LIQUIDITY MANAGEMENT AND PROFITABILITY OF NEPALESE COMMERCIAL BANKS

A Dissertation Submitted to the office of the Dean, Faculty of Management in partial fulfilment of the requirements for the Master's Degree

By

Karishma Gajamer
Exam Roll No.: 5644/18
Campus Roll No.:3057/074
T.U. Regd. No.: 7-2-271-135-2013
Shanker Dev Campus

Putalishadak, Kathmandu
February 2024

CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**Liquidity Management and Profitability of Nepalese Commercial Banks**". The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purpose.

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.

Karishma Gajamer

Signature:

Date of Submission:

REPORT OF RESEARCH COMMITTEE

Karishma Gajamer has defended research proposal entitled "**Liquidity Management and Profitability of Nepalese Commercial Banks**" successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidance of supervisor Asso. Prof. Dr. Kapil Khanal and submit the dissertation for evaluation and Viva-Voce examination.

Asso. Prof. Dr. Kapil Khanal
Dissertation Supervisor
Signature: …………………………

Asso. Prof. Dr. Sajeeb Kumar Shrestha
Head of Research Committee
Signature: ……………………………..

Dissertation Proposal Defended Date:
………………………………….

Dissertation Submitted Date:
…………………………………

Dissertation Viva-Voce Date:
…………………………………

APPROVAL SHEET

We have examined the dissertation entitled "**Liquidity Management and Profitability of Nepalese Commercial Banks**" presented by Karishma Gajamer for the degree of Master of Business Studies. We hereby certify that the acceptable for the award of degree.

....
Asso. Prof. Dr. Kapil Khanal
Dissertation Supervisor

....
Internal Examiner

....
External Examiner

....
Asso. Prof. Dr. Sajeeb Kumar Shrestha
Chair Person, Research Committee

....
Asso. Prof. Krishna Prasad Acharya
Campus Chief

Date:

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

ABBREVIATIONS

ANOVA   :   Analysis of Variance

CAR   :   Capital Adequacy Ratio

CDR   :   Credit Deposit Ratio

CR   :   Cash Ratio

CRR   :   Cash Reserve Ratio

LR   :   Liquidity ratio

NPESE   :   Nepal Stock Exchange

NPM   :   Net profit margin

ROA   :   Return on assets

ROE   :   Return on equity

SD   :   Standard Deviation

Std.   :   Standard deviation

ABSTRACT

This study delves into understanding the intricate dynamics of liquidity and profitability within the context of Nepalese commercial banks. With a focused objective, it aims to analyze the liquidity and profitability positions, examining the correlation between liquidity ratios and profitability metrics, and assessing the impact of liquidity on profitability. Six commercial banks were selected using a stratified random sampling method to represent a subset of the sector. Data primarily sourced from financial statements, annual reports, and secondary sources like the Nepal Rastra Bank and Nepal Stock Exchange. These selected banks exhibit a consistent pattern of maintaining adequate liquidity levels to meet short-term obligations, with a notable inclination towards holding significant cash reserves relative to immediate liabilities. Moreover, extending credit to customers is a prevalent practice, indicating a reliance on credit for financing activities. Despite some fluctuations, these banks generally uphold satisfactory capital buffers and display healthy financial metrics such as return on equity (ROE), net profit margin (NPM), and return on assets (ROA). The research adopts both descriptive and causal research designs, employing comparative, analytical, and descriptive methodologies. Correlation analysis underscores the delicate balance required between liquidity, credit exposure, and capital adequacy to achieve favorable ROE, illustrating the complexity of financial decision-making within these institutions. Regression analysis further elucidates the importance of factors such as the credit deposit ratio and cash ratio in influencing key financial performance metrics. In conclusion, while acknowledging limitations like the focused sample and reliance on secondary data, this study provides valuable insights into the nuanced relationship between liquidity management and profitability in Nepalese commercial banks. It contributes significantly to understanding financial dynamics and offers practical and theoretical implications for both industry practitioners and academic scholars alike.

Keywords: Liquidity, Profitability, Cash Deposit Ratio, Capital Adequacy Ratio, Cash Reserve Ratio, Return on Equity, Net Profit Margin and Return on Assets

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Liquidity management is the responsibility of a financial institution. A bank should implement robust liquidity risk management to ensure that it maintains sufficient liquidity to withstand a variety of stress events, including those involving the loss or impairment of both unsecured and secured funding sources. This liquidity cushion should include unencumbered, high-quality liquid assets. Bosses ought to survey the sufficiency of both a bank's liquidity risk the executives and its liquidity position and ought to make a brief move in the event that a bank is lacking in one or the other region to safeguard contributors and to restrict likely harm to the monetary framework (Kumar & Yadav, 2023).

The liquidity ratio had an insignificant impact on return on assets (ROA), while the current ratio significantly and positively influenced ROA, particularly for private commercial banks. These results emphasize the notable impact of liquidity on the profitability of commercial banks setting. The study advocates for effective operational risk management by banks through diversification and prudent control, and it calls for regulatory authorities to enhance guidance and support for banks operating (Rehman & Jannat, 2023).

Factors influencing liquidity in commercial banks require thorough examination for effective liquidity management (Edem, 2017). Striking a balance is essential, as inadequate liquidity can lead to cash flow issues, missed payments, and potential bankruptcy, while excess liquidity may result in lower returns on assets and reduced profitability. Determining the adequacy of liquidity involves analyzing historical funding requirements, current liquidity positions, anticipated future funding needs, and available options for attracting additional funds (Greuning & Bratanovic, 2009). The interplay between liquidity management and financing constraints has been highlighted by Keynes, and it remains relevant in the contemporary financial landscape.

The capacity of a bank to guarantee the constant availability of funds to meet financial commitments or maturing obligations at a reasonable price is referred to as bank liquidity. Bank liquidity implies a bank having cash where they need it especially to fulfill the withdrawal needs of the clients (Wasiuzzaman & Tarmizi, 2010). The quantity of capital that is available for investment is referred to as liquidity in the financial industry. Today,

the greater part of this capital is credit reserve. This is as a result of the large financial institutions' preference for borrowing money (Felix & Claudine, 2008). Productivity and liquidity are successful signs of the corporate wellbeing and execution of the business banks, yet all benefit situated adventures (Eljelly, 2004). These exhibition markers are vital to the investors and contributors who are significant publics of a bank.

Liquidity, as defined by the Basel Committee on Banking Supervision (2008), is the measure of cash availability for day-to-day business operations. The ability of a bank to fund increasing assets and meet obligations without incurring unacceptable losses is crucial, as emphasized by (Jenkinson, 2008). Liquidity risk, a type of risk for banks, arises when they hold a lower amount of liquid assets, making them more susceptible to substantial deposit withdrawals (Pradhan & Shrestha, 2016). Liquidity management, encompassing the efficient handling of a company's liquid assets, becomes imperative to meet short-term obligations while optimizing returns. Shrestha (2004) highlights liquidity management as an integral part of risk management for all financial institutions, be they commercial banks, developmental banks, or other entities.

Profitability, defined as the surplus of a firm's revenues over relevant expenses (Niresh, 2012), is a key driver for business sustainability and growth. Entrepreneurs are motivated to invest in a business when the potential for profits exists, making profits a crucial reward for the risks taken. Measuring bank profitability is of paramount importance due to their role as intermediaries channeling funds in the economy (Isayas, 2022). The connection between profitability and liquidity risk is acknowledged, as insufficient liquidity can jeopardize a company's ability to meet current obligations (Jenkinson, 2008).

Balancing liquidity management and profitability is a constant concern for financial managers (Saleem & Rehman, 2011; Niresh, 2012; Priya & Nimalathasan, 2013). The efficient management of both aspects is deemed essential for business success, aligning with organizational objectives and strategic planning (Dadepo & Afolabi, 2020). These performance indicators, essential for shareholders and depositors, reflect the corporate health and performance of commercial banks and profit-oriented ventures (Eljelly, 2004). Shareholders focus on profitability levels, while depositors are concerned with liquidity positions, impacting a bank's ability to respond to withdrawal needs. Profitability and liquidity management collectively provide comprehensive insights into a business's functioning.

The role of commercial banks, whether state or privately owned, extends beyond financial services to include credit creation, deposit management, lending, and transaction processing. Commercial banks play a vital role in a nation's pursuit of rapid economic development. The historical evolution of banking in Nepal, starting with the establishment of Nepal Bank Limited in 1994 B.S., illustrates the sector's growth and contribution to the financial landscape. The subsequent establishment of Nepal Rastra Bank in 2013 B.S. and other banks, both public and private, has further diversified the financial sector. The incorporation of foreign investment and technology, coupled with the liberalization policy post-2041 B.S., has brought about positive changes in the banking sector, fostering healthy competition and quality banking services. In 2023, NRB's liquidity policy walks a tightrope between boosting bank profitability and maintaining monetary stability. Increased CRR and SLR (NRB, 2023-24) enhance stability but compress earnings, while priority sector lending targets (Ibid.) promote growth but require strategic adjustments. Balancing these competing interests through flexible tools like the interest rate corridor and SLF (Ibid.) be crucial for Nepali commercial banks to navigate the current economic landscape.

This study aims to provide a comprehensive understanding of liquidity management and profitability within the context of commercial banks in Nepal. Specifically, the objectives of the research are outlined as follows: firstly, to analyze the current position of liquidity and profitability in Nepalese commercial banks; secondly, to investigate the relationships between various liquidity metrics (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio, and cash reserve ratio) and profitability indicators (return on assets, return on equity, and net profit margin) of these banks; and thirdly, to assess the impact of liquidity metrics on the profitability of Nepalese commercial banks. By addressing these objectives, the study aims to contribute valuable insights into the intricate interplay between liquidity management and profitability in the banking sector of Nepal.

1.2 Statement of Problem

In the fiercely competitive landscape of today's industries, managing the delicate balance between liquidity and profitability has become a critical concern. Achieving equilibrium between profitability and liquidity is imperative for every firm to optimize returns. The management of liquidity revolves around the interplay of current assets and current liabilities, gaining significant importance in financial literature due to the detrimental impacts of both excess and insufficient liquidity on business organizations. Finance

managers play a pivotal role in ensuring an optimal liquidity position that safeguards against illiquidity or excessive liquidity. Studies on the effect of liquid asset holdings on U.S. and Canadian banks, such as those by Bordeleau and Graham (2010), suggest that while holding some liquid assets improves profitability, there is a threshold beyond which further liquid assets might minimize a bank's profitability.

According to Alshatti (2015), banks need to determine the optimal cash amount that strikes a balance between profitability and liquidity. Striking this balance becomes challenging when banks attempt to maximize profits at the expense of neglecting the liquidity effect, potentially leading to technical and financial hardships and subsequent deposit withdrawals. Emphasizing liquidity over profitability is underscored by Don (2009), emphasizing the survival of the company. Hence, an in-depth study of the various dependent and independent variables of liquidity management and profitability is essential.

Siame (2012) concluded a negative relationship between profitability and liquidity across various industries. However, contradictory findings exist, with studies like those by Sah and Lertjanyaki (2019), Deloof (2003), Priya and Nimalathasan (2013), and Hussain and Alam (2019) suggesting a direct and positive relationship between liquidity and profitability, challenging the validity of the profitability-liquidity trade-off. In the Nepalese context, Karki (2004) found fluctuating liquidity ratios, satisfactory return on equity, and a positive relationship between deposits and loan advances. Recommendations include addressing liquidity through appropriate investment policies. Baral (2005) noted that maintaining excessively high liquidity to minimize risks adversely affects profitability, emphasizing the need for a trade-off between liquidity and profitability.

Pradhan and Shrestha (2016) indicated that an increase in liquidity ratios leads to a decrease in the performance and profitability of Nepalese commercial banks. Magar (2022) found a positive and significant relationship between profitability ratios and credit to deposit ratio and liquidity ratio in Nepalese commercial banks. Dzapasi (2020) suggested a positive and significant relationship between liquidity management and financial performance, while Ali and Jameel (2019) revealed no evidence supporting a long-run relationship between bank profitability and liquidity management.

Despite extensive studies on the impact of liquidity position and liquidity risk on the performance of the banking sector globally, results have been mixed across regions

(Chowdhury & Zaman, 2018). The variations in results suggest that different regions may be influenced to a greater extent by their unique economic factors. This study aims to shed light on the relationship between profitability and liquidity in the context of the banking sector in Nepal. Given the distinctive nature of the Nepalese economy, this research contribute to understanding whether a negative relationship aligns with the Trade-off theory and address the question of whether liquidity impacts profitability.

The study has been directed towards answering following questions:

i)   What is the position of liquidity and profitability of Nepalese commercial banks?

ii)   Is there relationship between liquidity (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio) and profitability (return on equity, net profit margin and return on assets) of Nepalese commercial banks?

iii)   Does liquidity (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio) have impact on profitability (return on equity, net profit margin and return on assets) of Nepalese commercial banks?

1.3 Objectives of the Study

The main objective of this study is to have real insight into the liquidity management and profitability of commercial banks in Nepal. The Specific objectives of this study are as follows:

i)   To assess the position of liquidity and profitability of Nepalese commercial banks.

ii)   To examine the relationship between liquidity (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio) and profitability (return on equity, net profit margin and return on assets) of Nepalese commercial banks.

iii)   To analyze the impact of liquidity (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio) on profitability (return on equity, net profit margin and return on assets) of Nepalese commercial banks.

1.4 Research Hypotheses

The study has been carried out based on certain hypothesis. With the help of hypothesis, the study is able to examine and evaluate the effect and relationship between liquidity management and profitability position of the commercial banks in Nepal. The major source for following hypothesis is through various literature reviews used in this study. The study makes a set of the alternative hypotheses (H1) to examine the relationship between liquidity

and profitability. After reviewing the literature, the current study addresses the following hypotheses:

H1: There is a significant relationship between liquidity ratio and return on equity.
H1: According to the alternative hypothesis, return on equity and the liquidity ratio are significantly correlated. Research like Magar (2022), which probably provide evidence in favor of a relationship between liquidity ratios and return on equity in commercial banking settings, informs this theory.

H2: There is a significant relationship between cash ratio and return on equity.
H2: In a similar vein, the alternative hypothesis for H2 contends that there is a meaningful connection between return on equity and cash ratio. This is probably taken from research that suggests that cash ratios may have an effect on return on equity in banking institutions, such as Rasul (2013) and Edem (2017).

H3: There is a significant relationship between credit deposit ratio and return on equity.
H3: The alternative hypothesis for H3 contends that there is a meaningful connection between return on equity and the credit deposit ratio. This theory was prompted by research that might provide light on how credit deposit ratios affect return on equity, such as Dzapasi (2020) and Ibe (2013).

H4: There is a significant relationship between capital adequacy ratio and return on equity.
H4: According to the alternative hypothesis, there is a substantial correlation between return on equity and the capital adequacy ratio. Research from studies like Adebayo et al. (2011) and Rehman and Jannat (2023) may provide credence to this theory by showing a connection between capital adequacy ratios and return on equity in banking settings.

H5: There is a significant relationship between cash reserve ratio and return on equity.
H5: In a similar vein, the alternative hypothesis for H5 proposes a noteworthy correlation between return on equity and the cash reserve ratio. The theory may have been informed by studies like Deloof (2003) and Adebayo et al. (2011), which provide evidence in favor of this association.

H6: There is a significant relationship between liquidity ratio and net profit margin.
H6: The alternative hypothesis (H6) suggests a substantial correlation between the variables liquidity ratio and net profit margin when examining the possible link between these two

variables. This claim is supported by research from studies like Magar (2022) and Ahmad (2016), which might show that liquidity ratios have a noticeable effect on net profit margins in the banking industry.

H7: There is a significant relationship between cash ratio and net profit margin.
H7: In a similar vein, H7 indicates that the cash ratio and net profit margin have a substantial link. Research by Rasul (2013) and Edem (2017) provides credence to this theory and may provide light on how cash ratios affect net profit margins in commercial banking settings.

H8: There is a significant relationship between credit deposit ratio and net profit margin.
H8: The alternative hypothesis for H8 suggests that the credit deposit ratio and net profit margin have a meaningful connection. Research like Dzapasi (2020) and Ibe (2013) may provide proof in favor of this theory, indicating that credit deposit ratios may have an effect on financial institutions' net profit margins.

H9: There is a significant relationship between capital adequacy ratio and net profit margin.
H9: Similarly, the alternative hypothesis for H9 contends that there is a meaningful connection between net profit margin and capital adequacy ratio. Research like those conducted by Rehman and Jannat (2023) and Adebayo et al. (2011), which suggests a possible correlation between capital adequacy ratios and net profit margins in banking settings, may provide support for this theory.

H10: There is a significant relationship between cash reserve ratio and net profit margin.
H10: According to H10, there is a substantial correlation between net profit margin and cash reserve ratio. Research like those by Deloof (2003) and Adebayo et al. (2011) may lend credence to this theory by indicating that cash reserve ratios may have an impact on net profit margins in the banking sector.

H11: There is a significant relationship between liquidity ratio and return on assets.
H11: Turning now to H11, the alternative theory proposes a substantial correlation between return on assets and the liquidity ratio. Studies like Magar (2022) and Ahmad (2016), which probably show a relationship between liquidity ratios and return on assets in commercial banking contexts, may lend credence to this claim.

H12: There is a significant relationship between cash ratio and return on assets.
H12: In a similar vein, H12 suggests that return on assets and cash ratio have a substantial link. Studies by Edem (2017) and Rasul (2013) may shed light on this link by suggesting that cash ratios may have an effect on banks' return on assets.

H13: There is a significant relationship between credit deposit ratio and return on assets.
H13: The alternative hypothesis for H13 contends that there is a meaningful connection between return on assets and the credit deposit ratio. This theory may be supported by studies like Dzapasi (2020) and Ibe (2013), which show that credit deposit ratios may have an impact on return on assets in banking settings.

H14: There is a significant relationship between capital adequacy ratio and return on assets.
H14: Similarly, the alternative hypothesis for H14 suggests that return on assets and the capital adequacy ratio are significantly correlated. Research from studies like Adebayo et al. (2011) and Rehman and Jannat (2023) may support this theory by showing a connection between capital adequacy ratios and return on assets in banking settings.

H15: There is a significant relationship between cash reserve ratio and return on assets.
H15: Lastly, H15 suggests that return on assets and the cash reserve ratio are significantly correlated. Research like that done by Deloof (2003) and Adebayo et al. (2011) may provide credence to this theory by showing how cash reserve ratios may affect return on assets in the banking industry.

1.5 Rationale of the Study
Liquidity management is an integral part of the central bank's operations and is crucial for ensuring the effectiveness of monetary policy transmission mechanisms. In developing country like Nepal, Central banks use monetary policy as a tool to control inflation and stabilize the economy. Nepal is often more exposed to external shocks, such as changes in global economic conditions, commodity prices, and capital flows. These external factors can impact a country's liquidity conditions and may lead to sudden liquidity shortages. Understanding how to manage liquidity in the banking sector is crucial to ensure the stability of the financial system and prevent bank runs. Commercial banks are highly benefited by this research as this research identifies their current liquidity management and profitability position, NRB guidelines on liquidity management and organization of basic compliance of such guidelines etc. Identification of liquidity levels that maximize profits

enables managers revise and adopt relevant strategies. As this research is made mainly to analyze how well the banks are managing their liquidity ratio to enhance profitability in reference to NRB directives and measures. In addition, the banks are able to know not only the current performance but also the idea about their strength and weaknesses. Further, this study guides investors, customers (depositors, Loan takers as well as other types of clients), competitors, personnel of the banks, stockbrokers, dealers, market makers, etc. to make various decisions regarding deposits and borrowings.

Moreover, This research might makes a significant contribution to current knowledge in the field of variables determining the liquidity of commercial banks, education institute and regulatory bodies of the country to make further decisions in our form of feedback. Additionally, this study might help the management to realize how important these variables are so as to help them to make sound decisions for better management of liquidity and profitability matters.

1.6 Limitations of the Study

The limitations of the study are as follows:

i)   Though there are around 20 commercial banks, the study covers only 6 commercial banks. Hence, it does not cover the characteristics of entire Nepalese commercial banking sector.

ii)   The study covers the data of only ten fiscal years i.e. the fiscal year 2012/13 to 2021/22 and the conclusion is drawn only from the above period

iii)   The study is based on secondary data; therefore the reliability of the study depends upon the accuracy of the published audited general report documents such as balance sheet, profit and loss account statement which are circulated of the close of the financial year which are subject to manipulation.

iv)   The study is made within a limited timeframe, with Limited data, and with lack of research experiments.

v)   Liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio are considered which may not sufficient to analysis the liquidity management of the banks.

CHAPTER-II
LITERATURE REVIEW

A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, which allows identifying relevant theories, methods, and gaps in the existing research. A good literature review doesn't just summarize sources it analyzes, synthesizes, and critically evaluates to give a clear picture of the state of knowledge on the subject. It includes current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. It provides foundation of knowledge on topic. Literature surveys are secondary sources and do not report new or original experimental work. It consists of review of empirical literature and related theories of the research. It is useful in setting the purpose of the study and provides guidelines for determining the variables under study. It enables a researcher to find out about the existing bodies of knowledge on the topic of his/her interest. It helps to find out the areas yet to be studied in the concerned topic and need for additional research. For this research, several books, dissertation, reports, handouts and articles published in journals and newspapers are reviewed and this chapter is divided into four parts;

2.1 Theoretical Review

Theories related to Liquidity Management

The Liabilities Management Theory

Developed in the 1960s, the Liabilities Management Theory posits that there is no need for banks to grant self-liquidating loans and maintain liquid assets (Bordeleau & Graham, 2010). Instead, banks can borrow reserve money in the money market when needed. A bank can acquire reserves by creating additional liabilities from different sources, such as issuing time certificates of deposit, borrowing from other commercial banks, borrowing from the central bank, raising capital funds by issuing shares, and ploughing back profits. Time certificates of deposits are a primary source of reserve money for commercial banks in the USA. They can be sold in the money market if needed, providing access to liquidity. However, there are limitations, including market interest rate dynamics and advantages favoring larger banks.

Banks may create additional liabilities by borrowing from other banks, but such borrowings are short-term and depend on prevailing market rates. Borrowing from the Central Bank: Banks create liabilities by borrowing from the central bank to meet short-term liquidity

needs, but such borrowings are relatively costlier than other sources. Commercial banks acquire funds by issuing fresh shares or debentures, contingent on the bank's dividend or interest rate policies. Larger banks can utilize the ploughing back of profits as a source of liquid funds, depending on their profit rates and dividend policies.

The Real Bills Doctrine

The Real Bills Doctrine, also known as the business credit hypothesis, posits that commercial banks should extend only short-term self-liquidating productive credits to business firms (Bordeleau & Graham, 2010). These self-selling credits are intended to finance the production and movement of goods through various stages, including production, storage, transportation, and distribution. The loans are considered automatically liquidated when the goods are ultimately sold. For instance, a bank loan provided to a businessperson for inventory financing would automatically self-liquidate when repaid with the proceeds from the sale of those inventories.

This theory suggests that when banks exclusively offer short-term self-selling productive credits, central banks should likewise only lend to banks against the security of such short-term loans. This principle aims to ensure the appropriate level of liquidity for each bank and maintain the proper money supply for the entire economy. Rediscounting approved loans was expected to influence bank reserves, either increasing or decreasing them. By rediscounting bills with central banks, banks could acquire additional reserves in times of expanding business and heightened trade requirements. Conversely, the volume of rediscounting bills, the supply of bank reserves, and the amount of bank credit and money would decrease during economic downturns when trade needs diminished.

The Shift-Ability Theory

H.G. Moulton proposed the shift-ability theory of bank liquidity, suggesting that if commercial banks maintain a substantial amount of assets that can be transferred to other banks for cash without significant loss, there is no need to rely on maturities (Bordeleau & Graham, 2010). According to this view, assets that can be perfectly shift-able should be quickly adaptable without capital loss when the need for liquidity arises. While this theory acknowledges the transferability of sound assets among banks, it also emphasizes the necessity for all banks to have assets that can be transferred to the central bank, acting as the lender of last resort, in times of general crises when all banks require liquidity.

The Anticipated Income Theory

H.V. Prochanow developed the anticipated income theory in 1944, based on the practice of US commercial banks extending term loans (Prochanow, 1944). This theory asserts that banks use the anticipated income of the borrower to repay term loans, regardless of the nature or character of the borrower's business. Term loans, lasting more than one year but less than five years, are granted against the hypothecation of equipment, inventory, and even real property. The bank considers not only the security but also the expected earnings of the borrower at the time of granting the loan. Consequently, the loan is repaid through the future income of the borrower in installments, rather than in a lump sum at the maturity of the loan.

Theories Related to Profitability

Clark Theory of Profitability

Clark initiates his argument by examining the characteristics of a profit-less economy and contemplating its key features (Siddiqi, 1971). The contrast between a profit-less economy and a profit-generating one reveals significant differences, shedding light on the origins of profit, a strategy also employed by Schumpeter and Knight. The profit-less economy, labeled as a 'static state,' is characterized by constants and immutability, portraying a flawless market without monopolies where entrepreneurial efforts are rewarded akin to management wage levels. In this frictionless environment, perfect mobility and flow exist among economic units, eliminating obstacles to perfect competition (Siddiqi, 1971).

Society in a profit-less economy "acts and lives but does so in a changeless manner" (Siddiqi, 1971). Any alteration in factors such as population and capital triggers tremors in the system, yet the economy adjusts and settles at new equilibriums. Changes in production techniques similarly affect output and prices, causing shifts in equilibrium. The competitive equilibrium dynamics of the free market enable the economy to withstand such changes, gradually returning to a static state. Knight emphasizes that competition has a "tendency to eliminate profit or loss and bring the value of economic goods to equality with their cost" (Knight, 1921). Clark notes that real economies do not instantly buffer these changes due to inherent time lags. Entrepreneurs leverage this frictional delay to seek and capitalize on profit opportunities before equilibrium is restored and absorbs their profits. Profit, in this context, is a transient phenomenon, demanding dynamic efforts from entrepreneurs to identify and exploit opportunities (Siddiqi, 1971).

While Clark's framework portrays economies as constantly evolving, with elements like population, capital, production techniques, and consumer preferences in a perpetual state of change, stability for the entrepreneur lies in staying ahead of these changes, responding swiftly, and planning efforts with market knowledge. Clark asserts that "dynamic forces account today for the existence of an income that static forces have begun to dispose of tomorrow" (Siddiqi, 1971). In Clark's analysis, the primary driver of profit is change, generating a surplus in the market before equilibrium is reached, representing the desired profits of entrepreneurs.

Schumpeter Theory of Profitability

Building on Clark's theory, Schumpeter introduced the 'circular flow model,' depicting a profit-less economy where perfect competition eliminates monopolies and friction surpluses (Siddiqi, 1971). The 'circular flow' economy, as conceptualized by Schumpeter, diverges significantly from Clark's 'static state' model. The disparities between an ideal competitive setting and the reality of economies lay the foundation for understanding the reasons behind profits. Schumpeter takes a more nuanced stance compared to Clark, emphasizing innovation as the central concept, positing that changes stemming from innovation are the primary source of profit (Siddiqi, 1971).

According to Schumpeter, the entrepreneur is essentially an inventor, utilizing innovation to break free from competition and establish a transient monopoly. In this scenario, the entrepreneur can accrue profits until competitors catch up. However, before competitors narrow the gap, the entrepreneur moves on to further innovations in new domains. Schumpeter views the entrepreneur's reward as a functional one, intricately ed to their inventive capacity rather than a surplus value (Siddiqi, 1971). The impact of innovation is profound, leading to waves of creative destruction as new inventories, ideas, technologies, skills, and equipment render old ones obsolete. Schumpeter dismisses the notion of perfect competition, where various enterprises offer similar items at comparable prices using similar procedures, deeming it irrelevant in the face of dynamic innovation (Siddiqi, 1971).

Relationship between Liquidity and Profitability

Liquidity and profitability represent two contrasting concepts in the financial realm, each indispensable yet capable of impeding the other. The interplay between them has been a

focal point for scholars, with a substantial body of literature aimed at unraveling the determinants of banks' financial performance. Recognized as the twin pillars of a financial institution, the absence of either liquidity or profitability impedes the progress of a bank. However, they are often perceived as conflicting, as maintaining liquidity may come at the expense of profitability and vice versa.

The trade-off theory is widely accepted, positing an inherent tension between liquidity and profitability. Nonetheless, some studies challenge this notion and suggest that efficient liquidity management can actually foster a positive relationship with profitability (Wang, 2002). For firms in Japan and Taiwan, aggressive liquidity management was found to enhance operating performance, leading to elevated corporate values in both countries, despite structural and financial system differences (Wang, 2002). Another study affirms the significant reciprocal influence between profitability and liquidity in commercial banks, emphasizing the need for efficient liquidity management to ensure operational prosperity and survival (Adebayo, Olanrewaju, & Samuel, 2011).

The close association between liquidity and profitability is further emphasized, with one impacting the other inversely (Nimer, Warrad, & Omari, 2013). A profitable banking sector, according to the study, is better equipped to withstand negative impacts, contributing to the overall stability of the financial system (Nimer et al., 2013). Rasul's investigation into liquidity management in Islamic banks in Bangladesh highlights the trade-off dilemma between liquidity and profitability. The study found significant relationships between liquidity ratios and various profitability variables, underscoring the nuanced nature of their interaction (Rasul, 2013).

While the ultimate goal for a firm is often seen as maximizing profitability, prudent liquidity conservation is equally crucial. Policies geared toward maximizing profitability may inadvertently compromise liquidity, creating potential challenges for the organization. Efficient liquidity management, as discussed earlier, not only enhances investment efficiency and business operations but also mitigates extra costs arising from liquidity shortages, thereby reducing overall risk. The intricate connection between risk, liquidity, and profitability suggests a potential negative relationship between high liquidity and profitability (Rasul, 2013).

2.2 Conceptual Review

The term "liquidity" in the context of commercial banks denotes their ability to meet obligations as they come due, encompassing lending and investment commitments, withdrawals, deposits, and accrued liabilities (Yan, 2013). The focus on bank liquidity intensified notably after the global financial crisis in 2007, given its significant impact on depositors' rights. Liquidity assumes a pivotal role for both internal and external analysts due to its close association with the day-to-day operations of a business (Bhunia, 2010). A company's cash flow is deemed vital for its operations, and insufficient cash may lead to borrowing or selling assets to meet financial obligations. Cash managers play a key role in monitoring working capital daily and optimizing the company's resources by expediting inflows and managing outflows efficiently.

Banks, driven by the expectations of shareholders for a fair rate of return and employees for attractive salaries, actively strive to maximize profitability. Liquidity and profitability are often likened to two wheels of a cart, indispensable for the bank's progress. Despite appearing antagonistic, maintaining liquidity is viewed as an investment in profitability. Liquid banks, for instance, can attract low-cost deposits, leading to reduced interest expenses and enabling the provision of loans to customers at lower rates, ultimately contributing to higher net profits. Effective strategies are crucial for safeguarding banks from liquidity-related risks, prompting an inquiry into the preparedness of commercial banks in this regard.

The degree of liquidity hinges on the relationship between cash assets, those readily convertible to cash, and liabilities awaiting payment. The definition of liquidity varies globally, evolving with the development of the monetary sector and increased use of monetary instruments (Yan, 2013).

Definition of Liquidity by Basel Committee on Banking Supervision

The ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses, is defined as liquidity by the Basel Committee on Banking Supervision (2008). Liquidity risk, according to this definition, involves the probability of incurring losses due to insufficient liquid resources to fulfill payment obligations within a specified time horizon. It considers the entity's ability to liquidate assets under reasonable time and price conditions. Banks play a crucial role in transforming

short-term deposits into long-term loans, making them inherently susceptible to liquidity risk at both institution-specific and market-wide levels.

A company's lack of cash or liquid assets may lead to missed incentives from credit suppliers, service providers, and goods vendors, potentially resulting in a higher cost of goods and impacting business profitability. Therefore, maintaining a certain degree of liquidity is essential for a company, with no standardized norm as it depends on various factors such as business nature, scale of operations, and location. Stakeholders, including suppliers, employees, and shareholders, are keenly interested in a company's liquidity position. Suppliers assess liquidity before extending credit, employees are concerned about meeting their obligations, and shareholders recognize the impact of liquidity on profitability. Although shareholders may prefer lower liquidity for its positive correlation with profitability, they are also aware that insufficient liquidity can deprive the company of incentives from suppliers, creditors, and bankers.

Liquid VS. Illiquid assets

Liquidity, defined as the ability to convert an asset into cash quickly or the marketability of assets to meet short-term financial obligations, is crucial in financial management (Das, Chowdhury, Das, & Dey, 2015). Assets are classified into two types: liquid and illiquid. Liquid assets can be easily converted into cash in the market, while illiquid assets face challenges in converting to cash quickly. Investors generally prefer liquid assets due to their ease of obtaining funds from investments, making them a safer choice (Das et al., 2015).

Both illiquidity and excess liquidity are considered "financial diseases" that pose a threat to a bank's profit base, impacting its ability to achieve high profitability levels (Adebayo, Olanrewaju, & Samuel, 2011). Efficient liquidity management is essential for a bank to navigate these challenges successfully.

According to Nimer, Warrad, and Omari (2013), liquid assets, often represented by marketable securities, are crucial for liquidity management. Liquid assets should possess the ability to be easily converted into cash to meet liabilities. Additionally, the price stability of liquid assets is a significant characteristic, making them preferable. Bank deposits and short-term securities are considered more liquid than equity investments due to their fixed prices compared to the fluctuating prices of short-term securities (Nimer et al., 2013).

Factors Affecting Liquidity of Commercial Banks

The performance of commercial banks is influenced by a combination of internal and external factors, classified into bank-specific (internal) and macroeconomic variables. Internal factors include profitability, bank size, cost of funding, capital adequacy, deposits, non-performing loans, spreads, and ownership, while external factors encompass elements like GDP, monetary policy, interest rates, interbank funding, unemployment rates, inflation rates, and crises (Abdelmagid, 2020). Key factors affecting liquidity include bank size, with larger banks potentially viewing themselves as "too big to fail," impacting motivation to hold liquid assets and relying on lender-of-last-resort assistance during shortages (Allen & Gale, 2004; Edem, 2017). Poor asset quality, particularly non-performing assets, reduces asset value, elevating liquidity risk and affecting inter-bank transactions (Edem, 2017). Additionally, short-term loans, capital adequacy, interest rates, economic conditions, foreign exchange flows, interbank market conditions, non-performing loans, central bank policies, regulatory requirements, technological infrastructure, customer behavior, and government interventions collectively shape the liquidity dynamics of commercial banks (Greuning & Bratanovic, 2009).

The interplay of these factors reveals a complex relationship between internal and external influences on commercial bank performance and liquidity. The efficiency of a bank's technological infrastructure, for instance, can impact its ability to monitor real-time cash flows, while changes in customer behavior, such as the shift to digital banking, affect transaction volumes (Greuning & Bratanovic, 2009). Government policies and fiscal measures further contribute to the broader economic environment, influencing overall liquidity conditions (Abdelmagid, 2020). These multifaceted interactions underscore the need for banks to navigate both internal decisions and external economic conditions to optimize performance and ensure liquidity in dynamic financial landscapes.

In summary, the intertwined factors of bank-specific characteristics and macroeconomic variables collectively shape the liquidity and performance landscape of commercial banks. The delicate balance between internal decision-making, technological advancements, customer behaviors, and external economic influences highlights the intricate nature of managing liquidity and ensuring sustained profitability for these financial institutions (Abdelmagid, 2020; Greuning & Bratanovic, 2009; Edem, 2017).

Liquidity Management

Liquidity management encompasses the ability to trade various assets at current prices, with a focus on minimizing the risk of failing to meet due obligations. This involves a meticulous analysis of cash inflows and outflows to strike a balance between liquidity and profitability (Bhunia, 2010; Edem, 2017). Liquidity risk is a significant concern for banks, posing the potential threat of being unable to generate sufficient cash flow to meet short-term financial obligations. This risk arises when assets cannot be quickly converted into cash at a reasonable price, leading to financial instability or insolvency. Liquidity risk adversely affects a bank's performance and reputation, as a failure to provide timely funds to depositors erodes confidence and jeopardizes the institution's standing (Jenkinson, 2008). Liquidity risk management is imperative for financial institutions, serving as a safeguard against solvency threats. Striking a balance between liquidity increase and associated opportunity costs is crucial, as excessive liquidity risk can impact banks' profitability and stability (Mwangi et al., 2017). Regulatory authorities, such as Nepal's NRB, play a crucial role in maintaining liquidity levels, imposing requirements like the Cash Reserve Requirement (CRR) to control credit and influence investment portfolios (Gautam, 2016). Effectively managing liquidity risk is paramount for the stability and solvency of commercial banks, ensuring their ability to navigate challenges and thrive in dynamic financial environments.

Effective liquidity management is crucial for the financial health and performance of commercial banks, especially in light of recent changes in the global financial landscape. It involves proactively ensuring that a bank has sufficient cash on hand to meet its financial obligations as they become due, directly impacting its working capital – the difference between current assets and liabilities. Maintaining positive working capital signifies financial health, while negative working capital raises the risk of default (Shrestha, 2018). Proper liquidity management is integral for profit maximization, allowing banks to plan for meeting demand by estimating required depositor funds and avoiding indicators of poor liquidity management, such as falling asset prices and low marketability (Brealey, 2012).

Concept of Profitability in Commercial Banks

Profitability, a fundamental aspect of business performance, is defined as a measure of the surplus generated when a firm's revenues surpass its relevant expenses (Niresh, 2012; Akter & Mahmud, 2014). Entrepreneurs are enticed to invest in businesses due to the potential

for profits, with the primary role of profits being to reward owners for the risks associated with their investments (Adebayo, Olanrewaju, & Samuel, 2011). A low profit margin is indicative of ineffective management, potentially dissuading investor confidence (Adebayo et al., 2011).

Examining financial statements and overall company performance involves considering profitability as one of the key building blocks. Banks, reliant on public deposits, must strategically allocate these funds in profitable sectors to maximize returns on assets, influencing investment decisions, loan grants, and advances. The profitability of banks hinges on factors such as interest rates, loan volume, and loan duration, while also ensuring investment safety from defaults (Das et al., 2015).

Profit planning in banking is acknowledged as a complex and challenging task, involving numerous variables beyond the control of the bank and further complicated in challenging economic environments (Das et al., 2015). Bank profitability is influenced by both internal and external determinants. Internal determinants encompass financial and non-financial variables, including expense management, loan composition, market interest rates, and factors like the number of branches and bank size. External determinants, such as financial regulation, competition, and market conditions, reflect the economic and legal environment impacting financial institutions (Lartey et al., 2013).

Profitability analysis often employs ratios, such as net profit margin (NPM), return on assets (ROA), and return on equity (ROE), and payout ratio (PR) (Brealey, 2012). Return on assets (ROA) and return on equity (ROE) are considered substitute measures for profitability, providing insights into the capacity of a bank's assets to generate profit and the return on shareholders' equity, respectively (Alshatti, 2015). Additionally, return on investment (ROI) is recognized as another metric for evaluating profitability (Saleem & Rehman, 2011).

2.3 Empirical Review

There have been a large number of empirical studies on liquidity profitability analysis of firms around the world. While a very limited number of studies emerge to include liquidity as an explanatory variable for bank profitability or vis-versa (Bordeleau & Graham , 2010). In this study, various theories have been examined to provide awareness for the connection between liquidity and profitability of banks. However, there is not much study found in Nepal. The conclusion of the studies of previous articles, journals and thesis of national

and international levels are reviewed in this regard. In this section, different types of related research studies which have been conducted in the context of Nepal in a more recent period, have been reviewed because change of duplication has been avoided from present study and some new change can be created for achieving the objective.

Rehman and Jannat (2023) investigated the impact of liquidity on the profitability of commercial banks in Afghanistan, filling a research gap in the literature, especially for developing economies. Utilizing five years of data from 12 commercial banks (2016-2020) and employing OLS techniques, the study found that the networking capital ratio had an insignificant effect on Return on Assets (ROA), while the current ratio significantly and positively impacted ROA, specifically for private commercial banks in Afghanistan. These results underscore the substantial influence of liquidity on commercial banks' profitability in Afghanistan. The study suggests that banks should manage operational risk through diversification and prudent control, while regulatory authorities should enhance guidance and support for banks in Afghanistan.

Magar (2022) investigated the impact of liquidity on the profitability of five commercial banks in Nepal over the period 2013-2021. Using credit to deposit ratio, asset quality, and liquidity ratio as liquidity variables and return on assets and net interest margin as profitability indicators, the study revealed a significant negative impact of asset quality on return on assets (ROA) and a positive impact of credit to deposit ratio on net interest margin (NIM).

Ajay and Lawal (2021) investigated the impact of liquidity management on the profitability of five selected Deposit Money Banks in Nigeria over a ten-year period (2009-2018). Utilizing proxies like loan to deposit ratio (LDR), loan to assets ratio (LAR), and liquidity ratio (LR), the study found a negative and significant relationship between LDR and profitability (ROA), a positive and significant relationship between LAR and ROA, and a positive but insignificant relationship between LR and ROA. The study highlighted the importance of effective liquidity management for favorable bank profitability in Nigeria.

Khati (2020) conducted a research study on the impact of liquidity on the profitability of Nepalese commercial banks. Using credit-deposit ratio (CDR), cash-deposit ratio (CADR), and asset quality (AQ) as liquidity indicators and return on equity (ROE) and return on assets (ROA) as proxies for profitability, the study found a negative and significant

relationship between AQ and ROA, while AQ had a positive and significant relationship with ROE.

Dadepo and Afolabi (2020) investigated the influence of liquidity management on the performance of ten selected manufacturing firms in Nigeria from 2012 to 2016. Using secondary data and various liquidity ratios, the study found a negative and significant impact of the current ratio on profitability (ROA), while quick ratio and cash ratios exhibited positive but insignificant relationships with ROA. The study recommended that manufacturing firms in Nigeria focus on effective liquidity management to enhance profitability.

Wuave, Yua, and Yua (2020) explored the impact of liquidity management on the financial performance of five listed banks in Nigeria from 2010 to 2018. Using liquidity ratios (LQR, LDR, CRR, and DR) and financial performance indicators (ROA, ROE, and NIM), the study revealed a positive and significant effect of LQR on bank profitability. The findings emphasized the need for sound governance and risk management systems, incorporating effective liquidity management strategies for Nigerian banks.

Sah and Lertjanyaki (2019) investigated the impact of liquidity management on the financial performance of Nepalese commercial banks. The study found that liquidity ratio (LR) had a significant positive relationship with the market value of financial performance, while the cash reserve ratio (CRR) had a significant negative relationship with market value. Additionally, credit deposit ratio (CDR) and LR exhibited significant negative relationships with book value of financial performance.

Pokharel and Pokhrel (2019) examined the influence of liquidity on the profitability of commercial banks in Nepal. Analyzing data from five commercial banks over the period 2010/11 to 2016/17, the study revealed a zigzag trend in average profitability. Liquidity ratios, including CRR, CBBISD, and IGSCA, exhibited varying correlations with return on assets (ROA) and return on equity (ROE).

Mishra and Pradhan (2019) examined the impact of liquidity management on the profitability of ten private sector banks in India for the period 2013-2017. Using liquidity indicators (CDR, CRDR, IDR) and profitability measures (ROA, ROE), the study found a significant negative effect of CDR and IDR on ROA. However, there was no significant relationship between overall liquidity and banks' profitability in the Indian context.

Mishra (2019) explored the relationship between liquidity and profitability of Nepalese commercial banks over ten fiscal years (2007/08 to 2017/19). Using liquidity measures like current ratio (CR), cash and bank balance to total deposit ratio (CBBTDR), and cash and bank balance to current deposit ratio (CBBCDR), the study observed variations in liquidity positions among sampled banks.

Hussain and Alam (2019) studied the cement industry in Bangladesh, finding a strong negative relationship between the cash conversion cycle and profitability ratios (NPM, ROA, ROE). Liquidity ratios (CR and QR) showed positive relationships with profitability ratios. The study used data from six out of seven cement companies listed on the Dhaka Stock Exchange Ltd for the period 2013-2017.

Tan (2018) investigated liquidity and its relationship with profitability in the banking sector. The study explored conflicting results regarding the impact of the loan to deposit ratio and total liquid funds to total deposit ratio on banks' profitability. While the loan to deposit ratio showed an insignificant negative relationship with ROA, the total liquid funds to total deposit ratio was expected to be positively related to profitability measures such as ROA and ROE.

Shrestha (2018) explored the relationship between liquidity management and profitability of commercial banks in Nepal. Analyzing data with SPSS version 21.0, the study did not find a significant impact of liquidity on profitability in Nepalese commercial banks.

Pradhan and Shrestha (2016) examined the effect of liquidity on the performance of Nepalese commercial banks. Using investment ratio, liquidity ratio, capital ratio, and quick ratio as independent variables and return on equity (ROE) and return on assets (ROA) as dependent variables, the study found positive significant relationships between capital ratio and ROE and negative relationships between liquidity ratios and ROE and ROA.

Ahmad (2016) explored the relationship between liquidity and profitability of Standard Chartered Bank Pakistan. Using liquidity measures (current ratio, quick ratio, net-working capital) and profitability (return on assets), the study suggested a weak positive relationship between liquidity and profitability, emphasizing the importance of focusing on liquidity management for improved profitability.

Kaysher and Rowshonara (2016) identified the relationship between liquidity and profitability in the pharmaceuticals and chemicals sector of Bangladesh. Despite positive

correlations found through correlation analysis, regression analysis revealed no significant association between liquidity and profitability in the sector. The study emphasized the need for comprehensive analysis in specific industries.

Bassey (2016) examined liquidity management and the performance of banks in Nigeria within the period 2000-2010. Investigating the relationship between bank performance and liquidity management using indicators like bank deposit, cash reserve requirement, bank investment, and cash ratio, the study highlighted the significance of efficient liquidity management for successful banking operations.

Alshatti (2015) determined the effect of liquidity management on profitability in Jordanian commercial banks from 2005 to 2012. Using various liquidity indicators and profitability proxies, the study revealed a positive effect of an increase in the quick ratio and investment ratio on profitability, while a negative effect was observed for the capital ratio and liquid assets ratio.

Rehman, Khan, and Khokhar (2015) examined the relationship between liquidity and profitability of companies listed on the Saudi Stock Exchange (Tadawul). Analyzing data from 99 listed companies from 2008 to 2012, the study found a positive significant relationship between return on assets (ROA) and the current ratio (CR), while the relationship with quick ratio (QR) and cash ratio (CHR) was negative but insignificant. Return on equity (ROE) exhibited an insignificant relationship with the selected liquidity ratios.

Akter and Mahmud (2014) explored the relationship between liquidity (current ratio) and profitability (return on assets) in the banking industry in Bangladesh. Analyzing data from twelve banks in four sectors, the study found no significant relationship between liquidity and profitability in individual sectors or the overall banking industry. The study concluded that fluctuations in liquidity and profitability varied across different sectors.

Priya and Nimalathasan (2013) conducted a case study on listed manufacturing companies in Sri Lanka, investigating the relationship between liquidity management and profitability. Utilizing correlation and regression analysis, the study identified significant relationships between liquidity indicators (ISP, CR) and profitability measures (ROA, ROE). The findings emphasized the importance of managing the trade-off between liquidity and profitability for sustainable business growth.

Saleem and Rehman (2011) researched the impacts of liquidity ratios on the profitability of 26 oil and gas companies listed on the Karachi Stock Exchange (KSE) in Pakistan. The study revealed a significant impact of the liquidity ratio on return on assets (ROA) and varying effects on return on equity (ROE) and return on investment (ROI). The findings emphasized the crucial role of liquidity ratios in influencing the financial positions of enterprises.

Eljelly (2004) evaluated the relationship between profitability and liquidity in joint stock companies in Saudi Arabia. The study found a significant negative relation between a firm's profitability and its liquidity level, particularly when measured by the current ratio. Industry-level analysis suggested that the cash conversion cycle was more critical than the current ratio in affecting profitability.

Table 1

Summary of Empirical Review

Author(s)	Objective	Methodology	Findings and Conclusion
Rehman and Jannat (2023)	Investigated the impact of liquidity on the profitability of commercial banks in Afghanistan	The five-year data was collected from 12 commercial banks in Afghanistan from 2016 to 2020. We used OLS techniques for estimation.	The current ratio positively and significantly affects ROA in the case of private commercial banks in Afghanistan. Based on the results, it is concluded that liquidity notably impacts commercial banks' profitability in Afghanistan.
Magar (2022)	Investigated the impact of liquidity on the profitability of five commercial banks in Nepal.	Used credit to deposit ratio, asset quality, and liquidity ratio as liquidity variables.	Revealed a significant negative impact of asset quality on return on assets (ROA) and a positive impact of credit to deposit ratio on net interest margin (NIM).

Ajay and Lawal (2021)	Investigated the impact of liquidity management on the profitability of five selected Deposit Money Banks in Nigeria.	Utilized proxies like loan to deposit ratio (LDR), loan to assets ratio (LAR), and liquidity ratio (LR).	Found a negative and significant relationship between LDR and profitability (ROA), a positive and significant relationship between LAR and ROA, and a positive but insignificant relationship between LR and ROA. Highlighted the importance of effective liquidity management for favorable bank profitability in Nigeria.
Khati (2020)	Conduct a research study on the impact of liquidity on the profitability of Nepalese commercial banks.	Used credit-deposit ratio (CDR), cash-deposit ratio (CADR), and asset quality (AQ) as liquidity indicators.	Found a negative and significant relationship between AQ and ROA. AQ had a positive and significant relationship with ROE.
Dadepo and Afolabi (2020)	Investigated the influence of liquidity management on the performance of ten selected manufacturing firms in Nigeria.	Used secondary data and various liquidity ratios.	Found a negative and significant impact of the current ratio on profitability (ROA). Quick ratio and cash ratios exhibited positive but insignificant relationships with ROA. Recommended effective liquidity management for enhanced profitability.

Wuave, Yua, and Yua (2020)	Explored the impact of liquidity management on the financial performance of five listed banks in Nigeria.	Used liquidity ratios (LQR, LDR, CRR, and DR) and financial performance indicators (ROA, ROE, and NIM).	Revealed a positive and significant effect of LQR on bank profitability. Emphasized the need for sound governance and risk management systems, incorporating effective liquidity management strategies for Nigerian banks.
Sah and Lertjanyaki (2019)	Investigated the impact of liquidity management on the financial performance of Nepalese commercial banks.	Analyzed the relationship between liquidity ratio (LR), cash reserve ratio (CRR), credit deposit ratio (CDR), and financial performance.	Found that liquidity ratio (LR) had a significant positive relationship with the market value of financial performance, while CRR had a significant negative relationship. CDR and LR exhibited significant negative relationships with book value of financial performance.
Pokharel and Pokhrel (2019)	Examined the influence of liquidity on the profitability of commercial banks in Nepal.	Analyzed data from five commercial banks (2010/11 to 2016/17) and liquidity ratios (CRR, CBBISD, and IGSCA).	Revealed a zigzag trend in average profitability. Liquidity ratios exhibited varying correlations with ROA and ROE.
Mishra and Pradhan (2019)	Examined the impact of liquidity management on the	Used liquidity indicators (CDR, CRDR, IDR) and	Found a significant negative effect of CDR and IDR on ROA. No

	profitability of ten private sector banks in India.	profitability measures (ROA, ROE).	significant relationship between overall liquidity and banks' profitability in the Indian context.
Mishra (2019)	Explored the relationship between liquidity and profitability of Nepalese commercial banks over ten fiscal years.	Used liquidity measures like current ratio (CR), cash and bank balance to total deposit ratio (CBBTDR), and cash and bank balance to current deposit ratio (CBBCDR).	Observed variations in liquidity positions among sampled banks.
Hussain and Alam (2019)	Studied the cement industry in Bangladesh. Explore the relationship between the cash conversion cycle and profitability ratios.	Used liquidity ratios (CR and QR) and analyze data from six out of seven cement companies.	Found a strong negative relationship between the cash conversion cycle and profitability ratios (NPM, ROA, ROE). Liquidity ratios (CR and QR) showed positive relationships with profitability ratios.
Tan (2018)	Investigated liquidity and its relationship with profitability in the banking sector.	Examined conflicting results regarding the impact of loan to deposit ratio and total liquid funds to total deposit ratio.	Loan to deposit ratio showed an insignificant negative relationship with ROA, while total liquid funds to total deposit ratio was expected to be positively related to profitability measures such as ROA and ROE.

Shrestha (2018)	Explored the relationship between liquidity management and profitability of commercial banks in Nepal.	Analyzed data with SPSS version 21.0.	Did not find a significant impact of liquidity on profitability in Nepalese commercial banks.
Pradhan and Shrestha (2016)	Examined the effect of liquidity on the performance of Nepalese commercial banks.	Used investment ratio, liquidity ratio, capital ratio, and quick ratio as independent variables.	Found positive significant relationships between capital ratio and ROE, and negative relationships between liquidity ratios and ROE and ROA.
Ahmad (2016)	Explored the relationship between liquidity and profitability of Standard Chartered Bank Pakistan.	Used liquidity measures (current ratio, quick ratio, net-working capital) and profitability (return on assets).	Suggested a weak positive relationship between liquidity and profitability, emphasizing the importance of focusing on liquidity management for improved profitability.
Kaysher and Rowshonara (2016)	Identified the relationship between liquidity and profitability in the pharmaceuticals and chemicals sector of Bangladesh.	Conducted correlation and regression analyses.	Despite positive correlations found, regression analysis revealed no significant association between liquidity and profitability in the sector. Emphasized the need for comprehensive analysis in specific industries.
Bassey (2016)	Examined liquidity management and the performance of	Investigated the relationship between bank	Highlighted the significance of efficient liquidity management for

	banks in Nigeria (2000-2010).	performance and liquidity management using multiple indicators.	successful banking operations.
Alshatti (2015)	Determined the effect of liquidity management on profitability in Jordanian commercial banks.	Used various liquidity indicators and profitability proxies.	Revealed a positive effect of an increase in the quick ratio and investment ratio on profitability. Observed a negative effect for the capital ratio and liquid assets ratio.
Rehman, Khan, and Khokhar (2015)	Investigated the relationship between liquidity and profitability of companies listed on the Saudi Stock Exchange.	Analyzed data from 99 listed companies (2008-2012) and examine current ratio, quick ratio, and cash ratio.	Found a positive significant relationship between ROA and the current ratio, while relationships with quick ratio and cash ratio were negative but insignificant. ROE exhibited an insignificant relationship with the selected liquidity ratios.
Akter and Mahmud (2014)	Examined the relationship between liquidity (current ratio) and profitability (return on assets) in the Bangladeshi banking industry.	Analyzed data from twelve banks in four sectors.	Found no significant relationship between liquidity and profitability at both the sectorial and overall banking industry levels. Concluded that fluctuations varied across different sectors.
Priya and Nimalathasan (2013)	Explored the relationship between liquidity	Utilized correlation and regression analysis	Identified significant relationships between liquidity indicators and

management and profitability in Sri Lankan manufacturing companies.	on liquidity indicators (ISP, CR) and profitability measures (ROA, ROE).	profitability measures, highlighting the importance of managing the trade-off between liquidity and profitability.
Saleem and Rehman (2011)	Investigated the impacts of liquidity ratios on the profitability of oil and gas companies in Pakistan.	Examined the effects of liquidity ratio on ROA, ROE, and ROI.	Revealed a significant impact of the liquidity ratio on ROA, with varying effects on ROE and ROI. Emphasized the crucial role of liquidity ratios in influencing financial positions.
Eljelly (2004)	Examined the relationship between profitability and liquidity in Saudi Arabian joint stock companies.	Analyzed the current ratio and cash conversion cycle.	Found a significant negative relation between a firm's profitability and its liquidity level. Cash conversion cycle was more critical than the current ratio in affecting profitability.

Above literature review concludes that, despite numerous studies about the association between liquidity and profitability of banks, an appropriate theoretical model seems far from being established. The empirical evidence concerning the liquidity impact on the profitability of banks is also inconsistent.

2.4 Research Gap

The literature review highlights several research gaps that underscore the need for a comprehensive investigation into the relationship between liquidity and profitability, especially within the commercial banking sector. Existing studies have mainly explored this relationship in various industries, leaving a notable gap in the understanding of liquidity and profitability dynamics specific to commercial banks (Eljelly, 2004; Saleem &

Rehman, 2011). Furthermore, the inconsistency in findings among previous studies reveals a lack of consensus regarding the nature of the relationship between liquidity and profitability. Some studies advocate for a linear association, while others argue for a non-linear one (Akter & Mahmud, 2014). This inconclusiveness emphasizes the necessity for a more thorough and context-specific examination of liquidity and profitability in the commercial banking context.

In terms of variables, the literature indicates a research gap related to the limited exploration of the impact of liquidity management on profitability, often focusing on a narrow set of liquidity ratios (Mishra & Pradhan, 2019). The current study seeks to address this gap by incorporating a broader array of liquidity ratios over an extended period of 10 years, providing a more comprehensive understanding of the interplay between liquidity and profitability (Wuave, Yua, & Yua, 2020). Methodologically, there is a notable gap in the existing literature, with most studies relying on time series or cross-sectional data to investigate the liquidity-profitability relationship. In contrast, the present study employs a casual comparative research design and descriptive research design, introducing a novel methodological approach to comprehensively explore this relationship (Rehman, Khan, & Khokhar, 2015). Additionally, the literature highlights a geographical research gap, as the majority of studies have been conducted in developed markets, neglecting the representation of emerging markets like Nepal (Magar, 2022). This emphasizes the need for more studies in these regions to understand how unique economic conditions may influence the relationship between liquidity and profitability in commercial banks.

Lastly, the lack of comparative analyses among specific banks, further accentuates the research gap (Ajay & Lawal, 2021). Despite numerous studies on liquidity and profitability, none have undertaken a comparative analysis of these banks, indicating a specific void in the literature that the present study aims to fill. The identified research gap encompasses the need for a more nuanced understanding of the liquidity-profitability relationship within the commercial banking sector. This necessitates considering diverse variables, methodologies, and geographical contexts and addressing the gap in comparative analyses among specific banks.

CHAPTER III
RESEARCH METHODOLOGY

Research methodology encompasses the series of steps undertaken by researchers in examining a problem with specific objectives. This chapter is designed to outline the fundamental framework of the research work, covering aspects such as research design, population and sample, sampling design, nature and source of data, the instrument of data collection, methods of analysis, and the research framework and definition of variables.

3.1 Research Design

The research employs both descriptive and causal research designs. It aims to scrutinize and assess the influence and correlation between liquidity management and the profitability status of six chosen commercial banks in Nepal over a span of 10 years (from 2012/13 to 2021/22), offering recommendations based on the findings. The study utilizes comparative, analytical, and descriptive research designs to meet its objectives. Analysis involves financial tools such as liquidity ratios and profitability ratios, while statistical tools like arithmetic mean, standard deviation, coefficient of variation, coefficient of correlation, and regression analysis are employed to scrutinize facts and articulate the outcomes.

3.2 Population and Sample, and Sampling Design

In this study, the population or universe encompasses all 20 banks of Nepal. Considering the extensive nature of a comparative study involving the entire population, a sample is selected. For this research, only six (6) commercial banks are chosen from the total of 20 commercial banks (Jan, 2024) due to time constraint. The sample banks have been selected on the basis of nature of banks like government banks, private-public banks and joint venture banks. The selected banks are Rastriya Banijya and Agriculture Development as government banks, Nepal SBI and Everest Bank as joint venture bank and Sanim and NIC Asia as private-public banks. The banks have been selected under stratified random sampling technique. Stratified random sampling was used to ensure representation across different types of commercial banks (government, joint venture, private-public), allowing for more accurate insights into the overall banking sector.

3.3 Nature and Sources of Data

The data collected for this study is of a secondary nature, primarily sourced from financial statements or annual reports obtained from the published official records of the relevant

banks. Additional information was gathered from the websites of Nepal Rastra Bank and Nepal Stock Exchange. Furthermore, various libraries, including the Library of Shanker Dev Campus and TU Central Library, contributed to the collection of data and information. Quantitative data spanning the past decade (from 2012/2012 to 2021/2022) forms the basis of this research.

3.4 Instrument of Data

The researcher's involvement was kept minimal in this study, given that the data used is entirely secondary. Liquidity is considered the independent variable, with profitability being the dependent variable. The process of data mining from primary sources is pivotal, and reliance on official websites of relevant banks was emphasized to reduce the potential for errors in data collection. Furthermore, the data underwent cross-verification by auditors and the central bank, ensuring a high degree of accuracy. Analysis of the data was conducted using SPSS Ver. 25 and MS-Excel software.

3.5 Research Framework and Definition of Variables

Theoretical framework is the foundation on which the entire thesis is based. Research frame work for this study is derived from the various articles of literature reviews. This research is comprised the independent variable (liquidity) and the dependent variable (profitability).
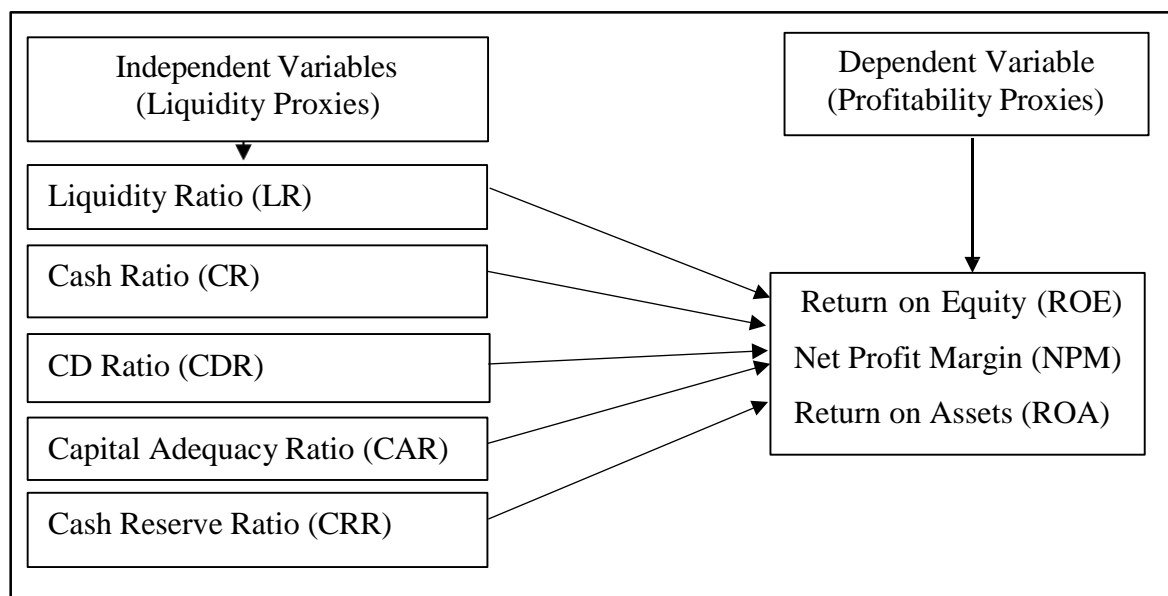
Source: Ajay and Lawal (2021) and Khati (2020)

Figure 1: Theoretical Framework

Definition of Variables

Liquidity ratio (LR)

The liquidity ratio (LR) stands as a pivotal financial metric, crucial for assessing a company's near-term liquidity position by comparing its current assets to current liabilities. It is widely recognized in financial literature that a higher current ratio signifies improved liquidity, indicating an enhanced capacity to meet immediate financial obligations. Scholars like Mwangi, Musau, and Muathe (2017) have underscored the substantial influence of maintaining a robust current ratio on broader profitability metrics, including Return on Assets (ROA) and Return on Equity (ROE) (Mwangi, Musau, & Muathe, 2017).

Cash Ratio (CR)

Transitioning to the cash ratio (CR), this financial metric offers valuable perspectives on the percentage of a company's immediate obligations that can be fulfilled by its cash and cash equivalents. Multiple empirical investigations, including the research conducted by Abdelmagid (2020), underscore the significance of maintaining a robust cash ratio in making a positive contribution to financial stability. This, in turn, exerts an impact on essential profitability metrics such as Return on Assets (ROA) and Return on Equity (ROE) (Abdelmagid, 2020).

CD Ratio (CDR)

The loan-to-deposit ratio, commonly denoted as CD ratio (CDR), is a pivotal metric depicting a bank's allocation of funds between loans and holding liquid assets. Adebayo, Olanrewaju, and Samuel (2011) noted that sustaining an optimal CD ratio is intricately connected to achieving elevated returns, including both Return on Assets (ROA) and Return on Equity (ROE). This underscores the significance of the CD ratio in the banking sector (Adebayo, Olanrewaju, & Samuel, 2011).

Capital Adequacy Ratio (CAR)

Directing our attention to the capital adequacy ratio (CAR), this metric functions as a crucial gauge of a bank's capacity to endure financial distress by evaluating its capital in relation to risk-weighted assets. Significantly, research, such as the work conducted by Allen and Gale (2004), indicates that the maintenance of sufficient capitalization is closely

ed to enhanced profitability metrics, encompassing both Return on Assets (ROA) and Return on Equity (ROE) (Allen & Gale, 2004).

Cash Reserve Ratio (CRR)

The Cash Reserve Ratio (CRR) is a vital regulatory tool employed by central banks to manage liquidity within the banking system. It mandates commercial banks to hold a certain percentage of their deposits as reserves, either in cash or as deposits with the central bank. This reserve requirement directly influences the amount of funds available for banks to lend out to borrowers. Consequently, changes in the CRR can impact a bank's profitability by affecting its ability to generate interest income from loans and investments.

According to research by Hasan et al. (2018), variations in the cash reserve ratio significantly affect banks' profitability. They argue that higher CRR requirements constrain the amount of funds available for lending, potentially reducing interest income and overall profitability for banks. Conversely, a reduction in the CRR may lead to increased lending capacity and higher profitability as banks have more funds to deploy in interest-generating activities.

Return on Equity (ROE)

Another crucial profitability metric is Return on Equity (ROE), which gauges a company's proficiency in generating profits from the investments made by shareholders. Highlighted by Ali and Jameel (2019), the significance of ROE as a pivotal indicator for evaluating the profitability of banks is emphasized, further reinforcing its importance in financial analysis (Ali & Jameel, 2019).

Net Profit Margin (NPM)

Concluding our exploration, the Net Profit Margin (NPM) serves as a crucial metric evaluating the percentage of revenue preserved as net profit. Deloof (2003) asserts that upholding a robust net profit margin is essential for comprehensive profitability, exerting an impact on essential metrics like ROA and ROE (Deloof, 2003).

Return on Assets (ROA)

Transitioning to profitability metrics, the significance of Return on Assets (ROA) emerges as a pivotal gauge of a company's effectiveness in deriving profits from its asset base.

Emphasized by Akter and Mahmud (2014), an optimized ROA is a foundational element influencing a bank's comprehensive profitability (Akter & Mahmud, 2014).

3.6 Methods of Analysis

Data analysis emerges as a pivotal stage in research initiatives, holding substantial sway over the ultimate findings. The varied outcomes, generated through the utilization of financial and statistical tools, are methodically categorized for thorough examination. Two primary types of tools are instrumental in achieving specific research objectives, playing a crucial role in this process:

i) Financial Tools

ii) Statistical Tools

These tools are widely acknowledged for their high dependability in the contemporary research landscape, contributing efficiency, effectiveness, convenience, and reliability to the analysis process. Descriptive statistics employed in this context aim to encapsulate the characteristics of the variables under investigation. Utilizing the SPSS-25 version, comprehensive information regarding each relevant variable is presented through descriptive statistics.

The narrative is shaped by descriptive statistics, which focus on measures of central tendency and variability. Measures of central tendency, including mean, median, and mode, complement measures of variability, which encompass standard deviation or variance, as well as the minimum and maximum variables. Statistical tools, such as correlation and regression models, are utilized for hypothesis testing, guiding the research towards definitive conclusions.

3.6.1 Financial Tools

In conducting thorough financial data analysis, ratio analysis stands out as the most effective tool. It represents a straightforward analytical approach wherein ratios are employed to articulate the relationships between two or more sets of data. Within ratio analysis, various ratios pertaining to banks are scrutinized to ensure a comprehensive evaluation.

1) Liquidity Ratio

The liquidity ratio involves evaluating the relationship between cash assets, quick assets (those readily convertible to cash), and current short-term liabilities or obligations for immediate payment (ICRA Nepal Ltd, 2019). The study incorporates crucial liquidity ratios, outlined as follows:

a. Liquidity ratio

The liquidity ratio serves as a robust gauge of a company's capability to fulfill its short-term obligations, providing insight into its overall short-term financial solvency. It acts as a measure of a firm's liquidity position, elucidating its short-term financial standing. These ratios offer an understanding of whether the company is equipped to meet its immediate obligations. Hence, liquidity ratios are alternatively referred to as short-term solvency ratios. Entities such as short-term creditors and commercial banks are particularly concerned with ascertaining whether the company can meet its short-term obligations promptly when they mature.

$$\text{Liquidity ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

b. Cash Ratio (CR)

This ratio is formulated to assess a bank's capacity to fulfill its immediate obligations, specifically gauging whether its cash and bank balance are adequate to cover current calls, including deposits. The obligation to pay current deposits arises when depositors request their funds. A higher ratio signifies that the bank is highly liquid, while a lower ratio indicates lower liquidity. In earlier studies, such as that conducted by Niresh (2012), CR was utilized as an independent variable. The computation of this ratio involves:

$$Cash\ Ratio = \frac{Cash\ and\ Bank\ Balance}{Current\ Deposit} x100$$

c. CD Ratio (CDR)

CDR, also known as the loan-to-deposit ratio, assesses a bank's capacity to meet financial obligations through deposits. Computed as the total loans divided by total deposits, banks with lower loan-to-deposit ratios generally exhibit higher liquidity. A high ratio suggests

potential liquidity challenges in covering unforeseen fund requirements. This ratio signifies a bank's ability to profitably utilize depositor funds through lending. A greater ratio indicates more effective utilization of total deposits. The recommended CDR ratio falls within the range of 80%-90%. This ratio, employed by researchers such as Magar (2022), Edem (2017), Khati (2020), and Sah & Lertjanyaki (2019), is calculated by dividing loans and advances by total deposits.

$$\text{Credit to Deposit Ratio (CDR)} = \frac{\text{Total loan and Advance}}{\text{Total Deposit}} \, x100$$

d. Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) serves as a regulatory metric evaluating a bank's financial well-being through the comparison of its capital to its risk-weighted assets. This measure is structured to guarantee that banks uphold an ample capital reserve, safeguarding against potential losses stemming from diverse risks, encompassing credit, market, and operational risks.

$$\text{Capital Adequacy Ratio (CAR)} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capiital}}{\text{Risk Weighted Assets}} x100$$

e. Cash Reserve Ratio (CRR)

The Cash Reserve Ratio (CRR) stands as a pivotal instrument in monetary policy utilized by central banks to control liquidity within the financial system. It signifies the percentage of a bank's total deposits required to be held as cash reserves with the central bank. Through modifications to the CRR, central banks wield influence over the money supply, interest rates, and the broader economic activity.

$$\text{Cash Reserve Ratio (CRR)} = \frac{\text{Reserve Requirements}}{\text{Total Deposit}} x100$$

2) Profitability Ratio

Profitability represents the outcome of numerous corporate strategies and decisions, serving as a gauge for how efficiently a firm is managed and operated. Owners and managers are keen on understanding the firm's capacity for profit generation, with owners seeking returns and managers focusing on operational efficiency. Profitability ratios are calculated to assess the firm's performance in this regard. Additionally, creditors are

interested in evaluating the financial soundness of the firm. Commercial banks, in particular, strive for profitability to achieve diverse objectives such as maintaining desirable liquidity, meeting fixed interest obligations, preparing for future contingencies, identifying hidden investment opportunities, and promoting branch expansion. Indeed, profitability ratios serve as the paramount indicator of a bank's overall efficiency.

a. Net Profit Margin (NPM)

The net profit ratio establishes a connection between net profit and operating income, serving the purpose of indicating the overall profitability or efficiency of a bank. A higher net profit ratio is considered favorable, and this metric proves valuable for making inter-firm comparisons of profitability. It aids in assessing the efficiency with which the business is managed. A robust net profit margin empowers a firm to withstand adverse economic conditions, while a low margin implies the opposite. In prior studies, researchers like Lartey, Antwi, & Boadi (2013), Alshatti (2015), Ahmad (2016), and Hussain & Alam (2019) utilized NPM as a dependent variable. The calculation of the net profit margin is as follows:

$$Net\ Profit\ Margin = \frac{Net\ Profit}{Interest\ Income} X\ 100\%$$

b. Return on Assets (ROA)

The return on assets (ROA), often referred to as the firm's return on total assets, assesses the overall efficiency of management in generating profit with the available assets. A higher ROA signifies better operational performance, while a lower ratio suggests the opposite. This metric evaluates the effectiveness of utilizing the total funds provided by owners and creditors. In previous studies, researchers such as Hussain & Alam (2019), Alshatti (2015), Shrestha B. (2018), and Pokharel & Pokhrel (2019) employed ROA as a dependent variable. The calculation of the return on assets is as follows:

$$ROA = \frac{Net\ Income}{Total\ Assets}\ x\ 100\%$$

c. Return on Equity (ROE)

The return on equity (ROE) gauges the return on the owner's investment in the firm, specifically referring to the equity capital deployed by the company, encompassing

common stock, paid-in capital, and retained earnings. A higher ROE is more favorable for the owner. Researchers such as Niresh (2012), Akter & Mahmud (2014), Alshatti (2015), Shrestha B. (2018), Hussain & Alam (2019), and Pokharel & Pokhrel (2019) have utilized ROE as a dependent variable in their studies. The calculation of the return on equity is as follows:

$$ROE = \frac{Net\ Income}{Shareholder's\ Equity}\ X\ 100\%$$

3.6.2 Statistical Tools

Statistical tools measure the data and give the result in numeric form which helps to analyze the data in logical way. The following statistical tools are applied for the study.

Average/ Mean

The average is computed by summing all the numbers across all observations and then dividing by the total number of observations. Essentially, it serves as a representative value for the entire group, typifying all the values within that group.

$$\text{Mean} = \frac{\sum X}{n}$$

Where,

X   =   Number in X-series

n   =   Number of Observations in a sample

Standard Deviation

The standard deviation (σ) serves as an additional gauge of investment risk, providing an absolute measure of dispersion. A smaller standard deviation indicates a lower level of stock risk. Put differently, a reduced standard deviation implies a higher level of consistency and homogeneity within the observations, while a larger standard deviation signifies the opposite. The formula for calculating the standard deviation is as follows:

$$\sigma = \sqrt{\frac{\sum (X - \overline{X})^2}{n}}$$

Where,

σ =   Standard Deviation

X = Number in X-series

X = Mean

n = Number of Observations in a sample

Coefficient of Variation

The coefficient of variation (CV) is another valuable measure of risk, calculated as the standard deviation divided by the expected return. This metric assesses risk per unit of return, offering a more meaningful basis for comparison, especially when the expected returns on two alternatives differ. If investors hold the belief that the rate of return should rise with increasing risk, the coefficient of variation efficiently summarizes the relative trade-off between expected return and risk.

$$CV = \frac{\sigma}{X}$$

Where,

CV = Coefficient of Variation

$\bar{X}$ = Mean

σ = Standard Deviation

Karl Pearson's Coefficient Correlation Analysis

Karl Pearson's Coefficient of Correlation, commonly known as Pearson's coefficient, is one of the widely utilized mathematical methods for measuring correlation. It is extensively employed to assess the degree of relationship between two variables. Two variables are considered correlated when changes in one variable are accompanied by changes in another variable. If an increase (or decrease) in the value of one variable is consistently associated with an increase (or decrease) in the value of another variable, a positive relationship is deemed to exist. Conversely, the relationship is considered negative if an increase (or decrease) in one variable is consistently associated with a decrease (or increase) in the value of another variable. However, the correlation coefficient always remains within the range of +1 to -1 and is denoted by the symbol 'r'. According to Karl Pearson, the formula for the simple correlation coefficient between two variables, X and Y, is given by:

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

Where,

r	:	Correlation between X and Y
n	:	Number of observations in series X and Y
$\sum X$	:	Sum of observations in series X
$\sum Y$	:	Sum of observations in series Y
$\sum X^2$	:	Sum of square observations in series X
$\sum Y^2$	:	Sum of squared observations in series Y
$\sum XY$	:	Sum of product of observations in series X and Y

Regression Analysis

Regression analysis is a statistical technique employed to examine the degree of relationship between a dependent variable and one or more independent variables. It involves two types of variables: dependent and independent. The analysis aims to determine the nature and strength of the relationship between these variables. Essentially, regression serves as a tool for estimating unknown values or predicting one variable based on the known values of other variables. It proves valuable for assessing the strength of relationships, whether between two variables (Simple Regression) or more (Multiple Regression). In Multiple Regression, an extension of Simple Linear Regression, the analysis incorporates two or more independent variables to predict the unknown values of a dependent variable. Despite the inclusion of multiple variables, the fundamental concept in the analysis remains consistent. Multiple regression is defined as a statistical tool used to estimate or predict the most probable value of a dependent variable based on the known values of two or more independent variables. The analysis involves examining the following multiple regression equation.

Multiple Regression Model

ROE= α+ β1LR + β2CR+ β3CDR+ β4CAR+ β5CRR +Ej

NPM= α+ β1LR + β2CR+ β3CDR+ β4CAR+ β5CRR +Ej

ROA= α+ β1LR + β2CR+ β3CDR+ β4CAR+ β5CRR +Ej

Where,

α	=	Constant Term
β	=	Coefficient of Independent Variables
ROE	=	Return on equity
NPM	=	Net profit margin

ROA	=	Return on assets
LR	=	Liquidity ratio
CR	=	Cash Ratio
CDR	=	Credit Deposit Ratio
CAR	=	Capital Adequacy Ratio
CRR	=	Cash Reserve Ratio
Ej	=	Error Terms

CHAPTER IV

RESULTS AND DISCUSSION

The results and discussion section deals with the analytical aspect of the study. The methodology mentioned in chapter 3 have been incorporated to acquire the objectives. Essentially, the descriptive, correlation and regression analysis have been incorporated for analyzing the cause and effect relation between the liquidity and profitability.

4.1 Descriptive Analysis

The descriptive analysis has been conducted for identifying the position of liquidity and profitability of Nepalese commercial banks. The liquidity proxies consist of liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio whereas the profitability proxies are return on equity, net profit margin and return on assets.

Table 2

Position of Liquidity and Profitability

Variables	Min.	Max.	Mean	SD
Liquidity ratio	.42	2.53	1.51	.54
Cash ratio	.09	15.28	4.11	3.67
Credit deposit ratio	49.38	134.43	87.65	17.55
Capital adequacy ratio	2.94	20.41	13.53	2.89
Cash reserve ratio	2.02	36.21	16.01	9.66
Return on equity	5.70	51.20	16.63	6.52
Net profit margin	10.53	71.22	25.00	9.55
Return on assets	.70	3.57	1.69	.57

The Table 2 provides a comprehensive overview of the position of liquidity and profitability for a set of financial variables. Firstly, the liquidity ratio, which measures the ability of a company to meet its short-term obligations, has a minimum of 0.42 and a maximum of 2.53, with a mean of 1.51 and a standard deviation of 0.54. This suggests that, on average, the company has a reasonable level of liquidity, but there is some variability in liquidity across the observed periods.

Similarly, the cash ratio, reflecting the ability to cover immediate liabilities with cash and cash equivalents, shows a wider range with a minimum of 0.09 and a maximum of 15.28.

The mean cash ratio is 4.11, indicating that the company generally holds a substantial amount of cash relative to its short-term obligations. However, the standard deviation of 3.67 indicates significant variability in this measure over time.

Moreover, the credit deposit ratio, measuring the proportion of credit extended to customers relative to deposits held, ranges from 49.38 to 134.43, with a mean of 87.65 and a standard deviation of 17.55. This suggests that the company relies heavily on credit for financing, and the variation in this ratio may be indicative of changing credit policies or market conditions.

Likewise, the capital adequacy ratio, representing the financial institution's ability to cover its risk through capital, ranges from 2.94 to 20.41, with a mean of 13.53 and a standard deviation of 2.89. The findings imply that the company generally maintains a satisfactory capital buffer, although there is some fluctuation in this metric.

Further, the cash reserve ratio, which measures the proportion of deposits kept in reserve, ranges from 2.02 to 36.21. The mean cash reserve ratio is 16.01, with a standard deviation of 9.66. This suggests that the company holds a moderate amount of reserves, but there is notable variability over the observed periods.

Furthermore, return on equity (ROE) has a minimum of 5.70, a maximum of 51.20, a mean of 16.63, and a standard deviation of 6.52. This indicates that the company is generating a satisfactory return for its shareholders, but there is significant fluctuation in this metric.

In addition, the net profit margin, representing the percentage of revenue that translates into profit, ranges from 10.53% to 71.22%, with a mean of 25.00% and a standard deviation of 9.55. The company generally maintains a healthy profit margin, but there is notable variability in profitability over the observed periods.

Eventually, the return on assets (ROA) ranges from 0.70 to 3.57, with a mean of 1.69 and a standard deviation of 0.57. The company, on average, generates a positive return on its assets, but there is variability in performance.

4.2 Correlation Analysis

The correlation analysis Table 3, 4 and 5 provide information on the correlation coefficients between three variables: liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio and profitability (return on equity, net profit margin and return on

assets). Correlation coefficients measure the strength and direction of the linear relationship between two variables. The table shows the correlation coefficients for all possible pairs of the variables, along with their associated p-values, which indicate the statistical significance of the correlations.

Table 3

Relationship between Liquidity and Profitability (ROE)

Variables	LR	CR	CDR	CAR	CRR	ROE
LR	1					
CR	.372**	1				
	0.003					
CDR	-.261*	.339**	1			
	0.044	0.008				
CAR	-0.050	.507**	.491**	1		
	0.702	0.000	0.000			
CRR	0.021	-0.164	-0.177	0.160	1	
	0.871	0.211	0.176	0.223		
ROE	-0.098	-.317*	-.420**	-.270*	0.001	1
	0.458	0.014	0.001	0.037	0.991	

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

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

The Table 3 presents correlation coefficients between Return on Equity (ROE) and various financial variables, shedding light on the relationships between them. The negative correlation between ROE and Liquidity Ratio (LR) is -0.098, suggesting a weak inverse relationship. This implies that as the company's liquidity increases, there is a slight tendency for ROE to decrease. However, the correlation is not statistically significant at the 0.05 level.

A stronger negative correlation is observed between ROE and Cash Ratio (CR) at -0.317, and this correlation is statistically significant at the 0.05 level. This indicates that a higher cash ratio is associated with a lower ROE. Companies with a significant amount of cash relative to their total assets may experience reduced return on equity, potentially due to missed investment opportunities.

Furthermore, the Credit Deposit Ratio (CDR) exhibits a substantial negative correlation of -0.420 with ROE, and this correlation is statistically significant at the 0.01 level. A high credit deposit ratio, indicating a reliance on credit for financing, is ed to lower return on

equity. This suggests that careful management of credit exposure is crucial for maintaining favorable returns for shareholders.

The Capital Adequacy Ratio (CAR) shows a negative correlation of -0.270 with ROE, and this correlation is statistically significant at the 0.05 level. A higher capital adequacy ratio is associated with a lower ROE, suggesting that having more capital as a cushion against risk might impact profitability negatively. Striking the right balance between capital adequacy and return on equity is crucial for sustainable financial performance.

The Cash Reserve Ratio (CRR) displays a very weak positive correlation of 0.001 with ROE, indicating almost no discernible relationship between the two variables. This suggests that the amount of deposits held in reserve has minimal impact on return on equity.

Table 4

Relationship between Liquidity and Profitability (NPM)

Variables	LR	CR	CDR	CAR	CRR	NPM
LR	1					
CR	.372**	1				
	0.003					
CDR	-.261*	.339**	1			
	0.044	0.008				
CAR	-0.050	.507**	.491**	1		
	0.702	0.000	0.000			
CRR	0.021	-0.164	-0.177	0.160	1	
	0.871	0.211	0.176	0.223		
NPM	-.283*	-.614**	-.390**	-0.216	.255*	1
	0.029	0.000	0.002	0.098	0.049	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The Table 4 presents correlation coefficients between Net Profit Margin (NPM) and various financial variables, offering valuable insights into the associations between them. The negative correlation between NPM and Liquidity Ratio (LR) is -0.283, and this correlation is statistically significant at the 0.05 level. This implies that as liquidity increases, there is a moderate tendency for the net profit margin to decrease. While maintaining liquidity is crucial for short-term stability, an excessive focus on liquidity may impact the company's ability to generate higher net profits.

The Cash Ratio (CR) exhibits a stronger negative correlation of -0.614 with NPM, and this correlation is statistically significant at the 0.01 level. This indicates that a higher cash ratio

is associated with a substantial decrease in net profit margin. Companies with a significant portion of their assets in cash may experience reduced profitability, as cash holdings typically yield lower returns compared to income-generating investments.

The Credit Deposit Ratio (CDR) shows a negative correlation of -0.390 with NPM, and this correlation is statistically significant at the 0.01 level. A higher credit deposit ratio, indicative of reliance on credit for financing, is ed to a lower net profit margin. This suggests that careful management of credit exposure is crucial not only for asset efficiency but also for maintaining healthy profit margins.

The Capital Adequacy Ratio (CAR) displays a weaker negative correlation of -0.216 with NPM, although this correlation is not statistically significant. This implies a mild tendency for higher capital adequacy to be associated with a slight decrease in net profit margin. Striking the right balance between maintaining a solid capital cushion and optimizing profitability is essential for sustainable financial performance.

The Cash Reserve Ratio (CRR) exhibits a positive correlation of 0.255 with NPM, and this correlation is statistically significant at the 0.05 level. This suggests that higher levels of deposits held in reserve are associated with a moderate increase in net profit margin. Prudent reserve management may contribute positively to profitability, indicating that a careful balance between reserves and investments can enhance overall financial performance.

Table 5

Relationship between Liquidity and Profitability (ROA)

Variables	LR	CR	CDR	CAR	CRR	ROA
LR	1					
CR	.409**	1				
	0.001					
CDR	-.293*	0.160	1			
	0.023	0.223				
CAR	0.020	.563**	.396**	1		
	0.879	0.000	0.002			
CRR	-0.027	0.083	-0.104	.367**	1	
	0.839	0.528	0.429	0.004		
ROA	0.186	.271*	0.010	.274*	.294*	1
	0.154	0.036	0.937	0.034	0.022	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The Table 5 presents correlation coefficients between Return on Assets (ROA) and various financial variables, offering insights into their relationships. The positive correlation between ROA and Liquidity Ratio (LR) is 0.186, although this correlation is not statistically significant. This suggests a slight tendency for higher liquidity to be associated with a modest increase in return on assets, indicating that maintaining a reasonable level of liquidity may contribute positively to asset efficiency and overall performance.

The Cash Ratio (CR) exhibits a stronger positive correlation of 0.271 with ROA, and this correlation is statistically significant at the 0.05 level. This implies that a higher cash ratio is associated with a notable increase in return on assets. Companies with a significant portion of their assets in cash may experience improved efficiency in generating returns, as cash holdings are more liquid and readily available for investments.

The Credit Deposit Ratio (CDR) shows a negligible positive correlation of 0.010 with ROA, and this correlation is not statistically significant. This indicates that there is little to no discernible relationship between the credit deposit ratio and return on assets. While credit exposure is crucial for financing, this specific metric might not have a substantial impact on overall asset efficiency.

The Capital Adequacy Ratio (CAR) displays a positive correlation of 0.274 with ROA, and this correlation is statistically significant at the 0.05 level. A higher capital adequacy ratio is associated with a notable increase in return on assets, suggesting that maintaining a solid capital cushion may positively impact the efficiency of asset utilization and contribute to improved overall financial performance.

The Cash Reserve Ratio (CRR) exhibits a slightly stronger positive correlation of 0.294 with ROA, and this correlation is statistically significant at the 0.01 level. This implies that higher levels of deposits held in reserve are associated with a significant increase in return on assets. Prudent reserve management appears to contribute positively to the efficiency of asset utilization and overall return on assets.

4.3 Regression Analysis

The provided Tables 6 to 15 represents the results of a multiple linear regression model, which is used to examine the impact of independent variables such as liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio on profitability such as return on equity, net profit margin and return on assets. In addition, the alternative

hypotheses have also been tested with the help of signification value (p-value) of corresponding independent variables.

4.3.1 Impact of Liquidity and Profitability (ROE)

Table 6

Model Summary with Return on Equity

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.489	.239	.168	.31913

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio

Table 6 provides a model summary for predicting Return on Equity (ROE) based on a set of predictors, including the constant term, liquidity ratio, cash ratio, credit deposit ratio, capital adequacy ratio, and cash reserve ratio. The multiple linear regression model demonstrates an overall modest fit, as indicated by the R-squared value of 0.239, signifying that approximately 23.9% of the variance in ROE can be explained by the included predictors. The Adjusted R-squared, which accounts for the number of predictors in the model, is 0.168. The standard error of the estimate is 0.31913, representing the average deviation of actual ROE values from the predicted values. The model's R value of 0.489 indicates a positive correlation between the predictors and ROE. While the model explains a notable proportion of the variability in ROE, there may be room for improvement, and further analysis or refinement of predictors could enhance the model's predictive power.

Table 7

ANOVA with Return on Equity

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.726	5	.345	3.389	.010
	Residual	5.499	54	.102		
	Total	7.225	59			

Dependent Variable: return on equity

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio

Table 7 presents the results of the Analysis of Variance (ANOVA) for the regression model predicting Return on Equity (ROE). The F-value of 3.389 is statistically significant at the

0.010 level. This indicates that there is a significant difference between the variance explained by the model (regression) and the unexplained variance (residual). In other words, the predictors collectively contribute significantly to explaining the variance in ROE. The low probability value (Sig. = 0.010) further supports the rejection of the null hypothesis, suggesting that the observed F-value is not due to chance. This indicates that the overall regression model, incorporating the constant term and various financial ratios, is statistically significant in predicting changes in Return on Equity.

Table 8

Impact of Liquidity and Profitability (ROE)

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
1 (Constant)	6.239	1.107	5.634	.000
Liquidity ratio	-.131	.119	-1.101	.276
Cash ratio	-.031	.039	-.805	.424
Credit deposit ratio	-.759	.258	-2.939	.005
Capital adequacy ratio	.031	.202	.155	.878
Cash reserve ratio	-.049	.064	-.764	.448

Dependent Variable: return on equity

Table 8 outlines the impact of liquidity and profitability variables on Return on Equity (ROE) through a multiple linear regression model. The constant term (6.239) is statistically significant at the 0.000 level, suggesting that even when all predictors are zero, there is a significant intercept, indicating a positive baseline for ROE. Analyzing the individual predictors, the liquidity ratio has an unstandardized coefficient of -0.131, but it is not statistically significant (Sig. = 0.276), suggesting that changes in the liquidity ratio do not have a significant impact on ROE. Similarly, the cash ratio with a coefficient of -0.031 is not statistically significant (Sig. = 0.424). In contrast, the credit deposit ratio has a significant negative impact on ROE, as evidenced by its coefficient of -0.759 and a significance level of 0.005. This implies that an increase in the credit deposit ratio is associated with a decrease in ROE. The capital adequacy ratio and cash reserve ratio, with coefficients of 0.031 and -0.049 respectively, are not statistically significant (Sig. = 0.878 and 0.448), indicating that changes in these ratios do not have a significant impact on ROE. In summary, the credit deposit ratio emerges as a significant predictor, suggesting that managing credit exposure is crucial for optimizing Return on Equity.

4.3.2 Impact of Liquidity and Profitability (NPM)

Table 9

Model Summary with Net Profit Margin

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692	.479	.431	.26513

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy
ratio and cash reserve ratio

Table 9 provides a model summary for predicting Net Profit Margin (NPM) based on a set
of predictors, including the constant term, liquidity ratio, cash ratio, credit deposit ratio,
capital adequacy ratio, and cash reserve ratio. The multiple linear regression model
demonstrates a strong overall fit, as indicated by the R-squared value of 0.479, suggesting
that approximately 47.9% of the variance in NPM can be explained by the included
predictors. The Adjusted R-squared, accounting for the number of predictors, is 0.431. The
standard error of the estimate is 0.26513, representing the average deviation of actual NPM
values from the predicted values. The model's R value of 0.692 indicates a positive
correlation between the predictors and NPM. This suggests that the included financial
ratios, when combined, are effective in explaining a significant proportion of the variability
in Net Profit Margin, indicating the model's potential usefulness in predicting and
understanding factors influencing profitability.

Table 10

ANOVA with Net Profit Margin

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.492	5	.698	9.936	.000
	Residual	3.796	54	.070		
	Total	7.288	59			

Dependent Variable: net profit margin

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy
ratio and cash reserve ratio

Table 10 presents the results of the Analysis of Variance (ANOVA) for the regression
model predicting Net Profit Margin (NPM). The F-value of 9.936 is statistically significant
at the 0.000 level. This indicates a significant difference between the variance explained by
the model (regression) and the unexplained variance (residual). In other words, the

predictors collectively contribute significantly to explaining the variance in NPM. The low probability value (Sig. = 0.000) further supports the rejection of the null hypothesis, suggesting that the observed F-value is not due to chance. This indicates that the overall regression model, including the constant term and various financial ratios, is statistically significant in predicting changes in Net Profit Margin. The model's strong F-value underscores its effectiveness in explaining the variability in NPM and suggests that the included financial ratios play a significant role in influencing profitability.

Table 11

Impact of Liquidity and Profitability (NPM)

| | Unstandardized Coefficients | | | |
Model	B	Std. Error	t	Sig.
1 (Constant)	5.130	.920	5.576	.000
Liquidity ratio	-.139	.099	-1.402	.167
Cash ratio	-.120	.032	-3.737	.000
Credit deposit ratio	-.576	.215	-2.685	.010
Capital adequacy ratio	.239	.168	1.424	.160
Cash reserve ratio	.041	.054	.761	.450

Dependent Variable: net profit margin

Table 11 presents the impact of liquidity and profitability variables on Net Profit Margin (NPM) through a multiple linear regression model. The constant term (5.130) is statistically significant at the 0.000 level, indicating a positive baseline for NPM even when all predictors are zero. Examining the individual predictors, the liquidity ratio has an unstandardized coefficient of -0.139, but it is not statistically significant (Sig. = 0.167), suggesting that changes in liquidity may not have a significant impact on NPM. In contrast, the cash ratio has a significant negative impact, with a coefficient of -0.120 and a significance level of 0.000, implying that a higher cash ratio is associated with a significant decrease in NPM. The credit deposit ratio exhibits a negative impact as well, with a coefficient of -0.576 and a significance level of 0.010, indicating that higher reliance on credit for financing is associated with a decrease in NPM. The capital adequacy ratio and cash reserve ratio, with coefficients of 0.239 and 0.041 respectively, are not statistically significant (Sig. = 0.160 and 0.450), suggesting that changes in these ratios may not have a significant impact on NPM. In summary, the findings suggest that maintaining an optimal

cash ratio and managing credit exposure are crucial for preserving a healthy Net Profit Margin, which is essential for overall profitability.

4.3.3 Impact of Liquidity and Profitability (ROA)

Table 12

Model Summary with Return on Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.405	.164	.086	.54176

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio

Table 12 presents a model summary for predicting Return on Assets (ROA) based on a set of predictors, including the constant term, liquidity ratio, cash ratio, credit deposit ratio, capital adequacy ratio, and cash reserve ratio. The multiple linear regression model demonstrates a modest fit, as indicated by the R-squared value of 0.164, suggesting that approximately 16.4% of the variance in ROA can be explained by the included predictors. The Adjusted R-squared, accounting for the number of predictors, is 0.086. The standard error of the estimate is 0.54176, representing the average deviation of actual ROA values from the predicted values. The model's R value of 0.405 indicates a positive correlation between the predictors and ROA. While the model explains a portion of the variability in ROA, there may be room for improvement, and further analysis or refinement of predictors could enhance the model's predictive power for Return on Assets.

Table 13

ANOVA with Return on assets

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.106	5	.621	2.117	.007
	Residual	15.849	54	.294		
	Total	18.956	59			

Dependent Variable: return on assets

Predictors: (Constant), liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio and cash reserve ratio

Table 13 presents the results of the Analysis of Variance (ANOVA) for the regression model predicting Return on Assets (ROA). The F-value of 2.117 is not statistically significant at the conventional 0.05 level, with a significance level (Sig.) of 0.007. This

suggests that the variance explained by the model (regression) is significantly different from the unexplained variance (residual). The significant F-value indicates that the predictors, including the constant term and various financial ratios, do collectively contribute significantly to explaining the variance in Return on Assets. In practical terms, the model might be sufficiently robust in predicting changes in ROA, and further investigation or refinement of predictors may be necessary for a more effective model.

Table 14

Impact of Liquidity and Profitability (ROA)

| | Unstandardized Coefficients | | | |
Model	B	Std. Error	t	Sig.
1 (Constant)	.842	.581	1.450	.153
Liquidity ratio	.147	.157	.936	.353
Cash ratio	.021	.027	.785	.436
Credit deposit ratio	.001	.005	.131	.896
Capital adequacy ratio	.018	.036	.499	.620
Cash reserve ratio	.015	.008	1.784	.080

Dependent Variable: return on assets

Table 14 presents the impact of liquidity and profitability variables on Return on Assets (ROA) through a multiple linear regression model. The constant term (.842) is not statistically significant (Sig. = 0.153), indicating that, when all predictors are zero, there is no significant baseline for ROA. Analyzing the individual predictors, the liquidity ratio has a positive unstandardized coefficient of .147, but it is not statistically significant (Sig. = 0.353), suggesting that changes in liquidity may not have a significant impact on ROA. Similarly, the cash ratio with a coefficient of .021 is not statistically significant (Sig. = 0.436). The credit deposit ratio has an almost negligible impact with a coefficient of .001, and it is not statistically significant (Sig. = 0.896), indicating that this ratio may not significantly influence ROA. The capital adequacy ratio, with a coefficient of .018, is also not statistically significant (Sig. = 0.620). However, the cash reserve ratio has a positive impact with a coefficient of .015, and while it is not statistically significant at the conventional 0.05 level (Sig. = 0.080), it approaches significance. In summary, the findings suggest that the liquidity and profitability variables included in the model might not have a significant collective impact on Return on Assets, and further analysis or consideration of additional factors may be necessary for a more comprehensive understanding of ROA determinants.

Table 15

Summary of Research Hypotheses

Alternative Hypotheses (Based on Correlation Analysis)	P-value	Remarks
H1: There is a significant relationship between liquidity ratio and return on equity.	.458	Rejected
H2: There is a significant relationship between cash ratio and return on equity.	.014	Accepted
H3: There is a significant relationship between credit deposit ratio and return on equity.	.001	Accepted
H4: There is a significant relationship between capital adequacy ratio and return on equity.	.037	Accepted
H5: There is a significant relationship between cash reserve ratio and return on equity.	.001	Rejected
H6: There is a significant relationship between liquidity ratio and net profit margin.	.029	Accepted
H7: There is a significant relationship between cash ratio and net profit margin.	.000	Accepted
H8: There is a significant relationship between credit deposit ratio and net profit margin.	.002	Accepted
H9: There is a significant relationship between capital adequacy ratio and net profit margin.	.098	Rejected
H10: There is a significant relationship between cash reserve ratio and net profit margin.	.049	Accepted
H11: There is a significant relationship between liquidity ratio and return on assets.	.154	Rejected
H12: There is a significant relationship between cash ratio and return on assets.	.036	Accepted
H13: There is a significant relationship between credit deposit ratio and return on assets.	.0937	Rejected
H14: There is a significant relationship between capital adequacy ratio and return on assets.	.034	Accepted
H15: There is a significant relationship between cash reserve ratio and return on assets.	.022	Accepted

4.4 Discussion

The findings of this study resonate with several empirical reviews, reinforcing the complex relationships between financial variables and key performance metrics. In correlation analysis, the study highlights the significance of maintaining an optimal balance in liquidity, credit exposure, and capital adequacy for achieving favorable returns on equity (ROE), aligning with observations made by Adebayo, Olanrewaju, and Samuel (2011). Adebayo et al. stressed the importance of an optimal loan-to-deposit ratio (CD ratio) for higher returns, consistent with the study's observations.

Moreover, the study's correlation analysis on Net Profit Margin (NPM) mirrors the importance of balancing liquidity, credit exposure, capital adequacy, and reserve management to optimize profitability, consistent with Abdelmagid's (2020) emphasis on a healthy cash ratio for improved financial stability and profitability. Abdelmagid's insights on the positive influence of a healthy cash ratio align with the study's correlation analysis findings.

Transitioning to the regression analysis, the study's identification of a significant negative impact of the credit deposit ratio on ROE aligns with the insights provided by Adebayo, Olanrewaju, and Samuel (2011), emphasizing the role of CD ratio in influencing returns. The study's findings corroborate with Adebayo et al.'s perspective on the significance of maintaining an optimal CD ratio for higher returns.

However, the finding of a negative impact of a higher cash ratio on NPM contrasts with Abdelmagid's (2020) assertion regarding the positive influence of a healthy cash ratio on financial stability and profitability. Abdelmagid's perspective on the positive impact of a healthy cash ratio differs from the study's regression analysis findings on NPM.

Regarding Return on Assets (ROA), the study's observation of the modest explanatory power of the overall model suggests that the selected liquidity and profitability variables may not collectively account for a substantial portion of the variance in asset returns. This finding diverges from the perspectives presented by Akter and Mahmud (2014) and Ali and Jameel (2019), who highlighted the significance of liquidity, cash reserves, capital adequacy, and credit exposure in optimizing asset efficiency and achieving favorable returns on assets.

CHAPTER V
SUMMARY AND CONCLUSION

The summary and conclusion section illustrate the summary of all study including the objective, methodology, findings and conclusion. At the end, the findings' implication have been provided.

5.1 Summary

The primary objective of this study is to gain a comprehensive understanding of liquidity management and profitability in Nepalese commercial banks. The specific objectives encompass analyzing the position of liquidity and profitability, examining the relationship between liquidity (liquidity ratio, cash ratio, cash deposit ratio, capital adequacy ratio, and cash reserve ratio), and profitability (return on equity, net profit margin, and return on assets), as well as assessing the impact of liquidity on profitability. The study faces limitations, including a focus on only six out of approximately 20 commercial banks, thereby not fully representing the entire sector. The data spans a decade, from fiscal year 2012/13 to 2021/22, relying on secondary data sources like financial statements and annual reports. The research design employs both descriptive and causal approaches, utilizing comparative, analytical, and descriptive research designs. The population comprises all 20 banks in Nepal, with a sample of six commercial banks chosen through stratified random sampling. Data, primarily secondary, was sourced from official records, Nepal Rastra Bank, Nepal Stock Exchange, and various libraries. The study maintains a hands-off approach with minimal researcher intervention, considering liquidity as the independent variable and profitability as the dependent variable. The use of SPSS Ver. 25 and MS-Excel software facilitates data analysis. Despite limitations, the study provides valuable insights into the multifaceted dynamics of liquidity management and its impact on the profitability of Nepalese commercial banks over the specified period.

The study sheds light on the intricate dynamics of liquidity management and its impact on profitability within Nepalese commercial banks. Notably, the findings reveal that these banks generally maintain a reasonable level of liquidity to meet short-term obligations, with a tendency to hold a substantial amount of cash relative to immediate liabilities. The reliance on credit for financing is evident, emphasizing the common practice of extending credit to customers. Despite fluctuations, the banks maintain a satisfactory capital buffer.

Financial metrics such as return on equity (ROE), net profit margin (NPM), and return on assets (ROA) reflect a generally healthy financial landscape, though subject to variations over time. The correlation analysis underscores the importance of striking a balance in liquidity, credit exposure, and capital adequacy for favorable ROE, emphasizing the complex nature of financial decision-making. The regression analysis provides intriguing insights into the factors influencing key financial performance metrics, revealing the significance of credit deposit ratio and cash ratio in shaping ROE and NPM. Overall, the study's comprehensive examination contributes valuable insights for both practitioners and scholars in understanding the nuanced interplay between liquidity management and profitability in Nepalese commercial banks.

5.2 Conclusion

The liquidity ratio portrayed a generally reasonable liquidity position among the banks, with noticeable fluctuations over different periods. The cash ratio highlighted a tendency to maintain a substantial cash reserve relative to immediate liabilities, emphasizing a strategic focus on ensuring financial liquidity. The reliance on credit for financing, as indicated by the credit deposit ratio, demonstrated a common practice among Nepalese banks. The capital adequacy ratio suggested satisfactory capital buffers, subject to market-induced fluctuations. The cash reserve ratio showcased moderate reserve levels with observable variability. Return on equity exhibited satisfactory performance in generating returns for shareholders, albeit with fluctuations indicating the dynamic nature of the banking sector. Net profit margin reflected generally healthy profitability trends with variations over time, while return on assets underscored a positive average return, showcasing overall financial stability amid performance fluctuations. The complex positioning of these variables highlighted the multifaceted and dynamic financial landscape within Nepalese commercial banks.

The correlation analysis brought forth nuanced relationships between return on equity (ROE) and various financial variables. While some correlations were statistically significant, the practical implications emphasized the importance of maintaining an optimal balance in liquidity, credit exposure, and capital adequacy to achieve favorable returns on equity. The correlations between net profit margin (NPM) and financial variables underscored the need to strike a balance between liquidity, credit exposure, capital adequacy, and reserve management for profitability optimization. Similarly, the

correlations involving return on assets (ROA) highlighted the importance of maintaining equilibrium in liquidity, cash reserves, capital adequacy, and credit exposure for asset efficiency and favorable returns.

The regression analysis explored deeper into the relationships between liquidity and profitability variables and key financial performance metrics. For return on equity (ROE), the model revealed a significant negative impact of the credit deposit ratio, indicating that a higher reliance on credit for financing is associated with decreased return on equity. Conversely, for net profit margin (NPM), a higher cash ratio had a significant negative impact, suggesting that maintaining a substantial portion of assets in cash may negatively influence profitability. The overall model for return on assets (ROA) displayed modest explanatory power, indicating that the selected liquidity and profitability variables may not collectively account for a substantial portion of the variance in asset returns.

5.3 Implications

Practical Implications

The study's findings hold significant practical implications for Nepalese commercial banks and the broader financial sector. The insights into liquidity management and profitability dynamics offer practical guidance for banks in optimizing their financial performance. Banking executives can use this knowledge to fine-tune their strategies, striking a balance between liquidity, credit exposure, and capital adequacy to enhance return on equity (ROE) and overall profitability. Furthermore, the study's emphasis on the importance of maintaining optimal cash reserves and managing credit risk provides actionable insights for risk management practices within the industry.

Theoretical Implications

Theoretical implications of this research extend to the academic realm by contributing to the existing body of knowledge on the intricate relationships between liquidity and profitability metrics. The study refines and expands theoretical frameworks related to financial management, offering a nuanced understanding of how specific liquidity ratios impact return on equity (ROE), net profit margin (NPM), and return on assets (ROA) in the context of Nepalese commercial banks. Scholars and researchers can build upon these theoretical foundations, fostering ongoing discussions and exploration of the multifaceted dynamics within financial institutions.

Future Scope

For future research, the study provides a springboard for further exploration into the evolving landscape of liquidity and profitability in the Nepalese banking sector. Future studies could delve deeper into specific aspects such as the impact of regulatory changes, external economic factors, or technological advancements on liquidity and profitability dynamics. Additionally, longitudinal studies covering an extended timeframe may uncover trends and patterns that emerge over the years, contributing to a more comprehensive understanding of the factors influencing financial performance in Nepalese commercial banks. Exploring the applicability of the study's insights in the context of emerging financial technologies (fintech) and their influence on liquidity and profitability could also be a promising avenue for future research.

REFERENCES

Abdelmagid, T. M. (2020). The impact of liquidity management on the profitability of commercial banks: Empirical evidence from Egypt. *International Journal of Economics, Commerce and Management, 8*(4), 38-54.

Adalsteinsson, G. (2014). The liquidity risk management guide: From policy to pitfalls. John Wiley & Sons, Incorporated.

Adebayo, O., Olanrewaju, A., & Samuel, O. O. (2011). Liquidity management and commercial banks' profitability in Nigeria. *Research Journal of Finance and Accounting, 2*(7/8), 24-39.

Adebayo, T., Olanrewaju, A., & Samuel, Y. (2011). Determinants of bank profitability in Nigeria. *International Journal of Business and Social Science, 2*(22), 99-108.

Ahmad, R. (2016). A study of relationship between liquidity and profitability of Standard Chartered Bank Pakistan: Analysis of financial statement approach. *Global Journal of Management and Business Research: C Finance, 16*(1), 445-469.

Ajay, J. A., & Lawal, Q. A. (2021). Effect of liquidity management on bank performance. *Izvestiya Journal of Varna University of Economics*. doi:10.36997/IJUEV2021.65.2.220

Akter, N., & Mahmud, K. (2014). Determinants of profitability of commercial banks in Bangladesh. *International Journal of Economics, Finance and Management Sciences, 2*(3), 163-169.

Ali, M., & Jameel, A. (2019). Impact of working capital management on profitability of the banking sector in Pakistan. *Journal of Finance and Accounting, 7*(1), 1-12.

Allen, F., & Gale, D. (2004). Competition and financial stability. *Journal of Money, Credit and Banking, 36*(3), 453-480.

Alshatti, A. S. (2015). The effect of liquidity management on profitability in the Jordanian commercial banks. *International Journal of Business and Management, 10*(1). doi:10.5539/ijbm.v10n1p62

Alzorqan, S. S. (2014). The impact of non-performing loans on profitability of Jordanian commercial banks. *International Journal of Economics, Commerce and Management, 2*(9), 1-13.

Barad, M. M. (2010). A study of liquidity management of Indian Steel Industry.

Baral, K. J. (2005). Health Check-up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal. *The Journal of Nepalese Business Studies, 2*(1), 553-569.

Basel Committee on Banking Supervision. (2008). Principles for Sound Liquidity Risk Management and Supervision.

Bhandari, D. (2013). Bank and Insurance Principles & Practice. Kathmandu: Aayush Publication.

Bhunia, A. (2010). A study of liquidity trends on private sector steel companies in India. *Asian Journal of Management Research Online Open Access Publishing Platform for Management Research, 9*(1), 109-123.

Bordeleau, E., & Graham, L. (2010). Liquidity risk management: A practitioner's perspective. Wiley.

Brahma, S., & Bhunia, A. (2011). Importance of liquidity management on profitability of private sector steel companies in India. *Asian Journal of Business Management, 3*(2), 108-117.

Brealey, R. A. (2012). Principles of Corporate Finance. Tata McGrawHill Education.

Casu, B., Girardone, C., & Molyneux, P. (2006). Introduction to Banking. Harlow, England: Pearson Education Limited.

Chowdhury, M., & Zaman, S. (2018). Effect of liquidity risk on performance of Islamic banks in Bangladesh. *IOSR Journal of Economics and Finance (IOSR-JEF), 9*(4), 01-09. doi:10.9790/5933-0904010109

Clark, J. B. (1908). The distribution of wealth: A theory of wages, interest and profits.

Dadepo, A. O., & Afolabi, O. F. (2020). Impact of liquidity management on profitability of selected manufacturing firms in Nigeria. *European Journal of Business and Management, 12*(27). doi:10.7176/EJBM/12-27-11

Das, B. C., Chowdhury, M., Das, M., & Dey, N. K. (2015). Liquidity management and profitability analysis of private commercial banks in Bangladesh. *International Journal of Economics, Commerce and Management, United Kingdom, 3*(1), 1-34.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting, 30*(3-4), 573-587.

Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy, 105*(91), 401-419.

Dzapasi, F. D. (2020). The impact of liquidity management on bank financial performance in a subdued economic environment: A case of the Zimbabwean banking industry. *PM World Journal, 9*(10), 1-20.

Edem, D. B. (2017). Liquidity management and performance of deposit money banks in Nigeria (1986 – 2011): An investigation. *International Journal of Economics, Finance and Management Sciences, 5*(3), 2326-9553. doi:10.11648/j.ijefm.20170503.13

Eljelly, A. M. (2004). Liquidity-profitability tradeoff: An empirical investigation in an emerging market. *International Journal of Commerce and Management,* 55.

Gautam, R. (2016). The determinants of banks liquidity: Empirical evidence on Nepalese commercial banks. *The BATUK: Journal of Interdisciplinary Studies, 2*(2).

Greuning, H. V., & Bratanovic, S. B. (2009). Analyzing Banking Risk: A Framework for Assessing Corporate Governance and Risk Management. (3rd edition). The World Bank. doi:10.1596/978-0-8213-7728-4

Hawley, F. B. (1907). Enterprise and the Productive Process: A Theory of Economic Productivity Presented from the Point of View of the Entrepreneur and Based upon Definitions, Secured through Deduction (and Presumably, Therefore, Precise and Fial).

Hussain, I., & Alam, J. (2019). The relationship between liquidity and profitability in emerging countries: Evidence from Bangladesh. *Journal of Finance and Accounting, 7*(4), 44-56.. doi:DOI:10.12691/jfa-7-1-4

Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, 37-48. Retrieved from www.aripd.org/jfbm

Isayas, Y. N. (2022). Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. *Journal of Finance and Bank Management*, 10(1), 1-15.

Jenkinson, N. (2008). Strengthening regimes for controlling liquidity risk: Some lessons from the recent turmoil. Quarterly Bulletin.

Kaysher, H., & Rowshonara, A. A. (2016). Liquidity and profitability trade-off in Pharmaceuticals and Chemicals Sector of Bangladesh. *International Journal of Science and Research (IJSR), 5*(9), 420-423. doi:DOI: 10.21275/ART20161385

Keynes, J. M. (1936). General theory of employment, interest, and money.

Khasharmeh, H. (2018). Does liquidity influence profitability in Islamic banks of Bahrain: An empirical study? *International Journal of Financial Research, 9*, (2). doi:doi:10.5430/ijfr.v9n2p236

Khati, P. (2020). Impact of liquidity on profitability of Nepalese Commercial. IOSR *Journal of Economics and Finance (IOSR-JEF), 11*(5/1), 26-33. doi:DOI: 10.9790/5933-1105012633

Knight, F. H. (1921). Risk, Uncertainty and Profit. In F. H. Knight. Boston: federal Reserve Bank of st.lu.

Kumar, S., & Yadav, S. (2023). Liquidity management and commercial banks' profitability. *International Research Journal of Finance and Economics*, *5*(8), 226-241.

Lartey, V. C., Antwi, S., & Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in Ghana. *International Journal of Business and Social Science, 3*.

Magar, K. R. (2022). Impact of liquidity on profitability of commercial banks in Nepal. *International Business & Economics Research Journal, 10*(8), 1261-1274.

Marozva, G. (2015). Liquidity and bank performance. *International Business & Economics Research Journal, 14*(3), 453-462. doi:10.19030/iber.v14i3.9218

Mishra, R. (2019). Relationship between liquidity and profitability of commercial banks in Nepal. *Patan Pragya, 5*(1), 143–153.

Mwangi, L., Musau, S., & Muathe, S. (2017). Effect of financial inclusion on liquidity risk of commercial banks in Kenya. *International Journal of Economics and Finance, 6*(12).

Mwangi, W., Musau, S., & Muathe, S. (2017). Influence of financial leverage on the relationship between working capital management and financial performance of firms listed at the Nairobi Securities Exchange. *European Journal of Business Management, 9*(10), 143-157.

Nimer, M. A., Warrad, L., & Omari, R. A. (2013). The impact of liquidity on Jordanian banks profitability through return on assets.

Ojha, P. R. (2018). Macroeconomics and bank-specific factors affecting liquidity: A study of Nepali commercial bank. *Journal of Business and Social Sciences (JBSS)*, 79-87.

Pokharel, S. P., & Pokhrel, B. P. (2019). Impact of liquidity on profitability in Nepalese Commercial Bank. *Patan Pragya, 5*(1). doi:10.3126/pragya.v5i1.30458

Pradhan, R. S., & Shrestha, D. (2016). Impact of liquidity on bank profitability in Nepalese commercial bank. Retrieved from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3044041

Priya, K., & Nimalathasan, B. (2013, August). Liquidity management and profitability: A case study of listed manufacturing companies in Sri Lanka. *International Journal of Technological Exploration and Learning (IJTEL)*, 161. doi:ISSN:2319-2135

Prochanow, H. V. (1944). Banking principles and practices. Prentice-Hall.

Rasul, L. M. (2013). Impact of liquidity on Islamic banks' profitability: Evidence from Bangladesh. *Acta Universitatis Danubius, 9*(2). Retrieved from: https://journals.univ-danubius.ro

Rehman, M. U., & Jannat, Z. (2023). The effect of liquidity on the banks' profitability: empirical evidence from the commercial banks of Afghanistan. *Liberal Arts and Social Sciences International Journal (LASSIJ), 7*(1), 172-186.

Rehman, M. Z., Khan, M. N., & Khokhar, I. (2015). Investigating liquidity-profitability relationship. *Journal of Applied Finance & Banking, 5*(3), 159-173.

Rochet, J. C. (2008). Liquidity regulation and the lender of last resort. Banque de France. *Financial Stability Review – Special issue on liquidity, 11*, 45-57. Retrieved from: https://www.researchgate.net/publication/227369879

Rose, P. S. (2002). Commercial bank management (3rd ed.). Boston: Irwin-McGraw-Hill Publishing. (p. 347).

Sah, S., & Lertjanyaki, D. (2019). Liquidity management and financial performance of Nepalese commercial banks. *Journal of Applied Finance & Banking, 2*(1), 78-87. Retrieved from: https://www.nepjol.info/index.php/njmsr/article/download/36870/28698/106591

Saleem, Q., & Rehman, R. U. (2011, July). Impacts of liquidity ratios on profitability (Case of oil and gas companies of Pakistan). *Interdisciplinary Journal of Research in Business, 1*(7), 95-98. Retrieved from: https://www.academia.edu/

Shrestha, B. (2018). Liquidity management and profitability of commercial banks in Nepal. *International Journal of Management and Applied Science*, 13-17. Retrieved from: https://www.digitalxplore.org/up_proc/pdf/375-152999285413-17.pdf

Shrestha, B. P. (2012). Liquidity-association of commercial banks in Nepal. *People's Journal of Management, 1*(1), 1-8.

Shrestha, S., & Jha, U. K. (2020). Impact of liquidity on profitability of joint venture commercial banks in Nepal (With reference to EBL, HBL, and NBB). LBEF *Research Journal of Science, Technology and Management, 2*(3).

Siame, C. (2012). The relationship between profitability and liquidity in South African listed firms. Retrieved from: https://open.uct.ac.za/server/api/core/bitstreams/

Siddiqi, M. N. (1971). Recent theories of profit. Department of Economics Aligarh Muslim University Aligarh.

Singh, M. H., & Prusty, S. (2015). Liquidity-profitability trade-off in commercial banks: Evidence from Tanzania. *Research Journal of Finance and Accounting, 6*(7), 93-100. Retrieved from: https://iiste.org/Journals/index.php/RJFA

Sinkey, J. F. (1998). Commercial Bank Financial Management (6th ed.). Retrieved from: https://www.amazon.com/*Commercial*-financial-management-Joseph-Sinkey/dp/0024105902

Tan, Y. (2018). The impacts of competition and shadow banking on profitability: Evidence from the Chinese banking industry. *The North American Journal of Economics and Finance, 42*(1), 89-106.

Wang, Y. J. (2002). Liquidity management, operating performance, and corporate value: Evidence from Japan and Taiwan. *Journal of Multinational Financial Management, 12*(2), 159-169. Retrieved from: https://doi.org/10.1016/S1042-444X (01)00047-0

Wasiuzzaman, S., & Tarmizi, H. A. B. A. (2010). Profitability of Islamic banks in Malaysia: an empirical analysis. *Journal of Islamic Economics, Banking and Finance*, *6*(4), 53-68.

Wuave, T., Yua, H., & Yua, P. M. (2020). Effect of liquidity management on the financial performance of banks in Nigeria. *European Journal of Business and Innovation Research, 8*(4), 30-44. Retrieved from: https://www.researchgate.net

Yan, M. (2013). An assessment of UK banking liquidity regulation and supervision. Doctoral dissertation. Loughborough University. Retrieved from: https://repository.lboro.ac.uk/account/articles/9495977

APPENDIX

Year	Entities	LR	CR	CDR	CAR	CRR	ROA	ROE	NPM
2012/13		2.05	5.36	100.81	16.34	32.27	2.97	15.73	22.37
2013/14		2.03	7.49	94.80	15.09	30.43	1.76	9.39	13.95
2014/15		1.99	6.50	93.77	13.99	28.77	3.57	16.65	25.19
2015/16		1.83	15.28	95.46	17.18	23.33	2.32	13.96	20.00
2016/17	ADBL	2.32	11.77	92.90	20.41	31.18	2.15	11.69	18.08
2017/18		1.60	9.69	95.64	20.33	29.15	2.71	13.87	23.76
2018/19		1.57	8.24	93.62	20.37	27.20	2.77	14.74	24.25
2019/20		1.77	5.25	85.84	19.33	33.98	1.86	11.71	18.27
2020/21		1.39	5.28	92.93	16.94	36.21	1.59	10.16	19.37
2021/22		1.19	3.11	107.01	15.59	25.96	0.90	5.70	10.53
2012/13		2.53	0.13	53.84	2.94	13.14	1.29	14.44	22.79
2013/14		2.21	0.18	56.73	4.62	19.43	1.50	20.25	30.09
2014/15		1.94	0.15	61.05	10.16	14.48	3.33	51.20	71.22
2015/16		1.90	0.30	58.46	10.46	14.17	1.42	20.12	31.73
2016/17	RBB	1.86	0.29	69.30	10.39	9.64	1.60	21.97	31.24
2017/18		1.83	1.93	73.97	11.46	5.87	1.85	19.19	30.25
2018/19		1.92	0.39	77.44	13.39	6.53	2.23	23.38	33.82
2019/20		1.94	0.34	67.24	12.64	7.77	1.64	19.01	25.51
2020/21		1.27	0.97	73.27	13.46	7.63	1.10	11.94	21.10
2021/22		1.82	0.64	87.83	13.29	6.36	1.30	13.14	20.75
2012/13		1.03	1.83	116.67	14.87	7.22	1.39	12.58	18.17
2013/14		0.76	2.39	120.63	12.54	11.30	1.46	15.09	21.18
2014/15		0.60	1.72	120.45	11.08	2.02	1.55	18.19	24.49
2015/16		0.55	1.22	114.16	12.36	5.55	1.78	18.59	30.53
2016/17	Sanima	1.41	3.02	108.75	15.57	9.38	1.86	14.39	25.77
2017/18		1.59	4.94	112.43	12.41	7.20	1.85	15.74	20.94
2018/19		1.13	4.25	107.11	13.19	3.11	2.07	18.83	20.99
2019/20		1.45	4.12	114.47	13.00	4.97	1.41	13.86	15.49
2020/21		1.01	2.96	104.27	13.57	4.71	1.44	15.53	21.54
2021/22		1.28	2.72	111.17	13.66	8.58	1.09	12.38	14.09
2012/13		0.66	0.20	81.23	13.17	29.27	1.78	14.63	41.87
2013/14		0.51	0.15	82.93	14.05	28.68	1.71	15.93	37.14
2014/15		0.42	0.14	81.03	12.49	28.91	1.21	13.05	32.36
2015/16		0.75	0.15	85.62	12.44	23.79	1.51	16.50	40.83
2016/17	NIC	1.12	0.19	83.70	13.83	25.80	1.64	16.84	42.91
2017/18		1.13	0.31	86.30	12.24	24.45	0.97	12.09	24.91
2018/19		0.85	0.09	84.55	13.32	26.05	1.56	22.73	31.80
2019/20		1.48	0.30	85.75	13.50	27.09	1.32	19.26	29.00
2020/21		1.10	0.23	87.58	12.47	20.65	1.09	17.09	28.70
2021/22		1.04	0.41	89.85	13.38	20.30	1.20	18.43	30.50
2012/13		1.28	4.28	49.38	12.39	8.38	1.19	20.31	18.77
2013/14		1.31	4.52	65.54	13.28	7.14	1.51	20.35	23.21
2014/15		2.25	6.37	78.39	14.03	9.03	1.80	18.87	27.88
2015/16		1.28	4.73	72.90	13.49	9.86	1.70	19.25	33.45
2016/17	NSBI	2.06	6.52	79.34	15.71	9.05	1.54	14.78	26.03
2017/18		1.79	10.20	89.32	15.15	6.70	1.97	15.81	22.31
2018/19		1.67	6.98	134.43	14.12	9.51	1.94	16.20	20.33
2019/20		2.49	11.46	85.50	15.55	6.86	1.17	10.44	13.50
2020/21		1.48	6.12	95.58	13.86	3.08	0.70	6.26	10.70
2021/22		1.20	6.64	92.37	13.25	3.78	1.07	9.57	13.31
2012/13		0.73	2.09	76.57	11.59	15.19	2.39	30.47	26.45
2013/14		0.81	5.41	78.01	11.31	16.91	2.25	28.40	26.63
2014/15		1.58	9.39	66.63	13.33	24.27	1.85	22.85	27.20
2015/16		1.47	10.86	73.52	12.66	16.61	1.61	20.32	28.88
2016/17	EBL	1.57	7.37	82.32	14.69	16.52	1.72	17.38	25.82
2017/18		2.13	7.54	81.86	14.20	17.75	1.97	16.00	22.86
2018/19		2.14	4.93	87.01	13.74	18.56	1.94	17.41	21.13
2019/20		2.53	5.44	83.52	13.38	14.43	1.42	13.53	16.25
2020/21		2.09	4.61	85.30	12.48	18.15	0.89	8.58	13.54
2021/22		1.77	6.39	90.77	11.89	6.50	1.13	10.90	14.29