can lead to losses for the institution (Kashyap, Rajan, & Stein, 2002). The quality of assets plays a significant role in the stability and performance of financial institutions and the overall economy. This essay will explore the concept of asset quality, its relationship with profitability, and the factors that influence it.

2.1.1 Non-Performing Assets

Non-performing assets (NPAs) represent a significant challenge for commercial banks, directly impacting their financial stability and profitability. NPAs are loans or advances where the borrower has defaulted on interest or principal repayments for a specified period, typically 90 days or more (Kumar, 2017). This default status signals

that the asset is no longer generating income for the bank, turning into a liability instead. The rising levels of NPAs can strain the banking sector, affecting not only individual banks but the broader financial ecosystem.

The increase in NPAs significantly reduces the capital available for lending, thereby limiting banks' ability to generate income from interest. When banks must set aside funds to cover potential losses from bad debts, it results in higher provisioning costs. This provisioning directly affects the bank's profitability, as funds that could have been used for lending or investment are instead held against non-performing loans (Singh, 2016). This reduction in available capital can hinder a bank's growth, affecting its overall financial performance and return on assets (ROA).

High levels of NPAs also lead to increased operational costs. Banks need to allocate additional resources to monitor distressed assets, manage recovery processes, and engage in legal actions when necessary. These activities entail significant administrative costs, which further impact the profitability of the banks (Ranjan & Dhal, 2003). Moreover, the focus on managing NPAs diverts attention from other growth-oriented activities, reducing the bank's ability to expand its market share and engage in new business opportunities.

The presence of substantial NPAs negatively affects investor confidence and can lead to a decline in stock valuations. As NPAs rise, the perception of risk associated with the bank also increases, making investors wary of potential losses. This loss of confidence can result in reduced capital inflows and lower valuations in the stock market, which further constrain the bank's ability to raise funds (Rajeev & Mahesh, 2010). Additionally, this situation can make it more difficult for banks to attract deposits and other forms of funding, affecting their liquidity position.

Addressing the NPA issue is critical for the long-term sustainability of the banking sector. Banks must adopt effective management and recovery strategies, such as restructuring loans, enhancing credit risk assessment, and improving recovery processes. Implementing robust risk management practices can help mitigate the impact of NPAs and prevent future occurrences. Furthermore, collaboration between banks, regulators, and policymakers is essential to create a favorable credit environment that supports healthy banking practices.

Non-performing assets pose a multifaceted challenge to commercial banks, affecting their profitability, operational efficiency, and market reputation. Effective management of NPAs is crucial not only for individual banks but also for the stability of the entire financial system. By adopting comprehensive strategies and fostering collaboration across the banking sector, stakeholders can ensure a resilient and sustainable banking environment that supports economic growth.

2.1.2 NPA and Profitability in Commercial Banks

Non-performing assets (NPAs) are a critical challenge for commercial banks, significantly affecting their profitability and stability. High levels of NPAs reflect poor asset quality, indicating that a substantial portion of loans is not yielding returns. This situation results from inadequate credit appraisal systems, poor monitoring, and external economic conditions. Ineffective risk management practices often contribute to the accumulation of NPAs, as banks may fail to adequately assess the creditworthiness of borrowers (Kumar, 2014).

The economic environment plays a crucial role in influencing NPA levels. Economic downturns, inflation, and market volatility can lead to higher default rates among borrowers, thereby increasing NPAs. During economic recessions, businesses and individuals may struggle to meet their debt obligations, leading to a rise in non-performing loans. This emphasizes the need for banks to adopt robust risk management strategies to mitigate the impact of economic fluctuations on their loan portfolios (Batra, 2003).

Sectoral lending concentration is another factor contributing to NPAs in commercial banks. When banks excessively lend to specific sectors, such as real estate or agriculture, they become vulnerable to sector-specific downturns. For instance, a decline in property prices can lead to increased defaults in real estate loans, subsequently raising NPA levels. Diversifying the loan portfolio across various sectors can help mitigate this risk and reduce the impact of NPAs on profitability (Das & Ghosh, 2007).

The regulatory framework also influences NPA levels. Strict regulatory requirements, such as provisioning norms and capital adequacy ratios, compel banks to maintain adequate buffers against potential loan losses. While these regulations promote financial stability, they can also affect profitability by increasing operational costs.

Banks must balance compliance with regulatory standards and their profitability objectives to manage NPAs effectively (Rajan & Dhal, 2003).

Lastly, poor corporate governance and management practices within banks contribute to rising NPAs. Weak governance structures may lead to inadequate oversight of credit risk management and internal controls. Furthermore, misaligned incentive structures for bank managers can encourage excessive risk-taking, leading to higher default rates. Strengthening governance frameworks and aligning management incentives with long-term financial performance are essential for reducing NPAs and enhancing bank profitability (Chaudhury & Ghosh, 2002).

2.1.3 Credit Risk Theory

Credit risk theory emphasizes the fundamental relationship between a bank's credit risk and its financial performance. This theory, rooted in the work of Merton (1974), highlights that higher credit risk leads to an increase in non-performing assets (NPAs), which in turn reduces profitability. Banks that fail to manage credit risk effectively may experience deteriorating asset quality, leading to higher provisioning for loan losses and a decline in net interest income. Empirical studies, such as those by Kithinji (2010), have demonstrated a negative correlation between credit risk and profitability, indicating that as NPAs rise, profitability metrics like return on assets (ROA) decline. Recent research by Alshatti (2015) further supports these findings, showing that effective credit risk management significantly improves bank profitability by maintaining asset quality and minimizing loan defaults.

Empirical evidence underscores the importance of robust credit risk management practices in mitigating NPAs. Louzis et al. (2012) analyzed Greek banks and found that effective credit risk management practices, including stringent credit assessments and borrower monitoring, significantly reduce NPAs. Additionally, Fajar and Yudiarti (2020) examined Indonesian banks, revealing that banks with better credit risk management frameworks experienced lower NPA levels and higher profitability. These studies highlight the critical role of credit risk management in sustaining bank performance, as poor credit policies can lead to higher default rates and eroded profitability.

In practice, commercial banks employ various credit risk management strategies to minimize NPAs and enhance profitability. These strategies include rigorous credit

appraisal processes, regular monitoring of borrowers' financial health, and the use of credit scoring models to assess default risk. Banks also diversify their loan portfolios across different sectors to spread risk and minimize exposure to any single industry. Recent advancements in data analytics and machine learning have further enhanced banks' ability to predict and manage credit risk effectively. By leveraging these tools, banks can improve their decision-making processes and maintain a healthy balance between risk and return, ultimately reducing NPAs and enhancing profitability.

Credit risk theory is crucial in understanding the relationship between NPAs and profitability in commercial banks. Studies often focus on how banks' credit policies, borrower characteristics, and external economic factors influence loan performance and profitability. Ekanayake and Azeez (2015) on Sri Lankan banks highlighted that macroeconomic variables like GDP growth and interest rates significantly affect credit risk and NPA levels. These findings suggest that effective credit risk management not only involves internal policies but also requires monitoring external economic conditions to mitigate risks and maintain profitability.

For commercial banks, implementing effective credit risk management practices is essential to minimizing NPAs and sustaining profitability. High NPA levels can lead to increased provisioning, reduced net interest income, and overall financial instability. By applying Credit Risk Theory, banks can enhance their risk assessment models, strengthen borrower monitoring, and improve loan recovery processes. These efforts are crucial for maintaining asset quality and ensuring long-term profitability in a competitive banking environment (Saunders & Allen, 2010; Alshatti, 2015).

2.1.4 Moral Hazard Theory

Moral hazard theory, developed by economists such as Stiglitz and Weiss (1981), explores the risk-taking behavior of borrowers who may not fully bear the consequences of their actions. In banking, this theory is critical in understanding how borrowers' risk behavior can lead to increased NPAs and affect bank profitability. Borrowers may engage in riskier projects or misallocate funds, knowing that banks bear the financial risk of default. This behavior increases the likelihood of loan defaults, leading to higher NPAs and reduced profitability for banks. Studies by Rajan (1994) demonstrate that moral hazard can significantly impact bank performance, as

inadequate monitoring and incentive structures can exacerbate borrower risk-taking behavior.

Empirical studies have provided evidence of moral hazard's impact on NPAs and profitability. A study by Ioannidou and Penas (2010) examined Bolivian banks and found that borrowers with existing banking relationships were more likely to engage in risky behavior, resulting in higher NPAs. This finding highlights the importance of monitoring and relationship management in mitigating moral hazard. Additionally, a study by Berger et al. (2014) on European banks showed that banks with better risk management practices and monitoring mechanisms had lower levels of NPAs, underscoring the significance of addressing moral hazard in credit risk management.

Banks employ various strategies to mitigate moral hazard and reduce NPAs. These include stringent loan covenants, regular monitoring of borrower activities, and requiring collateral to ensure borrowers have a stake in the loan's success. Additionally, banks align management incentives with long-term financial performance, encouraging prudent lending practices. By implementing these measures, banks can reduce the likelihood of borrower default and maintain asset quality. The use of technology, such as real-time monitoring systems and data analytics, has further enhanced banks' ability to detect and address moral hazard, thereby improving profitability.

Moral Hazard Theory is widely applied in studies analyzing the relationship between borrower behavior and bank performance. Research often focuses on how banks' monitoring practices and incentive structures influence NPAs and profitability. For example, a study by Chakraborty and Hu (2006) on Indian banks demonstrated that stronger monitoring mechanisms significantly reduce borrower risk-taking behavior, leading to lower NPAs and improved profitability. These findings emphasize the need for banks to adopt effective monitoring strategies to mitigate moral hazard and ensure sustainable financial performance.

For commercial banks, addressing moral hazard is essential for reducing NPAs and maintaining profitability. Effective borrower monitoring and risk management practices can significantly reduce default rates, thereby enhancing bank performance. By understanding the implications of moral hazard, banks can implement better lending practices and incentive structures, ensuring that borrower interests align with

those of the bank. This approach not only reduces NPAs but also contributes to the overall stability and profitability of the banking sector (Stiglitz & Weiss, 1981; Ioannidou & Penas, 2010).

2.1.4 Agency Theory

Agency Theory, introduced by Jensen and Meckling (1976), examines the conflicts between principals (shareholders) and agents (bank management). In the banking context, these conflicts arise when managers prioritize short-term profits or personal gains over long-term financial stability, potentially leading to increased risk-taking and higher NPAs. This misalignment of interests can result in poor credit decisions and ineffective risk management, ultimately impacting bank profitability. Studies by Fama and Jensen (1983) highlight that effective corporate governance practices are crucial in mitigating agency problems and ensuring that management actions align with shareholder interests.

Empirical research supports the relevance of agency theory in banking. Pathan (2009) on U.S. bank holding companies found that strong corporate governance structures were associated with lower risk-taking and improved financial performance. Similarly, research by Laeven and Levine (2009) indicated that banks with better governance frameworks experienced lower levels of NPAs, reinforcing the importance of aligning management incentives with long-term profitability. These studies underscore the critical role of governance in reducing agency conflicts and enhancing bank performance.

To address agency problems, banks implement robust governance frameworks, including independent board oversight and performance-based compensation for managers. These mechanisms align management's interests with those of shareholders, promoting prudent lending practices and reducing risk-taking behavior. Effective internal controls and audit functions also play a crucial role in ensuring that management adheres to established risk management practices. Recent advancements in corporate governance, such as increased transparency and stakeholder engagement, have further strengthened banks' ability to address agency issues.

Agency theory is utilized in studies focusing on the relationship between governance structures and NPA levels in banks. Research often examines how corporate governance practices influence risk-taking behavior and loan quality, providing

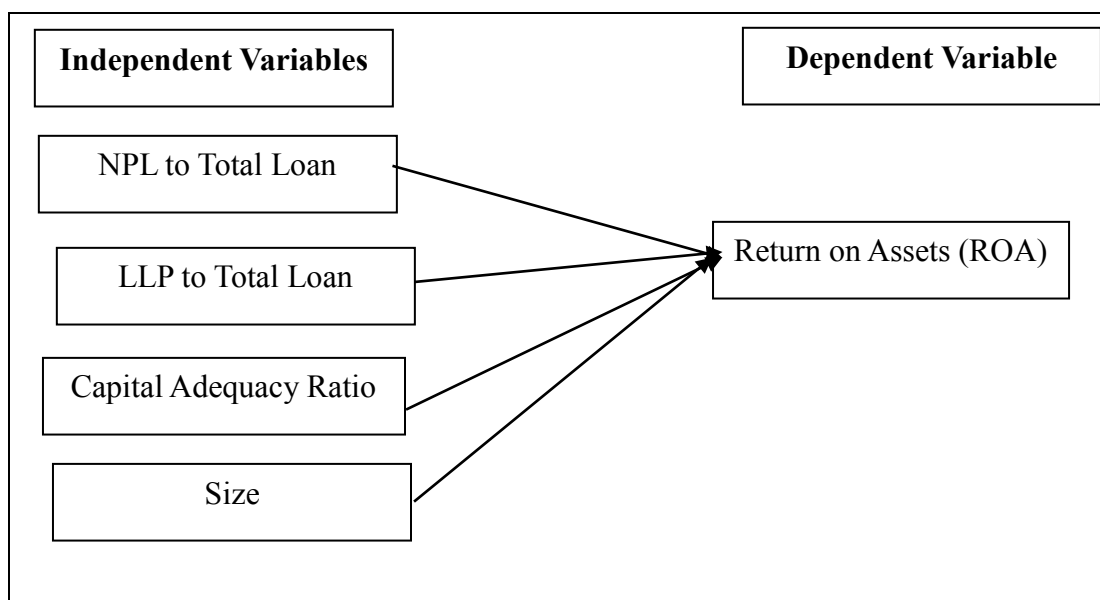
insights into the role of management in mitigating NPAs. Tandelilin, et al. (2007) on Indonesian banks highlighted that stronger governance frameworks led to lower NPA levels and enhanced profitability. These findings emphasize the importance of aligning management actions with long-term financial health to reduce NPAs.

For commercial banks, addressing agency problems is essential for maintaining profitability and asset quality. Strong governance frameworks and incentive structures help reduce NPAs by promoting prudent risk management. By utilizing Agency Theory, banks can develop strategies to align management decisions with shareholder interests, thereby enhancing profitability and reducing the potential for financial distress (Jensen & Meckling, 1976; Pathan, 2009).

2.2 Conceptual Framework

The conceptual framework for this study is grounded in the use of regression analysis to explore the relationship between non-performing assets and profitability of commercial banks. Return on assets (ROA), a critical indicator of a bank's profitability, serves as the dependent variable. Independent variables include the non-performing loan to total loan ratio (NPL), which reflects credit risk; the loan loss provision to total loan ratio (LLP), indicating the bank's financial health regarding potential loan defaults; the capital adequacy ratio (CAR), a measure of financial stability; and the natural logarithm of total assets (SIZE), representing the scale of the bank. This framework aims to quantify the impact of these financial metrics on bank performance, providing insights into the factors that drive profitability in the banking sector. The variables are derived from empirical studies conducted before. The framework of the study is presented in Figure 2.1.

Figure 2. 1 *Conceptual Framework*



Source: Gautam (2018); Bhattarai (2020)

2.2.1 Return on Assets

Return on assets (ROA) is a crucial financial metric used to measure a company's profitability relative to its total assets. It indicates how effectively a company is utilizing its assets to generate profit. ROA is calculated by dividing net income by total assets and is expressed as a percentage. A higher ROA signifies efficient management and utilization of assets to produce earnings. It is particularly important for comparing the performance of companies within the same industry. Firms with similar assets can be evaluated based on how well they are generating returns from their asset base. This metric has been extensively used in studies such as those by Gautam (2018) and Bhattarai (2020), which highlight its importance in assessing the profitability of banks in relation to their asset management practices.

2.2.2 Non-Performing Loan to Total Loan Ratio

Non-performing loans (NPLs) represent loans in which the borrower is not making interest payments or repaying any principal. Typically, loans are considered non-performing when they are 90 days or more overdue. The NPL to Total Loan ratio is a key indicator of the asset quality of a bank and its credit risk management efficiency. A higher ratio suggests a higher level of risky or defaulting loans, which can affect the bank's profitability and solvency. Studies by Pradhan (2014) and Bhattarai (2020) have demonstrated the critical impact of NPL ratios on the overall financial health of banks, underscoring the importance of effective NPL management.

2.2.3 Loan Loss Provision to Total Loan Ratio

Loan loss provisions (LLP) are reserves set aside by banks to cover potential loan losses due to defaults. The LLP to Total Loan ratio measures the proportion of total loans that the bank expects to lose and has provisioned for. This ratio is an important indicator of the bank's risk management practices and financial health. Higher LLP ratios can indicate a conservative approach to risk management but may also reduce the bank's profitability as more funds are reserved instead of being used for lending or other profit-generating activities. The significance of this ratio has been highlighted in the works of Pradhan (2014) and Khan et al. (2020), which emphasize the balance between risk mitigation and profitability.

2.2.4 Capital Adequacy Ratio

The capital adequacy ratio (CAR) is a measure of a bank's capital relative to its risk-weighted assets and current liabilities. It is a critical indicator used to ensure that banks have enough cushion to absorb a reasonable amount of loss before becoming insolvent. CAR is mandated by regulatory authorities to protect depositors and promote stability and efficiency in the financial system. A higher CAR indicates a more resilient bank capable of withstanding financial stress, thereby reducing the risk of a banking crisis. Studies by Bhattarai (2020) and Mishra et al. (2021) underscore the importance of maintaining adequate capital levels to ensure financial stability and safeguard against potential losses.

2.2.5 Size of the Bank

Bank size, often measured by the natural logarithm of total assets, reflects the scale of a bank's operations. Larger banks generally benefit from economies of scale, allowing them to operate more efficiently and spread their fixed costs over a larger volume of transactions. Bank size is also associated with greater diversification of assets and income sources, which can enhance financial stability. However, very large banks might face challenges such as increased regulatory scrutiny and potential difficulties in management and operational coordination. The impact of bank size on financial performance has been explored in studies by Bhattarai (2015) and Khan et al. (2020), highlighting its dual role in enhancing efficiency and posing managerial challenges.

2.3 Review of Related Studies

Pradhan (2014) conducted a comprehensive study on non-performing assets (NPAs) within selected Nepalese commercial banks, namely SCBNL, RBB, Everest Bank, NB Bank, and NBBL. The primary objective was to assess the magnitude of NPAs relative to total assets, deposits, and lending, and to explore how loan loss provisions impact the performance of these banks. The study identified several critical factors contributing to NPAs, including improper credit policies, political pressures influencing lending decisions, inadequate supervision and monitoring, economic slowdowns, and overvaluation of collateral. It was noted that both private sector banks (such as NBBL, EBL, and SCBNL) and public sector banks (RBB and NBL) were actively working to manage their loan portfolios effectively to prevent an escalation of NPAs. The study concluded with recommendations for public sector banks to focus on timely loan recovery and implement robust loan loss policies to mitigate NPAs, thereby safeguarding profitability and shareholder interests.

Prasanna et al. (2014) investigated the determinants of non-performing advances (NPA) within the Indian banking system using panel data encompassing 31 Indian banks over the period from 2000 to 2012, totaling 372 firm-years of observation. The study aimed to understand how macroeconomic variables and bank-specific characteristics influence NPA ratios. Macro-economic factors such as GDP growth, construction expenditure, volatility, and stock market indices were analyzed alongside bank-specific variables like size, profitability metrics, and loan portfolio quality. The findings underscored that macroeconomic stability significantly impacts NPA ratios, with GDP growth and construction expenditure demonstrating inverse relationships with NPA ratios. This suggests that economic growth and stability play crucial roles in mitigating non-performing advances in banks. The study's implications highlight the importance of monitoring macroeconomic indicators and implementing robust risk management practices to maintain healthy asset quality and financial stability in the banking sector.

Bhattarai (2015) analyzed the impact of macroeconomic variables and bank-specific factors on non-performing loans (NPLs) within the context of Nepalese commercial banks. Utilizing secondary data from 26 commercial banks spanning the period from 2002 to 2012, the study focused on variables such as GDP growth, inflation rates, and

the real effective exchange rate, alongside bank-specific indicators like bank size, lending practices, and ownership structure. The research found significant impacts of the real effective exchange rate and inflation rates on NPLs, highlighting the sensitivity of asset quality to external economic conditions. Interestingly, GDP growth was found to have an insignificant effect on NPLs in this context, suggesting nuanced economic dynamics at play. The study's conclusions emphasize the need for adaptive monetary policies and risk management strategies tailored to the local economic environment to effectively mitigate NPLs. The implications suggest that maintaining stable exchange rates and controlling inflation are crucial for sustaining asset quality and financial health in Nepalese commercial banks.

Abale and Ingale (2017) examined the state of non-performing assets (NPA) within Nabil Bank Limited, Nepal, using secondary data analysis. The study focused on the bank's provisioning strategies and their impacts on profitability and asset quality. By accessing data from multiple financial years, the research highlighted fluctuations in NPA levels and the effectiveness of provisioning in managing asset quality. The findings indicated that while higher provisioning reduced NPAs, it also impacted profitability negatively, underscoring the delicate balance between risk mitigation and financial performance. The study's conclusions emphasized the necessity for banks to maintain adequate provisions while striving for profitability to sustain investor confidence and operational stability. The implications suggest that effective asset management strategies, including prudent provisioning practices, are essential for navigating economic uncertainties and maintaining robust financial health in commercial banks.

Gautam (2018) examined the impact of non-performing loans (NPLs) on the profitability of Nepalese commercial banks over a decade from 2007/08 to 2016/17. Using regression models, the study analyzed data from ten commercial banks in Nepal. The study focused on key variables such as the credit-to-deposit ratio, net profit to loans, NPLs to total loans, and interest income to loans. The findings indicated that variables such as credit-to-deposit ratio, net profit to loans, and interest income to loans positively influenced return on assets (ROA). Conversely, NPLs to total loans had a negative impact on both return on assets (ROA) and return on equity

(ROE). This underscored the importance of effective NPL management for maintaining profitability in Nepalese commercial banks.

Gnawali (2018) investigated the relationship between non-performing assets (NPAs) and the profitability of Nepalese commercial banks, focusing particularly on government-owned banks. Using secondary data from Nepal Rastra Bank publications and bank annual reports, the study found that NPAs, specifically the NPL to total loan ratio, negatively impacted return on assets (ROA). This indicated that higher levels of NPAs and larger bank sizes were associated with diminished profitability. The study suggested that enhancing asset quality and implementing effective risk management practices were crucial for improving profitability in Nepalese government-owned banks.

Arrawatia et al. (2019) investigated factors influencing poor asset quality in the Indian banking industry, focusing on non-performing loan (NPL) assets across 47 banks during the period from 2000 to 2014. The study employed a comprehensive analysis encompassing bank-specific, industry-specific, and macroeconomic factors to understand their collective impact on asset quality deterioration. By considering different ownership structures (public vs. private), the research aimed to identify universal determinants affecting asset quality irrespective of ownership type. The findings highlighted significant contributions from bank-specific factors such as operational efficiency and loan portfolio management, alongside macroeconomic indicators like GDP growth and financial crises. The study concluded that effective risk management frameworks and regulatory oversight are crucial for mitigating NPL risks and maintaining sustainable banking operations. The implications underscored the need for proactive measures to enhance asset quality and resilience against economic fluctuations in the banking sector.

Nachimuthu and Veni (2019) conducted a detailed analysis of the impact of non-performing assets (NPAs) on the profitability of Indian scheduled commercial banks over a decade. Employing ratio analysis, regression analysis, and EViews 10 software, the study revealed significant findings. It highlighted that gross advance had a negative association with Gross NPA, whereas the gross NPA amount showed a positive and statistically significant association. These results underscored the

importance of prudent loan portfolio management and proactive measures to reduce NPAs for enhancing the financial performance of Indian banks.

Sile et al. (2019) conducted a study in Kenya to examine the relationship between banks' asset quality and financial performance using data from 11 listed banks over the period from 2013 to 2018. The research focused on non-performing loan (NPL) ratios as indicators of asset quality and their impact on profitability. Through statistical analysis, the study revealed significant correlations between effective loan portfolio management and financial stability. The findings emphasized the critical role of managing NPLs to enhance profitability and ensure sustainable banking operations. The conclusions suggested that optimizing loan portfolio strategies and enhancing credit risk management frameworks are essential for maintaining healthy asset quality and achieving long-term financial viability in commercial banks.

Bhattarai (2020) focused on examining the effects of non-performing loans (NPLs) on the profitability of commercial banks in Nepal over a five-year period from 2013 to 2018. The study utilized multiple regression models, including pooled ordinary least squares, fixed-effect, and random-effect models. The analysis found significant negative associations between NPLs, capital adequacy ratio (CAR), and liquidity (LIQ) with return on equity (ROE). In contrast, bank size (SIZE) exhibited a positive association with ROE, while inflation (INF) had an insignificant effect. The study concluded that effective management of NPLs, coupled with maintaining adequate capital and liquidity levels, was pivotal for improving profitability in Nepalese commercial banks.

Khan et al. (2020) scrutinized the determinants of non-performing loans (NPLs) within Pakistan's banking sector from 2005 to 2017. Their study evaluated factors such as profitability, operating efficiency, capital adequacy, and income diversification using regression modeling with random and fixed effects in STATA software. The findings indicated that higher operating efficiency and profitability were associated with lower NPLs, highlighting their significant negative association. However, factors like capital adequacy and income diversification showed statistically insignificant relationships with NPLs. The study's implications suggest that improving operational efficiency and maintaining profitability are crucial for mitigating NPL risks in Pakistani banks, while also advocating for enhanced risk management practices.

Mishra et al. (2021) analyzed the determinants of Non-Performing Assets (NPAs) across 40 public and private banks in India from March 2010 to June 2019. Using a panel dataset, they identified significant macroeconomic influences such as the Index of Industrial Production (IIP), Consumer Price Index (CPI) inflation, policy repo rate, and exchange rate on NPAs. Additionally, bank-specific variables including gross loans, provisions, income from investments, and bank ownership (public vs. private) were found to significantly impact NPAs. Interestingly, the study revealed that the demonetization policy in 2016 had an insignificant effect on NPAs. The findings underscore the complex interplay between macroeconomic conditions and internal banking practices in shaping NPA levels, suggesting the need for adaptive financial policies and robust risk management frameworks to maintain asset quality in Indian banks.

Foglia (2022) investigated the influence of macroeconomic determinants on non-performing loans (NPLs) within the Italian banking system from 2008Q3 to 2020Q4. Employing the Autoregressive Distributed Lag (ARDL) cointegration model, the study provided fresh empirical evidence on how variables like gross domestic product (GDP) and public debt impact NPLs. The findings revealed that higher GDP and lower public debt had a negative influence on NPLs, whereas factors such as unemployment rates and domestic credit positively influenced impaired loans. This research contributes to understanding the macroeconomic drivers of credit risk in Italy, emphasizing the importance of economic stability and policy interventions in managing NPLs within the banking sector.

Akhter (2023) investigated the determinants of non-performing loans (NPLs) in Bangladesh's banking sector from 2011 to 2020, focusing on firm-specific and macroeconomic factors. Using data from 30 commercial banks, the study employed Random Effect Regression Model, Fixed Effect Regression Model, and one-step GMM system to analyze factors such as lagged NPLs, loan loss provisions, capital adequacy, and macroeconomic indicators like inflation and GDP ratio. The findings highlighted the critical role of efficient operational practices and adherence to capital requirements in mitigating NPLs. The study's conclusions underscored the need for prudent lending practices and regulatory oversight to ensure sustainable banking operations and financial stability in Bangladesh.

Jamshed and Siddiqui (2023) identified risk factors impacting asset quality in Pakistani commercial banks due to rising levels of non-performing loans (NPLs). Using panel data from eight banks over six years (2015-2020), the study assessed various risks including capital adequacy, profitability, diversification, efficiency, credit, operational, liquidity, and market risks. The analysis found that asset size and market risks tended to increase NPL ratios, while operating costs and return on equity showed potential to reduce NPLs. The study highlighted the multifaceted nature of risk management in banking, emphasizing the importance of robust strategies to maintain asset quality and ensure financial stability amid economic challenges in Pakistan.

Table 2. 1 *Summary of Literature Review*

Author(s)	Objective	Methodologies	Major Findings
Pradhan (2014)	To assess NPAs' impact on selected Nepalese banks and explore factors influencing NPAs.	Secondary data analysis	Identified factors contributing to NPAs: improper credit policies, political pressures, inadequate supervision, economic slowdowns, and overvaluation of collateral. Both private and public sector banks actively managed loan portfolios to mitigate NPAs.
Prasanna et al. (2014)	To investigate determinants of NPA in Indian banks using panel data analysis.	Panel data analysis	Macro factors like GDP growth and construction expenditure inversely affected NPA ratios. Bank-specific factors such as size and profitability metrics also influenced NPA ratios, highlighting the importance of macroeconomic stability and effective risk management in mitigating NPAs.
Bhattarai	To analyze the	Secondary data	Real effective exchange rate

(2015)	impact of macroeconomic and bank-specific factors on NPLs in Nepalese banks.	analysis	and inflation rates significantly influenced NPLs. GDP growth had an insignificant effect. Emphasized the need for adaptive monetary policies and robust risk management strategies tailored to local economic conditions.
Abale and Ingale (2017)	To examine NPA levels within Nabil Bank Limited and assess the impact of provisioning strategies.	Secondary data analysis	Higher provisioning reduced NPAs but negatively affected profitability, highlighting the balance needed between risk mitigation and financial performance.
Gautam (2018)	To analyze the impact of NPLs on the profitability of Nepalese commercial banks.	Regression analysis	NPLs negatively impacted ROA and ROE, emphasizing the importance of effective NPL management for profitability.
Ganwali (2018)	To investigate the relationship between NPAs and profitability in Nepalese government-owned banks.	Secondary data analysis	Higher NPAs negatively impacted ROA, indicating the need for improved asset quality and risk management practices in government-owned banks.
Arrawatia et al. (2019)	To identify factors influencing asset quality in the Indian banking industry.	Comprehensive analysis	Bank-specific factors and macroeconomic indicators significantly impacted asset quality, highlighting the importance of effective risk management and regulatory

			oversight.
Nachimuthu and Veni (2019)	To analyze the impact of NPAs on profitability in Indian scheduled commercial banks.	Ratio analysis, regression analysis	Gross NPA had a positive association with NPL amount, emphasizing the need for proactive NPA management strategies.
Sile et al. (2019)	To examine the relationship between asset quality and financial performance in Kenyan banks.	Statistical analysis	Effective loan portfolio management positively correlated with financial stability and profitability.
Bhattarai (2020)	To explore the effects of NPLs on profitability in Nepalese commercial banks.	Regression analysis (OLS, fixed-effect, random-effect models)	NPLs, capital adequacy, and liquidity negatively affected ROE, while bank size had a positive impact.
Khan et al. (2020)	To scrutinize determinants of NPLs in Pakistan's banking sector.	Regression modeling (random and fixed effects)	Higher operating efficiency and profitability were associated with lower NPLs, advocating for improved operational practices in mitigating NPL risks.
Mishra et al. (2021)	To analyze determinants of NPAs across Indian public and private banks.	Panel dataset analysis	Macro and bank-specific variables significantly influenced NPAs, highlighting the complex interplay between economic conditions and internal banking practices.
Fogila (2022)	To investigate macroeconomic determinants of	ARDL cointegration model	Higher GDP and lower public debt negatively influenced NPLs, underscoring the role of

	NPLs in the Italian banking system.		economic stability in managing credit risk.
Akhter (2023)	To examine determinants of NPLs in Bangladesh's banking sector.	Regression models (Random Effect, Fixed Effect, GMM)	Efficient operational practices and adherence to capital requirements were crucial in mitigating NPLs, emphasizing the role of regulatory oversight and risk management in sustaining financial stability.
Jamshed and Siddiqui (2023)	To identify risk factors impacting asset quality in Pakistani commercial banks.	Panel data analysis	Asset size and market risks tended to increase NPL ratios, highlighting the importance of robust risk management strategies to maintain asset quality.

2.4 Research Gap

Despite extensive research on non-performing assets (NPAs) in Nepalese banks, several gaps remain. Many studies rely on outdated data, limiting their relevance to current economic conditions. There is a pressing need for research using recent data to better understand the evolving impact of NPAs on profitability. Additionally, most studies employ basic regression models, overlooking advanced econometric techniques like dynamic panel models or machine learning, which could provide deeper insights. The focus has often been on a narrow set of variables, neglecting the influence of technological adoption and comprehensive macroeconomic factors. Furthermore, sector-specific analyses comparing the impact of NPAs on profitability across public and private banks are sparse. Longitudinal studies that explore the long-term effects of NPAs within a changing economic and regulatory landscape are also lacking. Lastly, many existing studies fail to offer practical policy recommendations, which are crucial for banks to mitigate the adverse effects of NPAs on profitability. Addressing these gaps could significantly enhance the understanding of NPA dynamics and inform effective management strategies within Nepal's banking sector.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

Descriptive research focuses on gathering facts and information, providing a comprehensive overview without necessarily explaining relationships or testing hypotheses. It does not aim to make predictions or delve into the deeper meanings and implications of a study. Instead, it relies on an analytical approach to present the information and data clearly. In addition to the quantitative analysis, the study includes qualitative aspects, which are detailed thoroughly when necessary. By combining descriptive and analytical research designs, this study aims to achieve its objectives effectively, offering both factual data and in-depth insights where applicable.

3.2 Population and Sample

In Nepal, there are twenty commercial banks, among which three are government-owned. These three banks Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) constitute the entire population for this study. The focus of the research is specifically on these government banks, which have been chosen as the sample. By selecting all three, the study aims to provide comprehensive insights into the operations and financial performance of government-owned commercial banks in Nepal. This selection allows for a detailed analysis of their unique characteristics and challenges within the broader banking sector. Purposive sampling method was used to select the sample for the study.

3.3 Source of Data

To achieve the objectives of the study, a secondary data collection procedure is adopted. Secondary data sources include information obtained from reports, books, newspapers, and journals. The main sources of secondary data are the annual reports of Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL). Additionally, bulletins and reports from the respective banks, materials published in newspapers and magazines, and other relevant journals, periodicals, books, and booklets serve as important sources. The

websites of the concerned banks also provide valuable data. This comprehensive approach ensures a robust collection of information necessary for the study.

3.4 Data Procedure

Various data obtained from different sources cannot be used directly for analysis in their original form. Therefore, the data is rechecked, re-evaluated, edited, and tabulated to make it suitable for analysis. The researcher ensures that the collected data is trustworthy by obtaining it from authorized sources. Additionally, various graphs and charts are presented as needed to provide visual interpretations. The data is organized and tabulated according to subject matter, displayed in tables sequentially. Financial ratios are used for analysis, along with different statistical interpretations of the NPAs of the selected sample commercial banks. This structured approach facilitates a comprehensive and accurate analysis of the data.

3.5 Data Analysis Tools

The study will employ both descriptive and analytical statistics to analyze the collected data; this process also involved manual working and computer programmed MS-word, MS-excel, SPSS etc. The study will use descriptive statistics in analyzing data through ratio and data presented in form of times and percentages which reflected the different financial ratio include in this study.

3.5.1 Descriptive Analysis

Descriptive analysis plays a pivotal role in this study by providing a comprehensive overview of the data. It involves calculating measures of central tendency (such as mean, median) and measures of dispersion (such as standard deviation, range) for variables such as return on assets (ROA), non-performing loan to total loan (NPL), loan loss provision to total loan (LLP), capital adequacy ratio (CAR), and the natural logarithm of total assets (SIZE). These variables are crucial indicators of financial health and operational efficiency within the banks under study. Descriptive statistics help in summarizing and presenting the data in a clear and interpretable manner, offering insights into the average performance and variability across different metrics.

3.5.1 Correlation Analysis

Correlation analysis is utilized to explore the relationships between variables. Specifically, it examines how changes in one variable may correlate with changes in another. For instance, correlations between ROA and NPL, LLP, CAR, and SIZE are

assessed to understand whether and to what extent these factors influence profitability. This analysis helps in identifying potential interdependencies and patterns within the data, highlighting key factors that may significantly impact the financial outcomes of the commercial banks.

3.5.1 Regression Analysis

Regression is the statistical tool which is used to determine the statistical relationship between two (or more) variables and to make estimation (or prediction) of one variable on the basis of the other variable(s). In other words, regression is that statistical tool with the help of which the unknown value of one variable can be estimated on the basis of known value of the other variable. Regression equation showing the relation between all independent variable and dependent variable. The regression will be as follows:

$$ROA = \beta_0 + \beta_1 NPL_1 + \beta_2 LLPTL_2 + \beta_3 CAR_3 + \beta_4 SIZE_4 + \varepsilon$$

Where,

ROA = Return on Assets

NPL = Non-Performing loan to Total Loan

LLP = Loan Loss Provision to Total Loan

CAR = Capital Adequacy Ratio

SIZE = Natural Logarithm of Total Assets

ε = Error Terms

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

The data presentation in this study is structured to provide clarity and insight into the financial metrics and variables under investigation. Utilizing tables, graphs, and charts, the study presents the collected data from sources such as annual reports of Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL), along with bulletins, newspapers, journals, and bank websites. Tables are sequentially arranged to showcase financial ratios, trends over time, and comparative analyses among the selected government-owned banks. Graphical representations complement the tables, offering visual interpretations that aid in understanding the relationships and trends depicted in the data. This approach ensures that the data are accessible, organized, and conducive to in-depth analysis and interpretation.

4.1 Analysis of Secondary Data

The analysis of secondary data in this study involves a meticulous process of verifying, evaluating, and synthesizing information gathered from authoritative sources. Secondary data sources include annual reports, bulletins, and publications from RBB, ADBL, and NBL. The data undergoes scrutiny to ensure accuracy and reliability before being organized into structured datasets for analysis. Descriptive statistics are employed to summarize the data, providing insights into financial performance indicators such as return on assets (ROA), non-performing loan to total loan (NPL) ratios, loan loss provision to total loan (LLP) ratios, capital adequacy ratios (CAR), and bank sizes. Correlation analysis examines relationships between these variables, while regression analysis models the impact of NPL, LLP, CAR, and SIZE on ROA. This analytical approach enables a comprehensive exploration of factors influencing bank profitability, offering valuable insights for stakeholders and policymakers in Nepal's banking sector.

4.1.1 Return on Assets

Return on Assets (ROA) is a critical financial metric that evaluates a bank's profitability by measuring how efficiently it generates earnings from its total assets. In this study, ROA serves as a key indicator to assess the financial performance of

selected Nepalese commercial banks, including Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL). A higher ROA indicates effective asset management and operational efficiency, reflecting positively on the bank's ability to generate profits relative to its asset base. Analysis of ROA provides insights into the overall profitability and efficiency of these banks, guiding strategic decisions and performance evaluations within the banking sector.

Table 4. 1 *Return on Assets*

FY	RBB	ADBL	NBL
2013/14	1.47	1.76	0.92
2014/15	3.22	3.12	0.55
2015/16	1.42	2.32	2.79
2016/17	1.6	2.15	2.78
2017/18	1.42	2.54	2.41
2018/19	2.23	2.77	1.51
2019/20	1.64	1.86	1.22
2020/21	1.1	1.59	1.33
2021/22	1.3	0.9	1.12
2022/23	0.91	0.5	1.81
Mean	1.63	1.95	1.64
S. D	0.63	0.77	0.74
C.V	38.34%	39.52%	45.15%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.1 presents the Return on Assets (ROA) for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) over a ten-year period from the fiscal year 2011/12 to 2020/21. The ROA figures fluctuate significantly for all three banks throughout the observed period. For RBB, the ROA ranges from a low of 0.91 in 2020/21 to a high of 3.22 in 2012/13, with an overall mean of 1.63 and a standard deviation (S.D) of 0.63, indicating moderate variability as reflected by a coefficient of variation (C.V) of 38.34%. ADBL shows a higher mean ROA of 1.95 with a greater variability (S.D of 0.77), evidenced by a C.V of 39.52%. This bank's ROA peaks at 3.12 in 2012/13 and dips to its lowest at 0.5 in 2020/21. NBL has an average ROA of 1.64, with a standard deviation of 0.74 and the highest variability among the three banks (C.V of 45.15%). NBL's ROA ranges from 0.55 in 2012/13 to 2.79 in 2013/14. The data suggests that while all three banks have

experienced fluctuations in profitability, ADBL has shown the highest average ROA, indicating relatively better performance in terms of asset utilization, despite also showing notable variability. NBL, with the highest coefficient of variation, exhibits the most significant fluctuations, suggesting more inconsistent performance. Overall, the analysis of ROA highlights that while there are periods of high profitability, the banks also face considerable variability, impacting their financial stability and performance predictability.

4.1.2 NPL to Total Loan Ratio

The non-performing loan (NPL) to total loan ratio is a crucial measure of asset quality and credit risk management in commercial banks. It quantifies the proportion of loans that are in default or are at risk of default compared to the total loan portfolio. In this study, the NPL to Total Loan Ratio is examined across RBB, ADBL, and NBL to evaluate the extent of credit risk exposure and the effectiveness of loan portfolio management practices. A higher NPL ratio indicates higher credit risk and potential financial instability, highlighting the importance of proactive measures to mitigate loan defaults and maintain healthy asset quality.

Table 4. 2 *NPL to Total Loan Ratio*

FY	RBB	ADBL	NBL
2013/14	6.38	5.46	5.12
2014/15	5.35	5.35	3.98
2015/16	4.25	4.36	3.11
2016/17	3.77	4.6	3.32
2017/18	4.75	3.41	3.37
2018/19	4.59	3.29	2.64
2019/20	4.08	2.84	2.47
2020/21	3.23	1.88	2.05
2021/22	2.09	2.09	1.83
2022/23	3.77	2.78	2.85
Mean	4.23	3.61	3.07
S. D	1.11	1.21	0.91
C.V	26.25%	33.65%	29.74%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.2 illustrates the non-performing loan (NPL) to total loan ratio for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) from the fiscal year 2013/14 to 2022/23. The NPL ratio is a

critical measure of a bank's asset quality, with lower ratios indicating better loan performance and asset quality. Over the observed period, RBB's NPL ratio decreases from 6.38% in 2013/14 to a low of 2.09% in 2021/22 before rising again to 3.77% in 2022/23. The mean NPL ratio for RBB is 4.23%, with a standard deviation (S.D) of 1.11 and a coefficient of variation (C.V) of 26.25%, indicating moderate variability in its loan performance.

ADBL shows a similar trend, with the NPL ratio dropping from 5.46% in 2013/14 to 1.88% in 2020/21, before increasing to 2.78% in 2022/23. ADBL's mean NPL ratio is 3.61%, with a higher variability (S.D of 1.21) and a C.V of 33.65%, suggesting more fluctuation in its asset quality compared to RBB. NBL has the lowest average NPL ratio among the three banks at 3.07%, with a standard deviation of 0.91 and a C.V of 29.74%. NBL's NPL ratio declines from 5.12% in 2013/14 to 1.83% in 2021/22, demonstrating significant improvement in its loan performance over the years.

The NPL to Total Loan Ratio has a direct impact on the Return on Assets (ROA) of the banks. High NPL ratios indicate a larger portion of non-performing loans, leading to increased loan loss provisions, which reduce the banks' profitability and, consequently, their ROA. For instance, RBB's higher NPL ratio in the earlier years corresponds with a lower ROA, while the improvement in NPL ratio in later years aligns with better ROA figures. Similarly, ADBL and NBL show improved ROA figures as their NPL ratios decrease. However, the variability in NPL ratios also highlights the challenges these banks face in maintaining consistent asset quality, which in turn affects their profitability and financial stability. Effective management of NPLs is crucial for these banks to enhance their ROA and overall financial performance.

4.1.3 LLP to Total Loan Ratio

The loan loss provision (LLP) to total loan ratio assesses the adequacy of provisions set aside by banks to cover potential losses from non-performing loans. It reflects the prudence of banks in managing credit risk and preparing for potential loan defaults. In this study, the LLP to total loan ratio is analyzed for RBB, ADBL, and NBL to gauge their risk management strategies and financial resilience. A higher LLP ratio suggests that banks are adequately provisioning for potential losses, enhancing their ability to absorb credit risks and maintain stability in adverse economic conditions.

Table 4. 3 *LLP to Total Loan Ratio*

FY	RBB	ADBL	NBL
2013/14	13.13	7.43	7.43
2014/15	9.98	6.83	6.83
2015/16	7.56	5.92	5.92
2016/17	6.22	5.62	5.62
2017/18	5.21	4.53	4.53
2018/19	4.51	3.58	3.58
2019/20	3.91	3.51	3.51
2020/21	1.11	2.1	2.1
2021/22	0.96	1.93	1.93
2022/23	1.14	1.97	1.97
Mean	5.37	4.34	4.34
S. D	3.81	1.94	1.94
C.V	70.96%	44.68%	44.68%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.3 presents the loan loss provision (LLP) to total loan ratio for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) from the fiscal year 2013/14 to 2022/23. This ratio is an indicator of the proportion of a bank's loan portfolio that is set aside to cover potential loan losses, with higher ratios reflecting greater anticipated loan defaults.

RBB's LLP ratio starts at a high of 13.13% in 2013/14 and shows a marked decline to 1.14% in 2022/23, with a mean ratio of 5.37%. The standard deviation (S.D) for RBB is 3.81, and the coefficient of variation (C.V) is 70.96%, indicating significant variability and a substantial reduction in provisioning over the years, reflecting improved loan quality or aggressive reduction of provisions.

ADBL's LLP ratio begins at 7.43% in 2013/14 and decreases steadily to 1.97% in 2022/23, with a mean ratio of 4.34%. The S.D for ADBL is 1.94, and the C.V is 44.68%, showing moderate variability in its loan loss provisioning. Similarly, NBL shows a consistent decrease from 7.43% in 2013/14 to 1.97% in 2022/23, matching ADBL's mean ratio of 4.34%, S.D of 1.94, and C.V of 44.68%.

The LLP to total loan ratio significantly impacts the return on assets (ROA) of the banks. High LLP ratios mean that a larger portion of the bank's income is allocated to cover potential loan losses, which directly reduces the net income available to

enhance ROA. For RBB, the high LLP ratio in the early years corresponds with lower ROA figures. As the LLP ratio decreases, more income is freed from provisions, contributing to an improved ROA. This trend is similarly observed in ADBL and NBL, where a reduction in LLP ratios over the years aligns with better profitability metrics. Effective management and reduction of loan loss provisions not only improve a bank's financial health but also enhance its ROA, contributing to overall financial performance and stability.

4.1.4 Capital Adequacy Ratio

The capital adequacy ratio (CAR) is a regulatory measure that assesses a bank's financial health and ability to withstand financial shocks. It compares a bank's capital to its risk-weighted assets, ensuring that banks maintain sufficient capital to cover potential losses. In this study, the CAR of RBB, ADBL, and NBL is examined to evaluate their compliance with regulatory requirements and their capacity to support sustainable growth. A higher CAR indicates stronger financial stability and resilience, enabling banks to sustain operations and support lending activities during periods of economic uncertainty.

Table 4. 4 *Capital Adequacy Ratio*

FY	RBB	ADBL	NBL
2013/14	4.62	14.93	4.55
2014/15	10.16	17.16	7.49
2015/16	10.46	17.18	10.2
2016/17	10.39	20.41	14.47
2017/18	11.47	19.66	11.27
2018/19	13.39	20.37	16.8
2019/20	12.64	19.29	16
2020/21	13.46	16.94	13.54
2021/22	13.29	15.59	11.98
2022/23	12.92	14.24	10.85
Mean	11.28	17.58	11.72
S. D	2.55	2.14	3.57
C.V	22.58%	12.19%	30.50%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.4 displays the capital adequacy ratio (CAR) for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL)

from the fiscal year 2013/14 to 2022/23. The CAR measures a bank's capital in relation to its risk-weighted assets and current liabilities, indicating its ability to absorb potential losses and maintain stability.

RBB's CAR starts at 4.62% in 2013/14 and shows a steady increase, peaking at 13.46% in 2020/21 before slightly declining to 12.92% in 2022/23. The mean CAR for RBB over this period is 11.28%, with a standard deviation (S.D) of 2.55 and a coefficient of variation (C.V) of 22.58%, indicating moderate variability. The overall upward trend suggests improved capitalization and financial resilience.

ADBL consistently maintains a higher CAR, beginning at 14.93% in 2013/14 and reaching a peak of 20.41% in 2016/17. It then slightly decreases to 14.24% in 2022/23. The mean CAR for ADBL is 17.58%, with a S.D of 2.14 and a C.V of 12.19%, reflecting less variability and strong capital adequacy throughout the period.

NBL's CAR shows significant improvement from 4.55% in 2013/14 to a peak of 16.8% in 2018/19, then gradually declining to 10.85% in 2022/23. The mean CAR for NBL is 11.72%, with a higher S.D of 3.57 and a C.V of 30.50%, indicating more variability compared to RBB and ADBL.

The CAR has a direct impact on the Return on Assets (ROA) of banks. A higher CAR indicates that the bank has more capital to cushion potential losses, enhancing its ability to take on riskier, higher-yielding assets, which can positively influence ROA. For RBB, the increase in CAR over the years aligns with periods of improved ROA, as the bank's enhanced capital base supports profitability. Similarly, ADBL's consistently high CAR correlates with a strong financial position, facilitating stable and potentially higher ROA. NBL's significant improvements in CAR also reflect in better ROA figures, though its higher variability suggests that while capital adequacy is essential, other factors also influence profitability. Overall, maintaining a robust CAR ensures that banks can sustain profitability and withstand financial challenges, thereby positively impacting their ROA.

4.1.5 Bank Size

Bank size measured by total assets provides insights into the scale and operational scope of commercial banks. In this study, the size of RBB, ADBL, and NBL is analyzed to understand its implications on their financial performance and market

competitiveness. Larger banks may benefit from economies of scale and greater diversification, potentially enhancing profitability and resilience. Analysis of bank size helps in assessing the strategic positioning and growth potential of these banks within the Nepalese banking sector, informing discussions on market dynamics and regulatory implications.

Table 4. 5 *Bank Size*

FY	RBB	ADBL	NBL
2013/14	24.80	24.56	24.66
2014/15	24.87	24.75	24.79
2015/16	25.07	24.91	24.98
2016/17	25.18	24.98	25.08
2017/18	25.34	25.32	25.20
2018/19	25.46	25.46	25.51
2019/20	25.58	25.48	25.59
2020/21	25.63	25.70	25.62
2021/22	25.74	25.86	25.87
2022/23	25.91	25.94	25.98
Mean	25.36	25.30	25.33
S. D	0.35	0.45	0.43
C.V	1.39%	1.79%	1.69%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.5 presents the bank size, measured as the natural logarithm of total assets, for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) from the fiscal year 2013/14 to 2022/23. This measure provides an insight into the scale and growth of the banks over the given period.

RBB's bank size increases from 24.80 in 2013/14 to 25.91 in 2022/23, indicating steady growth in its asset base. The mean bank size for RBB is 25.36, with a standard deviation (S.D) of 0.35 and a coefficient of variation (C.V) of 1.39%, reflecting minimal variability and consistent growth.

ADBL starts with a bank size of 24.56 in 2013/14 and reaches 25.94 in 2022/23. The mean size for ADBL is 25.30, with a S.D of 0.45 and a C.V of 1.79%, showing slightly more variability than RBB but still indicating stable growth.

NBL's bank size increases from 24.66 in 2013/14 to 25.98 in 2022/23. The mean size for NBL is 25.33, with a S.D of 0.43 and a C.V of 1.69%, demonstrating steady expansion with low variability.

The increase in bank size generally correlates with the potential for improved profitability, as larger banks can benefit from economies of scale, diversified income sources, and enhanced market presence. For RBB, the consistent growth in size is likely to contribute positively to its Return on Assets (ROA), as the expansion of the asset base supports higher revenue generation and efficient resource utilization. Similarly, ADBL's steady increase in size suggests improved capacity to generate earnings and manage risks, which can enhance its ROA. NBL's significant growth in size also indicates a stronger ability to leverage its assets for higher profitability. Overall, the expansion in bank size across these institutions likely supports their financial stability and enhances their ROA by providing a broader base for income generation and improved operational efficiencies.

4.1.6 Credit to Deposit Ratio

The credit to deposit ratio (CDR) is a vital financial metric that measures the proportion of a bank's total loans to its total deposits, indicating how efficiently a bank utilizes its deposits to generate income through lending activities. A higher CDR suggests a more aggressive lending strategy, which can lead to higher income from interest but also increased credit risk. Conversely, a lower CDR indicates a more conservative approach, potentially resulting in lower income but greater liquidity and financial stability. In this study, the CDR of Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) is analyzed to evaluate their lending practices and risk management strategies. Understanding the CDR helps in assessing the banks' operational efficiency, risk appetite, and overall financial health, providing critical insights for stakeholders and policymakers in the context of Nepalese commercial banking.

Table 4. 6 *Credit to Deposit Ratio*

FY	RBB	ADBL	NBL
2013/14	53.41	94.80	59.45
2014/15	58.02	93.77	68.45
2015/16	58.72	95.46	71.05
2016/17	69.30	92.90	79.17
2017/18	71.38	100.26	75.68
2018/19	77.15	93.62	78.14
2019/20	67.16	85.84	72.25
2020/21	73.62	92.93	82.76
2021/22	88.49	107.01	86.97
2022/23	76.90	91.56	72.65
Mean	69.42	94.82	74.66
S. D	10.03	5.29	7.37
C.V	14.45%	5.58%	9.87%

Source: Annual Reports of RBB, ADBL and NBL

Table 4.6 shows the credit to deposit ratio (CD Ratio) for Rastriya Banijya Bank (RBB), Agricultural Development Bank Limited (ADBL), and Nepal Bank Limited (NBL) from the fiscal year 2013/14 to 2022/23. This ratio measures the proportion of a bank's deposits that are utilized for lending purposes, which is crucial for understanding the bank's liquidity and credit risk management.

For RBB, the CD Ratio starts at 53.41% in 2013/14 and fluctuates over the years, reaching a peak of 88.49% in 2021/22 before decreasing to 76.90% in 2022/23. The mean CD Ratio for RBB is 69.42%, with a standard deviation (S.D) of 10.03 and a coefficient of variation (C.V) of 14.45%, indicating moderate variability in its lending relative to deposits.

ADBL consistently maintains a high CD Ratio, beginning at 94.80% in 2013/14 and reaching a peak of 107.01% in 2021/22, with a slight decrease to 91.56% in 2022/23. The mean ratio for ADBL is 94.82%, with a S.D of 5.29 and a C.V of 5.58%, showing low variability and a high level of loan disbursement compared to deposits.

NBL's CD Ratio starts at 59.45% in 2013/14 and rises to 86.97% in 2021/22, then decreases to 72.65% in 2022/23. The mean CD Ratio for NBL is 74.66%, with a S.D

of 7.37 and a C.V of 9.87%, reflecting a relatively stable but increasing trend in utilizing deposits for lending.

The CD Ratio is a critical factor affecting the Return on Assets (ROA) of banks. A higher ratio indicates more aggressive lending practices, which can enhance profitability through increased interest income but also elevates credit risk. For RBB, the moderate CD Ratio suggests a balanced approach, contributing to stable ROA by maintaining adequate liquidity while generating interest income. ADBL's consistently high CD Ratio implies a strong focus on lending, which can significantly boost ROA due to higher interest income, although it also requires effective credit risk management to prevent non-performing loans. NBL's increasing CD Ratio over the years suggests an expanding loan portfolio, which likely supports its ROA by leveraging deposits more effectively for income generation. Overall, the CD Ratio directly influences the banks' ability to generate returns from their assets, with higher ratios potentially enhancing profitability but also necessitating robust risk management practices.

4.1.8 Summary of Descriptive Statistics

Descriptive statistics provide a foundational overview of the data by summarizing essential features and patterns observed within a dataset. These statistics encompass measures of central tendency such as the mean, median, and mode, as well as measures of variability including standard deviation and range. The primary aim of descriptive analysis is to simplify and organize large volumes of data into a comprehensible form, allowing for initial insights and comparisons across different variables. By employing tables, descriptive statistics facilitate a clear visualization of trends and distributions, setting the stage for more in-depth analytical procedures. In the context of this study, descriptive statistics serve as the initial step to comprehend the overall financial performance and characteristics of the selected banks, laying the groundwork for subsequent inferential analyses that delve into the relationships and impacts of various financial ratios on the banks' profitability. The descriptive statistics of the study results is presented in Table 4.7.

Table 4. 7 *Summary of Descriptive Statistics*

	N	Min.	Max.	Mean	S.D.
Return on Assets	30	.50	3.22	1.74	0.74
NPL to Total Loan Ratio	30	1.83	6.38	3.64	1.20
LLP to Total Loan Ratio	30	.96	13.13	4.69	2.80
Capital Adequacy Ratio	30	4.55	20.41	13.52	4.09
Bank Size	30	24.56	25.98	25.33	0.42
Credit to Deposit Ratio	30	53.41	107.01	79.63	13.68

Source: Annual Reports of RBB, ADBL, NBL and SPSS Output

Table 4.7 presents a summary of descriptive statistics for key variables derived from the annual reports of RBB, ADBL, and NBL. Each variable is analyzed separately to provide insights into their distribution and central tendencies across the study period.

Return on assets (ROA) exhibits a mean of 1.74 with a standard deviation of 0.74, indicating variability in profitability among the sampled banks. ROA ranges from 0.50 to 3.22, suggesting differing levels of financial performance over the years.

The non-performing loan (NPL) to total loan ratio ranges from 1.83% to 6.38%, with a mean of 3.64% and a standard deviation of 1.20%. This ratio reflects the proportion of non-performing loans relative to total loans and indicates the asset quality and credit risk management practices of the banks.

The loan loss provision (LLP) to total loan ratio ranges from 0.96% to 13.13%, showing variability in provisioning for potential loan losses. The mean LLP ratio is 4.69% with a standard deviation of 2.80%, suggesting differences in risk management strategies across the banks.

The capital adequacy ratio (CAR) ranges from 4.55% to 20.41%, with a mean of 13.52% and a standard deviation of 4.09%. This ratio measures a bank's capital adequacy in relation to its risk-weighted assets, indicating the banks' ability to absorb potential losses.

Bank size measured by natural logarithm-transformed total assets, ranges from 24.56 to 25.98, with a mean of 25.33 and a small standard deviation of 0.42. This metric provides an indication of the scale of operations among the banks in the study.

The credit to deposit ratio ranges from 53.41% to 107.01%, with a mean of 79.63% and a standard deviation of 13.68%. This ratio reflects the extent of loans disbursed relative to deposits mobilized, highlighting the banks' lending activities compared to their deposit base.

4.1.9 Correlation Analysis

In this study, correlation analysis is utilized to determine the strength and direction of the relationships between the dependent variable, return on assets (ROA), and the independent variables, which include the non-performing loan (NPL) ratio, loan loss provision (LLP) ratio, capital adequacy ratio (CAR), bank size, and credit to deposit ratio. By calculating the correlation coefficients, the analysis provides an initial insight into whether these variables have positive or negative correlations with ROA. This step helps to identify which factors might be associated with higher or lower profitability in the banks, offering a preliminary understanding of the interdependencies among the variables under consideration. Table 4.8 shows the correlation analysis results of the study.

Table 4. 8 *Correlation Analysis*

		ROA	NPL	LLP	CAR	BS	CD
ROA	Pearson Correlation	1					
	Sig. (2-tailed)						
NPL	Pearson Correlation	.291	1				
	Sig. (2-tailed)	.119					
LLP	Pearson Correlation	.343	.834**	1			
	Sig. (2-tailed)	.064	.000				
CAR	Pearson Correlation	.328	-.348	-.446*	1		
	Sig. (2-tailed)	.077	.060	.013			
BS	Pearson Correlation	-.404*	-.772**	-.861**	.266	1	
	Sig. (2-tailed)	.027	.000	.000	.155		
CD	Pearson Correlation	.102	-.412*	-.505**	.795**	.281	1
	Sig. (2-tailed)	.593	.024	.004	.000	.133	

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

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

The correlation analysis presented in Table 4.7 shows the relationships between Return on Assets (ROA) and several independent variables non-performing loan (NPL) ratio, loan loss provision (LLP) ratio, capital adequacy ratio (CAR), bank size (BS), and credit to deposit ratio (CD).

Firstly, the Pearson correlation coefficient between ROA and NPL ratio is 0.291, indicating a positive but weak correlation. This suggests that as the proportion of non-performing loans to total loans increases, there is a tendency for ROA to also increase slightly, although this relationship is not statistically significant at the 0.05 level.

Secondly, the correlation coefficient between ROA and LLP ratio is 0.343, indicating a moderate positive correlation. This implies that higher levels of loan loss provisions relative to total loans are associated with higher ROA, suggesting that banks making more provisions for potential loan losses may also experience improved profitability. However, like NPL ratio, this correlation is not statistically significant at the 0.05 level.

Thirdly, the correlation between ROA and CAR is 0.328, showing a moderate positive correlation. This suggests that banks with higher capital adequacy ratios tend to have higher ROA, indicating that stronger capital positions may contribute positively to profitability. However, similar to NPL and LLP ratios, this correlation is not statistically significant at the conventional significance level.

Fourthly, there is a negative correlation of -0.404 between ROA and Bank Size (BS). This indicates that larger banks, as measured by total assets, tend to have lower ROA. The negative correlation suggests that larger banks may face challenges in maintaining high profitability levels, potentially due to higher operational costs or lower efficiency compared to smaller banks. This relationship is statistically significant at the 0.05 level.

Lastly, the correlation between ROA and Credit to Deposit Ratio (CD) is 0.102, indicating a very weak positive correlation. This suggests that there is little to no meaningful relationship between the proportion of loans to deposits and ROA. This lack of significant correlation implies that banks' lending activities relative to their deposit base do not strongly influence their profitability. While Bank Size shows a statistically significant negative correlation with ROA, indicating that larger banks

may face profitability challenges, the relationships between ROA and NPL ratio, LLP ratio, CAR, and CD are not statistically significant in this study.

4.1.10 Regression Analysis

Regression analysis is then employed to further investigate the impact of the independent variables on ROA. This statistical method allows for the estimation of the specific effect each independent variable has on ROA, while controlling for the presence of other variables in the model. By fitting a regression equation to the data, the analysis quantifies the relationship between ROA and each predictor, providing a more nuanced understanding of how NPL ratio, LLP ratio, CAR, Bank Size, and Credit to Deposit Ratio influence bank profitability. The results of the regression analysis offer detailed insights into the determinants of financial performance, highlighting which variables are significant predictors of ROA and the extent of their impact. Table 4.9 to Table 4.11 shows the regression results of the study.

Table 4. 9 *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.648 ^a	.420	.366	.81711

a. Predictors: (Constant), CDR, BS, NPL, CAR, LLP

Regression equation showing the relation between all independent variable and dependent variable. Table 4.9 depict that dependent variable is return on assets and independent variables used in the model are capital adequacy ratio, loan loss provision to loan and advance ratio, non-performing loan to loan and advance ratio, size of the bank and credit to deposit ratio. The table shows that the R square is 42.0%. The regression result from R square indicates that 42.0% of the variation in return on assets is determined by these independent variables.

Table 4. 10 *Analysis of Variance (ANOVA)*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.063	5	5.213	7.807	.000 ^b
	Residual	36.055	54	.668		
	Total	62.118	59			

a. Dependent Variable: ROA

b. Predictors: (Constant), CDR, BS, NPL, CAR, LLP

Table 4.10 presents the results of the analysis of variance (ANOVA) for the regression model predicting Return on Assets (ROA) based on several predictors credit to deposit ratio (CDR), bank size (BS), non-performing loan (NPL) ratio, capital adequacy ratio (CAR), and loan loss provision (LLP) ratio. The F-value of 7.807 indicates that the explained variance by the model is significantly greater than the unexplained variance. The p-value associated with the F-statistic is .000, which is less than the conventional significance level of 0.05. This indicates strong evidence against the null hypothesis, suggesting that at least one of the predictors (CDR, BS, NPL, CAR, LLP) has a statistically significant effect on ROA. The ANOVA table shows that the regression model as a whole is statistically significant with an F-statistic of 7.807 and a corresponding p-value (Sig.) of .000. This indicates that the model containing the predictors (CDR, BS, NPL, CAR, LLP) significantly explains the variance in ROA compared to a model with no predictors. The F-statistic tests the overall significance of the regression model. ANOVA results confirm that the regression model including credit to deposit ratio, bank size, non-performing loan ratio, capital adequacy ratio, and loan loss provision ratio as predictors significantly predicts variations in return on assets among the sampled banks.

Table 4. 11 *Regression Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	8.941	4.868		1.837	.072
	CAR	.022	.027	.146	.825	.413
	NPL	-.065	.115	-.241	-.569	.572
	LLP	-.109	.108	-.453	-1.011	.317
	BS	-.168	.197	-.103	-.854	.397
	CDR	-.037	.018	-.343	-2.047	.046

a. Dependent Variable: ROA

Table 4.11 presents the regression coefficients for the model predicting Return on Assets (ROA) based on the independent variables capital adequacy ratio (CAR), non-performing loan (NPL) ratio, loan loss provision (LLP) ratio, bank size (BS), and credit to deposit ratio (CDR). The constant term (intercept) is 8.941. This indicates the expected value of ROA when all independent variables (CAR, NPL, LLP, BS, CDR)

are zero. However, its significance level is .072, suggesting it is not statistically significant at the conventional significance level of .05.

The coefficient for CAR is 0.022, with a standard error of 0.027. This suggests that for every one-unit increase in CAR, ROA is expected to increase by 0.022 units. However, the coefficient is not statistically significant ($p = .413$), indicating that CAR does not have a significant effect on ROA in this model. The coefficient for NPL is -0.065, with a standard error of 0.115. A negative coefficient suggests that as NPL ratio increases, ROA tends to decrease, but this relationship is not statistically significant ($p = .572$).

The coefficient for LLP is -0.109, with a standard error of 0.108. A negative coefficient suggests that higher LLP ratio is associated with lower ROA, but again, this relationship is not statistically significant ($p = .317$). The coefficient for BS is -0.168, with a standard error of 0.197. This suggests that larger banks tend to have slightly lower ROA, but the effect is not statistically significant ($p = .397$).

The coefficient for CDR is -0.037, with a standard error of 0.018. This indicates that an increase in CDR is associated with a decrease in ROA. The coefficient is statistically significant ($p = .046$), suggesting that CDR has a negative impact on ROA. Specifically, for every one-unit increase in CDR, ROA decreases by 0.037 units. While credit to deposit ratio (CDR) shows a statistically significant negative relationship with ROA, the other variables (CAR, NPL, LLP, BS) do not demonstrate significant effects on ROA in this regression model. This indicates that CDR is a more influential factor affecting the profitability (ROA) of the banks in this study compared to other financial ratios considered.

4.2 Major Findings of the Study

The major findings of the study are as follows:

- The mean ROA for the three banks is 1.74 with a standard deviation of 0.74, indicating variability in profitability.
- The NPL ratio ranges from 1.83% to 6.38%, with a mean of 3.64% and a standard deviation of 1.20%.

- The LLP ratio ranges from 0.96% to 13.13%, showing variability in provisioning for potential loan losses. The mean LLP ratio is 4.69% with a standard deviation of 2.80%.
- The CAR ranges from 4.55% to 20.41%, with a mean of 13.52% and a standard deviation of 4.09%.
- The bank size measured by natural logarithm-transformed total assets, ranges from 24.56 to 25.98, with a mean of 25.33 and a small standard deviation of 0.42.
- The credit to deposit ratio ranges from 53.41% to 107.01%, with a mean of 79.63% and a standard deviation of 13.68%.
- The correlation coefficient between ROA and CAR is 0.328, showing a moderate positive correlation. This suggests that banks with higher capital adequacy ratios tend to have higher ROA.
- There is a negative correlation of -0.404 between ROA and Bank Size (BS). This indicates that larger banks tend to have lower ROA.
- The R square is 42.0%. The regression result from R square indicates that 42.0% of the variation in return on assets is determined by these independent variables.
- The ANOVA table shows that the regression model as a whole is statistically significant with an F-statistic of 7.807 and a corresponding p-value (Sig.) of .000.
- While credit to deposit ratio (CDR) shows a statistically significant negative relationship with ROA, the other variables (CAR, NPL, LLP, BS) do not demonstrate significant effects on ROA in this regression model.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter attempts to summarize the whole study and findings, makes general conclusions based on the finding presented in previous chapter and also suggests some recommendations based on the result of the analysis of data.

5.1 Summary

This research focuses on the study of non-performing loans (NPLs) and their impact on the profitability of commercial banks in Nepal. The study consists of several chapters that delve into different aspects of the topic. In the first chapter, the researchers discuss the basic assumptions, concepts, and significance of the study. They also outline the research issues, problems, objectives, rationale, limitations, and organizational structure of the study.

The second chapter provides a literature review, exploring the previous research conducted in the field of NPLs and their effects on commercial banks. The researchers review and summarize the findings of these studies to provide a background and prevent duplication of work.

In the third chapter, the researchers focus on the research methodology used in the study. They describe the research design, sources of data, population and sample selection, data collection techniques, and tools employed. The study adopts a descriptive cum analytical research design and uses secondary data from sources such as annual reports, publications, newspapers, theses, journals, articles, and relevant websites. The collected data is systematically recorded and presented using tables, and various mathematical, statistical, financial, tools for analysis. The data of ten consecutive years from three selected banks are analyzed to meet the objectives of the study.

The fourth chapter presents the data collected in tabular form and analyzes them systematically in line with the research objectives. The researchers aim to analyze the comparative position of banks in terms of NPLs and their impact on related variables.

The financial sector plays a crucial role in the development of a country, and commercial banks are vital in facilitating various commercial transactions. In Nepal,

the history of commercial banks is relatively short, with Nepal Bank Limited being the first bank established in 1994. Currently, there are 26 commercial banks operating in different parts of the country.

Loans and advances are the most profitable assets for banks and generate primary sources of income. Banks aim to make substantial profits by lending as much as possible. However, they must also be cautious about loan repayment and interest. Timidity may lead to inadequate returns, while excessive leniency may result in profit impairment due to bad debts. Recognizing the value of loans and advances is crucial to avoiding bank failures.

Non-performing loans have become a significant problem in the global banking industry, and Nepal is also facing this issue. The level of NPLs in Nepalese banks is a cause for concern, but recent reports indicate a decline in total NPLs in the Nepalese banking system. This study aims to determine the level of NPLs and their effects on the profitability and other factors of Nepalese commercial banks. The researchers provide a summary, conclusion, and various suggestions for further improvement based on their findings.

5.2 Conclusion

This study offers a comprehensive analysis of non-performing assets (NPA) in Nepalese commercial banks, with a specific focus on government-owned institutions. The research aims to provide an up-to-date assessment of NPAs, detailing their current status and trends observed over the study period. By examining NPAs alongside critical financial metrics such as loan loss provisions, capital adequacy ratios, bank size, and credit to deposit ratios, the study explores their interconnectedness and impact on the financial performance of government banks in Nepal.

The findings underscore significant relationships between NPAs and key financial indicators. Effective management of NPAs and prudent provisioning practices emerge as crucial factors influencing the financial stability and profitability of government banks. Capital adequacy ratios play a pivotal role, reflecting the banks' capacity to absorb potential losses and sustain operational resilience amid economic fluctuations and market challenges.

Moreover, the study highlights the varying impacts of bank size and credit to deposit ratios on financial outcomes. It illustrates how larger institutions and those with higher credit to deposit ratios navigate liquidity management and lending practices, influencing their overall financial performance and risk profiles.

This study provides valuable insights for stakeholders in the Nepalese banking sector, policymakers, and regulatory bodies. It not only deepens understanding of NPAs and their implications but also lays the groundwork for strategic interventions aimed at enhancing financial resilience and sustainability in government banks. By addressing the complexities surrounding NPAs and related financial metrics, this study contributes to ongoing efforts to strengthen the banking sector's stability and efficiency in Nepal.

5.3 Recommendations

Based on the findings and conclusion of the study, the following recommendations are made:

- Implement robust NPA monitoring systems to ensure timely identification and proactive management of non-performing assets. This includes regular reviews of asset quality and risk assessments to mitigate potential credit losses.
- Strengthen loan loss provisioning strategies based on historical data trends and economic forecasts. This proactive approach will bolster financial reserves, enhancing resilience against unexpected downturns and minimizing impact on profitability.
- Continuously monitor and adjust capital adequacy ratios to maintain optimal levels that support sustainable growth and absorb potential shocks. Consider periodic stress testing to evaluate resilience under adverse scenarios.
- Streamline operational processes and invest in technological solutions to improve efficiency and reduce operational costs. This will enable better allocation of resources towards risk management and customer service initiatives.
- Emphasize prudent credit risk assessment and monitoring practices to maintain a healthy balance between credit expansion and risk exposure. Implement robust credit policies and procedures aligned with regulatory guidelines.

- Recognize the impact of bank size on operational efficiency and profitability. Tailor strategies to optimize economies of scale while mitigating inherent challenges associated with larger institutions.
- Manage credit to deposit ratios judiciously to ensure sustainable lending practices without compromising liquidity. Monitor and adjust ratios based on market conditions and deposit mobilization efforts.
- Foster ongoing research into evolving dynamics of NPAs, financial performance metrics, and their interplay in the banking sector. Explore emerging trends, technological innovations, and regulatory developments to inform future strategies and policy decisions.

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ii CHAPTER I INTRODUCTION

1.1 Background of the Study Non-performing assets (NPAs) are a global concern that threatens the stability of financial markets in general and the sustainability of the banking sector in particular (World Bank, 2020). These assets have clearly documented credit vulnerabilities that risk the liquidation of obligations and may endure some losses to the bank (World Bank, 2020). One of the primary concerns of the present banking business is credit risk which has been exposing the fast-growing industry to accumulating non-performing assets (IMF, 2009). An effective and well-functioning financial sector is crucial for the development of any economy, and the accomplishment of high and sustained growth (World Bank, 2020). Asset quality is one of the markers of financial sector health, with unsound financial sectors of

nations demonstrating a significant degree of non-performing assets (Machiraju, 2003). Non-Performing Assets (NPAs) have become a critical issue for commercial banks, significantly affecting their financial performance and stability. NPAs are loans or advances where the borrower has defaulted on repayment for a specified period, thus becoming a liability for the bank (Kumar, 2017). These assets not only erode bank profitability but also pose a substantial risk to the overall financial system.