

IMPACT OF LIQUIDITY RISK ON ORGANIZATIONAL PERFORMANCE OF NEPALESE COMMERCIAL BANKS

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “*Impact of Liquidity Risk on Organizational Performance of Nepalese Commercial Banks*”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes.

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

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Report of Research Committee

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TABLE OF CONTENTS

<i>Title page</i>	<i>i</i>
<i>Certificate of Authorship</i>	<i>ii</i>
<i>Report of Research Committee</i>	<i>iii</i>
<i>Approval Sheet</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
<i>Table of Contents</i>	<i>vi</i>
<i>List of Tables</i>	<i>viii</i>
<i>List of Figure</i>	<i>ix</i>
<i>Abbreviations</i>	<i>x</i>
<i>Abstract</i>	<i>xi</i>

CHAPTER I INTRODUCTION.....	1-8
1.1 Background of the Study.....	1
1.2 Problem Statement	5
1.3 Objectives of the Study	6
1.4 Rationale of the Study	7
1.5 Limitations of the Study.....	7
CHAPTER II LITERATURE REVIEW	9-29
2.1 Introduction.....	9
2.2 Theoretical Review	9
2.2.1 Liquidity.....	9
2.2.2 Need for Liquidity	10
2.2.3 Liquidity Risk	11
2.2.4 Liquidity Risk Management	12
2.2.5 The Liquidity Management Theory	14
2.2.6 Commercial Loan Theory	14

2.2.7 Shiftability Theory	15
2.2.8 Anticipated Income Theory	16
2.2.9 Strategies for Liquidity Management in Existing Practice	17
2.3 Empirical Review	19
2.3.1 Review of journal articles	19
2.3.2 Review of Previous Thesis	26
2.4 Research Gap	28
CHAPTER III RESEARCH METHODOLOGY	30-39
3.1 Introduction	30
3.2 Research Design	30
3.3 Population and Sample	31
3.4 Sources of Data	31
3.5 Data Collection Procedure	31
3.6 Data Analysis Tools and Techniques	32
3.6.1 Descriptive Statistics	34
3.6.2 Correlation Analysis	34
3.6.3 Multiple Regression Analysis	34
3.7 Research Framework	35
3.8 Defination of Research Variables	36
CHAPTER IV RESULTS AND DISCUSSION	40-52
4.1 Results	40
4.1.1 Descriptive Statistics of the Variables	40
4.1.2 Correlation Analysis	41
4.1.3 Regression Analysis	44
4.2 Discussion	51
CHAPTER V SUMMARY AND CONCLUSION	53-57
5.1 Summary	53
5.2 Conclusion	54
5.3 Implication	56
5.3.1 Implications for Management	56
5.3.2 Recommendations for Future Researchers.	57
REFERENCE	
APPENDICES	

LIST OF TABLES

Table 1 Descriptive statistics of the variables.....	40
Table 2 Correlation analysis	42
Table 3 Model Summary (ROA)	45
Table 4 ANOVA table (ROA)	45
Table 5 Beta coefficient of liquidity risk factors and bottom-line performance indicator (ROA)	46
Table 6 Model Summary (ROE).....	47
Table 7 ANOVA table (ROE).....	47
Table 8 Beta coefficient of liquidity risk factors and bottom-line performance variable (ROE).....	48
Table 9 Model Summary (NIM)	49
Table 10 ANOVA table (NIM).....	49
Table 11 Beta coefficient of liquidity risk variables and top line performance variable (NIM).....	50

LIST OF FIGURE

Figure 1 Research Framework.....	36
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ABBREVIATIONS

CADR	Cash-Deposit Ratio
CDR	Credit to Deposit Ratio
DTA	Deposit to Total Assets Ratio
NIM	Net Interest Margin
NPLR	Non-Performing Loan Ratio
ROA	Return On Assest
ROE	Return On Equity
Sig	Significant
SPSS	Statistical Package for Social Sciences

ABSTRACT

This study entitled “Impacts of liquidity risk on organizational performance of Nepalese Commercial Banks” aimed to examine the relationship between liquidity risk factors and the organizational performance of Nepalese commercial banks. In the current study, linear multiple regression and bivariate correlation are used to quantify the impacts of explanatory factors on the dependent variables. The information is gathered from the yearly reports of a few chosen commercial banks, the Nepal Rastra Bank report, and other official and unofficial sources. The descriptive research approach is utilized along with the relevant financial and statistical instruments for data analysis. To investigate the link between the independent and dependent variables, multiple regression analysis and bivariate correlation are used. The analysis is based on information gathered from annual report of 5 commercial banks between the fiscal years 2013–2014 and 2022–2023. Using SPSS and MS-Excel, calculated data has been tabulated and examined. In the study, Deposit to Total Assets Ratio (DTA), Non-Performing Loan Ratio (NPLR), and Credit to Deposit Ratio (CDR of Nepalese commercial banks are examined for assessing how liquidity risk influences metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) in the banking sector by using Descriptive Statistics, Correlation and Regression and ANOVA test. The study found that in Nepal's commercial banking sector, DTA positively influenced ROE, while CDR negatively impacted financial performance. NPLR showed a negative correlation with bottom-line indicators. Notably, NIM did not significantly affect liquidity metrics studied, highlighting complex relationships in bank liquidity and performance.

Keywords Deposit to Total Assets Ratio, Non-Performing Loan Ratio, Credit to Deposit Ratio, Return on Assets, Return on Equity, and Net Interest Margin.

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

The financial sector is vital to the economic growth of any country, including Nepal, which is classified as a developing nation. In Nepal, the banking industry plays a central role in the financial sector, and the efficiency of economic management is significantly influenced by the performance of financial institutions. These institutions provide a robust framework that facilitates the mobilization and allocation of resources, channeling them from less critical areas toward more efficient investments. (Wilner, 2000).

Few of the main business-oriented objectives are maximizing profits, maintaining high liquidity levels, and achieving the highest possible owner's net worth. Banks, as longstanding institutions, have consistently contributed to the development of economies and are regarded as a crucial service industry in the modern world. In contemporary times, the role of banks transcends national boundaries, assuming a pivotal position as a primary source of financing for numerous businesses. Underpinning much of the discourse on financial performance is the widely accepted notion that heightened financial performance correlates with improved organizational efficacy and operations. Globally, the financial performance of companies has garnered substantial attention from a spectrum of stakeholders, including financial analysts, scholars, the broader administration of both public and private sectors of banking organizations. Evaluation of firm accomplishments typically encompasses metrics such as profitability, dividend growth, sales turnover, and return on investments, though ongoing interdisciplinary debate persists regarding the optimal methods for assessing performance and the multifaceted determinants thereof (Liargovas, 2008). According to the Basel Committee on Banking Supervision (2008), liquidity refers to a bank's capacity to support asset growth and meet its obligations as they arise without facing significant losses. Consequently, liquidity risk arises from the fundamental role of banks in converting short-term deposits into long-term loans, a practice termed maturity transformation.

The study aimed to evaluate the impact of liquidity risk on the organizational performance of Nepalese commercial banks. In Nepal, remittances from youths working in Gulf and other countries constitute a significant income source for the financial sector

(Budhathoki et al., 2020). The financial health of banks, indicated by profitability, is crucial, particularly for commercial banks. Globally, the liquidity position of banks has emerged as a major challenge with serious implications, potentially leading to bankruptcy. Liquidity is a critical factor influencing bank profitability. Hertina et al. (2021) highlight that liquidity ratios are used to assess a company's ability to meet short-term obligations, a concern particularly relevant in the banking industry (Assfaw, 2019).

In the Nepalese banking sector, liquidity has exhibited significant volatility over time, necessitating the implementation of reliable financial market policies to mitigate these fluctuations. The current liquidity conditions in Nepalese banks need improvement to enhance stability and profitability (Jha, 2012). A stable economy is crucial for maintaining a stable banking sector (Baral, 2007), and liquidity is identified as a key factor influencing the performance of Nepalese commercial banks. This study seeks to explore the impact of liquidity on the financial performance of Nepalese commercial banks, utilizing liquidity variables such as Capital Adequacy Ratio, Cash Reserve Ratio, Liquidity Ratio, and Loan to Deposit Ratio. The dependent variables for financial performance are Return on Assets (ROA) and Return on Equity (ROE).

Previous literature has extensively utilized return on assets (ROA) and return on equity (ROE) as key indicators of banking profitability both within individual countries and across regions. Bourke (1989) investigated banking profitability using ROA and ROE as performance metrics. Similarly, Zeitun (2012) investigated the profitability of commercial banks in Gulf Cooperation Council countries, using ROA and ROE as measures of performance. These metrics have been widely adopted in past studies to gauge bank profitability. This research aims to investigate the financial performance of Nepalese commercial banks, with ROA and ROE serving as the dependent variables. The study seeks to explore how liquidity variables impact the performance of these banks.

The importance of liquidity management is increasingly recognized due to its direct impact on corporate profitability (Eljelly, 2004). It is critical for firms to ensure they maintain adequate liquidity to meet short-term obligations. Research on liquidity holds considerable value for both internal and external analysts due to its substantial impact on everyday business activities (Bhunia, 2012). The main goal of managing liquidity is to evaluate the funding needs to cover financial commitments and to make sure that cash or

collateral is readily available (Premalatha, 2015). Effective liquidity management entails the ongoing assessment and accurate forecasting of cash inflows and outflows. This approach helps to minimize the risk of depositors being unable to access their funds when required. Consequently, liquidity is often regarded as the lifeblood of a banking system (Cucinelli, 2013).

Goodhart (2008) delved into the foundational elements of liquidity risk, focusing on two primary facets: maturity transformation and the inherent liquidity of a bank's assets. Maturity transformation entails aligning the maturity profiles of a bank's liabilities and assets. In contrast, the inherent liquidity of a bank's assets refers to their capacity to be sold without incurring substantial losses in any market situation. Banks with assets that can be readily sold without loss may have less concern about maturity transformation. Conversely, banks with assets maturing in shorter periods may require fewer liquid assets (Ahmed, 2015).

In banking, liquidity risk emerges from mismatches in liquidity, measured by the liquidity gap, which is the disparity between a bank's assets and liabilities (Falconer, 2001; Plochan, 2007). A negative gap shows that liabilities surpass assets, which could lead to a decrease in income. Conversely, a positive gap indicates that there are excess liquid assets remaining after settling liabilities, which suggests a lower level of financial risk (Central Bank of Barbados, 2008; Brunnermeier & Yogo, 2009). Beyond maturity mismatches, liquidity risk can stem from economic downturns that reduce resource generation, increasing depositor demand and overall risk (Diamond & Rajan, 2005). These conditions can lead to individual bank failures or systemic crises through contagion effects. Liquidity risk may also result from disruptions in borrower cash flows or project terminations, complicating bank operations and stability.

Liquidity for a bank denotes its capacity to fulfill financial obligations promptly as they arise. While banks finance investments in less liquid assets through lending, they primarily rely on short-term liabilities for funding. Therefore, a central challenge for banks lies in maintaining liquidity across various scenarios. A bank's liquidity is assessed by its ability to cover all expected expenses, like repaying loans or fulfilling debt obligations, using only its liquid assets.

Following the global financial crisis, banks have placed greater emphasis on grasping liquidity challenges and recognizing their crucial impact on the overall performance of the banking sector and financial markets. The global finance has witnessed several financial crises, often rooted in liquidity problems within the banking sector and financial markets. In times of crisis, banks often cut back on lending and boost their liquidity reserves because of a shortage of liquidity in the external finance market (Acharya & Naqvi, 2012). Berger & Bouwman (2009) have pointed out the connection between financial crises and banks' capacity to generate liquidity. The liquidity principle suggests that banks should invest in areas where assets can be quickly and easily converted into cash with minimal loss in value. Liquidity risk occurs when a bank cannot efficiently finance its transactions. Successful liquidity management necessitates a systematic approach, encompassing funding strategies, exposure limits, and guidelines for managing liquidity during critical times (Greuning & Bratonovic, 2004). Liquidity management is crucial in financial decision-making, as it seeks to balance profitability with liquidity (Bhunja & Khan, 2011). Achieving optimal liquidity management involves navigating this trade-off effectively.

Bank-specific factors, or internal factors, are the distinct features of a bank that impact its performance and are influenced by the decisions made by its management and board. These factors are under the control of the bank and vary from institution to institution. These elements encompass capital adequacy, the scale and distribution of deposit liabilities, the dimensions and structure of the credit portfolio, interest rate strategies, employee efficiency, technological infrastructure, risk management practices, overall bank scale, and the nature of ownership, among other considerations (Dang, 2011). In commercial banks, the initial form of liquidity risk occurs when depositors attempt to withdraw their funds, which could lead to insolvency if the bank's assets are inadequate to cover its liabilities. The second type of liquidity risk emerges when the available funds are insufficient to meet the demand for unforeseen loans, resulting in a shortfall in the money supply (Baral, 2005). On the flip side, maintaining a high liquidity position to mitigate risks can adversely impact banks' profitability, as returns on highly liquid assets tend to be minimal or even zero. In recent years, Nepal's banking industry has faced varying challenges, highlighting the need for banks to find a balance between liquidity and profitability to ensure their financial stability. Liquidity risk occurs when a bank is unable to satisfy the withdrawal requests of depositors, either in whole or in part, within a

given timeframe (Jenkinson, 2008). It reflects the bank's inability to fulfill short-term financial obligations, which can not only affect its performance but also damage its reputation. Insufficient liquidity can erode depositor confidence, leading to an opportunity cost for the bank.

Research on the connection between liquidity and bank performance shows inconsistent results. Some studies indicate a positive impact of liquidity on bank performance. For instance, Bourke (1989) found a positive correlation between liquidity and profitability, indicating that this relationship may differ depending on a bank's business model and economic conditions. However, there are opposing perspectives. Mehar (2001) discovered that, in the long run, there is no significant relationship between bank profitability and liquidity or capital management. Nonetheless, in the short term, capital ratios had a notably positive impact on profitability. Other studies have argued that liquidity can negatively affect bank performance when resources are misallocated. Banks with high liquidity levels may finance risky projects with potentially high returns but low success probabilities. Liquidity is considered a fundamental element in banking operations, highlighting the need to explore the relationship between liquidity risk and bank financial performance, particularly in economies with high levels of debt. Thus, this study seeks to examine if liquidity risk factors adversely affect the performance metrics of development banks.

1.2 Problem Statement

To achieve their objectives, banks must take into account liquidity risk and its management. The primary role of banks in converting short-term deposits into long-term loans makes them susceptible to liquidity risk, which can be specific to individual institutions or impact entire markets. This study focuses on analyzing financial data from Nepalese commercial banks to assess how liquidity risk impacts their organizational performance. Malik and Ahmed (2013) observed that firm- and industry-specific factors associated with liquidity risk management influence the performance of sectors, such as chemicals, with regard to market-to-book value ratios. Thus, examining liquidity risk management is advantageous not only for banking and financial institutions but also for sectors beyond banking.

Although numerous studies have examined the banking industry, there remains a paucity of comprehensive academic research focusing on the impact of liquidity risk on the organizational performance of commercial banks in Nepal. This study aims to partly address this gap. Nepalese banks and financial institutions are widely recognized for frequently facing liquidity problems that are becoming progressively more difficult to manage. Although numerous studies have investigated the impact of bank-specific and macroeconomic factors on liquidity in international contexts, there is a conspicuous lack of exclusive research on these determinants within the Nepalese banking sector. Therefore, this study seeks to fill this gap to some extent and lays the groundwork for further research in countries like Nepal. The findings from this study are expected to benefit commercial banks, regulatory bodies, academic researchers, and society at large by contributing to the understanding and management of liquidity risk in the financial sector, thereby enhancing economic stability and development. Therefore, this study aims to address the following research questions:

- i. Is there any relationship between liquidity risk factors and organizational performance of Nepalese commercial banks?
- ii. How do liquidity risk factors affect the organizational performance of commercial banks in Nepal?

1.3 Objectives of the Study

This study aims to evaluate the impact of liquidity risk on the organizational performance of commercial banks in Nepal. The research explores the issue of whether factors related to liquidity risk undermine the performance metrics of these banks. Consequently, liquidity risk is used as the independent variable, while the financial performance of the banks serves as the dependent variable. Liquidity risk is represented by the Credit to Deposit Ratio (CDR), Deposits to Total Assets (DTA), and Non-Performing Loan Ratio (NPLR). Conversely, the financial performance is indicated by Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). The study selected three commercial banks based on their asset sizes and employed correlation and multiple regression analyses to meet the stated objectives.

This study aims to achieve the following specific objectives:

- i. To investigate how liquidity risk factors are related to the organizational performance of commercial banks in Nepal.
- ii. To assess how factors used to measure liquidity risk affect the organizational performance of commercial banks in Nepal.

1.4 Rationale of the Study

This research aims to investigate the potential effects of liquidity risks on the financial performance of commercial banks in Nepal. Building on the findings of this study, future research could focus on identifying potential solutions that banks might implement to address liquidity risks should they arise. The findings of this research will hold scholarly value, offering a useful reference for future studies on banks and financial institutions and serving as a resource for academics specializing in liquidity risk management. A frequent vulnerability for banks arises from the liquidity mismatch between assets and liabilities, as banks often convert short-term deposits into long-term loans. The Basel Committee (2008) defines liquidity as a bank's capacity to finance asset growth and meet its obligations as they become due, without incurring unacceptable losses.

Liquidity risk is pivotal to banks' financial performance, influencing customer default rates and competitive positioning in loan markets. As noted by Rose (1999), inadequate liquidity often signals significant financial instability early on. The consequences of insufficient liquidity are profound, impairing a bank's ability to meet crucial obligations such as deposit withdrawals, debt maturation, and funding for loans and investments. Managing liquidity remains an ongoing challenge for banks and financial institutions, necessitating a thorough understanding of the factors that influence it to mitigate financial risks effectively. In Nepal, banks frequently encounter liquidity constraints that hinder their capacity to extend credit to enterprises, underscoring the importance of preemptively assessing and preparing for the impacts of liquidity risk to safeguard against potential adverse outcomes.

1.5 Limitations of the Study

Despite continuous efforts to derive meaningful conclusions from this study, several major limitations have been identified:

- i. The study only included 5 out of 20 commercial banks operating in the country, potentially limiting the generalizability of the findings.
- ii. The study relied solely on secondary data from quarterly reports of the selected banks, omitting primary data collection, which could have provided deeper insights.
- iii. The scope of the study was restricted to commercial banks, excluding other financial institutions such as development banks, finance companies, microfinance institutions, and cooperative banks.
- iv. Alternative liquidity measures such as the quick ratio and current ratio were not incorporated, potentially overlooking important dimensions of liquidity risk.
- v. The study period spanned 10 years from fiscal year 2013/14 to 2022/23, which may not capture more recent developments and trends in liquidity risk management.
- vi. This study considers only financial performance to measure the organizational performance of Nepalese commercial bank. It does not include the non-financial measures.

CHAPTER-II

LITERATURE REVIEW

2.1 Introduction

This chapter provides a thorough review of articles, books, research papers, journals, and previous theses concerning the impact of liquidity risk on the financial performance of commercial banks in Nepal. This review aims to provide a clear understanding of how liquidity risk affects financial performance both in Nepal and globally. By examining theories and previous studies conducted by researchers worldwide, this chapter serves to synthesize existing knowledge in the field. The literature review serves as a critical assessment of established principles and previous research findings, identifying gaps in current understanding and areas requiring further investigation. Its purpose is to inform the research by building on existing knowledge and identifying avenues for future exploration.

This chapter is organized into two sections:

1. Theoretical Review
2. Empirical Review

2.2 Theoretical Review

2.2.1 Liquidity

Total liquidity includes cash balances, bank deposits with the Nepal Rastra Bank and other financial institutions, funds available on call, and investments in treasury bills. Santomero (1997) defines liquidity risk as the potential for a funding crisis caused by unexpected events, such as substantial charge-offs, loss of market confidence, or national emergencies. In this context, effective risk management emphasizes liquidity facilities and portfolio structuring. By acknowledging liquidity risk, banks come to see liquidity as a valuable asset and must strategically design their portfolios to address challenges related to illiquidity. Drehmann and Nikolaou (2009) explain that liquidity risk arises when a financial institution cannot fulfill its financial commitments promptly without incurring major losses. This risk can jeopardize both profits and capital, emphasizing the critical need for bank management to maintain enough funds to meet future demands from depositors and borrowers at manageable costs. Liquidity risk for banks is shaped by the interplay of funding challenges and market conditions. Managing liquidity risk within an

enterprise-wide risk management framework is essential, integrating considerations of credit risk to maintain balance sheet stability and dynamically manage liquidity. Liquidity risk significantly influences both the operational performance and the reputation of banks (Jenkinson, 2008).

Anyanwu (1993) defines liquidity as the capability of a firm to convert its assets into cash quickly and without loss of value. Liquidity ratios play a vital role in business operations, especially for banks that depend extensively on funds borrowed from depositors via demand and time deposits. According to Olagunju et al. (2012), liquidity refers to a bank's capacity to meet financial obligations promptly and at a reasonable cost, ensuring sufficient funds are available to satisfy customer withdrawal demands as needed.

Nimer, Warrad, & Omari (2013) define liquid assets as marketable securities that can be easily converted into cash to meet liabilities. They emphasize that liquidity also entails price stability, whereby assets can be sold without significant loss in value. In this context, bank deposits and short-term securities are deemed more liquid than equity investments, as their prices tend to be stable and fixed, in contrast to the fluctuating prices of equity investments. This characteristic makes bank deposits and short-term securities more readily convertible into cash when needed to fulfill financial obligations.

2.2.2 Need for Liquidity

Bank liquidity levels are a critical concern due to the central role banks play in the financial system. Banks are inherently vulnerable if they lack sufficient safety margins. Historical events have shown the severe economic damage that can result when credit becomes scarce during a crisis. Capital serves as the primary safety buffer in banking because it provides the resources needed to absorb significant losses of any kind. Having adequate capital ensures that banks can weather financial shocks and maintain stability in the face of adverse conditions.

Liquidity problems are often the main reason for a bank's failure, which can trigger a traditional 'bank run' or, in contemporary terms, an inability to secure new funding through debt markets. It is entirely possible for a bank to have assets with an economic value sufficient to cover all its obligations, yet still face insolvency due to the illiquidity of its assets and the short-term nature of its liabilities. In such cases, the mismatch

between the timing of cash inflows from assets and outflows to meet liabilities can lead to financial distress or even bankruptcy, highlighting the critical importance of managing liquidity effectively in banking operations.

Deposits are often referred to as "sticky," meaning that while theoretically all demand deposits could be withdrawn in a single day, in practice, their average balances remain relatively stable during normal times. This stability allows banks to manage these funds over longer durations with confidence that the deposits will remain available, or that they can attract equivalent deposits from other sources if needed, typically by adjusting deposit rates. This characteristic of deposits provides banks with a degree of predictability in managing their liquidity and meeting customer withdrawal demands effectively.

2.2.3 Liquidity Risk

"Liquidity risk occurs when there is a disparity between the durations of a bank's liabilities and assets. If a bank's obligations come due before its assets generate cash, it may face shortages, particularly during times of high demand from borrowers. This situation can precipitate liquidity crises and even bank insolvency, underscoring the critical importance of effective liquidity risk management in banking operations. The main goal of liquidity risk management is to minimize the negative impact of mismatched asset and liability durations on a bank's financial health. This involves closely monitoring cash flows, identifying potential liquidity strains, and promptly implementing measures to alleviate these pressures. Balancing liquidity levels is a delicate task for banks: excessive liquidity may reduce income potential, while insufficient liquidity can jeopardize not only individual banks but also the broader banking system and national economy. Thus, maintaining an optimal level of liquidity is essential for financial stability and sustainable economic growth.

According to Santomero (1997), liquidity risk refers to the potential for a funding crisis triggered by unexpected events such as significant charge-offs, loss of market confidence, or national crises. In this context, successful risk management strategies emphasize optimizing liquidity resources and structuring the investment portfolio effectively. Acknowledging liquidity risk leads banks to treat liquidity as a crucial asset, making it essential to carefully design their portfolios to handle potential liquidity challenges. Liquidity, fundamentally, enables a bank to meet its payment obligations primarily from

customer deposits and maintain sufficient funds for lending activities. Thus, liquidity risk pertains to the possibility of a bank not having enough cash on hand to sustain its day-to-day operations. Maintaining sufficient liquidity is vital, as failing to meet obligations to other financial institutions can significantly damage a bank's reputation and negatively affect its bond prices in the money market. Liquidity risk can trigger a bank run, where depositors quickly pull out their funds, worsening the financial instability. Liquidity within commercial banks can be understood both in terms of assets readily available on the balance sheet and funds accessible through purchased sources.

Different categories of liquidity risks are:

- i. Market liquidity – The risk that an asset may not be sold quickly or at a reasonable price because of insufficient market liquidity. This risk is often indicated by wider bid-offer spreads, where transaction costs increase. Mitigation strategies include maintaining explicit liquidity reserves and extending the holding period used for Value at Risk (VaR) calculations. These measures aim to bolster liquidity management and reduce the impact of market liquidity risk on portfolio valuation and financial stability.
- ii. Funding liquidity – The possibility that liabilities cannot be met promptly or may only be met at a high cost. This risk can be specific to individual entities or systemic across the entire financial system. It underscores the importance of managing cash and marketable assets effectively to ensure financial obligations can be fulfilled efficiently, especially during times of market stress.

2.2.4 Liquidity Risk Management

Effective management of liquidity risk is essential across the financial services industry, covering all kinds of financial institutions. Ideally, banks should implement a robust framework that includes identifying, measuring, monitoring, and mitigating liquidity risk. This framework allows for the early identification of liquidity risk sources, helping to avoid potential losses. As banks' balance sheets become more complex and reliant on capital markets, managing liquidity risk becomes increasingly challenging. The Comptroller of the Currency (2001) defines liquidity risk as the possibility that banks might face losses because they are unable to meet their obligations or fund asset expansion without incurring high costs or significant losses. This definition underscores the importance of effective liquidity management in maintaining financial stability and

resilience across banking operations.

The viability of any business hinges on its capacity to fulfill its obligations promptly and take advantage of opportunities, whether in the short or long term. This includes timely payment of liabilities to benefit from discounts and financing expansions. It's crucial to note that profitability doesn't equate to liquidity; therefore, a thorough assessment of a company's cash inflows and anticipated outflows in an accounting period is essential for effective cash management. This analysis ensures that sufficient cash is available to meet operational needs, seize growth opportunities, and maintain financial stability, irrespective of the organization's profitability.

To avoid interruptions in the trading cycle caused by cash shortages, managers need to carefully establish the ideal cash level required for their business operations. This process includes scheduling payments and collections, as well as developing a strategy for investing in highly liquid assets that can be quickly converted to cash with minimal transaction costs to support effective treasury management (Srinivasan & Kim, 1986). Maintaining an optimal balance between readily available assets and short-term financial investments is essential for companies. Holding too much or too little cash equivalents can interrupt normal business activities or lead to financial difficulties, making it challenging to address sudden cash needs or capitalize on unexpected investment opportunities. Maintaining a cash surplus offers several benefits, such as facilitating ongoing transactions and providing a buffer against unforeseen cash requirements. However, being overly conservative in cash management can incur opportunity costs associated with holding assets that yield low or no returns. Achieving an optimal balance ensures efficient cash flow management and supports business resilience in both routine operations and unforeseen circumstances.

Building on foundational treasury principles, these authors explore and define more intricate techniques, instruments, and functions that enrich treasury management practices. They emphasize advanced cash management, encompassing short-term investment strategies, managing short-term financing options, and nurturing bank relationships. While they underscore the fundamental importance of treasury management, they delve into sophisticated techniques and tools that define effective cash management. Achieving an optimal balance involves maintaining a cash position that

allows the company to invest surplus funds for profitable returns while ensuring adequate liquidity to meet future financial obligations. This balance is crucial for maximizing financial performance and resilience in varying market conditions.

The goal is to reduce both transaction costs and the opportunity cost of holding cash balances. The optimal cash balance is attained when the combined costs of holding cash, including transaction and opportunity costs, are minimized. This balance point occurs where the opportunity cost of not investing cash equals the transaction costs incurred by converting investments back into cash. Achieving this optimal balance ensures efficient cash management, where cash is utilized effectively to generate returns while maintaining sufficient liquidity to meet operational needs.

2.2.5 The Liquidity Management Theory

Banks employ various strategies to manage liquidity risk, which can be understood through different liquidity management theories. These theories cover where liquidity management is carried out within the organization, how liquidity is measured and monitored, and the steps banks can take to address or mitigate liquidity challenges. Effective liquidity management involves ensuring that sufficient funds are available to meet obligations while optimizing the use of available resources to enhance financial stability and support business operations.

2.2.6 Commercial Loan Theory

In the development of the commercial banking system, a key principle of bank credit that has become widely accepted in both theory and practice is that banks should primarily extend credit for short durations and for purposes that result in the self-liquidation of the credit. Self-liquidating loans are meant to fund processes like manufacturing, warehousing, shipping, and goods distribution. When these goods are sold, the proceeds are used to automatically repay the loans. These short-term, self-liquidating loans for productive activities provide numerous benefits. Firstly, they inherently provide liquidity since they are self-repaying. Secondly, due to their short-term nature and productive use, they typically carry lower risk of default. Third, because they support productive activities, these loans generate income for the banks through interest payments. Overall, these characteristics make self-liquidating loans a preferred form of credit for banks, aligning with prudent lending practices and supporting economic activity.

The primary role of commercial banks is to generate funds that support the production, distribution, and consumption of goods. This is primarily achieved through the provision of short-term loans that finance goods as they progress from producers to consumers. Adam Smith highlighted that these loans are particularly liquid because they are self-liquidating; the proceeds from the sale of the financed goods provide the means for loan repayment. These loans are deemed liquid due to their specific purpose (funding goods in transit) and the nature of their collateral (the goods themselves). The swift transition of goods from producers, through distributors, to consumers ensures prompt repayment, adhering to the liquidity principle. Initially, loans were extended to various classes indiscriminately, but successive financial failures underscored the importance of the liquidity principle, leading to a focus on loans that finance the production and movement of goods, in line with the commercial loan theory.

2.2.7 Shiftability Theory

The "Shiftability" theory suggests that a bank's liquidity depends on its capacity to sell assets to other buyers for cash at reasonable prices, rather than relying only on short-term maturities. This theory expands the concept of liquidity, allowing for longer-term credits by enabling the transfer of assets in emergencies. Unlike the traditional view where loans are liquidated through the sale of goods, Shiftability emphasizes the sale or transfer of bonds to achieve liquidity. Bonds do not represent traditional credit extensions and are liquidated by being sold or shifted to other holders. The theory points out that bonds may not always be easily liquidated at maturity or might not always be preferable to sell. When a bank faces pressure on its liabilities, its liquidity depends on transferring assets to other banks that have extra funds available. Thus, in normal times, liquidity is about transferring assets rather than maturing loans, as banks can manage liquidity by shifting liabilities and assets between institutions.

The Shiftability theory has both advantages and shortcomings. A key limitation is that the ability to shift assets doesn't automatically ensure liquidity for the banking system, as it largely relies on current economic conditions. Additionally, during periods of acute depression, banks may find it impossible to shift shares and debentures, as there are no buyers and everyone holding such assets seeks to sell them. Furthermore, even if a single bank holds ample shiftable assets, trying to sell them during a bank run could adversely

affect the entire banking system. Finally, if all banks try to sell their assets at the same time, it could result in severe negative outcomes for both lenders and borrowers.

The Shiftability theory has some valid and positive aspects. It has prompted banks to acquire solid assets that can be easily transferred to other banks. Shares and debentures of major companies, as well as treasury bills and bills of exchange, are now classified as liquid assets. This perspective has motivated banks to engage in term lending, supported by the assurance that these assets can be transferred if needed.

2.2.8 Anticipated Income Theory

The Anticipated Income Theory, developed by H.V. Prochnow in 1950, was grounded in the practices of term loan extensions used by commercial banks in the USA. According to this theory, irrespective of a borrower's business nature and character, a bank structures the repayment of a long-term loan based on the borrower's anticipated income. Term loans, as per this theory, are loans with a duration exceeding one year but less than five years.

The Anticipated Income Theory suggests that term loans, which generally span from just over a year to under five years, are granted based on the collateral of machinery, inventory, and occasionally real estate. When granting such loans, banks impose restrictions on the borrower's financial activities. Importantly, the bank takes into account not just the collateral provided but also the borrower's projected income. Consequently, the loan is repaid in installments from the borrower's future earnings, rather than a lump sum payment at the loan's maturity.

This theory surpasses both the Commercial Loan Theory and the Shiftability Theory by effectively addressing the three main objectives of liquidity, safety, and profitability for banks. The bank's liquidity is guaranteed as borrowers make regular installment payments over time, ensuring a continuous flow of funds. Safety is ensured through the use of reliable security and the borrower's capacity to repay. The theory also allows banks to utilize excess reserves by lending in the form of term loans, providing a predictable income stream. Moreover, term loans are highly profitable for businesses seeking medium-term funding, making them beneficial for the entire business community.

On the flip side, the theory of anticipated income is not free from demerits. This theory is a method to examine a borrower's creditworthiness. It gives the bank conditions for examining the potential of a borrower to favorably repay a loan on time. It also fails to meet emergency cash requirements.

2.2.9 Approaches to Managing Liquidity in Current Practices.

Nepal Rastra Bank uses monetary policy to influence the lending capacity of commercial banks, either increasing or decreasing it to manage liquidity and internal lending—key factors affecting liquidity changes. However, the central bank faces challenges in controlling the growth of external capital inflows through monetary policy alone. When managing liquidity, the central bank focuses primarily on two aspects.

- i. Ensuring adequate liquidity is essential for commercial banks to facilitate their day-to-day transactions smoothly.
- ii. Protecting the economy from the adverse effects of sustained high liquidity or liquidity crises is crucial to maintaining stability and sustainability.

Commercial banks rely on attracting deposits, often referred to as the raw materials of banking, as they are essential for the bank's operations. Deciding which sectors to allocate these deposits to is crucial. While the current account balance is a significant liability for banks, it must be readily available for withdrawal upon demand, necessitating a liquid reserve. Despite loans and advances being lucrative assets, they may not be immediately recoverable upon demand, underscoring the need for liquid assets to fulfill obligations. Thus, commercial banks must ensure a balance between liquid assets and lending activities. Central banks also emphasize this aspect when instructing commercial banks on liquidity management. Creating an effective liquidity management strategy involves evaluating multiple factors, and neglecting this can be harmful to the bank. Thus, commercial banks should implement the following liquidity management strategies (Kumar and Yadav, 2013).

a) Strategy for Managing Deposits

Banks offer various types of accounts such as current, savings, and fixed deposits to cater to the needs of individuals, organizations, and institutions. Customers deposit their funds based on their requirements, leading to substantial accumulations in bank deposits. It is

the responsibility of banks to determine deposit amounts, account types, applicable interest rates, and set minimum and maximum deposit periods. Analyzing these accumulated deposits internally helps banks formulate strategies for liquidity management, crucial for achieving their goals. Effective liquidity management strategies contribute significantly to a bank's success in achieving its objectives.

b) Strategy Relating to Investment

In scenarios where liquidity is scarce, banks face constraints in making investments, despite the imperative to do so for-profit generation. Liquidity is a prerequisite for investment activities, and commercial banks, established with profit-making objectives, are unable to realize their goals without it. While maintaining sufficient reserves for daily liquidity requirements, banks must devise strategies to invest the remaining cash funds effectively.

c) Strategy Relating to Reserve Fund

Banks are required to allocate funds into various reserves, with certain funds mandating compulsory cash deposits. Failure to meet these fund requirements could lead to severe consequences, emphasizing the critical need for effective liquidity management. To safeguard against potential disasters, banks establish reserve funds, allocating a percentage of profits to this reserve. Developing a strategy for such allocations is crucial, determining the proportion of cash to be retained in reserves versus invested elsewhere. This strategic decision-making ensures the bank maintains a balance between liquidity needs and investment opportunities.

d) Strategy Relating to Dividend

Banks often distribute dividends to shareholders from their profits. However, in cases of liquidity shortage, banks may opt to issue share certificates instead of distributing cash dividends. It is crucial for bank management to assess the bank's liquidity condition before deciding on the distribution method. In situations where liquidity is scarce, a strategy to issue share certificates should take precedence. Conversely, when liquidity is sufficient, it is advisable to strategize for cash distributions to shareholders.

e) Strategy Relating to Capital

After establishment, banks often require additional capital for expansion, such as opening

new branches. This necessitates considerable capital, which can be raised through the issuance of shares and debentures, thereby alleviating liquidity concerns. Banks should develop a strategic approach to determine whether to issue shares, debentures, or both. By adopting these strategies, banks can conduct transactions more effectively, ensuring liquidity management. Additionally, banks must adhere to regulations set by regulatory bodies, such as Nepal Rastra Bank, which may impose fines for inadequate cash reserves. Effective liquidity management is crucial for banks to maintain a balanced liquidity position.

2.3 Empirical Review

This chapter provides an in-depth review of articles, research studies, journals, and books to understand the impact of liquidity risk on Nepalese commercial banks and its global significance. This review serves to consolidate theories and findings from previous studies conducted by researchers worldwide. Literature review serves as an inventory of existing literature, aiming to identify established principles and prior research efforts in the field. It provides a foundation for understanding the current state of knowledge and highlights areas for further research.

2.3.1 Review of journal articles

Amira (2023) conducted a study to analyze the impact of liquidity risk and financial performance of Kenyan commercial banks, drawing on the liquidity management shiftability theory. The research was underpinned by the positivist paradigm and employed explanatory and longitudinal research designs. The target population comprised 32 commercial banks in Kenya, with panel data spanning from 2010 to 2019. Descriptive and inferential statistics were used for data analysis, and the results showed an insignificant negative relationship between liquidity risk management and both Return on Equity (ROE) and Return on Assets (ROA). The study suggests that banks should minimize liquidity risk to avoid adverse effects on financial performance.

Naoaj (2023) conducted an empirical investigation to measure liquidity risk and its determinants in commercial banks in Bangladesh. The study utilized panel data from 28 banks and employed three different models: Pooled, Fixed Effect, and Random Effect.

The findings revealed that leverage consistently contributes positively to liquidity risk, whereas the regulatory environment and bank size have a negative impact. The effects of Return on Assets (ROA) and Capital Adequacy Ratio (CAR) varied depending on individual bank characteristics. Additionally, Real GDP exhibited a consistent negative relationship with liquidity risk. These results offer valuable insights for policymakers and bank managers to effectively manage liquidity risk within the banking sector.

Alim, Ali and Metla (2022) conducted a study to examine the impact of liquidity risk management on the financial performance of commercial banks in Pakistan. The Pakistani financial market heavily relies on its banking sector to achieve financial goals and stability. To ensure stability, the central bank of Pakistan mandates that banks maintain an optimal liquidity position to maximize benefits and returns. The study utilized Ordinary Least Square analysis on panel data to analyze the relationship. Financial data from all commercial banks operating in Pakistan from 2006 to 2019 was collected from the State Bank of Pakistan website. The findings indicate that higher liquidity positively influences the performance of commercial banks in Pakistan, aligning with existing literature. Future research could extend the study period and include additional variables specific to the banking sector in Pakistan, such as bank size and age, to further enhance the study's robustness. Additionally, including non-commercial banks in future studies could strengthen the research findings and enhance reliability.

Suyanto (2021) conducted research exploring how poor credit and liquidity affect bank performance, with capital adequacy serving as an intermediary factor. The research findings suggest that the direct impact of poor credit and liquidity on bank performance is minimal. Nonetheless, elevated levels of bad credit are linked to reduced bank performance, resulting in diminished profitability and earnings. This relationship is somewhat alleviated by the availability of capital, as banks can utilize capital to absorb a portion of bad credit. Capital adequacy serves as an intermediary variable, partially influencing how bad credit and liquidity affect bank performance. Additionally, the study highlights the importance of capital adequacy in influencing credit distribution. According to agency theory, banks act as agents managing funds on behalf of the fund owners (savers with saving, current, or deposit accounts), who are the principals. Effective fulfillment of duties by customers can help prevent bad credit situations.

Khatri (2020) conducted research to evaluate how liquidity affects the profitability of commercial banks in Nepal, concentrating on the connection between liquidity and profitability metrics. The study analyzed ten of the twenty-seven listed commercial banks in Nepal, spanning the period from 2013 to 2019. The analysis utilized secondary data from Bank Supervision Reports issued by Nepal Rastra Bank and the annual reports of the selected commercial banks. Liquidity was assessed using the credit-deposit ratio (CDR), cash-deposit ratio (CADR), and asset quality (AQ), while profitability was evaluated through return on equity (ROE) and return on assets (ROA). The results, analyzed using the Hausman test and fixed effects approach, indicated a negative and significant relationship between asset quality (AQ) and ROA, but a positive and significant relationship with ROE. The cash-deposit ratio (CADR) showed a positive but insignificant relationship with both ROA and ROE. Conversely, the credit-deposit ratio (CDR) had a positive but insignificant relationship with ROA and a negative but insignificant relationship with ROE.

Mustafa (2020) conducted research to evaluate how Liquidity Shortage Risk (LSR) affects the financial performance of Islamic Commercial Banks (ICBs). The findings of the research revealed that certain factors such as current deposits to total deposits, total finance to total deposits, and inflation had a negative effect on the financial performance of ICBs. However, it was found that the ratio of liquid assets to total assets positively impacted the performance of Islamic Commercial Banks (ICBs). The study also noted that monetary policy indirectly increased Islamic Commercial Banks' (ICBs) exposure to Liquidity Shortage Risk (LSR) by boosting the money supply. High inflation was identified as a factor driving depositors to withdraw cash from their accounts, thus increasing the exposure of Islamic Commercial Banks (ICBs) to Liquidity Shortage Risk (LSR). The study advises that Islamic Commercial Banks (ICBs) should avoid over-reliance on current deposits as a primary source of finance, as customer defaults could result in Liquidity Shortage Risk (LSR) and reduced profitability. Furthermore, diversifying financial assets to include those with high liquidity can help safeguard Islamic Commercial Banks (ICBs) from Liquidity Shortage Risk (LSR). Moreover, including highly liquid financial assets in their portfolios can help Islamic Commercial Banks (ICBs) mitigate Liquidity Shortage Risk (LSR).

Bustaman and Winoto (2020) conducted a study to analyze the impact of liquidity,

ownership, and the global financial crisis on the profitability of Indonesian banks. Liquidity was assessed using liquidity ratios, loan-to-funding ratios, and cash ratios, while ownership and the global financial crisis were represented by dummy variables. The Ordinary Least Squares method was used, with Net Interest Margin as the dependent variable and capital adequacy ratio included as a control variable. The study did not find a significant link between liquidity, ownership, and profitability. However, it did identify a notable connection between the global financial crisis and profitability.

Khalid, Rashed, and Hossain (2019) set out to explore how liquidity impacts financial performance through empirical analysis. This study utilized panel data analysis for a sample comprising all 31 commercial banks listed on the Dhaka stock market during the period from 2010 to 2017. The findings revealed that liquidity did not significantly affect return on assets (ROA) or return on equity (ROE), which are indicators of financial performance. Liquidity risk exhibited similar behavior across different dependent variables.

Madhuwanthi and Morawakage (2019) conducted a study to investigate the impact of liquidity risk on the performances of Sri Lankan commercial banks. They identified liquidity gap and non-performing loan ratio as significant proxies for liquidity risk. Using multiple regression analysis, the researchers found that liquidity risk had a negative and significant impact on the bottom lines, measured by Return on Average Assets (ROAA) and Return on Average Equity (ROAE), while it had a positive effect on the top line, indicated by Net Interest Margin (NIM), of the commercial banks. The study suggested that banks should focus on controlling expenses through better liquidity management to enhance bottom line performances.

Pokharel and Pokhrel (2019) explored the influence of liquidity on the profitability of Nepalese commercial banks. The study randomly selected five commercial banks in Nepal - Agriculture Development Bank, Everest Bank, Prime Commercial Bank, Sunrise Bank, and Citizens Bank International - from a total of 28 commercial banks, as a sample for analysis over the period from 2010/11 to 2016/17 AD. Using various statistical and financial tools, the study examined the liquidity management and profitability positions of these banks. The research revealed a largely zigzag trend in the average profitability of commercial banks, despite an unstable trend in their liquidity ratios. The study concluded

that the liquidity ratios of banks were below the prescribed standard, and the Cash Reserve Ratio (CRR) was higher than that prescribed by the monetary policy of 2016/17. The study found a positive correlation between CRR and Income Generating Short Credit Amount (IGSCA) with Return on Assets (ROA), while CRR and Cash Balance Beyond Its Standard Deviation (CBBISD) were inversely correlated with ROA. Regarding the liquidity-Return on Equity (ROE) relationship, the study found that the Cash Ratio (CR) was inversely correlated with ROE, but all other ratios (CRR, CBBISD, and IGSCA) were positively correlated with ROE. Additionally, the study reported a significant relationship between liquidity ratios and profitability, except between IGSCA and ROA.

Hakimi and Zaghdoudi (2017) conducted a study to examine the impact of liquidity risk on bank performance. Using panel data methodology, specifically random effect regression, the results indicated that liquidity risk has a detrimental effect on bank performance, leading to decreased performance. Additionally, the study found that the international financial crisis and inflation have negative and significant impacts on bank performance.

Abdi and Kavale (2016) conducted an evaluation of the effect of liquidity management on the financial performance of commercial banks in Mogadishu, Somalia. Their key findings revealed that liquidity management drivers individually had a positive influence on the financial performance of commercial banks. The research highlighted a significant linear relationship between account receivable management, account payable, and cash management on the financial performance of commercial banks. Based on the study objectives, the conclusions drawn emphasized the significant influence of liquidity management drivers on the financial performance of commercial banks. The results indicated that liquidity management drivers positively impacted the financial performance of commercial banks. The study recommends that managers carefully study and select the most suitable drivers for their banks to achieve maximum performance.

Pradhan and Shrestha (2016) conducted a study to examine the impact of liquidity on bank profitability in Nepalese commercial banks. The study found a positive correlation between capital ratio and return on equity, suggesting that higher capital ratios are associated with higher return on equity. However, the correlation between return on equity and liquidity ratio was negative, indicating that higher liquidity in the bank is

associated with lower return on equity. Similarly, the correlation between return on equity and quick ratio was also negative. The study further found that beta coefficients for investment ratio and capital adequacy were positively significant with bank performance, suggesting that an increase in investment ratio and capital ratio leads to an increase in bank performance. However, beta coefficients for liquidity ratio and quick ratio were negative with return on assets and return on equity, indicating that an increased liquidity ratio and quick ratio decrease the return on assets and return on equity of the bank.

Thuraisingam (2015) analyzed the nature of liquidity and its impact on profitability using data from listed companies in Sri Lanka. The study aimed to assess liquidity and its effect on profit earning capacity from 2008 to 2012, using Return on Equity (ROE) and Return on Assets (ROA) as profitability ratios. Descriptive analysis, correlation, and regression were employed as statistical techniques. The research findings indicated that there was no significant relationship between liquidity and profitability, aligning with prior empirical studies.

Ferrouhi (2014) identified seven main determinants that significantly influenced bank performance: liquidity ratio, size of banks, logarithm of total assets squared, external funding to total liabilities, share of own bank's capital of total assets, foreign direct investments, unemployment rate, and the realization of the financial crisis variable. The study found that bank performance was positively influenced by the size of banks, foreign direct investments, and the realization of the financial crisis, while it was negatively affected by external funding to total liabilities, share of own bank's capital of total assets, and unemployment rate. The relationship between bank performance and liquidity ratios, as well as bank performance and the logarithm of total assets squared, depended on the specific model used in the analysis.

Ben-Caleb, Egbide, Olubukunola, Uwuigbe, and Uwalomwa (2013) investigated the liquidity management and profitability of manufacturing companies in Nigeria, using a sample of 30 manufacturing companies. The analysis revealed that current ratio and liquid ratio were positively associated with profitability, while cash conversion period was negatively related to profitability of manufacturing companies in Nigeria. However, the associations in all cases were statistically insignificant, suggesting a low degree of influence of liquidity on the profitability of manufacturing companies.

Manyo and Ogakwu (2013) aimed to examine the impact of liquidity on Return on Assets (ROA) for 46 quoted firms listed on the Nigerian Stock Exchange from 2000-2009. The study emphasized that liquidity and its management significantly affect the growth and profitability of a firm, as inadequate or excess liquidity can disrupt operations. With bank loans becoming expensive and market conditions uncertain, managers are increasingly concerned about liquidity management. The hypothesis test results indicated that liquidity had a significant positive impact on ROA, suggesting that an increase in liquidity led to a corresponding increase in ROA. The study concluded that firms can enhance profitability by implementing effective credit policies, maintaining a short cash conversion cycle, and improving cash flow management procedures.

Ajanthan (2013) examined the relationship between dividend payout and firm policy, focusing on listed hotels and restaurant companies in the Colombo Stock Exchange (CSE). The study conducted regression and correlation analyses to determine how dividend payout influenced firm profitability. The results showed that dividend payout significantly impacted firm performance ($R = 0.725$ & $R^2 = 0.526$), with a strong and positive relationship between the two. This suggests that dividend policy is relevant and important. Based on these findings, it can be concluded that managers should consider dividend policy as an important aspect of firm strategy.

Ayele (2012) conducted a study on the determinants of profitability of private commercial banks in Ethiopia from 2002 to 2011. Using multiple regression models, the study examined the impact of various factors such as capital adequacy, managerial efficiency, liquidity, asset quality, bank size, and real GDP on bank profitability. The study used fixed effect regression models to analyze the data, with return on assets (ROA), return on equity (ROE), and net interest margin (NIM) as the dependent variables measuring bank profitability. The results indicated that both ROA and ROE had a positive and significant relationship with capital adequacy, asset quality, managerial efficiency, bank size, and GDP. However, ROA and ROE showed a negative significant relationship with liquidity. Bank size was measured using the natural logarithm of total assets. Additionally, NIM was found to have a positive significant relationship with capital adequacy, liquidity, managerial efficiency, and GDP, but a negative correlation with asset quality and bank size.

Saleem and Rehman (2011) conducted a study on the "Impacts of liquidity ratios on profitability of selected enterprises in Pakistan" using a sample of 26 oil and gas companies listed on the Karachi Stock Exchange (KSE). The findings indicated that only the liquid ratio had a significant impact on Return on Assets (ROA), while it was insignificant on Return on Equity (ROE) and Return on Investment (ROI). Additionally, the study found that ROE was not significantly impacted by the current ratio, quick ratio, or liquid ratio, while ROI was significantly affected by the current ratio, quick ratio, and liquid ratio.

That's an interesting approach! Examining various perspectives on liquidity risk and its impact on financial performance in the Nepalese banking industry will provide valuable insights. It's important to consider the specific characteristics and dynamics of the Nepalese banking sector to understand how liquidity risk affects financial performance in this context.

2.3.2 Review of Previous Thesis

In this section, various research studies have been examined to avoid duplication from the current study and to introduce new modifications to achieve the objective.

Laminfoday (2018) investigated how managing liquidity risk affects the financial performance of commercial banks in Sierra Leone. The study aimed to establish a connection between liquidity risk management and financial returns in this context. It focused on a sample comprising 8 commercial banks and the central bank of Sierra Leone. The research employed a descriptive study design and utilized a multiple regression analysis model to examine the relationship between liquidity risk management and financial outcomes. The findings indicated a significant negative relationship between liquidity risk management and financial returns of commercial banks in Sierra Leone. The predictor variables explained 43.7% of the variation in financial returns (ROA). The study recommends that stakeholders implement effective mechanisms to manage liquidity risks in the banking sector to enhance resilience and improve financial returns for commercial banks operating in Sierra Leone.

Workineh (2016) examined how liquidity influences the profitability of private commercial banks, focusing on Nib International Bank. The study employed both qualitative and quantitative data to achieve its objectives. The results from the regression analysis revealed that liquidity ratio, NBE Bills, and inflation rate positively and significantly impacted profitability. Conversely, loan to deposit ratio and deposit interest rate showed a negative relationship with profitability, although their impact was found to be insignificant. The study also found that the existing liquidity measurement tools were suitable and effective for measuring and managing liquidity. Ultimately, Workineh concluded that liquidity has a positive and significant impact on the profitability of Nib International Bank.

Joshi (2011) conducted a comparative analysis of the financial performance between NIBL and EBL, concluding that NIBL exhibited a stronger liquidity position compared to EBL. NIBL demonstrated superior metrics including the highest current ratio, cash and bank balance to total deposit ratio, and cash and bank balance to current assets ratio when compared with EBL. Additionally, NIBL was successful in mobilizing its investment relative to total deposits and had a higher saving deposit to total deposit ratio. Conversely, EBL appeared stronger in mobilizing total investment in relation to total deposits.

Thakur (2011) conducted a comparative financial performance analysis of Nepal's commercial banks, focusing on HBL and NABIL. The study found that while both banks experienced fluctuating liquidity trends, HBL exhibited higher cash and bank balance to current assets and cash reserve ratio, whereas NABIL maintained a superior current ratio. NABIL also demonstrated better profitability metrics including return on equity, return on assets, return on total deposits, and interest earned to total assets compared to HBL. Throughout the study period, NABIL showed increasing trends in investment, total deposits, net profit, operating income, and interest earned, highlighting its stronger financial performance relative to HBL. The analysis revealed predominantly positive correlations among the variables studied, underscoring NABIL's superior financial health and profitability position over HBL.

Limbu (2006) compared the financial performance of NSBI, EBL, and NABIL, concluding that NABIL had the strongest profitability position, followed by EBL, with

NSBI trailing behind. The study highlighted that NABIL was most effective in utilizing funds for productive sectors, as evidenced by its income structure ratios such as interest paid to interest income, return on assets (ROA), and return on equity (ROE). EBL, on the other hand, paid the highest amount of interest. Regarding liquidity, all three banks maintained a good liquidity position, with their cash and bank balance to deposit ratios consistently meeting the cash reserve ratio requirements set by NRB. However, NABIL had the highest current ratio, indicating the strongest liquidity position among the three banks.

After a thorough examination, it is evident that the financial market serves as a crucial facilitator for financing and investing in financial assets, with banks being the primary financial institutions involved. Mismanagement within these institutions often stems from inadequate and overly optimistic loan appraisals, high-risk diversification of loan portfolios, and other factors contributing to failed investments and loans. The Nepal Rastra Bank (NRB) is focusing on monetary policies aimed at ensuring price stability, external stability, and stability within the financial sector. This strategic approach aims to foster an environment conducive to achieving high and sustainable economic growth.

2.4 Research Gap

This passage identifies gaps in previous studies related to liquidity risk and non-financial performance in Nepalese commercial banks. It acknowledges the foundational role of previous research while highlighting limitations such as insufficient coverage of variables and outdated data. The current study aims to address these gaps by incorporating new data and a broader range of explanatory variables. Specifically, previous studies focused on a limited number of banks and variables, whereas the present study includes Everest Bank Limited, Siddhartha Bank Limited, Sanima Bank Limited, Prime Commercial Bank Limited, and NMB Bank Limited, along with additional variables identified through an extensive literature review. This approach not only validates and builds upon existing research but also introduces new insights into the impact of liquidity risk on the financial performance of banks in Nepal.

The concept of using Return on Assets (ROA) and Return on Equity (ROE) as bottom-line performance indicators, along with Net Interest Margin (NIM) as a top-line

performance indicator, is relatively novel and has not been extensively studied. The researcher posits that this study will help bridge existing gaps in the literature and contribute new insights. By analyzing these factors comprehensively, the research aims to make a significant academic contribution for future reference and enhance understanding in this area. Through a synthesis of various viewpoints and opinions from different sources, the study has endeavored to narrow down the existing gaps in research on this topic.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Introduction

The study outlines its research methodologies, covering the research design, population, sampling methods, sample size determination, data collection instruments, and procedures for data processing. These components collectively form the framework through which the study investigates its objectives and interprets its findings.

3.2 Research Design

The research design employed in this study includes both descriptive and causal-comparative research designs, aimed at investigating the impact of liquidity risk on the financial performance of commercial banks in Nepal from fiscal years 2013/14 to 2022/23. The descriptive research design is utilized to describe the characteristics of variables and evaluate factual information. The study employs various analytical tools such as correlation and regression analysis to assess bank performance using casual comparative research design. Through systematic data collection and presentation, the study provides a comprehensive overview of the specific situation under investigation.

In this study, alongside the descriptive research design, a causal-comparative research design is also utilized to explore cause-and-effect relationships among variables. The independent variables examined include Deposit to Total Assets Ratio, Non-Performing Loan Ratio, and Credit-Deposit Ratio, which are considered as causes. The dependent variables studied, including Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity (ROE), are regarded as effects. The research employs various statistical tests such as correlation, regression, mean, standard deviation, and others to analyze the relationships and outcomes of interest. These methodologies aim to provide insights into how liquidity risk influences the financial performance of commercial banks in Nepal over the specified fiscal years.

3.3 Population and Sample

The target population for assessing the impact of liquidity risk on the financial

performance of Nepalese commercial banks consists of the 20 licensed commercial banks currently operating in the country, as reported in the Commercial Bank Supervision Report (Mid-July 2023). This study adopts a quantitative approach, utilizing secondary data analysis. The sample is selected using convenience sampling, comprising 5 commercial banks chosen from the total population of 20 licensed commercial banks in Nepal.

In this study, the source of data is solely based on annual financial statements obtained from selected banks. Since each bank operates on different fiscal years, conducting a census of the entire population was not feasible. The study employed a sample of banks for analysis, which includes the following:

- i. Everest Bank Limited.
- ii. Siddhartha Bank Limited.
- iii. Sanima Bank Limited.
- iv. Prime Commercial Bank Limited.
- v. NMB Bank Limited.

3.4 Sources of Data

This research relied entirely on secondary data and followed an analytical and empirical approach. The major sources of secondary data used in the study included:

- i. Annual reports of the selected commercial banks, covering the financial periods from 2013/14 to 2022/23, obtained from the websites of the respective banks.
- ii. Data sourced from the website of Nepal Rastra Bank.
- iii. Information gleaned from various journals, textbooks, publications, and other dissertations related to the topic under investigation.

3.5 Data Collection Procedure

Various tools and techniques were employed for collecting and processing data in this study, all sourced from secondary sources. The reliability and validity of the data hinge on the accuracy maintained by the sample banks in their reports. To ensure accuracy, crosschecking of sources was conducted. Data collection involved editing, coding, and reorganizing data sheets as per the study's requirements. Microsoft Excel and SPSS software were utilized for data analysis. Data entry was performed using SPSS, and analyses such as descriptive statistics, correlation analysis, and regression analysis were conducted based on the study's needs. These methods facilitated a comprehensive

examination of the impact of liquidity risk on the financial performance of Nepalese commercial banks over the specified period.

3.6 Data Analysis Tools and Techniques

The study employed financial ratios like the Non-Performing Loan Ratio, Deposit to Total Assets Ratio, and Credit to Deposit Ratio to analyze and understand the relationships within the data and carry out the research. Ratio analysis is widely acknowledged as one of the most powerful tools for financial evaluation. Ratios compare two items or sets of items, revealing meaningful connections. They can be calculated in multiple ways to provide valuable insights. Typically, ratio analysis acts as a benchmark for assessing the financial health and performance of a company, or in this context, commercial banks. It provides insights into liquidity, profitability, efficiency, and solvency, offering a comprehensive view of a bank's operational health and financial stability.

The following bank-related ratios are utilized to analyze the data:

i. Ratio of Non-Performing Loans

The Non-Performing Loan Ratio (NPLR) is a financial measure that compares the proportion of nonperforming loans in a bank's portfolio to the total outstanding loans. It serves as an indicator of the bank's ability to collect repayments on its loans effectively.

NPLR is calculated as follows:-

$$NPLR = \frac{\text{Non-Performing Loan}}{\text{Total Loan}}$$

ii. Ratio of Deposits to Total Assets

The Deposits to Total Assets Ratio is a financial metric that shows the portion of a bank's assets funded by deposits, which are generally considered a stable and cost-effective source of financing for banks. DTA is calculated as follows:-

$$DTA = \frac{\text{DEPOSIT}}{\text{TOTAL ASSETS}}$$

iii. Return on Assets

Return on Assets (ROA) is a financial ratio that measures how effectively a company utilizes its assets to generate profits. It is a key indicator of profitability and efficiency, showing the percentage of profit a company earns relative to its total assets. ROA is particularly useful for comparing the performance of companies within the same industry,

as it provides insight into how efficiently each company is using its assets to generate earnings. ROA is calculated as follows:-

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

iv. Return on Equity

Return on Equity (ROE) is a financial ratio that evaluates the profitability of a company relative to its shareholders' equity. It measures how effectively the company is generating profits from the shareholders' equity invested in it. ROE is calculated as follows :-

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholder's equity}}$$

v. Credit to Deposit ratio

The Credit to Deposit Ratio (CD Ratio) is a financial ratio that measures the proportion of a bank's total loans (credit) to its total deposits. It reflects the extent to which a bank's primary funds are being used for lending activities, which is a key function of banks. CDR is calculated as follows:-

$$\text{CDR} = \frac{\text{Credit}}{\text{Total Deposit}}$$

vi. Net Interest Margin

Net Interest Margin (NIM) is a financial ratio that measures the difference between a bank's interest income earned from its interest-earning assets and the interest expenses paid on its liabilities (such as deposits). It is also referred to as "net yield on interest-earning assets." NIM is calculated as follows :-

$$\text{NIM} = \frac{\text{Net Interest Income}}{\text{Average Interest Earning Assets}}$$

The following tools were employed to analyze and interpret the research data.

3.6.1 Descriptive Statistics

In this section of the study, descriptive statistics were employed to analyze the variables specific to each bank. The descriptive statistics included measures such as mean, standard deviation, number of observations, minimum value, and maximum value for each variable under examination. These statistics provide a comprehensive overview of the central

tendency, variability, and range of values within the data set, offering insights into the characteristics and distribution of the variables studied. Descriptive statistics are essential for summarizing and interpreting the data before proceeding with further analysis and inference in the study.

3.6.2 Correlation Analysis

Correlation analysis is a statistical method used to determine the strength and direction of the relationship between two quantitative variables. A high correlation indicates a strong relationship between variables, whereas a weak correlation suggests little to no relationship. Essentially, it involves examining the strength of this relationship using statistical data. In this study, Pearson correlation coefficients were calculated to examine the nature and direction of the relationships between the dependent variables and the independent variables.

3.6.3 Multivariate Regression Analysis

Regression analysis delves into the relationship between variables by examining how changes in independent variables affect the dependent variable(s). It encompasses various modeling techniques to analyze multiple factors influencing outcomes. In this study focusing on the financial performance of five Nepalese commercial banks from 2016/17 to 2021/22, multiple linear regression was employed. This statistical technique enables researchers to assess how factors like the non-performing loan ratio, deposit to total assets ratio, and credit to deposit ratio affect key financial metrics such as return on assets, return on equity, and net interest margin. By holding other variables constant, regression analysis provides insights into how these independent variables contribute to variations in financial performance across the selected banks during the specified period.

In this analysis, a multiple regression equation can be written as:

$$ROA = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

$$ROE = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

$$NIM = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

Where:

‘ROA’ represents Return on Assets

‘ROE’ stands for Return on Equity

‘NIM’ denotes Net Interest Margin

‘ β_0 ’ is the constant

‘ β_1 ’ is the regression coefficient for the non-performing loan ratio

‘ X_{1it} ’ is the independent variable for the non-performing loan ratio for firm ‘i’ at time ‘t’

‘ β_2 ’ is the regression coefficient for the deposit to total assets ratio

‘ X_{2it} ’ is the independent variable for the deposit to total assets ratio for firm ‘i’ at time ‘t’

‘ β_3 ’ is the regression coefficient for the credit to deposit ratio

‘ X_{3it} ’ is the independent variable for the credit to deposit ratio for firm ‘i’ at time ‘t’

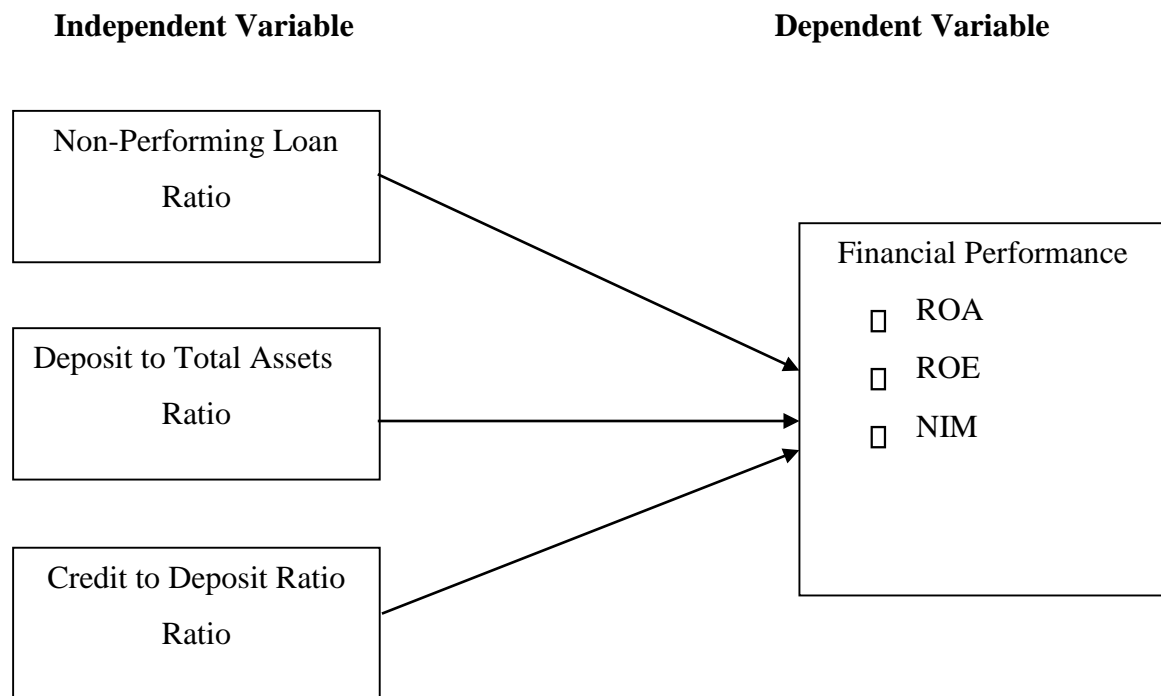
‘ ϵ_{it} ’ represents the error term

3.7 Research Framework

Drawing on the seminal works reviewed, particularly Madhuwanthi and Morawakag (2019) on "Impact of Liquidity Risk on Performances" and Khalid, Rashed, and Hossain (2019) on "The Impact of Liquidity Risk on Banking Performance," this study uses liquidity risk as the independent variable and bank performance as the dependent variable. The model utilizes Credit to Deposit Ratio (CDR), Deposits to Total Assets (DTA), and Non-Performing Loan Ratio (NPLR) as proxies for liquidity risk. These indicators are well-established according to the research by Jeanne & Svensson (2007), Gatev & Strahan (2006), Holmstrom & Tirole (2000), Goodhart (2008), and Akhtar (2007). These variables are crucial for assessing how liquidity risk influences the financial performance of banks, aligning with previous research methodologies and frameworks.

Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) are employed as performance proxies for banks, drawing on studies by Noman (2015), Iqbal (2015), Bourke (1989), and Sehn (2001). NIM serves as a top-line metric, reflecting interest income minus interest paid. ROA and ROE indicate bottom-line performance, measuring profitability against assets and equity, respectively. The conceptual framework demonstrates the relationship between these metrics and liquidity risk, using CDR, DTA, and NPLR as proxies. The figure below presents the conceptual framework:

Figure 1 Research Framework



3.8 Definition of Research Variables

I. Dependent variables

1) ROA & ROE

Return on Assets (ROA) is a financial metric that assesses how effectively a company utilizes its assets to generate profits, particularly useful for comparing companies within the same industry. The formula for ROA involves dividing net income by average total assets, accounting for fluctuations in asset balances during the analyzed period. Companies that make significant initial investments in equipment and other assets often exhibit lower ROA figures. In contrast to Return on Equity (ROE), which assesses the return on invested and retained earnings, ROA emphasizes the return generated from the assets purchased with those funds. This distinction helps stakeholders evaluate operational efficiency and asset utilization across different companies.

Return on Equity (ROE) is a financial ratio used to evaluate a company's performance based on its average shareholders' equity. ROE indicates how effectively a company has utilized its owners' resources. Achieving a satisfactory return on equity is a primary goal for businesses, as ordinary shareholders are entitled to residual profits. The ratio is calculated by dividing net profit after tax by average shareholders' equity, providing insight into how efficiently the company generates profits relative to its shareholders'

investment.

A high Return on Equity (ROE) suggests that a company is efficiently generating greater profits relative to each unit of shareholders' equity. It offers insights into how a company employs various strategies to achieve higher returns, whether through profitability, asset management, or leverage. ROE is calculated as the product of these three factors, illustrating how effectively equity is used to generate profits. Return on Assets (ROA) and ROE are both bottom-line performance indicators, calculated from net profit after deducting all operational expenses, including overheads. These metrics are essential for evaluating how effectively a company utilizes its resources to generate returns, as highlighted by Madhuwanthi & Morawakage (2019).

2) Net Interest Margin (NIM):

NIM represents the ratio of net interest income to interest-earning assets, often referred to as the "net yield on interest-earning assets." It serves as a performance metric that evaluates a firm's investment decisions relative to its debt obligations. A positive NIM indicates that the firm's interest income from investments exceeds its interest expenses, reflecting successful investment management. Conversely, a negative NIM suggests that interest expenses outweigh investment returns, signaling suboptimal financial decisions. Therefore, calculating NIM is crucial for assessing financial stability and optimizing investment strategies within a company.

Net Interest Margin (NIM) is an essential metric that measures the effectiveness of financial intermediation and acts as a dependable indicator of asset and liability management within a financial institution. It directly affects the costs associated with borrowing and lending activities within the financial system. NIM primarily focuses on the difference between interest income earned from loans and investments and the interest expenses paid on deposits and other liabilities. As a top-line performance indicator, NIM plays a crucial role in shaping the pricing strategies adopted by companies, as noted by Madhuwanthi & Morawakage (2019). It provides insights into how effectively financial institutions manage their interest income relative to the costs associated with their main revenue sources.

II. Independent Variables

1) Non-performing Loan Ratio (NPLR):

Nonperforming Loan Ratio (NPLR) is a critical measure for banks, indicating the proportion of loans that borrowers have not made regular payments on for at least 90 days, relative to the total outstanding loans held by the bank. This ratio assesses the effectiveness of a bank in managing loan repayments. Additionally, a bank's asset quality has a substantial impact on its profitability, including aspects such as current assets, credit portfolios, fixed assets, and other investments (Athanasoglou et al., 2005). The quality of a bank's loan portfolio directly affects its profitability, since loans with a high risk of default represent significant financial risks for banks (Dang, 2011). NPLR serves as a prime proxy for asset quality, reflecting a bank's ability to manage loan repayment risks. Studies vary on the impact of NPLR on profitability: Nsambu (2014) found a significant negative effect, while Duraj & Moci (2015) reported no significant effect, and Buchory (2015) demonstrated a significant positive effect on performance. These findings underscore the complexity and variability in how NPLR influences bank profitability across different studies and contexts.

2) Deposit to Total Assets Ratio (DTA):

Deposits to Assets (DTA) ratio indicates the extent to which a bank's assets are financed by deposits, which are generally considered a stable funding source. Deposits are garnered through effective advertising and promotional strategies, with checking deposits generally bearing no interest. A larger base of deposits and depositors is indicative of stability. In their research, Parvin, Shahnaz, et al. (2019) discovered that the deposit to asset ratio negatively impacted profitability. In contrast, Madhuwanthi and Morawakage (2019) reported a significant positive relationship between the deposit to asset ratio (DTA) and the top-line performance of banks. This discrepancy suggests differing conclusions on how DTA affects bank performance, highlighting the nuanced nature of these relationships across studies and contexts.

3) Credit to Deposit Ratio (CDR):

The Credit to Deposit Ratio (CDR) measures the extent to which a bank's deposits are being used for lending activities, which are essential to banking operations. A higher CDR suggests that a larger portion of the bank's core funds is allocated to lending, whereas a lower ratio indicates underutilization of resources. There is no specific regulatory requirement for a minimum or maximum CDR, but excessively low ratios may

indicate inefficiency in utilizing available funds. Conversely, very high CDRs may signify pressure on resources, potentially leading to liquidity challenges for the bank.

CHAPTER-IV

RESULTS AND DISCUSSION

This chapter is structured to present, analyze, and interpret the study's findings. The primary aim is to present data and facts alongside interpretations. Data gathered from various sources were classified and tabulated in accordance with the study's requirements and the nature of the information. This chapter employs various financial and statistical tools. The analysis systematically interprets the data from secondary sources, which are organized in a prescribed format.

4.1 Results

4.1.1 Overview of Descriptive Statistics for the Variables

This section presents and analyzes the descriptive statistics of the bank-specific variables used in this study. The descriptive statistics include the mean, standard deviation, minimum, and maximum values for the variables under consideration.

Table 1

Descriptive statistics of the variables

	Descriptive Statistics					
	ROA	ROE	NIM	DTA	NPLR	CDR
Mean	.014741	.145501	.038986	.805729	.010860	.872340
Std. Deviation	.0039247	.0435969	.0160677	.0527574	.0097347	.0730306
Minimum	.0011	.0135	.0233	.7104	.0001	.6557
Maximum	.0220	.2840	.1454	.8966	.0495	.9808

(Source: Annual reports from selected banks; data analyzed using SPSS-20)

Table provides descriptive statistics for variables associated with five commercial banks from the period 2013/14 to 2022/23. Key financial performance indicators include Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). ROA, measuring the efficiency of asset utilization to generate profits, exhibits an average of 0.01474, with a standard deviation of 0.00393 and a range from 0.0011 to 0.0220. ROE, reflecting shareholder return, shows an average of 0.14550, with a standard deviation of 0.04359 and a range from 0.0135 to 0.2840. NIM, indicating the profitability of interest-earning assets, averages 0.03899, with a standard deviation of 0.01607 and a range from

0.0233 to 0.1454. . Liquidity risk proxies include Deposit to Total Assets ratio (DTA), ranging from 0.7104 to 0.8966, with a mean of 0.80573 and a standard deviation of 0.0526. Non-Performing Loan Ratio (NPLR) averages 0.01086, with a standard deviation of 0.00973 and values ranging from 0.001 to 0.0495.

The Credit to Deposit Ratio (CDR) has an average value of 0.87234, with a standard deviation of 0.07303, and ranges from a minimum of 0.6557 to a maximum of 0.9808. The results of this study suggest that a continuous increase in the CDR will result in heightened liquidity risk. This occurs because deposits, which typically have undefined maturity, are converted into long-term loans and advances, thereby widening the maturity mismatch. As a result, the probability of exposure to liquidity risk increases, potentially leading to the costs associated with illiquidity. This, in turn, can adversely impact the profitability of commercial banks.

The mean values of ROE, ROA, and NIM are significantly positive, indicating that the systemically important banks exhibit healthy profitability. However, the standard deviation of ROE is relatively higher compared to other performance indicators, suggesting that the degree of financial leverage varies significantly among the banks.

4.1.2 Correlation Analysis

In this study, financial performance was assessed using Return on Assets (ROA), Return on Equity (ROE), Net Income, and Net Interest Margin (NIM). Liquidity risk was evaluated through explanatory variables, including Nonperforming Loan Ratio (NPLR), Credit to Deposit Ratio (CDR), and Deposit to Total Assets Ratio (DTA). It was reasonable to anticipate statistically significant relationships among these pairs of variables. This section focuses on explaining the direction and magnitude of relationships among different variable pairs. Pearson's correlation analysis was employed to determine these relationships. A positive correlation indicates that both variables move in the same direction, while a negative correlation indicates that one variable increases as the other decreases.

Table 2

Correlation analysis

		Correlations					
		DTA	NPLR	CDR	ROA	ROE	NIM
DTA	Pearson	1	-.064	-.719**	.327*	.593**	-.095
	Correlation						
	Sig. (2-tailed)		.658	.000	.020	.000	.514
	N	50	50	50	50	50	50
NPLR	Pearson	-.064	1	.108	-.359*	-.256	-.104
	Correlation						
	Sig. (2-tailed)	.658		.456	.011	.073	.471
	N	50	50	50	50	50	50
CDR	Pearson	-.719**	.108	1	-.119	-.455**	-.020
	Correlation						
	Sig. (2-tailed)	.000	.456		.412	.001	.890
	N	50	50	50	50	50	50
ROA	Pearson	.327*	-.359*	-.119	1	.805**	.216
	Correlation						
	Sig. (2-tailed)	.020	.011	.412		.000	.132
	N	50	50	50	50	50	50
ROE	Pearson	.593**	-.256	-.455**	.805**	1	.180
	Correlation						
	Sig. (2-tailed)	.000	.073	.001	.000		.210
	N	50	50	50	50	50	50
NIM	Pearson	-.095	-.104	-.020	.216	.180	1
	Correlation						
	Sig. (2-tailed)	.514	.471	.890	.132	.210	
	N	50	50	50	50	50	50

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

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

(Source: SPSS 20)

a) The correlation between liquidity risk, as measured by the deposit to total assets ratio, and bottom-line performance.

Table 2 presents the correlation analysis between liquidity risk, represented by the Deposit to Total Assets Ratio (DTA), and bottom-line performance metrics, such as Return on Assets (ROA) and Return on Equity (ROE). The analysis reveals significant positive relationships. The Pearson correlation coefficient between DTA and ROA is

0.327 with a significance level of 0.020, indicating a moderate positive correlation that is statistically significant at the 0.05 level. This suggests that higher liquidity, as measured by the deposit to total assets ratio, is associated with higher returns on assets. Similarly, the correlation coefficient between DTA and ROE is 0.593 with a significance level of 0.000, indicating a strong positive correlation that is highly significant at the 0.01 level. This implies that institutions with higher liquidity tend to achieve higher returns on equity. Overall, these findings indicate that higher deposits relative to total assets are linked to improved financial performance, reflecting effective management of liquidity to enhance profitability.

b) The correlation between liquidity risk, represented by the deposit to total assets ratio, and top-line performance.

Table 2 The correlation between liquidity risk, measured by the Deposit to Total Assets Ratio (DTA), and top-line performance, indicated by Net Interest Margin (NIM), is very weak and negative, with a value of -0.095. This suggests a slight tendency for higher DTA to be associated with lower NIM. However, the relationship is not statistically significant (p-value = 0.514), indicating that any observed correlation is likely due to random chance. Therefore, liquidity risk does not meaningfully impact top-line performance in this dataset.

c) The correlation between liquidity risk, represented by the non-performing loan ratio (NPLR), and bottom-line performance.

In Table 2 The Pearson correlation coefficients illustrate the relationship between liquidity risk, as measured by the Non-Performing Loan Ratio (NPLR), and bottom-line performance metrics, specifically Return on Assets (ROA) and Return on Equity (ROE). The correlation coefficients for ROA and ROE are $r = 0.11$ and $r = 0.73$, respectively. These values indicate a slight positive correlation between liquidity risk, as represented by NPLR, and the bottom-line performance of banks.

d) The correlation between liquidity risk, as indicated by the non-performing loan ratio (NPLR), and top-line performance.

Table 2 presents the correlation analysis between the Non-Performing Loan Ratio (NPLR), an indicator of liquidity risk, and the Net Interest Margin Ratio (NIM), a measure of top-line performance in banks. The statistical significance level ($p = 0.001$)

meets the criteria ($p < 0.01$), indicating a robust relationship between liquidity risk and bank performance. According to the Pearson correlation coefficient ($r = -0.104$), there exists a moderate negative correlation. Specifically, higher liquidity risk tends to correspond with lower top-line performance among commercial banks.

e) The correlation between liquidity risk, represented by the Credit to Deposit Ratio (CDR), and bottom-line performance.

Based on the correlation analysis shown in Table 2, the significance level for Return on Average Assets (ROA) is $p=0.500$. This indicates that $p>0.01$, suggesting there is no statistically significant relationship between CDR and ROA. In contrast, the significance level for Return on Average Equity (ROE) is $p=0.050$, indicating a significant relationship between CDR and ROE. Furthermore, the Pearson correlation coefficients for ROA ($r= -0.119$) and ROE ($r= -0.455$) indicate a slight negative correlation between liquidity risk (CDR) and bottom-line performance.

f) The correlation between liquidity risk, as measured by the Credit to Deposit Ratio (CDR), and top-line performance.

Table 2 illustrates the correlation between the liquidity risk indicator, CDR, and the top-line performance measure, Net Interest Margin Ratio (NIM). With a significance level of $p = 0.89$, which exceeds the threshold of $p < 0.01$, it indicates a statistically significant positive relationship between CDR and the top-line performance of Nepalese commercial banks. In essence, a rise in liquidity risk is associated with an improvement in bottom-line performance.

4.1.3 Regression Analysis

Regression analysis is a statistical technique used to explore and measure the relationships between different variables. It includes various methods aimed at modeling and understanding the interactions between multiple variables, with a focus on the relationship between a dependent variable and one or more independent variables, often referred to as predictors. This analytical tool enables researchers to understand how changes in the independent variables are associated with changes in the dependent variable. Regression analysis plays a crucial role in statistical modeling by providing insights into the strength and direction of these relationships, thereby aiding in predictive

and explanatory purposes in diverse fields of study.

The regression results from the model are displayed in the tables below to examine and assess the direction and magnitude of the relationship between the independent and dependent variables.

a) Regression analysis examining the relationship between bottom-line performance (ROA) and liquidity risk variables.

Table 3

Model Summary (ROA)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.511 ^a	.261	.213	.0034828

a. Predictors: (Constant), NPLR, DTA, CDR

(Source: SPSS 20.0 calculations)

Table 3 shows an R value of 0.511, reflecting a positive relationship between bottom-line performance (ROA) and liquidity risk indicators (DTA, CDR, and NPLR). The adjusted R-squared value of 0.213 indicates that liquidity risk accounts for 21.3% of the variation in bottom-line performance (ROA), while the remaining 78.7% is due to other factors.

Table 4

ANOVA table (ROA)

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.000	3	.000	5.408	.003 ^b
	Residual	.001	46	.000		
	Total	.001	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), NPLR, DTA, CDR

(Source: SPSS 20.0 calculations)

Table 4 presents the ANOVA analysis, which evaluates the overall significance of the regression model. The total sum of squares for the observations is 0.001, with the explained sum of squares being 0.000 and the residual sum of squares at 0.001. The

analysis shows that liquidity risk, as the independent variable, significantly predicts bottom-line performance (the dependent variable), with an F-value of 5.408 and a p-value less than 0.005. This suggests that the regression model provides a good fit for the data.

Table 5

The Beta coefficients for liquidity risk factors in relation to the bottom-line performance indicator (ROA)

Coefficients^a

Model		Unstandardized Coefficients		Standardize	T	Sig.
		B	Std. Error	d		
1	(Constant)	-.028	.018	Beta	-1.529	.133
	DTA	.038	.014	.510	2.795	.008
	CDR	.015	.010	.286	1.562	.125
	NPLR	-.144	.051	-.357	-2.798	.007

a. Dependent Variable: ROA

b. Predictors: (Constant), DTA, CDR, NPLR

Source: SPSS 20.0 calculations

Table 5 outlines the relationship between various liquidity risk factors and the bottom-line performance indicator (ROA). The estimates indicate the predicted increase in ROA for a 1 unit increase in each predictor, holding other variables constant. For Deposits to Total Assets (DTA), the coefficient is 0.038. This suggests that for every unit increase in DTA, there is a predicted increase of 0.038 units in ROA, although this relationship is not statistically significant as the p-value exceeds 0.05. Non-Performing Loan Ratio (NPLR) shows a coefficient of -0.144, indicating that for every unit increase in NPLR, there is a predicted decrease of 0.144 units in ROA, holding other variables constant. The coefficient for NPLR is statistically significant at the alpha level of 0.05, with a p-value of 0.007. Conversely, Credit to Deposit Ratio (CDR) has a coefficient of 0.015, suggesting that for every point increase in CDR, ROA is predicted to increase by 0.015 points. However, the coefficient for CDR is not statistically significant ($p = 0.125$), suggesting that it does not have a meaningful impact on ROA. In conclusion, liquidity risk factors, especially the Non-Performing Loan Ratio (NPLR), have a negative impact on the bottom-line performance measure, Return on Assets (ROA).

b) Analysis of the Regression Between Return on Equity (ROE) and Liquidity Risk Factors

Table 6

Model Summary (ROE)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.632 ^a	.400	.361	.0348630

a. Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 20.0 calculations

b) Analysis of the Regression Between Return on Equity (ROE) and Liquidity Risk Factors

Table 6 reports an R value of 0.632, indicating a positive association between liquidity risk factors (DTA, CDR, and NPLR) and the bottom-line performance variable (ROE). The adjusted R-squared value for the regression model is 0.361, indicating that 36.1% of the variation in ROE is accounted for by the model incorporating these three liquidity risk variables, while the remaining variation is due to other factors. The standard error of estimate for the dependent variable ROE, as shown in the model summary table, is 0.0348630. This means there is a 3.486% deviation from the regression line for bottom-line performance (ROE), reflecting the reliability of the regression model.

Table 7

ANOVA table (ROE)

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.037	3	.012	10.209	.000 ^b
	Residual	.056	46	.001		
	Total	.093	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 20.0 calculations

The ANOVA analysis presented in **Table 7** indicates the overall significance of the regression model. The total sum of squares deviation of the observations is 0.093, with

the explained sum of squares accounting for 0.037 and the residual sum of squares amounting to 0.056. This suggests that the variables included in the model, likely liquidity risk factors, have a significant impact on the dependent variable under study.

Table 8

Beta coefficient of liquidity risk factors and bottom-line performance variable (ROE)

Coefficients^a						
Model	Unstandardized		Standardize	T	Sig.	
	Coefficients		d			
	B	Std. Error	Coefficients Beta			
1 (Constant)	-.198	.181		-1.095	.279	
DTA	.460	.136	.557	3.388	.001	
CDR	-.019	.098	-.031	-.190	.850	
NPLR	-.971	.515	-.217	-1.886	.066	

a. Dependent Variable: ROE

b. Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 20.0 calculations

The coefficients analyzed in **Table 8** reveal that Non-Performing Loan Ratio (NPLR) and Credit to Deposit Ratio (CDR) have beta values of -0.971 and -0.019, respectively, indicating an inverse relationship with the bottom-line performance indicator ROE. Specifically, an increase in NPLR and CDR by one unit is associated with a decrease of approximately 0.971 and 0.019 units in ROE, respectively. Conversely, Deposits to Total Assets (DTA) has a beta of 0.460, suggesting that a one-unit increase in DTA results in 0.460 times increase in ROE. The p-values for NPLR and CDR are 0.066 and 0.850, respectively, which are higher than the alpha level of 0.05, indicating these variables have insignificant relationships with ROE. In contrast, the p-value for DTA is 0.001, lower than the alpha level, suggesting that liquidity risk, as measured by DTA, has a mixed influence on the bottom-line performance variable ROE.

c) Analysis of the relationship between liquidity risk and top-line performance (NIM) through regression.

Table 9

Model Summary (NIM)

Mod el	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.187 ^a	.035	.028	.0162916

a. Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 20.0 calculation

Table 9 shows that the correlation coefficient (R) is 0.187, indicating a positive relationship between top-line performance (NIM) and liquidity risk factors (DTA, CDR, and NPLR). The adjusted R-squared value of the regression model is 0.028, meaning that only 2.8% of the variation in top-line performance can be accounted for by these liquidity risk variables, with the remaining variation attributed to other factors.

The reliability of the regression equation is indicated by the standard error of estimate for top-line performance, which is 0.0162916 as shown in the model summary table. This value signifies that there is a dispersion of values from the regression line of approximately 1.63% for top-line performance.

Table 10

ANOVA table (NIM)

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.000	3	.000	.554	.648 ^b
	Residual	.012	46	.000		
	Total	.013	49			

a. Dependent Variable: NIM

b. Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 20.0 calculations

The analysis from ANOVA **Table 10** indicates the overall significance of the regression

model. The total sum of squares deviation of the observations is 0.013, with the explained sum of squares at 0.000 and the residual sum of squares at 0.012. The table shows that the liquidity risk variables do not statistically significantly predict the top-line performance variable, as indicated by $F(3, 46) = 0.554$ and a p-value greater than 0.05. This implies that the regression model is not significant for forecasting top-line performance.

Table 11

Beta coefficient of liquidity risk variables and top line performance variable (NIM).

		Coefficients^a				
Model		Unstandardized		Standardize	T	Sig.
		Coefficients		d		
		B	Std. Error	Beta		
1	(Constant)	.128	.085		1.511	.138
	DTA	-.068	.063	-.222	-1.068	.291
	CDR	-.037	.046	-.169	-.808	.423
	NPLR	-.166	.241	-.100	-.689	.495

Dependent Variable: NIM

Predictors: (Constant), NPLR, DTA, CDR

Source: SPSS 25.0 calculations

Table 11 illustrates the connection between liquidity risk variables and the top-line performance metric (NIM). These estimates reflect the expected change in NIM for each 1-unit increase in the liquidity risk predictor variables. For DTA, the coefficient is -0.068, suggesting that for every unit increase in DTA, there is a predicted decrease of 0.068 units in NIM, assuming all other variables remain constant. The p-value for DTA indicates that this coefficient is not statistically significantly different from 0 ($p > 0.05$). Similarly, for NPLR, the coefficient is -0.166, indicating a predicted decrease of 0.166 units in NIM for every unit increase in NPLR, with a p-value of 0.495, which is not statistically significant. For CDR, the coefficient is -0.037, suggesting a predicted decrease of 0.037 units in NIM for each point increase in CDR, but this relationship is also statistically insignificant ($p = 0.423 > 0.05$). In conclusion, none of the three liquidity risk variables appear to significantly impact top-line performance (NIM).

4.2 Discussion

This study employed descriptive and multiple regression analyses to investigate how liquidity risk affects the organizational performance of Nepalese commercial banks, utilizing appropriate research methodologies. The current research on liquidity risk and organizational performance in the Nepalese banking industry presents findings consistent with several past studies. The study revealed that the mean values of ROA, ROE, and NIM, specifically 0.014741, 0.145501, and 0.038986 respectively, are significantly positive, indicating healthy profitability among systemically important commercial banks. However, the higher standard deviation of ROE suggests greater variability in financial leverage among banks. This finding aligns with the work of Ayele (2012), who found a positive and significant relationship between ROA, ROE, and various determinants such as capital adequacy, managerial efficiency, and bank size.

The adjusted R-squared value of 0.028 for the NIM model in the current research indicates that 2.8 percent of the variation in Net Interest Margin (NIM) among banks can be explained by liquidity risk factors. This is comparable to Khati (2020), who also explored the relationship between liquidity and profitability indicators like ROE and ROA, though finding varied impacts. Similarly, Madhuwanthi and Morawakage (2019) found a positive effect of liquidity risk on NIM, consistent with the current research.

The current research's finding that 21.3 percent of the variation in ROA is explained by the explanatory variables, with non-performing loans ratio (NPLR) showing a significant negative effect on ROA, supports similar conclusions by Amira (2023) and Hakimi and Zaghdoudi (2017), who identified significant impacts of liquidity risk on bank performance. Both studies found that liquidity risk adversely affects ROA, reinforcing the current research's conclusions.

Regarding ROE, the current research indicated that 36.1 percent of its variation is explained by the independent variables, with the Deposit to Total Assets ratio (DTA) significantly affecting ROE positively. This finding is supported by Ferrouhi (2014) and Mustafa (2020), who also highlighted the positive relationship between liquidity measures and financial performance. Conversely, the Credit to Deposit Ratio (CDR) had a negative but statistically insignificant effect on ROE, a mixed influence similar to the findings of Otwoko and Maina (2021).

Overall, this study highlights the adverse effects of liquidity risk on both top-line and bottom-line performance metrics for banks, consistent with the results found by Suyanto (2021) and Naqvi (2023). Both studies indicated the significant influence of liquidity risk on financial returns and bank performance, highlighting the importance of effective liquidity management. The comprehensive examination of the Nepalese banking industry thus resonates with broader empirical evidence, affirming the critical role of liquidity risk management in ensuring financial stability and performance.

CHAPTER-V

SUMMARY AND CONCLUSION

This chapter includes a concise overview of the entire research, conclusions derived from the findings, and their implications. The summary offers a concise overview of the study, including its background and purpose, and highlights the main findings from the analysis and discussion sections. The conclusions draw implications from the results, while the implications discuss the practical utility and significance of the study.

5.1 Summary

This study addresses the critical issue of understanding the correlation between liquidity and organizational performance within Nepalese commercial banks. It focuses specifically on three key liquidity indicators: Deposit to Total Assets Ratio (DTA), Non-Performing Loan Ratio (NPLR), and Credit to Deposit Ratio (CDR). These indicators are crucial for assessing how liquidity risk influences metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) in the banking sector.

The objective of this research is to investigate these relationships comprehensively. To achieve this, the study conducted an extensive review of relevant literature, framing discussions within the conceptual review and conceptual framework sections. This included defining liquidity risk and its indicators, exploring determinants of financial performance from various perspectives, and establishing the relationships between dependent and independent variables. The synthesis of prior research encompassed diverse sources such as books, journals, reports, case studies, and scholarly articles.

This study adopted a descriptive research design. The population consisted of all commercial banks operating in Nepal, with the sample size determined based on total assets. Secondary data from annual reports served as the primary data source. The analysis utilized a robust methodology including descriptive statistics, correlation analysis, regression analysis, and ANOVA tests. These methods were employed to uncover relationships, patterns, and statistical significance within the dataset. Despite efforts to draw meaningful conclusions, several limitations were identified. The study

included a limited sample of 5 out of 20 commercial banks, potentially limiting generalizability.

The study's findings highlight intricate connections between liquidity metrics—NPLR, CDR, and DTA—and the financial performance of commercial banks in Nepal. Specifically, DTA was found to have a positive and significant impact on ROE, implying a direct beneficial influence on overall performance. Conversely, CDR was associated with a negative and significant effect on bottom-line indicators. NPLR showed a negative correlation with bottom-line performance, indicating detrimental effects. Importantly, NIM did not exhibit significant associations with the liquidity metrics studied. These results emphasize the complex interplay of liquidity factors and their implications for financial performance within Nepal's commercial banking sector.

5.2 Conclusion

Using annual data from fiscal year 2013/14 to 2022/23 for five commercial banks in Nepal, this study employed multiple regression analysis to assess the impact of liquidity risk factors on bank performance indicators. The findings indicate that Non-Performing Loan Ratio (NPLR) emerges as the most significant liquidity risk factor, influencing all performance indicators of the banks. Additionally, Deposit to Total Assets Ratio (DTA) and Credit to Deposit Ratio (CDR) affect bottom-line performances significantly at the 5% significance level. These results underscore the critical role of managing NPLR and optimizing DTA and CDR ratios in enhancing the overall financial performance of commercial banks in Nepal.

Further analysis from the study indicates that Non-Performing Loan Ratio (NPLR) significantly impacts both top-line and bottom-line performances of banks. Specifically, the study concludes that NPLR negatively affects bottom-line performance measured by Return on Assets (ROA). Moreover, it also significantly impacts top-line performance, measured by Net Interest Margins (NIM), in a negative manner. These findings highlight the dual negative impact of NPLR on both profitability measures, emphasizing the critical importance of managing and reducing non-performing loans to enhance overall financial performance in Nepalese commercial banks.

Furthermore, the study reveals that Credit to Deposit Ratio (CDR) has a negative impact on the bottom-line performance indicator, Return on Equity (ROE), suggesting that higher levels of CDR significantly reduce the bottom-line performance of banks. Additionally, CDR shows a non-linear relationship with Return on Assets (ROA). Moreover, the research concludes that CDR negatively affects bottom-line performances, although it insignificantly impacts top-line performances measured by Net Interest Margins (NIM) of the banks. These findings underscore the importance of managing CDR levels effectively to mitigate adverse effects on profitability, particularly on ROE, while considering its non-linear relationship with ROA in the context of Nepalese commercial banks.

The study additionally finds that Deposit to Total Assets Ratio (DTA) has a positive and significant impact on the bottom-line performance of banks, specifically influencing Return on Equity (ROE). This suggests that higher DTA ratios correlate with improved ROE for Nepalese commercial banks. Moreover, the research concludes that while DTA affects bottom-line performances, it does not significantly impact top-line performances measured by Net Interest Margins (NIM) of the banks. These findings highlight the critical role of DTA in enhancing profitability through ROE, underscoring its importance as a financial indicator in the context of bank performance in Nepal.

It is crucial for banks to effectively manage and monitor their non-performing loans to mitigate the Non-Performing Loan Ratio (NPLR) and thereby enhance overall bank performance. By reducing NPLR, banks can achieve better financial outcomes and avoid detrimental effects on their performance metrics. Additionally, decision-makers in Nepalese commercial banks must prioritize the optimization of recovery processes and other overhead costs associated with core banking operations. This balanced approach is essential to simultaneously optimize liquidity management and improve both top-line (such as Net Interest Margins) and bottom-line (such as Return on Equity and Return on Assets) performances of the banks. Maintaining this equilibrium will contribute to sustainable and robust financial health in the competitive banking sector of Nepal.

Moreover, the study uncovered a varied relationship between liquidity risk and the performance of banks. Therefore, future research could explore the impact of additional liquidity factors and market liquidity risk on bank performance, specifically focusing on

the efficiency of both top-line and bottom-line performance indicators. This research could also consider the management and overhead costs that directly affect bottom-line performance, aiming to provide insights into optimizing overall financial efficiency and stability in the banking sector.

5.3 Implications

Based on the results and findings, the following implications of this study can be drawn.

5.3.1 Implications for Management.

Drawing from the study's findings and conclusions, several implications for future research arise.

Based on the research results, the following recommendations are suggested for banks in Nepal.

- i. The management of commercial banks in Nepal should prioritize reducing recovery and other operational overhead costs associated with core banking activities. This emphasis is crucial for achieving a balanced strategy that optimizes liquidity management while simultaneously enhancing both top-line and bottom-line performance for banks.
- ii. The study indicates that a higher Credit to Deposit Ratio (CDR) negatively impacts bottom-line financial performance. Therefore, it is recommended that Nepalese commercial banks focus on increasing their levels of deposits and core funds. This strategy aims to enhance liquidity and overall financial performance, thereby potentially mitigating the adverse effects associated with high CDR levels.
- iii. The study revealed that liquidity, measured by Credit to Deposit Ratio (CDR), significantly negatively impacts bottom-line performance, specifically measured by Return on Equity (ROE). Therefore, it is recommended that banks maintain sufficient liquidity levels through investments in marketable securities. This approach can help banks realize profits and improve their financial performance overall.
- iv. It is essential for the banks to maintain vigilant oversight over non-performing assets, not only to prevent them from becoming non-performing but also to implement effective recovery measures promptly when they do. When full recovery is not feasible.

- v. The selected banks must exercise exceptional caution in selecting new borrowers to prevent new accounts from entering the realm of non-performing loans. This proactive approach in borrower selection is crucial for maintaining asset quality and minimizing the incidence of non-performing loans in the future.

5.3.2 Implications for Future Researchers.

- i. The research concentrated exclusively on funding liquidity risk. Therefore, future research could explore the impact of market liquidity risk on bank performance, analyzing its effects on both top-line and bottom-line performance indicators. This research should also consider the influence of administrative and other overhead costs that directly impact bottom-line performances. By examining these factors comprehensively, future studies can provide a more complete understanding of liquidity risk management and its implications for overall bank profitability in diverse operational contexts.
- ii. The research model developed in this study effectively explains the relationship between liquidity and financial performance in Nepalese commercial banks. Replicating this model in other regions is essential to generalize its findings and expand understanding of liquidity's impact on banks worldwide.
- iii. As mentioned earlier, this study focuses solely on commercial banks in Nepal. Expanding this study to encompass a wider range of banks and financial institutions could offer additional insights and enhance the overall understanding of this topic.
- iv. In this research model, factors such as NPLR, CDR, and DTA have been examined. Exploring new factors to analyze the financial performance of banks and financial institutions would be an intriguing avenue for future research. This approach could lead to a deeper understanding of additional variables that influence bank performance and contribute to advancements in financial analysis methodologies.

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APPENDICES

Return on Assets of Everest Bank Limited

Year	Net Income	Total Assets	ROA
2013/14	1,550,000,000	70,445,082,845	.0220
2014/15	1,574,000,000	99,152,806,017	.0159
2015/16	1,730,000,000	114,018,921,791	.0152
2016/17	2,006,000,000	116,946,280,388	.0172
2017/18	2,581,680,000	144,811,151,443	.0178
2018/19	3,054,120,000	170,077,533,454	.0180
2019/20	2,499,990,000	185,023,189,704	.0135
2020/21	1,770,939,000	211,650,249,438	.0084
2021/22	2,479,400,875	225,381,322,534	.0110
2022/23	3,362,115,439	250,090,492,650	.0134

Return on Assets of Siddhartha Bank Limited

Year	Net Income	Total Assets	ROA
2013/14	700,534,999	40,277,752,199	.0174
2014/15	767,080,512	50,647,295,616	.0151
2015/16	1,254,918,004	74,402,915,402	.0169
2016/17	1,386,175,502	89,901,512,010	.0154
2017/18	1,904,061,504	119,869,218,564	.0159
2018/19	2,257,688,323	154,031,125,260	.0147
2019/20	2,143,613,715	182,468,449,165	.0117
2020/21	2,854,828,343	228,941,959,915	.0125
2021/22	292,434,042	264,327,023,510	.0011
2022/23	3,166,771,347	285,977,915,326	.0111

Return on Assets of Sanima Bank Limited

Year	Net Income	Total Assets	ROA
2013/14	427,595,604	29,376,985,784	.0146
2014/15	624,141,298	40,301,197,377	.0155
2015/16	996,054,127	55,964,557,699	.0178
2016/17	1,304,103,406	69,995,901,442	.0186
2017/18	1,697,503,224	91,821,952,603	.0185
2018/19	2,258,067,506	109,064,487,965	.0207
2019/20	1,776,264,524	126,313,331,194	.0141
2020/21	2,317,821,580	160,750,584,166	.0144
2021/22	2,093,115,828	192,511,092,727	.0109
2022/23	2,605,793,663	215,642,988,368	.0121

Return on Assets of Prime Commercial Bank Limited

Year	Net Income	Total Assets	ROA
2013/14	553,447,114	38,030,964,159	.0146
2014/15	745,589,121	45,800,892,475	.0163
2015/16	1,115,759,677	54,408,913,063	.0205
2016/17	1,479,231,598	77,786,847,979	.0190
2017/18	1,726,246,109	95,043,979,017	.0182
2018/19	2,198,792,243	102,255,829,620	.0215
2019/20	2,251,478,300	152,182,993,975	.0148
2020/21	3,268,400,687	190,896,964,060	.0171
2021/22	2,787,336,347	210,361,895,395	.0133
2022/23	1,027,889,106	220,827,806,336	.0047

Return on Assets of NMB Bank Limited

Year	Net Income	Total Assets	ROA
2013/14	409,922,982	30,211,663,397	.0136
2014/15	500,989,608	41,337,463,116	.0121
2015/16	1,115,064,628	74,613,327,884	.0149
2016/17	1,467,347,467	86,816,983,069	.0169
2017/18	1,853,792,753	112,391,430,113	.0165
2018/19	2,257,276,027	135,470,409,573	.0167
2019/20	1,712,776,521	179,451,914,903	.0095
2020/21	2,711,073,708	231,546,858,432	.0117
2021/22	3,291,094,170	255,150,610,280	.0129
2022/23	3,222,547,292	287,777,140,694	.0112

Return on Equity of Everest Bank Limited

Year	Net Income	Equity	ROE
2013/14	1,550,000,000	5,457,147,460	.2840
2014/15	1,574,000,000	8,890,377,025	.1770
2015/16	1,730,000,000	9,845,567,472	.1757
2016/17	2,006,000,000	13,207,514,111	.1519
2017/18	2,581,680,000	16,134,507,415	.1600
2018/19	3,054,120,000	17,625,063,404	.1733
2019/20	2,499,990,000	18,637,356,460	.1341
2020/21	1,770,939,000	20,683,605,466	.0856
2021/22	2,479,400,875	22,794,552,510	.1088
2022/23	3,362,115,439	25,371,669,260	.1325

Return on Equity of Siddhartha Bank Limited

Year	Net Income	Equity	ROE
2013/14	700,534,999	3,000,380,632	.2335
2014/15	767,080,512	3,746,080,301	.2048
2015/16	1,254,918,004	6,241,794,278	.2011
2016/17	1,386,175,502	9,881,108,048	.1403
2017/18	1,904,061,504	13,702,828,293	.1390
2018/19	2,257,688,323	15,031,035,234	.1502
2019/20	2,143,613,715	16,011,270,676	.1339
2020/21	2,854,828,343	20,401,806,326	.1399
2021/22	292,434,042	21,597,874,092	.0135
2022/23	3,166,771,347	25,306,590,967	.1251

Return on Equity of Sanima Bank Limited

Year	Net Income	Equity	ROE
2013/14	427,595,604	2,833,397,025	.1509
2014/15	624,141,298	3,430,693,691	.1819
2015/16	996,054,127	5,392,251,266	.1847
2016/17	1,304,103,406	9,060,833,497	.1439
2017/18	1,697,503,224	10,808,846,940	.1570
2018/19	2,258,067,506	12,024,196,948	.1878
2019/20	1,776,264,524	12,818,604,934	.1386
2020/21	2,317,821,580	14,923,413,378	.1553
2021/22	2,093,115,828	16,911,170,411	.1238
2022/23	2,605,793,663	19,979,432,746	.1304

Return on Equity of Prime Commercial Bank Limited

Year	Net Income	Equity	ROE
2013/14	553,447,114	3,616,947,764	.1530
2014/15	745,589,121	4,332,789,017	.1721
2015/16	1,115,759,677	5,511,540,925	.2024
2016/17	1,479,231,598	9,566,437,580	.1546
2017/18	1,726,246,109	11,207,710,615	.1540
2018/19	2,198,792,243	13,403,989,294	.1640
2019/20	2,251,478,300	20,526,854,488	.1097
2020/21	3,268,400,687	24,361,258,614	.1342
2021/22	2,787,336,347	27,005,708,585	.1032
2022/23	1,027,889,106	27,173,422,293	.0378

Return on Equity of NMB Bank Limited

Year	Net Income	Equity	ROE
2013/14	409,922,982	2,812,950,241	.1457
2014/15	500,989,608	3,296,446,968	.1520
2015/16	1,115,064,628	6,861,159,508	.1625
2016/17	1,467,347,467	10,627,149,418	.1381
2017/18	1,853,792,753	16,489,809,301	.1124
2018/19	2,257,276,027	17,403,014,259	.1297
2019/20	1,712,776,521	20,935,385,243	.0818
2020/21	2,711,073,708	23,943,774,455	.1132
2021/22	3,291,094,170	26,870,961,958	.1225
2022/23	3,222,547,292	28,434,421,397	.1133

Net Interest Margin of Everest Bank Limited

Year	Net Interest Income	Interest Earning Assets	NIM
2013/14	2,918,814,952	58,694,777,581	.0497
2014/15	2,879,435,285	77,533,339,674	.0371
2015/16	3,228,584,628	88,557,553,944	.0365
2016/17	3,737,355,791	95,580,408,448	.0391
2017/18	4,869,763,854	116,411,995,431	.0418
2018/19	5,698,591,793	39,203,560,660	.1454
2019/20	5,310,410,495	142,167,113,078	.0374
2020/21	3,867,640,816	166,156,520,351	.0233
2021/22	5,181,416,381	169,034,371,952	.0307
2022/23	7,412,440,186	187,470,945,129	.0395

Net Interest Margin of Siddhartha Bank Limited

Year	Net Interest Income	Interest Earning Assets	NIM
2013/14	1,347,421,102	33,322,189,803	.0404
2014/15	1,435,843,157	40,291,728,961	.0356
2015/16	2,117,591,994	59,685,114,301	.0355
2016/17	2,653,785,934	73,443,599,784	.0361
2017/18	3,436,258,538	93,143,311,084	.0369
2018/19	4,667,327,777	115,288,536,807	.0405
2019/20	5,574,137,381	138,152,096,720	.0403
2020/21	5,510,206,437	175,656,447,374	.0314
2021/22	6,596,847,515	191,041,519,164	.0345
2022/23	8,184,543,098	203,192,405,373	.0403

Net Interest Margin of Sanima Bank Limited

Year	Net Interest Income	Interest Earning Assets	NIM
2013/14	818,717,766	23,344,971,058	.0351
2014/15	1,139,389,934	29,344,418,379	.0388
2015/16	1,722,302,083	43,184,818,653	.0399
2016/17	2,242,118,553	57,267,677,151	.0392
2017/18	3,015,524,197	75,500,685,524	.0399
2018/19	4,208,697,114	87,048,177,247	.0483
2019/20	4,189,694,300	101,847,332,873	.0411
2020/21	4,524,987,321	130,959,864,061	.0346
2021/22	4,651,762,707	155,573,205,999	.0299
2022/23	6,478,617,414	161,294,768,316	.0402

Net Interest Margin of Prime Commercial Bank Limited

Year	Net Interest Income	Interest Earning Assets	NIM
2013/14	1,059,965,806	32,876,907,891	.0322
2014/15	1,387,782,918	37,651,531,953	.0369
2015/16	1,588,461,085	46,315,989,243	.0343
2016/17	1,931,054,278	67,364,053,519	.0287
2017/18	2,665,915,437	80,743,143,142	.0330
2018/19	3,584,607,187	84,486,920,800	.0424
2019/20	4,640,621,080	125,528,378,239	.0370
2020/21	5,948,890,550	156,746,491,973	.0380
2021/22	6,186,965,708	162,731,895,766	.0380
2022/23	7,140,747,994	171,633,334,690	.0416

Net Interest Margin of NMB Bank Limited

Year	Net Interest Income	Interest Earning Assets	NIM
2013/14	789,282,712	24,538,029,378	.0322
2014/15	967,367,566	32,776,848,559	.0295
2015/16	2,013,281,522	62,156,427,893	.0324
2016/17	2,568,173,963	71,736,074,152	.0358
2017/18	2,904,014,078	82,326,257,643	.0353
2018/19	4,244,020,946	104,805,142,202	.0405
2019/20	5,496,219,915	138,888,569,544	.0396
2020/21	5,606,659,301	178,144,248,841	.0315
2021/22	6,387,539,842	198,398,053,473	.0322
2022/23	8,342,459,922	211,967,276,620	.0394

Deposit to Total Assets Ratio of Everest Bank Limited

Year	Deposit	Total Assets	DTA
2013/14	62,108,135,754	70,445,082,845	.8817
2014/15	83,093,789,957	99,152,806,017	.8380
2015/16	93,735,480,708	114,018,921,791	.8221
2016/17	95,094,461,030	116,946,280,388	.8131
2017/18	115,511,705,922	144,811,151,443	.7977
2018/19	129,568,152,895	170,077,533,454	.7618
2019/20	143,545,475,184	185,023,189,704	.7758
2020/21	160,220,256,940	211,650,249,438	.7570
2021/22	172,739,184,905	225,381,322,534	.7664
2022/23	198,007,807,066	250,090,492,650	.7917

Deposit to Total Assets Ratio of Siddhartha Bank Limited

Year	Deposit	Total Assets	DTA
2013/14	35,414,007,591	40,277,752,199	.8792
2014/15	44,740,731,784	50,647,295,616	.8834
2015/16	64,934,358,551	74,402,915,402	.8727
2016/17	77,317,559,299	89,901,512,010	.8600
2017/18	94,579,591,123	119,869,218,564	.7890
2018/19	114,923,367,534	154,031,125,260	.7461
2019/20	139,609,497,543	182,468,449,165	.7651
2020/21	180,924,009,324	228,941,959,915	.7903
2021/22	191,550,643,583	264,327,023,510	.7247
2022/23	223,654,669,691	285,977,915,326	.7821

Deposit to Total Assets Ratio of Sanima Bank Limited

Year	Deposit	Total Assets	DTA
2013/14	24,873,849,358	29,376,985,784	.8467
2014/15	34,045,316,291	40,301,197,377	.8448
2015/16	46,423,306,347	55,964,557,699	.8295
2016/17	58,228,495,167	69,995,901,442	.8319
2017/18	77,849,380,056	91,821,952,603	.8478
2018/19	89,373,729,162	109,064,487,965	.8195
2019/20	107,250,202,687	126,313,331,194	.8491
2020/21	128,425,867,181	160,750,584,166	.7989
2021/22	157,518,535,239	192,511,092,727	.8182
2022/23	175,745,249,454	215,642,988,368	.8150

Deposit to Total Assets Ratio of Prime Commercial Bank Limited

Year	Deposit	Total Assets	DTA
2013/14	34,045,262,660	38,030,964,159	.8952
2014/15	41,005,754,566	45,800,892,475	.8953
2015/16	43,745,461,424	54,408,913,063	.8040
2016/17	59,680,088,647	77,786,847,979	.7672
2017/18	72,635,987,983	95,043,979,017	.7642
2018/19	77,040,074,374	102,255,829,620	.7534
2019/20	119,441,613,623	152,182,993,975	.7849
2020/21	154,139,514,074	190,896,964,060	.8074
2021/22	160,203,350,799	210,361,895,395	.7616
2022/23	174,058,036,674	220,827,806,336	.7882

Deposit to Total Assets Ratio of NMB Bank Limited

Year	Deposit	Total Assets	DTA
2013/14	27,087,258,036	30,211,663,397	.8966
2014/15	36,722,917,654	41,337,463,116	.8884
2015/16	64,781,463,622	74,613,327,884	.8682
2016/17	73,224,062,599	86,816,983,069	.8434
2017/18	83,970,867,291	112,391,430,113	.7471
2018/19	97,892,301,967	135,470,409,573	.7226
2019/20	131,660,368,354	179,451,914,903	.7337
2020/21	164,489,285,837	231,546,858,432	.7104
2021/22	184,817,106,463	255,150,610,280	.7243
2022/23	210,304,687,147	287,777,140,694	.7308

Non Performing Loan Ratio of Everest Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	470,404,000	47,572,024,207	.0099
2014/15	367,164,000	54,482,465,225	.0067
2015/16	264,422,000	69,522,812,984	.0038
2016/17	198,905,000	78,986,723,431	.0025
2017/18	187,716,000	94,182,247,596	.0020
2018/19	177,258,000	112,007,182,134	.0016
2019/20	265,715,000	119,069,238,189	.0022
2020/21	158,549,000	135,173,248,173	.0012
2021/22	183,712,000	155,053,839,709	.0012
2022/23	1,331,506,000	167,556,175,716	.0079

Non Performing Loan Ratio of Siddhartha Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	768,289,196	27,186,905,349	.0283
2014/15	668,483,580	36,339,796,450	.0184
2015/16	828,965,675	55,350,891,229	.0150
2016/17	871,609,724	65,986,366,620	.0132
2017/18	939,865,835	86,077,253,841	.0109
2018/19	819,865,835	108,149,445,221	.0076
2019/20	1,754,050,000	127,577,077,418	.0137
2020/21	1,649,537,000	164,607,097,017	.0100
2021/22	1,996,712,000	184,990,757,374	.0108
2022/23	3,831,797,000	189,180,344,947	.0203

Non Performing Loan Ratio of Sanima Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	3,582,854	20,371,443,968	.0002
2014/15	20,813,964	28,264,050,734	.0007
2015/16	7,638,667	40,455,086,817	.0002
2016/17	4,990,732	51,264,668,166	.0001
2017/18	20,035,708	69,243,357,166	.0003
2018/19	68,346,443	83,439,280,956	.0008
2019/20	422,632,626	93,694,563,068	.0045
2020/21	146,365,052	123,165,424,390	.0012
2021/22	471,537,322	141,685,903,638	.0033
2022/23	1,968,354,664	149,870,100,426	.0131

Non Performing Loan Ratio of Prime Commercial Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	675,203,081	27,104,417,443	.0249
2014/15	612,219,710	32,616,506,542	.0188
2015/16	507,113,208	40,383,386,390	.0126
2016/17	515,842,742	58,021,237,573	.0089
2017/18	603,368,947	69,966,856,437	.0086
2018/19	761,028,463	75,560,209,907	.0101
2019/20	1,707,990,773	114,552,112,807	.0149
2020/21	1,412,769,608	141,481,549,312	.0100
2021/22	2,740,708,902	153,726,662,172	.0178
2022/23	7,905,472,795	159,583,596,734	.0495

Non Performing Loan Ratio of NMB Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	113,477,599	20,467,040,786	.0055
2014/15	117,432,279	27,288,891,489	.0043
2015/16	984,166,111	53,021,384,326	.0186
2016/17	1,051,369,222	61,157,356,824	.0172
2017/18	669,311,000	75,209,339,535	.0089
2018/19	756,418,000	91,802,993,381	.0082
2019/20	3,269,482,000	120,334,337,345	.0272
2020/21	3,594,011,000	156,298,594,598	.0230
2021/22	2,641,171,000	180,868,451,100	.0146
2022/23	5,433,561,000	196,151,929,551	.0277

Credit to Deposit Ratio of Everest Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	47,572,024,207	62,108,135,754	.7660
2014/15	54,482,465,225	83,093,789,957	.6557
2015/16	69,522,812,984	93,735,480,708	.7417
2016/17	78,986,723,431	95,094,461,030	.8306
2017/18	94,182,247,596	115,511,705,922	.8153
2018/19	112,007,182,134	129,568,152,895	.8645
2019/20	119,069,238,189	143,545,475,184	.8295
2020/21	135,173,248,173	160,220,256,940	.8437
2021/22	155,053,839,709	172,739,184,905	.8976
2022/23	167,556,175,716	198,007,807,066	.8462

Credit to Deposit Ratio of Siddhartha Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	27,186,905,349	35,414,007,591	.7677
2014/15	36,339,796,450	44,740,731,784	.8122
2015/16	55,350,891,229	64,934,358,551	.8524
2016/17	65,986,366,620	77,317,559,299	.8534
2017/18	86,077,253,841	94,579,591,123	.9101
2018/19	108,149,445,221	114,923,367,534	.9411
2019/20	127,577,077,418	139,609,497,543	.9138
2020/21	164,607,097,017	180,924,009,324	.9098
2021/22	184,990,757,374	191,550,643,583	.9658
2022/23	189,180,344,947	223,654,669,691	.8459

Credit to Deposit Ratio of Sanima Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	20,371,443,968	24,873,849,358	.8190
2014/15	28,264,050,734	34,045,316,291	.8302
2015/16	40,455,086,817	46,423,306,347	.8714
2016/17	51,264,668,166	58,228,495,167	.8804
2017/18	69,243,357,166	77,849,380,056	.8895
2018/19	83,439,280,956	89,373,729,162	.9336
2019/20	93,694,563,068	107,250,202,687	.8736
2020/21	123,165,424,390	128,425,867,181	.9590
2021/22	141,685,903,638	157,518,535,239	.8995
2022/23	149,870,100,426	175,745,249,454	.8528

Credit to Deposit Ratio of Prime Commercial Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	27,104,417,443	34,045,262,660	.7961
2014/15	32,616,506,542	41,005,754,566	.7954
2015/16	40,383,386,390	43,745,461,424	.9231
2016/17	58,021,237,573	59,680,088,647	.9722
2017/18	69,966,856,437	72,635,987,983	.9633
2018/19	75,560,209,907	77,040,074,374	.9808
2019/20	114,552,112,807	119,441,613,623	.9591
2020/21	141,481,549,312	154,139,514,074	.9179
2021/22	153,726,662,172	160,203,350,799	.9596
2022/23	159,583,596,734	174,058,036,674	.9168

Credit to Deposit Ratio of NMB Bank Limited

Year	NPL	Loan and Advance	NPL ratio
2013/14	20,467,040,786	27,087,258,036	.7556
2014/15	27,288,891,489	36,722,917,654	.7431
2015/16	53,021,384,326	64,781,463,622	.8185
2016/17	61,157,356,824	73,224,062,599	.8352
2017/18	75,209,339,535	83,970,867,291	.8957
2018/19	91,802,993,381	97,892,301,967	.9378
2019/20	120,334,337,345	131,660,368,354	.9140
2020/21	156,208,594,598	164,489,285,837	.9497
2021/22	180,868,451,100	184,817,106,463	.9786
2022/23	196,151,929,551	210,304,687,147	.9327

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Abstract This study entitled "Impacts of liquidity risk on organizational performance of Nepalese Commercial Banks" aimed to examine the relationship between liquidity risk factors and the organizational performance of Nepalese commercial banks. In the current study, linear multiple regression and bivariate correlation are used to quantify the impacts of explanatory factors on the dependent variables. The information is gathered from the yearly reports of a few chosen commercial banks, the Nepal Rastra Bank report, and other official and unofficial sources. The descriptive research approach is utilized along with the relevant financial and statistical instruments for data analysis. To investigate the link between the independent and dependent variables, multiple regression analysis and bivariate correlation are used. The analysis is based on information gathered from annual report of 5 commercial banks between the fiscal years 2013–2014 and 2022–2023. Using SPSS and MS-Excel, calculated data has been tabulated and examined. In the study,

Deposit to Total Assets Ratio (DTA), Non-Performing Loan Ratio (NPLR), and Credit to Deposit Ratio (CDR

of Nepalese commercial banks are examined for assessing how liquidity risk influences metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) in the banking sector by using Descriptive Statistics, Correlation and Regression and ANOVA test. The study found that in Nepal's commercial banking sector, DTA positively influenced ROE, while CDR negatively impacted financial performance. NPLR showed a negative correlation with bottom-line indicators. Notably, NIM did not significantly affect liquidity metrics studied, highlighting complex relationships in bank liquidity and performance. **Keywords**

Deposit to Total Assets Ratio, Non-Performing Loan Ratio, Credit to Deposit Ratio , Return on Assets, **Return on**

Equity, and Net Interest Margin. CHAPTER-I INTRODUCTION 1.1 Background of the Study The financial sector is vital to the economic growth of any country, including Nepal, which is classified as a developing nation. In Nepal, the banking industry