

**IMPACT OF LIQUIDITY ON PROFITABILITY OF COMMERCIAL
BANKS IN NEPAL**

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

by

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Certification of Authorship

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **“Impact of liquidity and profitability of Nepalese commercial banks in Nepal”**. 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 purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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July, 2024

Report of Research Committee

Mr. Agendra Karki has defended research proposal entitled “**Impact of liquidity and profitability of Nepalese commercial banks in Nepal**” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work and guidance of supervisor and submit the thesis for evaluation and viva voce examination.

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We have examined the dissertation entitled “**Impact of liquidity and profitability of Nepalese commercial banks in Nepal**” presented by Agendra Karki for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

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ABBREVIATIONS

BR	Bank Rate
CRR	Cash Reserve Ratio
GRP	Graduate Research Project
IRC	Interest Rate Corridor
IRS	Interest Rate Spread.
ITB	Investment in Treasury Bills
Ltd.	Limited
MS	Broad Money Supply
NEPSE	Nepal Stock Exchange
NIM	Net Interest Margin
NRB	Nepal Rastra Bank
OMO	Open Market Operation
ROA	Return on Asset
ROE	Return on Equity
ROI	Return on Investment
SD	Standard Deviation
SEBON	Security Board of Nepal
SOMTU	School of Management Tribhuvan University
SPSS	Statistical Package for Social Sciences
VAR	Vector Autoregressive

ABSTRACT

This comprehensive analysis explores the intricate relationship between liquidity management and bank profitability, drawing insights from a thread of data tables representing key liquidity metrics for ten banks over a decade, and from a series of cited studies conducted in various countries. The examined metrics include Cash Reserve Ratio (CRR), Cash and Bank Balance to Total Deposit (CASH to TD) ,Credit Deposit Ratio(CDR), Liquidity Assets Ratio(LAR), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPLR), Return on Equity (ROE) and Return on Assets (ROA). These metrics offer a nuanced view of how liquidity levels fluctuate and their impact on banks' financial performance. The data tables present a decade-long snapshot of liquidity metrics for ten banks offering valuable insights into how these banks managed their liquidity during this period. The cited studies provide a broader context for understanding the relationship between liquidity and profitability. The consensus is that a well-balanced liquidity strategy is essential for long-term financial success. Further, these studies highlight the complexity of the liquidity-profitability relationship. Some findings show positive correlations between liquidity ratios and profitability indicators such as Return on Equity (ROE) and Return on Assets (ROA), while others indicate negative or insignificant relationships. This underscores the need for banks to tailor their liquidity management strategies to their specific circumstances and market dynamics. This analysis underscores the critical importance of liquidity management in the banking sector and its profound impact on profitability. Banks must adapt their strategies to meet both their regulatory obligations and market demands. Striking the right balance between sufficient liquidity management and optimization profitability is key to thriving in the ever-evolving banking industry.

Key words: *Return on equity (ROE), Return on assets (ROA), Cash Reserve Ratio (CRR), Cash to total deposit ratio (Cash to TD) and Credit deposit ratio (CDR).*

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Liquidity refers to the availability of cash when required. Commercial Bank has to maintain satisfactory level of liquid assets that are easy to sale at market price with less transaction cost. A Bank holds liquid assets balance in the form of currency, bank balance, marketable securities and other assets immediately converted into cash. But these can be invested for some period to earn interest than to keep idle cash balance. In order to determine the optional investment in liquid assets, a finance company must weigh the benefits and costs of holding these various liquidity assets balance; the determination of an optional liquid assets balance reflects the classic risk return trade off facing the finance company. Effective cash management calls for a careful balancing of the risk and return aspects of cash management (Gulde, 1997).

Liquidity is the balance of assets in the form of cash or readily convertible into cash (current assets) and current liabilities whereas solvency is the ability of firms to have enough assets to cover its liabilities (Dahiyat, 2016). Liquidity can also be defined as the ability to provide cash to meet day-to-day needs as they arise (Bonfim & Kim, 2012).

Liquidity management therefore involves the strategic supply or withdrawal from the market or circulation the amount of liquidity consistent with a desired level of short-term reserve money without distorting the profit-making ability and operations of the bank. It relies on the daily assessment of the liquidity conditions in the banking system, so as to determine its liquidity needs and thus the volume of liquidity to allot or withdraw from the market. The liquidity needs of the banking system are usually defined by the sum of reserve requirements imposed on banks by a monetary authority.

The term 'Profitability' is composed of two words, 'Profit' and 'Ability'. The term 'Profit' means the positive return remaining for a business after all costs and expenses have been deducted from total amount of sales. In other words, profit is an absolute number determined by the amount of income or revenue above and beyond the costs or expenses a company incurs during their operation whereas the term 'Ability' means

power of a business entity to earn profits. The ability of a concern also denotes its earning power or operating performance of the banks. Profitability is one of the measures that can be used to derive the valuation of a business, usually as a multiple of the annual amount of profitability. A better approach to business valuation is a multiple of annual cash flows, since, this better reflects the stream of net cash receipts that a buyer can expect to receive. Profitability may be defined as the ability of a given investment to earn a return from its use. High profit/returns do not always indicate sound organizational efficiency and low profitability is not always a sign of organizational sickness.

Profitability means a company's ability to earn return on investment through its overall business activities. It shows how the resources are efficiently utilized or allocated to achieve its goal of earning profits. Profits are essential for the organization to make dividend payments to its shareholders as well as retain a part of profits as reserves to overcome unforeseen circumstances in the near future (DeCoster & Mitchell, 1992). Banks provide the required capital to the economy in the form of loan and advances which might have some probability or if fails to be paid back which is termed as loan risk, the chance that a loan will not be repaid timely. Hence the main concern of the banks is loan and its management as credit or loans and advances are the main source of income. This study therefore seeks to investigate the effect of credit management on bank profitability of Nepalese commercial banks.

Liquidity and profitability are very important to the main tax authorities, creditors and shareholders. The businessmen are interested to become the shareholders in the banks. Investors gain profitability by their investment made in commercial banks and this can be determined by their return on investment. While the liquidity is the ability to fulfill the customer's or depositor's withdrawal needs, which is usually on demand or on short notice as the case may be. Commercial banks' risk can be reduced due to higher liquidity and in future the premium is required compensating investors for the costs of reducing risk. They also argued that during business cycle banks optimal liquidity level vary, naturally increasing when expected costs of distress are expected to be higher, the association between profitability and liquidity is possible to be extremely recurring, showing more positive results through the stages of distress as finance companies that try to increase their liquidity position also increase their

profitability. So, there can be a negative or positive relationship between liquidity and profitability in the short run which depends on the bank's current liquidity position in comparison to its optimal liquidity level. Liquidity can be defined as the assets or securities which can be easily convertible into cash. Liquidity refers to the short term assets. Cash, short term, advances, and balance with other bank) and short term liabilities short term borrowing, account payable, lending to financial institutions, and short term deposit (Achraf et al. 2017). Profitability is the ability of a business to earn a profit." This study attempts to see if liquidity has an impact on profitability in Indian Telecom sector. The results of the study can give telecom companies an advice on liquidity and profitability.

In the Basel III rules, regulators have, for the first time, designed global standards for the minimum liquidity levels to be held by banks. Prior to this there were a few countries that had quantitative minimum requirements, but the large majority, including the US, relied on subjective regulatory judgment as to when liquidity levels were so low that a bank should be forced to remedy them. In practice, very little was done to force banks to shore up liquidity. The Basel III liquidity rules, which will be phased in starting in 2015, rely on two minimum ratios. The first is a "Liquidity Coverage Ratio" which is a kind of stylized stress test to ensure that a bank would have the necessary sources of cash to survive a 30-day market crisis. It appears that 30 days was chosen as the relevant period because it was viewed as long enough for central banks and governments to take the necessary emergency measures to calm a widespread market crisis of liquidity.

If banks are short of liquidity, they will be less willing to lend money to firms and consumers. Interest rate for the both saving and loan shall be high to attract the deposit from customer and strict in investor. Commercial banks tries to attract customer by providing higher interest rates in savings but central banks should control interest rate in the market otherwise unhealthy competition among commercial bank may be spared. In particular, banks will be reluctant to lend to business which are taking risky investments. Therefore, firms who wish to borrow money to finance investment may find it very difficult to get a satisfactory loan. As a consequence, the firm will reduce investment and employ fewer workers. If there is a significant fall in investment levels, then this will lead to lower economic growth and higher

unemployment. Lack of liquidity depresses the output and can lead to recessions because it forces otherwise healthy banks to go bankrupt and it also undermines the financial infrastructure of an economy (Dahiyat, 2016).

High liquidity is associated with lower risk. Bank shall have enough amount to lending to customer, interest rates are lower on both savings and loan therefore people choose other investment platform like real state and stock market for the higher return. And liquid stock is more likely to keep its value when being traded. The market is busy and it's easy to find a buyer or seller on the other side.

Hence, proper level of liquidity in the market is necessary to avoid unhealthy competition among commercial banks on interest rates. Run the economy smoothly. Bank shall enough deposit collection and amount to invest among business firms with normal interest rates which helps to investors to borrow loan and invest in productive sector and increase employment level and export, which ultimately help to grow economy of the country (Dahiyat, 2016).

1.2 Problem of Statements

Today known that banking industry is one of the fast-growing businesses in Nepal. After the liberalization policy was adopted by the government, this banking sector has been growing dramatically. However due to political instability, the government couldn't be able to pay sufficient attention to this sector. Proper regulation, supervision, and monitoring by government have been weekend in banking sector as like other sectors and also other types of non-business practices might have been occurred in this sector. This type of non-business practices will hamper this sector directly as well as indirectly. Ultimately, it affects the activities of this sector. Commercial banks in Nepal have been facing various challenges and problems especially in liquidity management. However, the country had stepped into a liberal economy and world trade organization, but still banking sectors are not able to grab the opportunities or advantages from it.

Liquidity risk is said to be assassin of BFIS. This risk can adversely affect both BFIS earnings and the capital. Therefore, it becomes the top priority of commercial bank management to ensure the availability of sufficient funds to meet future demands of

providers and borrowers, at reasonable costs. Episodes of failure of many conventional BFIS from the past and the present provide the testimony to this claim. Even with such extensive support, a number of banks failed, were forced into mergers or required resolution. A reduction in funding liquidity then caused significant distress. In response to the freezing up of the interbank market, the European Central Bank and U.S. Federal Reserve injected billions in overnight credit into the interbank market. Some finance companies needed extra liquidity support (Longworth 2010; Bernanke 2008). It is evident that liquidity and liquidity risk is a very up-to-date and important topic. Therefore, commercial bank and more so their regulators are keen to keep a control on liquidity position of commercial banks.

Generally, in order to undertake their operations properly and profitably commercial banks have to maintain their optimal liquidity. When we say banks are liquid, they are able to serve the demand of new borrowers and the withdrawal of cash by their depositors without affecting their day-to-day activities. To do so they have to keep sufficient liquid assets on their balance sheet. What is more necessary behind maintaining their liquidity is properly identifying and managing important factors affecting the liquidity position of commercial bank.

In Nepal beginning from the last two decades the commercial banks has been playing important role in the economic development of the country: (Moussa and Boubaker, 2020). Nepal's financial sector is not largely finance-based as the secondary market is still not found in the country. However, the banking sector in Nepal is currently acts as the link that holds the country's economy together. Hence, keeping their optimal liquidity for banking industries in Nepal is very important to meet the demand by their present and potential customers. Therefore, empirical studies are important to identify determinants of banks liquidity and their impact on profitability in the context of Nepal. Thus, this study aimed to contribute to the current literature by providing some evidence on the factors that contributes to the liquidity of commercial banks and the impact of liquidity on profitability through significant factors 7 affecting liquidity in Nepal (Moussa and Boubaker, 2020) .

For the study, the following research question has been raised.

1. What is the existing position of a commercial bank in terms of profitability and liquidity indicators?
2. Is there any relationship between liquidity and profitability of Nepalese commercial bank?
3. Is there any impact of liquidity on the profitability in the case of commercial bank in Nepal?

1.3 Objectives of the Study

The main objective of this study is to make the comparative study of the profitability analysis of the selected commercial banks. The other specific objectives are as follows.

1. To assess the existing position of profitability and liquidity indicators.
2. To analyze the relationship between liquidity and profitability of Nepalese commercial bank.
3. To examine the impact of liquidity on the profitability in the case of commercial banks in Nepal.

1.4 Rationale of the Study

The study is needed because it is very useful to the companies to identify the strengths and weakness of the respective companies, students for further researches, interested person, investors etc. Some of the reasons are summarized in the following:

- It is helpful to the shareholders to identify the financial performance of the respective banks and to analyze and to compare the financial position and productivity.
- It is useful to the students of banking and finance to study the profitability and productivity.
- This study will be helpful to the public to analyze risk of the banks. Its help to public to believe that their fund may secure or may not secured.
- It is useful to the overall banking management.

1.5 Limitations of the Study

Limitations of the study are as follows:

- The study has been conducted in limited time and resources.
- It focuses on profitability and liquidity situation of sample banks.
- The study is limited to only ten commercial banks, thus may not represent the whole banking industry of Nepal.
- The study is conducted by using simple financial and statistical tools / techniques for the analysis of data.
- It is based on secondary data like balance sheet, profit and loss account and other useful documents.
- It is covering the period of 10 years from 2014 to 2023 A.D.
- The study relies on secondary data only.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is the way to discover what other research area of problem has uncovered. A critical review of the literature helps the researcher to develop a thorough understanding and insight into previous research work that relates to present study. The literature review thus provides with the knowledge of the status of the field of research. the purpose of the literature review is, thus, to find out what research studies have been conducted in one's chosen field of study, and what remains to be done. It provides the foundation for developing a comprehensive theoretical framework from which hypothesis can be developed for testing.

2.1 Theoretical Review

Dictionary meaning of liquidity is the state of owning things of value that can easily be exchanged for cash. Any business organization uses different assets while operating the business but these all assets are not liquid. As for example, land and building, vehicle, office equipment etc. are not liquid assets. Liquid assets are those assets which can be converted into cash promptly. Cash in hand, bank balance, gold etc. are examples of liquid assets. Therefore, liquidity is the state in which one can change is assets into cash soon.

“One of the most important tasks faced by the management of any bank is ensuring adequate liquidity. A bank is considered to be liquid if it has ready access to immediately spending funds at reasonable cost at precisely the time those funds are needed. This suggests that a liquid bank either has the right amount of immediately spendable funds on hand when they are required or can quickly raise liquid funds by borrowing or by selling assets (Ross, 2002).

“Lack of adequate liquidity is one of the first signs that a bank is in serious financial trouble. The troubled bank usually begins to lose deposits, which erodes its supply of cash and forces the bank to dispose of its more liquid assets. Other banks become increasingly reluctant to lend the troubled bank any funds without additional security or a higher rate of interest. This will further reduce the earnings of the problem institution and threatens it with failure (Ross, 2002).

The amount of liquidity that a commercial bank or the commercial banking system should maintain is one of the basic problems of the bank management. If too much liquidity is maintained, it means that the bank and the banking system are foregoing income. Too little, however, may be fatal not only to an individual bank but to the commercial banking system as a whole, the financial structure of the country, and the economy of the nation. Too little liquidity and the demands of the depositors in the form of 'runs' on the banks are like oil and water, they do not mix well (Reed, 2002).

Some viewers focus that company's liquidity position is to be considered as short term planning and its profitability position is to be considered as long term planning. Short-term liquidity is the ability of the company to meet its short-term financial commitments. Short-term liquidity ratios measure the relationship between current liabilities and current assets. This helps us measure a company's ability to sell inventory, to collect receivables and to pay current liabilities (Jonsons & Beyrs).

2.1.1 Measuring Bank Liquidity

The studies focus on the analysis of factors that influence the bank's performance, including the liquidity risk factor. The relationship between liquidity risk and bank performance is quite complicated. Some studies suggest that high liquidity risk increases the bank's performance through high-interest profits, while others point out that it reduces the bank's efficiency due to the high cost of capital involved in financing. Some authors find a positive relationship, others find a negative one, while some authors find both positive and negative relationships, and some find no relationship at all. There are two conflicting views on the relationship between liquidity risk and bank performance: Liquidity risk increases bank performance: Most studies in Africa and Europe all approach the scope of research in a single country and use ROA, ROE variables to reflect the bank performance, the results show that the greater the bank's liquidity risk, the higher the bank performance. Another point of view from Siaw (2013), compared to other studies, is the use of the financing gap as a measure of liquidity risk. In particular, there are two studies in Asia (Arif & Anees, 2012; Shen et al., 2009) on the impact of liquidity risk on bank performance. Meanwhile, Shen et al. (2009) studied the impact of liquidity risk on bank

performance in developed economies (Australia, Canada, France, Germany, Italy, Japan, Luxembourg, Netherlands, Switzerland, Taiwan, United Kingdom and the United States) from 1994 to 2006, Arif and Anees (2012) used financing gap as a measure of liquidity risk and analyze this relationship only in Malaysia during the 2006-2008 period. In both studies, three variables were used to represent bank performance: return on assets (ROA), return on equity (ROE), and net interest margins (NIM). Liquidity risk reduces bank performance: Studies in Asia in Europe and Africa only approach the scope of research in a separate country and all use ROA and ROE variables to represent bank performance. The results of their research show that liquidity risk is one of the factors that influence bank performance with an opposite effect.

2.1.2 Liquidity and Profitability

Liquidity and profitability are significantly correlated. When one increases the other decreases. Apparently liquidity and profitability goals conflict in most of the decisions which the finance manager makes. For example, if higher inventories are kept in anticipation of increase in prices of raw materials, profitability goal is approached but the liquidity of the firm is endangered. There is also a direct relationship between higher risk and higher return. Higher risk on the one hand endangers the liquidity—a" the firm, higher return on the other hand increases its profitability. A company may increase its profitability by having a very high debt equity ratio. However, when the company raises funds from outside sources, it is committed to make the payment of interest, etc. at fixed times and in fixed amounts and hence to that extent of its liquidity is reduced.

Hence, in every area of financial management, the financial manager is to choose between risk and profit and generally he chooses in between the two. S/He should forecast cash flows and analyse the various sources of funds. Forecasting of cash flow and managing the flow of internal funds are the functions which lead to liquidity, cost control and forecasting future profits are the functions of finance manager which lead to profitability. An efficient finance manager fixes that level of operations where both profit and risk are optimised (Duke, 2010).

2.1.3 Theories of Liquidity

2.1.3.1 Commercial Loan Theory

The commercial loan theory states that a commercial bank should advance only short-term self-liquidating productive loans to business firms. Self-liquidating loans are those which are meant to finance the production, and movement of goods through the successive stages of production, storage, transportation, and distribution. When such goods are ultimately sold, the loans are considered to liquidate themselves automatically. For instance, a loan given by the bank to a businessman to finance inventories would be repaid out of the receipts from the sale of those very inventories, and the loan would be automatically self-liquidated.

The theory states that when commercial banks make only short term self-liquidating productive loans, the central bank, in turn, should only lend to the banks on the security of such short-term loans. This principle would ensure the proper degree of liquidity for each bank and the proper money supply for the whole economy. The central bank was expected to increase or diminish bank reserves by rediscounting approved loans. When business expanded and the needs of trade increased, banks were able to acquire additional reserves by rediscounting bills with the central banks.

2.1.3.2 Shift-ability Theory

The shift-ability theory of bank liquidity was propounded by H.G. Moulton who asserted that if the commercial banks maintain a substantial amount of assets that can be shifted on to the other banks for cash without material loss in case of necessity, then there is no need to rely on maturities. According to this view, an asset to be perfectly shift able must be immediately transferable without capital loss when the need for liquidity arises.

This is particularly applicable to short term market investments, such as treasury bills and bills of exchange which can be immediately sold whenever it is necessary to raise funds by banks. But in a general crisis when all banks are in need of liquidity, the shift-ability theory requires that all banks should possess such assets which can be shifted on to the central bank which is the lender of the last resort.

This theory has certain elements of truth. Banks now accept sound assets which can be shifted on to other banks. Shares and debentures of large companies are accepted as liquid assets along with treasury bills and bills of exchange. This has encouraged term lending by banks.

2.1.3.3 Anticipated Income Theory

The anticipated income theory was developed by H.V. Prochanow in 1944 on the basis of the practice of extending term loans by the US commercial banks. According to this theory, regardless of the nature and character of a borrower's business, the bank plans the liquidation of the term-loan from the anticipated income of the borrower. A term-loan is for a period exceeding one year and extending to less than five years.

It is granted against the hypothecation of machinery, stock and even immovable property. The bank puts restrictions on the financial activities of the borrower while granting this loan. At the time of granting a loan, the bank takes into consideration not only the security but the anticipated earnings of the borrower.

Thus a loan by the bank gets repaid out of the future income of the borrower in installments, instead of in a lump sum at the maturity of the loan.

2.1.3.4 Liabilities Management Theory

This theory was developed in the 1960s. According to this theory, there is no need for banks to grant self-liquidating loans and keep liquid assets because they can borrow reserve money in the money market in case of need.

A bank can acquire reserves by creating additional liabilities against itself from different sources. These sources include the issuing of time certificates of deposit, borrowing from other commercial banks, borrowing from the central banks, raising of capital funds by issuing shares, and by pouching back of profits.

2.3 Empirical Review

Odunayo and Adeyemi (2015) conducted research on relationship between Liquidity and Profitability of Nigerian Deposit Money Banks. The main objective of this research is to examine the existence and direction of causality between liquidity and profitability of deposit money banks in Nigeria. For this study, the researcher had taken fifteen commercial banks out of nineteen banks in order to out to determine the presence and direction of causality between banks' liquidity and profitability. Researchers used the secondary data for this study. The result found that the F-statistics corresponding to the null hypotheses of no causal relationship (both unidirectional and bidirectional) between LODEP (a proxy for liquidity) and ROE (profitability measure) for banks at 5% and 10% level of significance. Thus, the result revealed that there is no causal relationship (be it unidirectional or bidirectional) between liquidity and probability of banks. The study recommend that the apex bank (Central Bank of Nigeria) should ensure the close supervision and monitoring of deposit money banks' strength and level of liquidity in an attempt to stabilize and strengthen the financial sector of the economy.

Maharjan (2015) conducted the study on profitability analysis of commercial banks based on Rastriya Banijya Bank And Nepal Bank Ltd. which has made objectives to evaluate the profitability and operating financial efficiency of Nepal Bank Ltd. and Rastriya Banijya Bank, to compare and analyze the fund based interest income with fee based income of Nepal Bank Ltd. and Rastriya Banijya Bank, to analyze the profit and loss trend and growth of the bank over the period and the major findings were the operating efficiency ratio of both the banks is very unfavorable during the study period due to the huge amount of operating expenses in compare to the operating income, RBB and NBL had very low net interest margin. The net interest margin of RBB was higher the net interest margin of NBL , the FSRP was in operation in both the banks, the operating expenses of both the banks were in increasing each year. Both the banks have high staff expense related to total operating expense due to over staffing. Under the FSRP, the bank have implemented VRS to cut down the number of staff and still both the banks have to rethink to maintain the appropriate level of staff to minimize the staff expenses.

Pradhan and Shrestha (2016) analyzed impact of liquidity on bank profitability in Nepalese commercial banks. This study examined the effect of liquidity on the performance of Nepalese commercial banks. Investment ratio, liquidity ratio, capital ratio and quick ratio are the independent variables used in this study. The dependent variables are return on equity (ROE) and return on assets (ROA), while one year lagged variables for independent variables are also used to determine the more specific result of the previous year's effect on the current years ROE and ROA. The secondary sources of data have been used from annual reports of the banks and supervision report of Nepal Rastra Bank. The regression models are estimated to test the significance and effect of bank liquidity on performance of Nepalese commercial banks. Correlation between capital ratio and return on equity found to be positive indicating higher the capital ratio higher would be the return on equity. However, the correlation between return on equity and liquidity ratio is found to be negative indicating higher the liquidity in the bank lower would be the return on equity. Further, the correlation is found to be negative for quick ratio with return on equity. Beta coefficients for investment ratio and capital adequacy are positively significant with bank performance, which indicate that increase in investment ratio and capital ratio leads to increase the performance of the banks. However, beta coefficients for liquidity ratio and quick ratio are negative with return on assets and return on equity indicating increased liquidity ratio and quick ratio decreases the return on assets and return on equity of the bank.

Khanal (2016) conducted the study on comparative study on liquidity management of Everest Bank Ltd and Himalayan Bank Ltd has made objectives to examine the efficiency and effectiveness in disbursing and recovery of loans, to compare and analyze the financial performance of EBL and HBL, to analyze the profit and loss trend and growth of the bank over the period and major findings are liquidity position of EBL is comparatively better than HBL as it is sound in meeting short term obligations, EBL is more efficient in utilizing the outsider's funds in extending credit for profit generating sectors while HBL is more successful in utilizing its total deposits by investing in marketable securities, Both banks have positive correlation among deposit, loans and advances, investment, total assets and net profit, Both banks are unable to mobilize idle assets of the banks in the form of excess cash and equivalents diverted in various investment opportunities available in the market.

Shrestha (2017) conducted the study on productivity measurement of credit position in Nepalese commercial banks with reference to BOK and NIBL has made objectives of explore the productivity measurement on credit position of BOK and NIBL, To inspect the level of the non-performing loan investments that exists within the banking industry, To analyze the lending policy of Nepalese commercial banks with the help of BOK and NIBL and major findings are NIBL have high liquidity than BOK. Likewise, fluctuation in CRR ratio is lower of BOK in relation to NIBL, BOK has higher investment in government securities than NIBL, BOK has the highest average ratio of loan and advances to total deposit, Among the sampled banks, NIBL bank has maintained the low mean non-performing assets to total loan and advances ratio with 1.33% while BOK is 1.94%, NIBL has increased collecting interest bearing deposits but BOK has managed to reduce the ratio, which means their non-interest bearing deposits are growing. NIBL has highest interest bearing deposits.

Muhammad (2017) conducted the study on impact of liquidity management on profitability in the Pakistani commercial banks. The purpose of this research was to investigate the effect of the liquidity management on profitability in the Pakistani commercial banks during the period (2004–2013). Total of Three banks having more than 1767 branches are chosen to reflect the whole Pakistani commercial banks. The liquidity indicators are investment ratio, current ratio, capital ratio, credit facilities and liquid assets ratio, while return on equity (ROE) and return on assets (ROA) are the proxies for profitability. The researcher depicted that there is a need for an optimum utilization of the available liquidity in a various aspects of investment in order to increase the banks' profitability, and banks should adopt a general framework of liquidity management to assure sufficient liquidity for executing their operations efficiently, and they should initiate an analytical study of the evolution rates of liquidity and their ability to achieve a balance between sources and uses of funds.

Rouniyar (2018) conducted research on liquidity & profitability analysis of listed of four commercial Banks with reference to NABIL, SCBNL, EBL and SBI has made objectives to assess the profitability and liquidity position of the commercial banks, to evaluate the relationship between selected dependent and independent variables regarding liquidity and profitability of the banks and major findings were from the ten years analysis i.e. fiscal year 2001/02 to 2010/11 return on equity is highest of

SCBNL and lowest of SBI among the four sample banks. SBI has more risky than other sample banks, in the same way, return on capital fund or employed to risked assets for SBI is more volatile than other sample banks. SBI has not managed its profitability to maintain capital adequacy than other sample banks. NABIL is more uniformity which has less CV than others and Net profit to total deposit ratio for the bank is satisfactory i.e. well management in earning profit. Net profit to total loan and advances ratio is highest of SCBNL.

Pokhare and Pokhare (2019) conducted research on impact of liquidity on profitability in Nepalese commercial banks. This study explores the influence of liquidity on the profitability in the Nepalese commercial banks. 5 commercial banks in Nepal; Agriculture Development Bank, Everest Bank, Prime Commercial Bank, Sunrise Bank and Citizens Bank International are randomly selected among 28 commercial banks of Nepal as a sample and analyzed for the current study over the period 2010/11 to 2016/17 AD. Since liquidity management can increase the bank's profitability. The study has examined their liquidity management as well as profitability positions using various statistical and financial tools. The article indicates largely zigzag trend of average profitability of commercial banks, although the trend of liquidity ratios of the bank is unstable. The research concluded that bank's liquidity ratios have below the prescribed standard. Similarly CRR is extremely heavy than prescribed by monetary policy 2016/17. The CRR and IGSCA are positively correlated with ROA while CRR and CBBISD are inversely correlated with ROA. In case of liquidity-ROE Relation, CR is inversely correlated to ROE but all other ratios (CRR, CBBISD and IGSCA) are positively correlated with ROE. It also has reported there is significant relationship between liquidity ratios with profitability, except between IGSCA and ROA.

Reschiwati et al. (2019) conducted research on effect of liquidity, profitability, and size of companies on firm value. This study aims to examine and analyze the effect of liquidity, profitability, the size of the firm and its value in capital structure. The sample in this study was 15 banking companies listed on the Indonesian Stock Exchange in the 2014-2018 periods. The method of analysis used was Eviews 8.0 program. The results of this study indicate that liquidity, profitability, and firm size significantly influence capital structure. Capital structure is not a mediator of the

influence of liquidity and profitability on firm value, while the capital structure is a mediator of the effect of firm size on firm value.

Shrestha (2019) conducted on the topic of credit risk management of joint venture Banks (with reference to EBL and SBI)" has objectives of to analyze the credit risk (NPL to TL) of joint venture banks in Nepal, to evaluate total credit to total deposit and overall credit management in commercial banks and major findings are both banks have maintained NPL less than 1% in an average i.e. maintained NRB directive, lending in one lucrative sector and concentration in urban areas only is increasing the risk of loss for the bank credit policies and practices is found satisfactory, bank has opportunity to explore the virgin village market and SMEs, both banks total credit to total deposit ratio is higher of EBL than SBI, both banks' have maintained the sound management quality in general.

Kharel (2019) conducted on liquidity management of commercial banks of Nepal with reference to NABIL and SBI has made the following objectives to analyze the trend of liquid management by the commercial banks, to evaluate the cash reserve ratio maintained by the NABIL and SBI, to analyze the total loan and advances, total investment provided by the NABIL and SBI. Major findings of research are the liquidity position of NABIL is very strong while SBI have strong capacity to meet the short term obligations, SBI have invested significant portion of deposit to total investment than other, total deposit, investments and loans and advances of both banks are in increasing trend, the trend line of loan and advances for both banks is upward slopping which refers to the increase in the disbursement of loan and advances, NABIL is successful in optimizing the assets mobilization due to its highest ROA than SBI, he credit risk of SBI is more stronger than NABIL i.e. non-performing loan of SBI is less than 1% as maintained by NRB directives during the study period.

Pandey (2020) researched on liquidity and profitability analysis of Standard Chartered Bank Nepal Ltd. and NABIL Bank Ltd.” He used the both statistical and financial tools on the basis of secondary data. The objectives to evaluate the soundness of profitability and operating efficiency of SCBNL and NABIL Bank Ltd, to compare and analyze the fund base interest income with fee based income of SCBNL with NABIL Bank Ltd, to compare the cost of deposits of the SCBNL with NABIL in

regards with the profitability and the major findings of his study were the cost management strategy was ideal to reduce the various costs and increase the profitability, bank was not followed the strictly investment policy to avoid the non-performing assets and felt to increase investment in the government securities to trade off and stabilized the quality investment in commercial LDO, both banks maintained the cash reserve ratio as directed by NRB, net profit to total assets ratio is in fluctuating trend during the study period, both banks was not given the focus on planning, research and development for the proper planning and controlling purpose which the management in regards the cost control strategy and avoid unnecessary leakage in the expenses.

Shrestha (2020) studied on liquidity and profitability analysis of commercial Banks with taking sample of Rastriya Banijya Bank And Nepal Bank Ltd. The researcher used the financial tools like profitability ratio and statistical tools like simple correlation had been used to analyze the secondary data. The objectives of his study were to evaluate the profitability and operating financial efficiency of Nepal Bank Ltd. and Rastriya Banijya Bank, to compare and analyze the fund based interest income with fee based income of Nepal Bank Ltd. and Rastriya Banijya Bank, to analyze the profit and loss trend and growth of the bank over the period and major findings of his study were the net operating margin of RBB was better than NBL but the ratio of RBB was very inconsistent in comparison to NBL. But the ratio of NBL was very low and needed to be improved, both the banks had very high staff expense related to total operating expense due to over staffing and still both the banks had to rethink to maintain the appropriate level of staff to minimize the staff expenses, the operating efficiency ratio of both the banks was very unfavorable during the study period due to the huge amount of operating expenses in compare to the operating income

Zidan (2020) investigated impact of liquidity management on the profitability of banks operate in Palestine. This study aims to explain the effect of the liquidity management on the profitability of the Palestinian banking sector during the time period 2008–2017. Palestinian banking sector has been chosen for the purpose of this study, which comprised from 14 banks Islamic and commercial. Multiple regression models were used to do the empirical analysis and; develop the econometric model

which consisted of one dependent variable and eight independent variables. Return on Assets (ROA) was defined as profitability indicator. The data was collected from the audited annual reports of the sample banks, the Palestinian Monetary Authority (PMA)'s annual reports and Association of Banks in Palestine. The findings and analysis revealed that loans to deposits ratio had the most important significant effect on profitability and capital adequacy ratio had also significant impact on profitability.

Ben and Boubaker (2020) conducted research on the impact of liquidity on bank profitability based on case of Tunisia. Liquidity and profitability are two important variables in the banking industry. In this article, we studied the impact of liquidity on bank profitability in the Tunisian context. We used a sample of 18 banks over the period (2000...2017). We employ 2 models of panel static in the empirical research. We found that (liquid assets / total assets) and (total credits / total deposits) have a positive and significant impact on return on assets (ROA) whereas (current assets / current liabilities) have not significant impact on ROA. Also, we found that (liquid assets / total assets), and (total credits / total deposits) have a negative and significant impact on ROE (return on equity) whereas (current assets / current liabilities) have not significant impact on ROE.

Anandasayanan and Subramaniam, (2020) conducted research on liquidity management and profitability: A perspective of Sri Lankan licensed commercial banks. The present study examines the effect of liquidity management on banks profitability in Sri Lanka. Long term assets are more profitable than liquid assets. It is a mandatory function to invest in assets which generate high profit. 26 Sri Lankan banks are taken for the study and 20 years' annual data of licensed Sri Lankan commercial banks from 1998 to 2017 have been used. Liquidity management is the independent variable and profitability is the dependent variable. Return on Asset (ROA) is used to measure profitability meanwhile capital adequacy ratio, liquidity ratio, non-performing loan ratio and interest margin are used to measure liquidity management. Descriptive statistics, correlation analysis and regression analysis were employed to examine the effect of liquidity management on profitability. The results of correlation analysis depict positive association between return on asset and capitalization ratio, interest meanwhile negative relationship was identified between capital adequacy ratio and return on asset. The results of regression analysis indicate

that liquidity impacts on profitability significantly. Therefore, the present study recommends the bank managers to have clear understanding of balancing liquid assets and long term assets for generate more profit day by day.

Khan and Bhavana (2020) conducted research on impact of liquidity on profitability in telecom companies Indian telecom sector has shown a tremendous growth in the last decade and this has attracted more companies into this sector, which has resulted in a cutthroat competition. The Indian telecom sector is in consolidation phase and we have observed some mergers in this sector in recent past. The competition between the telecom players has increased due to the Reliance Jio entry into the market. This has resulted in reduced profits or even losses to some players due the price war. The spectrum prices by the Govt. have also played a role in increasing the stress of telecom players. The findings of this study indicate that the companies' focus on liquidity management rather than just focusing on profitability.

Swain and Mishra (2020) examined the impact of liquidity management on profitability in commercial banks of India. The study was based on both private sector banks (22 nos.) as well as public sector banks (20 nos.) for the period 2005 to 2018. The data were analyzed through panel regression analysis, descriptive statistics and correlation matrix. The determinants of liquidity management such as cash deposit ratio, credit deposit ratio, investment deposit ratio, investment to total assets, demand and savings bank deposit to total deposits, term loans to total advances & net NPA to net advances are taken as explanatory variables and the factors indicating profitability such as Return on Total Assets & Return on Equity are considered as dependent variables in this study. The result of this paper highlights that the profitability of the sample banks are highly influenced by the determinants of liquidity management. The paper also recommends that banks must maintain a minimum balance of liquid assets for enhancing the profitability as well as to retain public confidence.

Khatri (2020) analyzed impact of liquidity on profitability of Nepalese commercial banks. Ten out of twenty seven listed commercial banks were involved in the study covering the period from 2013 to 2019. This study is based on the secondary data, which are extracted from Bank Supervision Reports published by Nepal Rastra Bank and annual reports of the selected commercial banks. The liquidity indicators are

credit-deposit ratio (CDR), cash-deposit ratio (CADR) and assets quality (AQ), while return on equity (ROE) and 33 return on assets (ROA) are the proxies for profitability. By using Hausman test and thereafter fixed effects approach, the result showed that assets quality (AQ) has negative and significant relationship with return on assets (ROA) whereas it has positive and significant relationship with return on equity (ROE). Cash-deposit ratio (CADR) has positive and insignificant relationship with return on assets (ROA) and return on equity (ROE). However, the study reveals that credit-deposit (CDR) has positive but insignificant relationship with ROA and has negative and insignificant relationship with return on equity (ROE).

Doan and Bui (2021) conducted research on how does liquidity influence bank profitability? A panel data approach. This study investigates the impact of liquidity on bank profitability. Particularly, bank profitability is measured by return on assets (ROA) while liquid assets to total assets (LATA) and total loans to total deposits (TLTD) are indicators of bank liquidity. A panel data of 26 Vietnamese commercial banks are obtained over the period 2013-2018. The GMM estimation is adopted to test the significant effect of liquidity on profitability of Vietnamese commercial banks. The results reveal that profitability (ROA) was negatively influenced by liquid asset ratio (LATA) and positively correlated to loan-to-deposit ratio (TLTD). Further, bank profitability was also affected by macroeconomic control variables like economic growth (EG) and inflation (INF). The results are not only essential for bank managers but also provide scholars a valuable reference.

Paul et al. (2021) conducted research on Impact of Liquidity on Profitability: A Study on the Commercial Banks in Bangladesh. This research aims to investigate the effect of banks' liquidity on its profitability; with the ordinary course of business and in the medium term (10 years). A quantitative analysis is performed on a statistical sample of forty (40) commercial banks in Bangladesh. Secondary data is used to evaluate the performance of the last ten years (2009-2018) of the annual report of the commercial banks in Bangladesh with 206 bank years of data gathered to consider all Bangladeshi commercial banks. Proposed variables are: LDR, DAR, CDR, LAR and CR as liquidity representation; on the other hand, ROE is the profitability representation. Five hypotheses have been established to assess the effect of liquidity on profitability. Following a correlation and regression analysis, it is observed that LDR, DAR and

CDR had a substantial effect on the profitability measured as ROE, but LAR and CR proved insignificant. Therefore, it can be concluded that, in general, the impact of liquidity has a significant effect on the profitability in the commercial banking sector of Bangladesh. By relying on this report; Bangladeshi banks will be best positioned to keep equality between its liquidity and profitability.

Houng et al. (2021) conducted research on Liquidity risk and bank performance in Southeast Asian countries: a dynamic panel approach. This study uses unbalanced panel data from Bank scope from 171 banks in 9 countries in Southeast Asia over the period 2004–2016 and the Generalized Method of Moments (SGMM) to analyze the impact of liquidity risk on bank performance in Southeast Asian countries. The results show that liquidity risk has a positive effect on the performance of banks or that most banks with good performance have a high liquidity risk under normal conditions. However, if there is a financial crisis, the effect of liquidity risk on bank performance is negative. This means that during the crisis, banks will seek to increase liquidity assets, to improve profitability, which will increase financial costs and reduce bank efficiency. Besides, bank performance in Southeast Asian countries is also influenced by the following factors: impact of the lag variable of bank performance, quality of liquid assets, bank size, bank capital, loan loss provision, GDP growth, money supply and inflation. The results of this study are intended to supplement the experimental results and suggest some critical guidelines for bank management in this area.

Dahiyat et al. (2021) conducted his research on liquidity and solvency management and its impact on financial performance: empirical evidence from Jordan. The study aims to examine the impact of liquidity and solvency management on the financial performance of Jordanian manufacturing companies listed on the Amman Stock Exchange, for a period of 10 years from 2010 to 2019. The size of the company was used as a control variable. The study employs Return on Assets (ROA) and Earnings per Share (EPS) to measure financial performance. Current ratio (CR) and total debts to total assets were used as proxies for liquidity and solvency management, while logarithm of total assets was used to measure the size. Correlation and multi regression analyses have been applied to analyze the data. The results show a statistically significant impact of independent and control variables (liquidity and solvency management and the size of the company) on financial performance, while

the detailed results of the hypotheses indicate that liquidity has an insignificant reverse impact on financial performance. With respect to other variables, there is a significant positive impact of size on performance and a significant negative impact of solvency on performance. The study suggests in light of results, increasing investments in companies' assets by focusing on internal financing, such that large-sized companies with low leverage will have a good performance.

Magar (2022) examined the effect of liquidity on the profitability of Nepalese commercial banks. The study included five commercial banks and spanned the years 2013 to 2021. Secondary data was analyzed, which was obtained from bank supervision reports published by Nepal Rastra Bank and annual reports of the selected commercial banks. The liquidity variable was measured by the credit to deposit ratio, asset quality, and liquidity ratio, while the profitability variable was measured by return on assets and net interest margin. A regression model was used to analyze the effect of liquidity on profitability, and the data was analyzed using Software Views 12. The findings revealed that asset quality (AQ) has a significant negative impact on the Return on Assets (ROA). Credit to Deposit Ratio (CD) has a positive and significant impact on commercial banks' Net Interest Margin (NIM) whereas asset quality (AQ) has a negative and significant impact on commercial banks' Net Interest Margin (NIM).

Shrestha and Chaurasiya (2023), investigated the Impact of Liquidity Management and Profitability of Joint Venture Commercial Banks in Nepal. Data analysis was done using descriptive statistics, Pearson correlation, regression analysis, and t-test. The data used to analyze five (5) samples size, out of 27 which has found to be covering period 2012-2021 of joint venture commercial Banks in Nepal. The Liquidity management represents the variables of the Credit Deposit Ratio (CDR), Capital adequacy ratio (CAR), Current Reserve ratio (CRR), Total deposit to total ratio (TDTAR), Total loan to total assets ratio (TLTAR) and the profitability including Return on Assets (ROA). The findings of the study have an R square value of 0.615 meaning that 61.5% of the variation in the dependent variable is explained by the independent variables while 38.5% is explained by other variables outside the model and also showed that there is a strong positive correlation between the dependent variable and the set of independent variables. The result showed that there

is significant impact of TL TAR on ROA and there is insignificant impact of CDR, CAR, CRR and TDTAR on ROA of joint venture commercial banks in Nepal.

Table 1

Summary of Empirical Review

Date	Writers	Article	Objective	Methodology	Findings
2016	Khanal	"Comparative study on Liquidity management of Everest Bank Ltd and Himalayan Bank Ltd"	To examine the on efficiency effectiveness disbursing recovery of loans, to analyze financial performance of EBL and HBL	A case study was conducted and based on data of HBL and EBL.	Both banks have positive correlation among deposit, loans and advances, total assets and net profit.
2015	Odunayo & Adeyemi	"Causal Relationship between Liquidity and Profitability of Nigerian Deposit Money Banks".	To examine the existence and direction of causality between liquidity and profitability of deposit money banks in Nigeria by analyzing relationship between LODEP and ROE.	For this study, the researcher had taken fifteen commercial banks out of nineteen banks in order to out determine the presence and direction of causality between banks' liquidity and profitability.	There is no causal relationship (be it unidirectional or bidirectional) between liquidity and probability of banks.

2017	Muhammad		Impact of Liquidity Management on Profitability in the Pakistani commercial Banks".	To investigate the effect of the liquidity management on profitability in the Pakistani commercial banks during the period (2004–2013).	The liquidity indicators are investment ratio, capital ratio, credit facilities and liquid assets ratio, while return on equity (ROE) and return on assets (ROA) are the proxies for profitability.	To increase the banks' profitability and banks should adopt a general framework of liquidity management to assure sufficient liquidity for the executing their operations efficiently.
2019	Pokhare and Pokhare	and	Impact of liquidity on profitability in Nepalese Commercial Bank”	The influence of liquidity on the profitability in the Nepalese commercial banks.	They have used data of 5 commercial bank over the period 2010/11 to 2016/17 AD.	The study has examined their liquidity management as well as profitability positions using various statistical and financial tools.
2019	Reschiwati, et al.	et	Effect of Liquidity, Profitability, and Size of Companies on Firm	This study aims to examine the effect of liquidity,	The method of analysis used was E views 8.0 programs on 15 banking	This study indicates that liquidity, profitability, and firm size significantly

			Value.	profitability, companies influence the size of the listed on the capital firm and its Indonesian structure. value in Stock capital Exchange in structure. the 2014- 2018 periods.
2020	Ben Boubaker	and	The impact of liquidity on bank profitability: case of Tunisia”.	The impact of liquidity on bank profitability They have used sample of 18 banks over the period (2000- 2017) and employ 2 models of panel static in the empirical research. Liquid assets / total assets) (total credits / total deposits) and have a positive and significant impact on (ROA) whereas (current assets / current liabilities) have not significant impact on ROA. Also, we found that (liquid assets / total assets), and (total credits / total deposits) have a

						negative impact on ROE.
2020	Anandasayanan and Subramaniam	Liquidity Management And Profitability.	To examines the effect of liquidity management on banks profitability.	26 Sri Lankan banks are taken for the study and 20 years. 1998 to 2017.	Descriptive statistics, correlation analysis and regression analysis were employed.	The results of correlation analysis depict positive association between return on asset and capitalization ratio, interest meanwhile negative relationship was identified between capital adequacy ratio and return on asset.
2020	Khan and Bhavana	Impact of Liquidity on Profitability in Telecom Companies in India.	To find out Impact of Liquidity on Profitability	They have compared data of different telecom companies		The companies' focus on liquidity management rather than just focusing on profitability.
2021	Doan and Bui	How does	To find out	They have		The results

		liquidity influence bank profitability?	effects of liquidity on profitability	of taken data of 26 Vietnamese commercial banks obtained over the period 2013-2018.	reveal that profitability (ROA) was negatively influenced by liquid asset ratio (LATA) and positively correlated to loan-to-deposit ratio (TLTD).
2021	Paul, et al.	Impact of Liquidity on Profitability	Research aims to investigate the effect of banks' liquidity on its profitability	A quantitative analysis is performed on a statistical sample of forty (40) commercial banks in Bangladesh based on secondary data.	The impact of liquidity has a significant effect on the profitability in the commercial banking sector of Bangladesh
2022	Magar	Liquidity on the profitability of Nepalese commercial banks	A regression model was used to analyze the effect of liquidity on profitability	Liquidity variable was measured by the credit to deposit ratio, asset quality, and liquidity	Findings revealed that asset quality (AQ) has a significant negative impact on the

ratio, while return on the assets profitability (ROA). variable was measured by return on assets and net interest margin.

2023	Shrestha, et al.	Investigates the Impact of Liquidity Management and Profitability of Joint Venture Commercial Banks in Nepal	Investigates the Impact of Liquidity Management and Profitability of Joint Venture Commercial Banks	Data analysis was done using descriptive statistics, Pearson correlation, regression analysis, and t-test.	A strong positive correlation between the dependent variable and the set of independent variables
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2.4 Research Gap

Previous researchers have conducted researches relating to profitability as well as profit planning and control for the number of studies on banks is small. This research differs with the previous not only in the time frame, but also in the nature of commercial bank time period as well. Mainly few researchers Magar (2022), Shrestha and Chaurasiya (2023) conducted research work on the topic of liquidity and profitability of commercial bank. Mr. Sharma conducted research work within the periphery of listed commercial bank of different types. Also, this research will fulfil this lacking to some extent. After reviewing different literatures, it is found that pervious researchers analysed profitability condition using different tools and techniques. All commercial banks lend their deposits in different sectors of the economy. Although, some sector is flourishing today but most of the sectors are not

worsening in today's scenario. Even sector wise lending portfolio of commercial banks is not being effective. Bank can still lend without increasing their non-performing asset if they focus on identifying the new market for lending and if they properly analyzed the proper sector for lending. This research "Liquidity and Profitability Analysis of commercial Banks" gives the mirror of banking industry. Hence, liquidity and profitability analysis is also new and crucial research and vary from the others. For that purpose, latest ten fiscal years data with different research tools are used for analysing the data which is discussed in chapter-III. Therefore, to some extent, this gap is to be fulfilled through this research.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology consists of research design, sources of data, population and sample and method of data analysis.

3.1 Research Design

This study seeks to analyze and evaluate the relationship between liquidity and profitability position of the selected development banks and provide suggestions on the basis of the evaluation. To accomplish this objective descriptive and casual comparative research design has been adopted. It tries to describe and analyze all these facts that have been collected for the purpose of the study. Mostly, the secondary data have been used for the research study. The data are collected from the various websites, annual reports of the respective banks etc. Hence, the research design is made by collecting the information from the different source and data have been tabulated and analyzed by using various financial and statistical tools. The financial tools include liquidity and profitability related ratios. Similarly, the statistical tools include average or mean, standard deviation, coefficient of variation, coefficient of correlation and regression analysis. This study tries to make comparison and establishes relationship between two or more variables. At the end, summary, conclusion and recommendations are set for the purpose of the study.

3.2 Population and Sample

All commercial banks listed with the Nepal stock exchange are the population, but for the study only the commercial banks listed and conducting share transactions in the NEPSE are taken as the population of the study. There are 20 commercial banks where only 10 commercial banks are selected as a sample. Convenience sampling method is used while selecting samples. Table no. 2 shows the list of samples selected for the study.

Table 2*List of sample:*

S.N.	BFI's Name
1	Global IME Bank Ltd.(GBIME)
2	Himalayan Bank Ltd.(HBL)
3	Everest Bank Ltd.(EBL)
4	Siddhartha Bank Ltd.(SBL)
5	Machhapuchchhre Bank Ltd.(MBL)
6	Prabhu Bank Ltd.(PRVU)
7	NIC Asia Bank Ltd.(NICA)
8	Nepal Bank Ltd.(NBL)
9	Standard Chartered Bank Ltd (SCB)
10	SBI Bank of Nepal Ltd (SBI)

3.2.1 Sources of Data

This study mainly based on secondary data. Secondary data are collected from their respective annual report especially from profit and loss account, balance sheet and other publications made by the banks. Also, some data has been gathered from Nepal Stock Exchange's website.

3.2.2 Methods of Analysis

Liquidity and Profitability position of the banks is analyzed with two important tools. The first most important tool is the financial variables, which includes ratio analysis and another is a statistical tool.

3.2.3.2 Tools

Some important statistical tools are used to achieve the objective of this study. Statistical tools are used to analyze the relationship between two or more variables and to find how these variables are related. Statistical tools such as mean, standard deviation, coefficient of variation, coefficient of correlation, and trend analysis will be used.

A. Mean

A mean is the average value or the sum of all the observation divided by the number of observations and it is given by the following formula:

$$\text{Mean } (\bar{X}) = \frac{\sum x}{N}$$

Where,

\bar{X} = Mean of the values

$\sum X$ = Summation of the values

N = No. of observations

B. Standard Deviation

Standard deviation is defined as the positive square root of the mean as square of the deviation takes from the arithmetic mean. Dispersion measures the variation of the data from the central value. In other words, it helps to analyze the quality of data regarding its variability. It is calculate as:

$$\text{Standard Deviation (S.D)} = \sqrt{\frac{\sum(x-\bar{x})^2}{n}}$$

C. Coefficient of Variation (C.V.)

The relative measure of dispersion based on standard deviation is called coefficient of standard deviation and 100 time coefficient of standard deviation is called coefficient of variation. It is denote by C.V. Thus,

$$\text{C.V.} = \frac{\sigma}{\bar{x}} \times 100 \%$$

Where σ = Standard Deviation

\bar{X} = Mean Value of Variables

The distribution having less C.V. is said to be less variable or more consistent. A distribution having greater C.V. is said to be more variable or less consistent.

D. Correlation Coefficient (r)

Correlation analysis in the statistical tools generally used to describe the degree which one variable is related to another. This tools is used for measuring the intensity or the magnitude of linear relationship between two variable X and Y is usually denoted by 'r' can be obtained as:

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

Where,

N = no of observation in series X and Y

$\sum X$ = Sum of observation in series X

$\sum Y$ = Sum of observation in series Y

$\sum X^2$ = Sum of square observation in series X

$\sum Y^2$ = Sum of square observation in series Y

$\sum XY$ = Sum of the product of observation in series X and Y

E. Coefficient of Determination (r^2)

It explains the variation percent derived in dependent variable due to the any one specified variable; it denotes the fact that the independent variable is good predictor of the behavior of the dependent variable. It is square of correlation coefficient.

F. T-Test

To test the set hypothesis, t-test has been employed under Null Hypothesis (H), t-test statistic is:

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

Where,

r = calculated value of correlation coefficient

n = no. of observation

The tabulated value two tailed test for 3 degree of freedom at 5% level of significant level is 3.182

Calculated value of $t \geq$ tabulated value of t, i.e. significant

Calculated value of $t \leq$ tabulated value of t, i.e. insignificant.

G. Multiple Regression Model

The MRA is an extension of Multiple Regression Analysis (MRA), in the sense that instead of single independent variable there are two or more independent variables.

Regression Model with k number of independent variables is

$$Y = b_0 + b_1 \text{CRR} + b_2 \text{CATD} + b_3 \text{CDR} + b_4 \text{LAR} + b_5 \text{CAR} + b_6 \text{NPLRu}$$

Where,

Y is dependent variable, CRR, CATD, CAR and NPL, are independent variables, u is an error term, b_0 is Y-intercept, and b_1, b_2, \dots, b_k are partial slope coefficients.

Y = Net Profit after tax (NPAT)

CRR = Current Reserve Ratio

CATD = Credit to Deposit Ratio

CAR = Capital Adequacy Ratio

NPL = Non-performing Loan

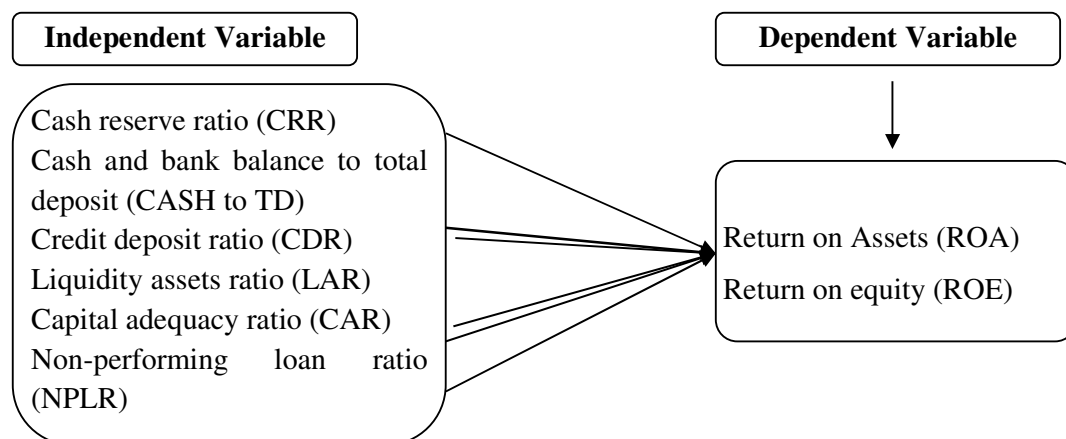
LAR = Liquidity Assets Ratio

CDR = Credit Deposit Ratio

3.3 Conceptual Framework

The conceptual framework shows the relationship between dependent and independent variable of the selected sample commercial banks. It shows that the profitability of the commercial bank is dependent variables as represent by ROA, ROE on several independent variables like CRR, Cash and bank balance to total deposit ratio (CASH to TD), CD ratio, Liquid assets ratio (LAR) and Non-performing loan ratio (NPLR). As this framework shows that researcher considers that all the independent variables significantly influence the profitability if the banks. Hence profitability of the commercial banks is being predicted by mentioned independent variables. According to the research problem, conceptual model of the research is defined as follows.

Theoretical Framework



Sources: *Shrestha and Chaurasiya, 2023*

3.2.3.1 Financial Variables

Financial analysis is the process of identifying the financial strength and weakness of firm by properly establishing relationship between the items of balance sheet and the profit and loss account. Ratio analysis is a powerful tool of financial analysis. A ratio is designed as the indicated quotient of two mathematical expressions and as the relationship between two or more things. In financial analysis, ratio is used as a benchmark for evaluating the financial position and performance of a firm. Several ratios calculated from the accounting data can be grouped into various classes according to the financial activity and function to be evaluated.

Liquidity Ratios

This ratio measures the liquidity position of a firm. It measures the firm's ability to meet its short-term obligations. As financial analytical tools, following liquidity ratios will be used.

Cash Reserve Ratio (CRR)

Each bank has to keep the cash reserve ratio directed by the NRB. The CRR ratio as per the NRB should be 4%. The cash reserve ratio is calculated by using the following formula.

$$\text{Cash Reserve Ratio} = \frac{\text{Cash Reserve at NRB}}{\text{Total Deposits}}$$

Cash and Bank Balance to Total Deposit Ratio

Cash and bank balance are the most liquid current assets. This ratio measures the percentage of the most liquid fund with the bank to make immediate payment to the depositor. This ratio can be computed by dividing cash and bank balance by total deposit and can be presented as:

$$\text{Cash and bank balance to total deposit ratio} = \frac{\text{Cash and bank balance}}{\text{Total Assets}}$$

Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) is measurement of banks available capital expressed as percentage of a bank's risk weighted credit exposure. The capital adequacy ratio also known as capital- to- risk weighted assets ratio is used to protect

depositors and promote stability and efficiency of financial system around the world. The capital adequacy ratio is calculated by using following formula.

$$\text{Capital Adequacy Ratio} = \frac{\text{Tier 1 capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}}$$

Non-performing loan

A nonperforming loan (NPL) is a loan in which the borrower is in default due to the fact that they have not made the schedule payments for a specified period. Although the exact elements of non-performing status can vary depending on the specific loans terms “no payment” is usually defined as zero payments of either principal or interest. The specified period also varies depending on the industry and type of loan. Generally, it includes loan for which schedule payments are not made for more than 90 days.

$$\text{Nonperforming Loan Ratio} = \frac{\text{Non-performing Loan total}}{\text{Total amount of outstanding loan in the banks portfolio}}$$

Liquid Assets Ratio

The ratio of those assets that can be easily be exchanged for money to the total assets of a bank or either financial institution. The liquid assets ratio is calculated by using the following formula.

$$\text{Liquid Assets Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

Credit to Deposit Ratio

The credit deposit ratio also known as Loan deposit ratio. It is a financial ratio that measures the value of bank’s loans to the value of its deposits. The credit deposit ratio is typically used to assess a bank’s liquidity. It is given by the following formula:

$$\text{Credit to Deposit Ratio} = \frac{\text{Total credit or loan}}{\text{Total Deposit}}$$

Profitability Ratios

Profitability ratios are used to indicate and measure the overall efficiency of a firm in terms of profit and financial performance. For better performance, profitability ratios of firm should be higher. Under this, the following profitability ratio will be computed:

A. Return on Total Asset Ratio (ROA)

This ratio measures the overall profitability of all working fund i.e. total assets. It is also known as return on assets (ROA). This ratio is calculated by dividing net profit (loss) by total working funds. This can be presented as:

$$\text{Return on Total Asset ratio} = \frac{\text{Net profit After Tax}}{\text{Total Assets}}$$

B. Return on Equity Ratio (ROE)

Equity means its own capital. The prime objective of any banks is wealth maximization or in other words, to earn high profit and maximizing return to its shareholders. ROE is the measuring rod of the profitability of banks. It reflects the extent to which the banks have been successful to mobilize its equity capital. A high ratio indicates higher success to mobilize its owned capital and vice-versa. Mathematically, it can be represented as:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

CHAPTER-IV

RESULTS AND DISCUSSION

This chapter provides the systematic presentation and analysis of data to deal with various issues associated determinants of liquidity impact on profitability of Nepalese commercial banks. This chapter also presents the result of data analysis obtained by applying the various financial and statistical, econometric tools and methodologies described in chapter three Research Methodology. The chapter four consists of two segments. The segments of the chapter deals with the presentation and analysis of data collected from various sources while the second part deals with discussions of the study.

4.1 Result

4.1.1 Presentation and analysis of variables

The performance of individual bank and its liquidity position vary from each other which directly impact on the profitability. A bank having required standard amount of liquidity will generate high profitability. Various indicators of liquidity are used to analyze the profitability of the sample banks. The used indicators are cash reserve ratio (CRR), cash and bank balance to total deposit ratio (CBB/DR), capital adequacy ratio (CAR), nonperforming loan (NPL), credit to deposit ratio (CDR), return on assets (ROA), and return on equity (ROE).

4.1.2 Cash Reserve Ratio (CRR)

The cash reserve ratio is the percentage of a bank's total deposits that it needs to maintain as liquidity cash. This is an NRB requirement, and the cash reserve is with the NRB. A bank does not earn interest on this liquidity cash maintained with the NRB and neither can it use this for investing and lending purposes. When the CRR increases, banks need to hold a higher proportion of their deposits in reserve, thus reducing the amount of money available for lending. This can lead to a decrease in credit availability.

Table 3*Structure of Cash Reserve Ratio of Sample Banks*

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	4.57	0.6	2.86	6.83	4.2	6.81	9.26	5.53	6.18	1.62	4.9	2.6
2015	4.28	0.75	2.38	5.61	4.1	2	0.2	3.66	3.61	3.42	3	1.7
2016	5.39	1.01	3.77	4.16	3.6	2.2	0.22	5.79	3.6	2.79	3.3	1.8
2017	5.7	0.79	3.18	4.86	4.7	2.33	3.27	1.52	5.77	5.95	3.8	1.9
2018	8.98	2.04	2.83	2.69	8.7	2.59	3.58	1.14	3.25	5.04	4.1	2.7
2019	9.16	6.77	4.33	4.92	4	2.15	3.66	0.59	6.13	5.36	4.7	2.4
2020	8.73	3.01	6.29	4.16	3.2	3.72	4.01	1.8	2.63	3	4.1	2
2021	6.91	4.56	4.14	8.04	3.5	2.32	3.72	1.52	3.29	3.27	4.1	2
2022	0.67	3.2	8.07	6.95	3.3	2.11	2.5	2.91	3.18	3.71	3.7	2.2
2023	0.41	0.64	3.13	7.92	2.5	1.83	2.63	0.28	1.29	3.57	2.4	2.3
Mean	5.48	2.34	4.1	5.61	4.2	2.81	3.31	2.47	3.89	3.77		
S.D	3.15	2.07	1.78	2.77	2.7	1.5	2.51	1.95	2.62	2.31		

Source: *Annual Report, Appendix*

Table 3 depicts that HBL has minimum average cash reserve ratio and SBL has maximum cash reserve ratio followed GBIME, SBI, EBL, NICA, NBL, SCB, MBL, and PRVU bank respectively. The mean cash reserve ratio is in decreasing and somewhere increasing trend from fiscal year 2013/14 to 2022/23. The mean cash reserve ratio increased and decreases by approximately one points compared to each fiscal year. The mean cash reserve ratio of commercial banks was maximum at fiscal year 2013/14 i.e. 4.85 and minimum at fiscal year 2022/23 i.e. 2.42. The overall mean cash reserve ratio is 3.80; this means HBL, MBL and PRVU have lower cash reserve prescribe by NRB (i.e. 3%) and the remaining bank having highest cash reserve. The mean standard deviation in terms of capital adequacy ratio is 2.19. Likewise, in teams of standard deviation, SCB has the lowest value of standard deviation (1.31) and GBIME has the highest value of standard deviation (3.15) which indicates that GBIME has more reserve and SCB has less cash reserve ratio. The higher cash reserve ratio in GBIME suggests low profitability of the bank and lower cash reserve in SCB suggests high chance of profitability of the bank.

4.1.3 Cash and Bank Balance to Total Deposit Ratio (CBBDR)

The Cash and Bank Balance to Total Deposit Ratio is a financial ratio that measures the proportion of a bank's total deposits that are held in the form of cash and balances with other banks. This ratio provides insights into a bank's liquidity and its ability to meet short-term obligations. A higher ratio generally indicates a more liquid position. Cash and bank are the most liquid current assets.

Table 4

Structure of Cash and Bank Balance to Total Deposit Ratio of Sample Banks

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	16.3	2.02	5.7	18.2	18.3	3.12	10.2	9.5	7.37	10.8	10.2	5.89
2015	12.3	1.72	5.8	11.5	19.1	3.28	0.78	14	6.31	8.29	8.31	5.88
2016	12.7	11.18	5.4	10.4	19.5	4.48	0.72	5.2	8.3	7.33	8.52	5.24
2017	11.6	10.11	6.8	8.35	18	5.95	9.98	11	9.77	6.25	9.75	3.5
2018	18.6	10.77	7.4	6.43	13.6	6.68	10	12	10.5	7.77	10.4	3.73
2019	8.5	26.54	7.4	7.49	14	5.61	10	12	11.6	17.21	12.1	6.16
2020	8.32	4.45	6.5	7.84	13.5	5.91	10.3	0.6	10.2	17.07	8.47	4.64
2021	9.6	11.56	6.6	7.5	12.8	10.9	10.4	0.6	10.1	15.71	9.58	4.06
2022	7.41	0.77	6.6	6.43	12.7	10.5	9.26	0.9	8.3	14.92	7.77	4.53
2023	4.37	10.18	0.1	6.71	12.5	9.27	10.7	0.7	8.15	5.54	6.82	4.18
Mean	11	8.93	5.8	9.09	15.4	6.58	8.23	6.7	9.05	11.09		
S.D	4.25	7.56	2.1	3.62	2.93	2.81	3.96	5.6	1.62	4.67		

Source: *Annual Report, Appendix*

Table 4 depicts that EBL has minimum average cash reserve ratio and SBI has maximum cash bank balance to deposit ratio followed GBIME, SBL, HBL, NICA, NBL, SCB, MBL, and PRVU bank respectively. The mean cash bank balance to deposit is in decreasing and somewhere increasing trend from fiscal year 2013/14 to 2022/23. The mean cash bank balance to deposit increased and decreases by approximately one points compared to each fiscal year. The mean cash reserve ratio of commercial banks was maximum at fiscal year 2018/19 i.e. 12.07 and minimum at fiscal year 2022/23 i.e. 6.82. The overall mean cash bank balance to deposit is 9.18; this means GBIME, SBI and SCB have highest cash bank balance and the remaining bank having lowest cash bank balance. The mean standard deviation in terms of capital adequacy ratio is 4.86. Likewise, in terms of standard deviation, NICA has the lowest value of standard deviation (1.62) and HBL has the highest value of standard deviation (7.56) which indicates fluctuation that HBL has more and NICA has more

stability in the cash bank balance to deposit ratio. The higher cash bank balance to deposit ratio in HBL suggests low profitability but high available cash to meet uncertainty of the bank and lower cash and bank balance in NICA suggests high chance of profitability but more frazil to meet depositor of liquidity risk of the bank.

4.1.4 Capital Adequacy Ratio (CAR)

Capital adequacy is one of the most important components to safety and smoothly operation. Every bank has to maintain the appropriate level of capital. Capital adequacy ratio above the NRB shows adequacy of capital and where lower CAR is insufficient internal sources or weak financial position. According to the NRB's supervision report 2023, minimum level of capital to its total risk weighted assets is 13%. Total capital adequacy ratio of selected banks for 10 years period is presented in following table.

Table 5

Structure of capital adequacy ratio of Sample Banks

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	11.2	11.13	13	10.3	10.9	13.5	10.4	11	12	12.44	11.6	1
2015	10.5	11.99	10	12.7	12.7	12.7	9.9	12	11.3	11.25	11.6	1.06
2016	9.45	10.65	14	13.9	13.9	11.9	9.87	11	15.6	10.36	12.1	2.08
2017	11.3	9.15	11	9.73	14.8	12.9	10.3	10	16.8	9.73	11.6	2.49
2018	13.5	12.34	9.7	9.89	13.8	10.8	11.4	10	16.7	11.02	11.9	2.19
2019	12.3	10.54	12	11.3	12.8	11.5	13.8	11	15.7	10.6	12.1	1.6
2020	11.5	9.34	10	10	11.5	12.8	12.8	13	14.8	9.64	11.5	1.74
2021	11.5	12.9	9.5	13.5	12.8	14.9	13.8	15	16.9	12.74	13.3	2.01
2022	10.6	12.45	12	13.4	12.9	13.7	12.7	13	13.8	12.85	12.5	1
2023	11	13.44	12	12.5	11.8	14.6	11.6	16	14.2	10	12.8	1.84
Mean	11.3	11.39	11	11.7	12.8	12.9	11.7	12	14.8	11.06		
S.D	1.07	1.47	1.3	1.72	1.17	1.29	1.52	1.8	1.96	1.23		

Source: *Annual Report, Appendix*

Table 5 depicts that EBL bank has minimum average capital adequacy ratio and PRVU has maximum capital adequacy ratio followed HBL, SBL, GBIME, SBI, NICA, NBL, SCB, and MBL bank respectively. The mean capital adequacy ratio is in decreasing and somewhere increasing trend from fiscal year 2013/14 to 2020/21. The mean capital adequacy ratio increased and decreases by approximately one points compared to each fiscal year. The mean capital adequacy ratio of commercial banks

was maximum at fiscal year 2020/21 i.e. 13.31 and minimum at fiscal year 2019/20 i.e. 11.54. The overall mean capital adequacy ratio is 12.10; this means MBL, SBI, NICA and PRVU performance are above the mean as per capital adequacy ratio and the remaining bank fails to meet the average capital adequacy ratio by their performance. The mean standard deviation in terms of capital adequacy ratio is 1.78. Likewise, GBIME has the lowest value of standard deviation (1.07) and NICA has the highest value of standard deviation (1.96) which indicates that NICA has more fluctuation and GBIME has more stable capital adequacy ratio. The higher fluctuation of capital adequacy ratio in NICA suggests inconsistent performance of the bank and lower fluctuation of CAR in GBIME suggests consistent performance of the bank.

4.1.5 Non-Performing Loan (NPL)

A non-performing loan (NPL) is a loan that is in default or is unlikely to be repaid in full. NPLs represent a major challenge for the banking sector, as they reduce profitability and can lead to financial instability. The interest and principal amount due by the borrowers is called Non-performing loan. NRB's classified Non-performing loan into three categories they are sub-standard loan, Doubtful loan and loss loan. The ratio of Non-performing Loan to total loan and advance shows the percentage of Non-performing Loan in total loan. The lower the ratio is better proportion of performing loans and low risk of default.

Table 6

Structure of Non-performing Loan Ratio of sample banks

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	2.43	1.84	4.7	6.85	6.75	3.87	2.23	4.7	3.09	5.85	4.23	1.8
2015	3.76	2.75	3.9	7.85	4.84	2	3.23	3.8	5.86	7.75	4.56	2
2016	3.75	5.74	4.6	4.75	5.85	5.74	3.32	7.8	6.85	4.75	5.3	1.4
2017	6.47	4.86	7	6.85	8.87	5.98	1.5	8.8	4.85	8.75	6.38	2.3
2018	3.75	5.86	9	7.85	9.85	6.86	4.37	8	7.85	8.75	7.21	2
2019	4.87	8.85	11	6.85	10.8	9.85	6.85	9.9	9.85	9.76	8.81	2
2020	8.87	9.65	12	9.49	13.6	11.8	8.95	10	7.98	10.75	10.3	1.7
2021	10.8	12.75	11	10.8	12.8	13.9	7.4	11	9.95	12.48	11.3	1.8
2022	12.5	12.75	13	12.9	15.5	12.9	8.95	13	10.8	13.78	12.6	1.7
2023	12.8	10.37	14	14.9	13.8	13.9	9.85	15	12.5	12.75	12.9	1.7
Mean	6.99	7.54	8.9	8.89	10.2	8.66	5.66	9.2	7.95	9.53		
S.D	3.92	3.9	3.7	3.11	3.65	4.33	3.09	3.4	2.88	2.97		

Source: *Annual Report, Appendix*

Table 6 depicts that NBL bank has minimum average Non-performing loan ratio and SBI has maximum followed by HBL, GBIME, SBI, EBL, NICA, SCB, MBL, and PRVU respectively. The mean dividend per share is in a fluctuating trend on each fiscal year. The mean Non-performing loan ratio of commercial banks is maximum at fiscal year 2022/23 i.e. 12.94 and minimum at fiscal year 2013/14 i.e. 4.23. The overall mean Non-performing loan ratio is 8.36, this means SBI, PRVU and SCB performance are better the mean as per Non-performing loan ratio and the remaining bank fails to meet the average Non-performing loan ratio by their performance. The mean standard deviation in terms of Non-performing loan ratio is 3.59. Likewise, NICA has the lowest value of standard deviation (2.88) and MBL has the highest value of standard deviation (4.33) which indicates fluctuation that MBL has more and NICA has more stability in the Non-performing loan ratio. The higher fluctuation of Non-performing loan ratio in MBL suggests well performing of the bank and lower fluctuation of Non-performing loan ratio in NICA bank suggests low performance of the bank.

4.1.6 Liquidity Assets Ratio (LAR)

The ratio of those assets that can be easily be exchanged for money to the total assets of a bank or either financial institution. This is the most common measure of a company's short-term liquidity. It is calculated by using the following formula i.e. Liquid Assets to Total Assets.

Table 7 *Structure of Liquidity Assets Ratio of sample banks*

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	2.45	4.75	1	2.75	3.86	4.86	5.85	3.9	4.53	4.57	3.84	1.4
2015	4.76	7.65	1.5	4.57	5.86	3.86	4.86	5.9	6.86	6.96	5.27	1.8
2016	3.75	4.76	2.9	5.86	4.86	3.86	6.87	7	5.87	7.97	5.36	1.6
2017	5.84	5.86	1.9	3.86	7.86	5.87	8.86	5.9	7.96	8.96	6.28	2.2
2018	6.84	6.87	4	5.76	7.86	7.86	7.66	7	7.4	6.97	6.81	1.2
2019	7.84	9.85	5.9	6.85	6.86	6.96	7.3	7.1	8.87	5.96	7.34	1.2
2020	6.85	5.85	4.9	7.87	5.96	6.86	6.47	8.1	6.97	7.59	6.73	1
2021	5.85	3.86	5.9	8.86	6.87	4.54	5.47	9.7	6.97	7.34	6.54	1.8
2022	7.85	7.85	7	5.86	7.99	5.35	6.66	8	7.58	6.86	7.09	0.9
2023	5.85	1.75	8	8.76	8.97	6.85	3.75	7.3	8.32	5.49	6.5	2.3
Mean	5.79	5.9	4.3	6.1	6.69	5.68	6.37	7	7.13	6.86		
S.D	1.73	2.3	2.4	2.03	1.57	1.41	1.46	1.6	1.24	1.26		

Source: *Annual Report, Appendix*

Table 7 depicts that EBL has minimum average mean liquidity assets ratio and NICA has maximum earning per share followed HBL, SBL, GBIME, SBI, NBL, SCB, MBL, and PRVU respectively. The mean liquidity assets ratio of commercial banks was maximum at fiscal year 2018/19 i.e. 7.34 and minimum at fiscal year 2013/14 i.e. 3.84. The overall mean earnings per share is 6.18; this means SCB, NICA, PRVU, NBL and SBI performance are above the mean as per liquidity assets ratio and the remaining bank fails to meet the average Earnings per share by their performance. The mean standard deviation in terms of Earnings per share is 1.85. Likewise, NICA has the lowest value of standard deviation (1.24) and EBL has the highest value of standard deviation (2.43) which indicates that EBL has more fluctuation and NICA has more stable liquidity assets ratio. The higher fluctuation of Earnings per share in EBL suggests inconsistent performance of the bank and lower fluctuation of Earnings per share in NICA suggests consistent performance of the bank.

4.1.7 Credit to Deposit Ratio (CDR)

The credit-to-deposit ratio (CTD), also known as the loan-to-deposit ratio (LTD), is a key indicator of a bank's liquidity and lending activity. It essentially tells you how much of the money a bank receives in deposits it has loaned out to borrowers. The credit deposit ratio measures deposit ratio the value of bank's loans to the value of its deposits.

Table 8

Structure of Capital to Deposit Ratio of sample banks

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	75.9	80	78.5	79	66.9	77.1	70.8	76	80.8	67.9	75.3	5.02
2015	77.7	83.8	78.6	80.8	68.9	75.6	77.8	77.8	81.9	69.9	77.3	4.77
2016	89.8	85.8	85.8	89.9	87.7	81.6	78.9	79.9	85	72.9	83.7	5.39
2017	84.7	89.5	83.8	90.6	87.6	84.7	78.8	80	84.5	74.9	83.9	4.89
2018	79.1	86.8	79.8	89.4	88.9	89.8	80.7	81.9	81.8	72.7	83.1	5.54
2019	80.8	88.8	77.8	87.4	90.9	85.8	81.9	82.9	80.5	77.9	83.4	4.56
2020	85.7	90.5	80.1	80.9	89.1	83.9	80.8	83.9	85.9	79	83.9	3.88
2021	70.8	89.9	86.8	79.8	81	82.9	79.9	86.5	88.9	75.7	82.2	6.04
2022	71.5	84.9	87.9	78.9	78.5	82.3	76.9	88.9	79.9	79.5	80.9	5.25
2023	77.3	76.9	88.8	79.9	81.7	80.6	79.9	89.7	77.9	78.9	81.1	4.51
Mean	79.3	85.7	82.8	83.6	82.1	82.4	78.6	82.7	82.7	74.9		
S.D	6.1	4.47	4.28	4.99	8.54	4.1	3.13	4.57	3.3	4.03		

Source: *Annual Report, Appendix*

Table 8 depicts that SCB has minimum average mean capital to deposit ratio and HBL bank has maximum capital to deposit ratio followed SBL, GBIME, SBI, EBL, NICA, NBL, MBL, and PRVU respectively. The mean capital to deposit ratio of commercial banks was maximum at fiscal year 2016/17 i.e. 83.90 and minimum at fiscal year 2013/14 i.e. 75.26. The overall mean to the capital to deposit ratio is 81.48; this means NICA, PRVU, MBL, SBI, SBL, EBL and HBL performance are above the mean as per capital to deposit ratio and the remaining bank are below average capital to deposit ratio by their performance. The mean standard deviation in terms of capital to deposit ratio is 5.57. Likewise, NBL has the lowest value of standard deviation (3.13) and SBI has the highest value of standard deviation (8.54) which indicates that SBI has more fluctuation and NBL bank has more stable capital to deposit ratio. The higher fluctuation of Sensitivity to the capital to deposit ratio in SBI bank suggests inconsistent performance of the bank and lower fluctuation of Sensitivity to the capital to deposit ratio in NBL suggests consistent performance of the bank.

4.2 Analysis of Structure of Profitability of Sample Banks

Profitability Ratio is one of the main indicators to analyzing the financial performance of a firm. It calculates to measure the raining performance and operational efficiency of the bank. The profitability of the bank should also be evaluated in term of its investment in assets and in term of capital contributed by creditors.

4.2.1 Return on Assets (ROA)

ROA measures the effectiveness of a bank's total assets and gives management a notion about how to use bank's assets professionally to make earnings over a certain period. It is determined as: net income to average total assets. ROA is a fundamental measure of a company's overall profitability. It helps assess how well management is using the company's resources to generate earnings.

Table 9*Structure of Return on Assets of sample banks*

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	1.62	1.91	2.01	1.5	2.25	1.5	2.31	1.2	2.63	2.51	1.94	0.48
2015	1.39	1.76	2.06	1.4	1.85	1.46	2.69	1.26	2.81	1.99	1.87	0.59
2016	1.58	1.54	1.95	1.48	1.85	1.23	3.04	1.15	2.47	1.98	1.83	0.58
2017	1.75	1.3	2.24	1.51	1.83	1.33	2.58	1.11	2.65	1.84	1.81	0.53
2018	1.67	1.34	2.2	1.47	1.97	1.37	1.77	1.27	2.91	3.6	1.96	0.76
2019	1.82	1.94	1.59	1.61	1.94	1.46	2.21	1.74	1.78	2.61	1.87	0.33
2020	1.3	2.03	1.52	1.33	1.42	1.2	2.57	1.51	3.04	1.71	1.76	0.6
2021	1.82	2.11	1.72	1.31	0.89	1.18	2.47	1.68	2.58	1.22	1.69	0.56
2022	1.06	1.61	2.1	1.18	0.7	1.39	2.11	1.55	2.15	1.83	1.56	0.49
2023	1.52	1.66	2.06	1.15	1.6	1.7	1.46	1.7	2.31	2.41	1.75	0.39
Mean	1.55	1.72	1.95	1.39	1.63	1.38	2.32	1.41	2.53	2.17		
S.D	0.24	0.28	0.25	0.15	0.49	0.15	0.46	0.22	0.37	0.8		

Source: *Annual Report, Appendix*

Table 9 exhibits MBL has minimum average mean ROA and NICA has maximum ROA followed HBL, SBL, GBIME, SBI, EBL, NBL, SCB and PRVU respectively. The ROA of commercial banks was maximum at fiscal year 2017/18 i.e. 1.96 and minimum at fiscal year 2021/22 i.e. 1.56. The overall mean ROA is 1.8; this means HBL, EBL, SBI, MBL, SBI, NBL, and NICA performance are above the mean as per ROA and the remaining banks fail to meet the average ROA by their performance. The mean standard deviation in terms of ROA is 2.76. Likewise, NBL has the lowest value of standard deviation (1.09) and SBL has the highest value of standard deviation (0.2) which indicates that SBL has more fluctuation and NBL has more stable ROA. The higher fluctuation of ROA in SBL suggests inconsistent performance of the bank and lower fluctuation of Sensitivity to the ROA in NBL suggests consistent performance of the bank.

4.2.2 Return on Equity (ROE)

ROE measures the profitability of the investment generated by shareholders, or the return to suppliers of equity capital in a bank. As with ROA, a higher profit margin contributes to a higher ROE as it represents a larger portion of sales translated into net income.

Table 10*Structure of Return on Equity of sample banks*

Year	GBIME	HBL	EBL	SBL	SBI	MBL	NBL	PRVU	NICA	SCB	Mean	S.D
2014	28.9	21.8	24	22.9	28.9	20.9	33	29	29.9	27.8	26.7	4
2015	26.5	26.9	31	25.9	27.9	20	32.3	29	30.6	33.9	28.4	4
2016	25.6	29.9	34	28.9	27	22.6	31.5	31	32.8	31.9	29.5	3.5
2017	29.9	30.9	33	29.9	31	28	30.9	30	31.5	30.9	30.6	1.3
2018	30.8	33.9	32	29	33	30.9	32.5	33	31.8	31.9	31.9	1.4
2019	32.9	31.9	33	26.9	30	32.7	32.9	32	32.5	32.9	31.7	1.9
2020	29.9	29.9	33	29.1	30.9	34	30.9	32	30.8	30.9	31.1	1.5
2021	28.9	33.9	31	31	33.4	32	29.9	31	31.8	32.9	31.5	1.6
2022	30.9	31.9	32	32	29.9	33	31.6	30	30.5	32	31.3	1
2023	27.6	27.9	28	34	22.8	30.9	33	29	23.9	30.6	28.7	3.6
Mean	29.2	29.9	31	28.9	29.5	28.5	31.8	31	30.6	31.5		
S.D	2.18	3.65	3	3.16	3.09	5.35	1.07	1.5	2.54	1.68		

Source: *Annual Report, Appendix*

Table 10 exhibits SBL has minimum mean ROE and NBL has maximum ROA followed HBL, GBIME, SBI, EBL, NICA, SCB, MBL, and PRVU respectively. The ROE of commercial banks was maximum at fiscal year 2017/18 i.e. 31.85 and minimum at fiscal year 2013/14 i.e. 26.67. The overall mean ROE is 30.12; this means EBL, NBL, PRVU, NICA, and SCB performance are above the mean as per ROE and the remaining bank fails to meet the average ROE by their performance. The mean standard deviation in terms of ROE is 3.03. Likewise, NBL has the lowest value of standard deviation (1.07) and HBL has the highest value of standard deviation (3.65) which indicates that HBL has more fluctuation and NBL bank has more stable ROE. The higher fluctuation of ROE in HBL suggests inconsistent performance of the bank and lower fluctuation of Sensitivity to the ROE in NBL suggests consistent performance of the bank.

4.3 Descriptive Statistics of Variable

The descriptive statistics of the explanatory and explained variables in this study are presented in Table. It is based on a panel data set organized from 10 commercial banks operating in the Nepalese financial market during the period from 2013 to 2014. Descriptive statistics computes maximum, minimum, mean, standard deviation

of the study that consists Table 4.9 reveals that there are 100 observations in the study. The observations include 6 variables of 10 commercial banks taken into consideration. Looking at them, generally, the statistics indicate a wide variability exist in the indicators of liquidity management and profitability of commercial banks.

Table 11

Structure of descriptive statistics of variable of sample bank

	N	Minimum	Maximum	Mean	Std. Deviation
CRR	100	.20	9.26	3.7971	2.19318
CASHTD	100	.05	26.54	9.1795	4.85831
CDR	100	66.86	90.90	81.4824	5.57098
LAR	100	.95	9.85	6.1778	1.85021
CAR	100	9.15	16.85	12.1061	1.78057
NPLR	100	1.50	15.47	8.3620	3.59773

Source: SPSS calculation

Table 11 exhibit descriptive statistics where CRR mean is 3.79 from the range to minimum 0.2 to maximum 9.26 percent, which is satisfactory since it is said to be good. CBBTD is the ratio ranges from minimum 0.05 percent to maximum of 26.54 percent. It has mean 9.18 and standard deviation from mean as 4.86 percent. CAR is above the mandatory minimum requirement of 10 percent required by Nepal Rastra Bank's regulatory directive, where the deviation is 1.78. Non-performing Loan Ratio ranges from minimum of 1.5 percent to maximum of 15.47 percent. It has mean value of 8.36 and standard deviation from mean is 3.59 percent, which is obsession with NPLR to >1.5 percentage is said to be weak in general. LAR ranges from minimum 0.95 percent to maximum of 9.85 percent. It has mean 6.18 and standard deviation from mean as 1.85 percent. Where, CDR range from 66.86 to 90.9 and standard deviation from mean is 5.57 percent.

4.4 Correlation Analyses

Correlation analysis is a statistical method used to evaluate the strength of relationship between two quantitative variables. The relationship of CRR, CBBTD, CAR, NPL, CDR, ROA, and ROE is determined in this section. Therefore, it is reasonable to expect some kind of relationship among these pairs of variables. A high correlation means that two or more variables have a strong relationship with each other, while a

weak correlation means that the variables are hardly related. Hence, ‘*’ sign indicates that correlation is significant at 5 percent level (2-tailed) and ‘***’ indicates that correlation is significant at 1 percent level (2-tailed). The correlation between different measures of liquidity management and profitability of Nepalese commercial banks is presented in Table 12.

Table 12

Structure of Correlation Matrix of variables of sample bank

	ROA	ROE	CA	CATD	CDR	LAR	CAR	NPLR
ROA	1							
ROE	.126 (.062)	1						
CRR	-.012 (.091)	.133 (.088)	1					
CASHTD	-.046 (.047)	.085 (.083)	.302** (.002)	1				
CDR	-.119 (.040)	.100 (.052)	-.039 (.098)	-.105 (.060)	1			
LAR	.001 (.096)	.293** (.003)	.098 (.053)	-.025 (.054)	.139 (.068)	1		
CAR	.118 (.243)	.053 (.062)	.035 (.076)	.038 (.071)	.153 (.078)	.203* (.043)	1	
NPLR	-.251* (.012)	.283** (.004)	-.049 (.029)	-.032 (.091)	.171 (.088)	.354** (.000)	.213* (.034)	1

Source: SPSS calculation

Table 12 shows the analysis of relationships between the dependent variables Return on Assets (ROA) and Return on Equity (ROE) with the independent variables Cash Reserve Ratio (CRR), Cash to Total Deposits (CATD), Credit to Deposit Ratio (CDR), Loan to Asset Ratio (LAR), Capital Adequacy Ratio (CAR), and Non-Performing Loan Ratio (NPLR), we can examine the Pearson correlation coefficients and their significance levels. ROA Analysis to CRR the correlation between CRR and ROA is -0.012, which is very weak and not statistically significant ($p = 0.909$). Therefore, CRR has no meaningful impact on ROA. ROA to CATD the correlation between CATD and ROA is -0.046, which is weak and not statistically significant ($p = 0.647$). Thus, CATD does not significantly affect ROA. ROA to CDR the correlation between CDR and ROA is -0.119, which is weak and not statistically significant ($p = 0.240$). Therefore, CDR does not have a significant impact on ROA.

ROA to LAR the correlation between LAR and ROA is 0.001, which is extremely weak and not statistically significant ($p = 0.996$). Hence, LAR does not influence ROA significantly. ROA to CAR the correlation between CAR and ROA is 0.118, which is weak and not statistically significant ($p = 0.243$). Thus, CAR does not have a significant impact on ROA. ROA to NPLR the correlation between NPLR and ROA is -0.251, which is moderate and statistically significant at the 0.05 level ($p = 0.012$). This indicates that a higher NPLR is associated with a lower ROA, showing a negative relationship.

ROE Analysis of CRR the correlation between CRR and ROE is 0.133, which is weak and not statistically significant ($p = 0.188$). Therefore, CRR has no significant impact on ROE. In other hand ROE and CATD the correlation between CATD and ROE is 0.085, which is weak and not statistically significant ($p = 0.403$). Thus, CATD does not significantly affect ROE. As well as ROE to CDR the correlation between CDR and ROE is 0.100, which is weak and not statistically significant ($p = 0.322$). Hence, CDR does not significantly impact ROE. An Analysis of ROE to LAR the correlation between LAR and ROE is 0.293, which is moderate and statistically significant at the 0.01 level ($p = 0.003$). This indicates that a higher LAR is associated with a higher ROE, showing a positive relationship. Also analysis of ROE to CAR the correlation between CAR and ROE is 0.053, which is weak and not statistically significant ($p = 0.602$). Thus, CAR does not significantly impact ROE. Finally analysis of ROE to NPLR the correlation between NPLR and ROE is 0.283, which is moderate and statistically significant at the 0.01 level ($p = 0.004$). This indicates that a higher NPLR is associated with a higher ROE, showing a positive relationship. In summary for analysis of ROA, only NPLR shows a significant negative relationship, suggesting that higher non-performing loans reduce return on assets. For analysis ROE both LAR and NPLR show significant positive relationships, indicating that higher loan-to-asset ratios and higher non-performing loan ratios are associated with higher return on equity. These findings highlight the nuanced relationships between financial ratios and profitability measures, with certain variables significantly impacting ROE but not ROA, and vice versa.

Reason of insignificant of variable in the provided analysis, most of the relationships between the variables and Return on Assets (ROA) are insignificant due to the weak correlation coefficients and high p-values. Specifically, the correlations of Cash

Reserve Ratio (CRR), Cash to Total Deposits (CATD), Credit to Deposit Ratio (CDR), Loan to Asset Ratio (LAR), and Capital Adequacy Ratio (CAR) with ROA are weak and not statistically significant, as indicated by their respective p-values (greater than 0.05). This means that these variables do not have a meaningful impact on ROA. The only variable showing a significant relationship with ROA is the Non-Performing Loan Ratio (NPLR), which has a moderate negative correlation and a p-value of 0.012, indicating that higher NPLR is associated with lower ROA. In summary, except for NPLR, the other variables do not significantly influence ROA, highlighting the insignificance of these results.

4.5 Regression Analysis of Variables

This section presents the overall analysis and results of the regression analysis. In this study ROA and ROE were used as a main performance measure. The reason for using those variables was because those profitability variables reflect the overall ability of a bank's management. So, they are the dependent variable in this study. The independent variables are CRR, CBBTD, CAR, NPLR, LAR, and CDR. The regression Model results on 6 explanatory variables with 10 sample banks, out of the total population of 20 commercial banks licensed by Nepal Rastra Bank with 100 observations for the period 2013/14 to 2022/23. The table covers 2 different regression models. Test of significance criteria is set by comparing the P-value with common alpha level, which is 0.05. A smaller p-value than default alpha value ($P < 0.05$) has been interpreted as the obtained coefficient of regression of selected dependent and other independent variables or predictor is significant and vice versa. Further, F and Adj.R2 indicates F- statistics and Adjusted R square respectively.

4.5.1 The Multiple Regression of ROA on Liquidity

The regression of ROA and liquidity variables (i.e. CRR, CBBTD, CAR, NPLR, LAR, and CDR.) impact has been analyzed by defining the ROA changes in terms of liquidity position of selected banks. The regression of ROA on liquidity as indicated in the table 4.13. The equation for this regression module is as follows:

$$ROA = \beta_0 + \beta_1 CRR + \beta_2 CBBTD + \beta_3 CAR + \beta_4 NPLR + \beta_5 LAR + \beta_6 CDR + e$$

Where,

ROA= Return on Asset, CRR= cash reserve ratio, CBBTD= cash and bank balance to total deposit, CAR= capital adequacy ratio, NPLR= nonperforming loan ratio, LAR= liquidity assets ratio, CDR= cash to deposit ratio, β_0 = constant, e= error

Table 13

Structure of Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.340 ^a	.116	.59	.51081

a. Predictors: (Constant), NPLR, CASHTD, CDR, CAR, CA, LAR

Sources: *SPSS calculation*

Table 13 shows that the R square statistics and the adjusted R square statistics of the model are 0.116 and 0.59 respectively. The result indicates that the change in independent variables explains 59 percentage of the change in dependent variables. That means CDR, CRR, CAR, LAR, CBBTD and NPLR explain 59 percentages in ROA. The remaining 41 percentage change is explained by other factors which are not including in the model.

Table 14

ANOVA

	Model	Sum of Squares	Df	Mean Square	F	Sig.
	Regression	3.175	6	.529	2.028	.0070 ^b
1	Residual	24.266	93	.261		
	Total	27.441	99			

a. Dependent Variable: ROA

b. Predictors: (Constant), NPLR, CASHTD, CDR, CAR, CA, LAR

Sources: *SPSS calculation*

Table 14 indicates that the dependent and independent variables have significant relationship between them. ROA, the dependent variable has significant relationship with all independent variables (CDR, CRR, CAR, LAR, CBBTD, NPLR) having significant value of 0.007 which is less than 0.05.

Table 15*Regression Coefficients*

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
1 (Constant)	2.332	0.811	2.877	0.005
CRR	0.015	0.008	1.785	0.080
CASHTD	-0.411	0.334	-1.23	0.238
CDR	0.001	0.005	0.20	0.896
LAR	0.147	0.157	0.936	0.353
CAR	0.018	0.036	0.5	0.120
NPLR	-0.065	0.011	-5.91	0.017

a. Dependent Variable: ROA

Sources: *SPSS calculation*

Table 15 presents the impact of liquidity and profitability variables on Return on Assets (ROA) through a multiple linear regression model. The constant term (0.832) is statistically no significant (Sig. = 0.069), indicating that, all predictors, there is significant baseline for ROA. Analyzing the individual predictors, the CRR has a positive unstandardized coefficient of 0.015, but it is not statistically significant (Sig. = 0.080), suggesting that changes in cash reserve may not have a significant impact on ROA. Similarly, the CASHTD with a coefficient of -0.411 is not statistically significant (Sig. = 0.238). 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 LAR has a positive impact with a coefficient of 0.147, and while it is not statistically significant at the conventional 0.05 level (Sig. = 0.353), it approaches significance. Where, NPLR, with a coefficient of -0.065, is statistically significant (Sig. = 0.017). In summary, the findings suggest that the liquidity and profitability variables included in the model might not have 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.

4.5.2 The Multiple Regressions of ROE on Liquidity

The regression of ROE and liquidity variables (i.e. CDR, CRR, CAR, LAR, CBBTD, NPLR) impact has been analyzed by defining the ROE changes in terms of liquidity position of selected banks. The regression of ROE on liquidity as indicated in the table 4.14. The equation for this regression module is as follows:

$$ROE = \beta_0 + \beta_1 CRR + \beta_2 CBBTD + \beta_3 CAR + \beta_4 NPLR + \beta_5 LAR + \beta_6 CDR + e$$

Where,

ROE= Return on Equity, CRR= cash reserve ratio, CBBTD= cash and bank balance to total deposit, CAR= capital adequacy ratio, NPLR= nonperforming loan ratio, LAR= liquidity assets ratio, CDR= cash to deposit ratio, β_0 = constant, e= error

Table 16

Structure of Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.382 ^a	0.146	.091	2.88584

a. Predictors: (Constant), NPLR, CASHTD, CDR, CAR, CRR, LAR

Sources: *SPSS calculation*

Table 16 shows that the R square statistics and the adjusted R square statistics of the model are 0.146 and 0.091 respectively. The result indicates that the change in independent variables explains 14.6 percentage of the change in dependent variables. That means CDR, CRR, CAR, LAR, CBBTD and NPLR explain 14.6 percentages in ROE. The remaining 85 percentage change is explained by other factors which are not including in the model.

Table 17*ANOVA*

	Model	Sum of Squares	Df	Mean Square	F	Sig.
	Regression	132.595	6	22.099	2.654	0.020 ^b
1	Residual	774.512	93	8.328		
	Total	907.107	99			

a. Dependent Variable: ROE

b. Predictors: (Constant),NPLR, CASHTD, CDR, CAR, CRR, LAR

Sources: *SPSS calculation*

Table 17 indicates that the dependent and independent variables have significant relationship between them. ROE, the dependent variable has significant relationship with all independent variables (CDR, CRR, CAR, LAR, CBBTD, NPLR) having significant value of 0.000 which is less than 0.05.

Table 18*Regression Coefficients*

	Model	Unstandardized Coefficients		T	Sig.
		B	Std. Error		
1	(Constant)	24.213	4.580	5.287	.000
	CRR	-0.049	0.064	-0.766	0.448
	CASHTD	-7.478	2.428	-3.080	0.008
	CDR	-0.759	0.258	-2.942	0.005
	LAR	-0.131	0.119	-1.101	0.276
	CAR	0.031	0.202	0.153	0.878
	NPLR	-0.398	0.237	-1.679	0.097

a. Dependent Variable: ROE

Sources: *SPSS calculation*

Table 18 outlines the impact of liquidity and profitability variables on Return on Equity (ROE) through a multiple linear regression model. The constant term (24.213) 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 CRR has an unstandardized coefficient of -0.049, but it is not statistically significant (Sig. = 0.448), suggesting that changes in

the cash reserve ratio (CRR) do not have a significant impact on ROE. Similarly, the CASHTD with a coefficient of -7.478 is statistically significant (Sig. = 0.008). The LAR and NPLR with a negative coefficient of -0.131 and -0.398 respectively are not statistically significant (Sig. = 0.276 and 0.097). 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, with coefficients of 0.031, is not statistically significant (Sig. = 0.878), 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.

4.6 Discussion

The findings from the analysis in this chapter align with existing research on the relationship between liquidity and profitability in the banking sector. The cited studies provide valuable insights into the impact of liquidity on profitability in various contexts, and the findings from the thread's data complement these findings.

The effect of liquidity on the profitability of Nepalese commercial banks and found that liquidity measures such as asset quality and credit to deposit ratio had significant impacts on profitability indicators like return on assets and Return on equity. This aligns with the findings of this research for analysis of ROA, only NPLR shows a significant negative relationship, suggesting that higher non-performing loans reduce return on assets. For analysis ROE both LAR and NPLR show significant positive relationships, indicating that higher loan-to-asset ratios and higher non-performing loan ratios are associated with higher return on equity. These findings highlight the nuanced relationships between financial ratios and profitability measures, with certain variables significantly impacting ROE but not ROA, and vice versa. Magar (2022).

In the analysis indicates that the liquidity and profitability variables examined do not have a significant collective impact on Return on Assets (ROA) based on the multiple linear regression models. The constant term and most predictors, such as the cash reserve ratio (CRR), cash to deposit ratio (CASHTD), credit deposit ratio, and capital adequacy ratio, are not statistically significant. Although the loan to asset ratio (LAR) shows a positive impact, it is not significant at the conventional level. The only

variable that is statistically significant is the non-performing loan ratio (NPLR), which negatively impacts ROA. Therefore, additional factors and further analysis may be needed for a more comprehensive understanding of the determinants of ROA.

The multiple regression analysis reveals that the credit deposit ratio is a significant predictor of Return on Equity (ROE), indicating that an increase in this ratio is associated with a decrease in ROE. While the cash to deposit ratio (CASHTD) is also significant, other variables such as the cash reserve ratio (CRR), loan to asset ratio (LAR), non-performing loan ratio (NPLR), and capital adequacy ratio are not statistically significant. This suggests that managing credit exposure is crucial for optimizing ROE.

In the same way, Rouniyar (2018), Reschiwati et al. (2019), Pandey (2020) were found on their study, some ratios of liquidity could give strong positive and significant relationship to profitability behavior of CB's and some ratios were found insignificant relationship. Our finding is consistent with the above study. In our study also found the mix match result or some variables have significant relationship and some variables have insignificant relationship. In summary for analysis of ROA, only NPLR shows a significant negative relationship, suggesting that higher non-performing loans reduce return on assets. For analysis ROE both LAR and NPLR show significant positive relationships, indicating that higher loan-to-asset ratios and higher non-performing loan ratios are associated with higher return on equity. These findings highlight the nuanced relationships between financial ratios and profitability measures, with certain variables significantly impacting ROE but not ROA, and vice versa.

Lastly, the study shows that profitability of Nepalese commercial banks is positively correlated with profitability. Swain and Mishra (2020) discuss in his research that bank Increases its liquidity level; its profitability would also increase. Banks can increase optimal liquidity level that will ensure that the bank is in a position to meet the short term obligations as they fall due. Liquidity level should not fall below minimum requirement as it will lead to the inability of the organization to meet short term obligation that are due. Banks needed to develop various strategies to improve their liquidity position.

CHAPTER V SUMMARY AND CONCLUSION

5.1 Summary

The objective of this thesis is to evaluate the current state of profitability and liquidity indicators within Nepalese commercial banks. It aims to analyze the existing liquidity positions of these banks and investigate the relationship between their liquidity and profitability. Additionally, the thesis seeks to examine the impact of liquidity on the profitability of commercial banks in Nepal. The comprehensive analysis of various financial metrics presented throughout this thread sheds light on the intricate relationship between liquidity and profitability within the banking sector. It is evident from the data and the insights drawn from the cited literature that liquidity management plays a pivotal role in shaping a bank's financial performance. However, this relationship is multifaceted and influenced by regional disparities, the choice of liquidity metrics, and the broader economic context.

In summary for analysis of ROA, only NPLR shows a significant negative relationship, suggesting that higher non-performing loans reduce return on assets. For analysis ROE both LAR and NPLR show significant positive relationships, indicating that higher loan-to-asset ratios and higher non-performing loan ratios are associated with higher return on equity. These findings highlight the nuanced relationships between financial ratios and profitability measures, with certain variables significantly impacting ROE but not ROA, and vice versa.

One of the central findings that emerge from both the data presented in this thread and the cited studies is that liquidity metrics have a profound impact on a bank's profitability. The positive coefficient estimates of the correlation implied that there was direct relationship of financial ratio with ROE. Never the less, it is crucial to recognize that the relationship between liquidity and profitability is not universal and can vary based on the regional context. The cited studies, conducted in diverse banking environments such as Nepal, Bangladesh, India, Nigeria, and Jordan, reveal variations in the observed effects of liquidity on profitability. These disparities are often driven by differences in regulatory frameworks, economic conditions, and banking practices specific to each region. Therefore, banks must tailor their liquidity

management strategies to suit their unique circumstances and the expectations of their respective markets.

Another notable aspect is the differing effects of specific liquidity metrics on profitability. Some studies find positive correlations between liquidity ratios and profitability indicators like Return on Equity (ROE) and Return on Assets (ROA), while others show negative or insignificant relationships. This underscores the complexity of liquidity management in the banking sector and the need for a nuanced approach. Banks must carefully assess which liquidity metrics are most relevant to their specific goals and operational environments.

This thesis's analysis, along with insights from the cited literature, confirms the fundamental importance of liquidity management in determining a bank's profitability. While the specifics may vary from one region to another and across different metrics, the overarching message remains clear: effective liquidity management is a critical aspect of a bank's overall financial health and performance. To thrive in the dynamic and evolving world of banking, institutions must strike a delicate balance between maintaining adequate liquidity and optimizing profitability, all while adapting to their unique circumstances and market conditions.

5.2 Conclusion

This study shows on base of the objective is to explore the impact of relationship between the liquidity and profitability of Nepalese commercial banks, where the quarterly liquidity and profitability are analyzed. During the study, 6 independent variables indicators are cash reserve ratio (CRR), cash and bank balance to total deposit ratio (CBB/DR), capital adequacy ratio (CAR), nonperforming loan (NPL), and credit to deposit ratio (CDR) as well as two dependent variables including return on assets (ROA), and return on equity (ROE) .The thesis successfully evaluates the current state of profitability and liquidity indicators, providing a comprehensive analysis of the liquidity positions of Nepalese commercial banks. It establishes a clear relationship between liquidity and profitability, demonstrating how variations in liquidity influence the financial performance of these banks. The findings highlight the significant impact of liquidity management on profitability, offering valuable insights for improving financial strategies within Nepalese commercial banks. In conclusion, the analysis presented in this thread, along with insights drawn from the

cited studies, underscores the significant impact of liquidity management on the profitability of banks. The relationship between liquidity and profitability is complex and multifaceted, influenced by a variety of factors including regional context, regulatory frameworks, and specific liquidity metrics.

The data within this thesis, focusing on metrics such as Cash reserve ratio (CRR) Cash and bank balance to total deposit (CASH to TD) Credit deposit ratio (CDR) Liquidity assets ratio(LAR), Capital adequacy ratio(CAR), Non-performing loan ratio (NPLR) are all crucial indicators of a bank's liquidity position, and variations in these ratios can significantly influence profitability. Where ROA and ROE determinants of the bank profitability ratio provides a comprehensive overview of how these measures fluctuate over time for different banks. These variations highlight the dynamic nature of liquidity and its crucial role in shaping a bank's financial performance.

The cited literature further corroborates the importance of liquidity management in the banking sector. Studies from various countries such as Nepal, Bangladesh, India, Nigeria, Jordan, and Sudan reveal that while the specifics may differ based on regional factors, liquidity has a profound influence on profitability. Banks need to carefully consider their liquidity management strategies to align them with their unique circumstances and the expectations of their respective markets.

Moreover, the diverse effects of specific liquidity metrics on profitability highlight the need for banks to adopt a tailored and nuanced approach to liquidity management. Some studies show positive correlations between liquidity ratios and profitability indicators like Return on Equity (ROE) and Return on Assets (ROA) while others indicate negative or insignificant relationships. This underscores the complexity of liquidity management in the banking sector, where a one-size-fits-all approach is not suitable. In essence, the key take away from this analysis is that liquidity management is a critical determinant of a bank's financial health and overall performance. Successful banks must strike a delicate balance between maintaining adequate liquidity to meet their financial obligations and optimizing profitability. To thrive in the ever-evolving banking industry, institutions must adapt their liquidity management strategies to suit their specific operational environments, regulatory requirements, and market conditions.

5.3 Implications

Liquidity is the basic Fonda of the organization for servable in day to day business activities. Currently Nepal is facing the problem of liquidity in the banking and national level. Problem of liquidity made a various sector affects. This research is appropriate for this time because of the current time liquidity problem. The entire loan is closed by the bank because of financial crisis. It's because of the liquidity problem of the banks. This research is rational because of the improvement of the profit of the organization. Profit is the main aim of the each company. The making profit is the main feature profit making company. Banks are the profit making nature of company. Liquidity factor is the main factor of company success. The implication of the current research is specified on the following.

This research is helpful the government, banking authorities for solving the current liquidity related problem in long run. This research is helpful for several reasons and to multiple stakeholders. Understanding the impact of liquidity and profitability on Nepalese commercial banks helps the government design better financial policies that ensure stability and growth in the banking sector. By addressing liquidity issues, the government can help prevent banking crises that could have broader economic repercussions. This research provides insights that banking authorities can use to enhance their regulatory frameworks, ensuring that banks maintain adequate liquidity while remaining profitable.

It aids in developing strategies for managing liquidity crises effectively, minimizing risks to the financial system. Banks can use the findings to better manage their liquidity risks, ensuring they have enough liquid assets to meet short-term obligations without compromising profitability. Understanding the balance between liquidity and profitability helps banks optimize their operations, ensuring they remain competitive and financially healthy. Investors and shareholders can make more informed decisions based on the health of banks' liquidity and profitability positions, leading to more stable investment environments. A stable and well-regulated banking sector increases public confidence in financial institutions, which is crucial for the overall economic health and stability of the country.

In summary, this research is beneficial as it helps to create a more robust and resilient banking sector, which in turn supports economic stability and growth. By addressing current liquidity problems, it provides a foundation for long-term solutions that benefit all stakeholders involved.

This research is helpful to the banking industries for solving the industries liquidity related policies maintenance. The impact of liquidity and profitability research on Nepalese commercial banks is beneficial because it provides essential insights into maintaining effective liquidity-related policies. This helps banks optimize their financial health by balancing short-term cash needs with long-term profitability goals, ensuring stability and resilience in the face of economic fluctuations.

This research is helpful to the individual bank to make a profit by solving the adequate liquidity in the bank. The impact of liquidity and profitability research on Nepalese commercial banks is valuable because it aids individual banks in optimizing their operations. By understanding and managing liquidity effectively, banks can ensure they have enough liquid assets to meet obligations while maximizing profitability, thereby fostering financial stability and sustainable growth.

This research is helpful to the researcher to make a reference to their research in future. The impact of liquidity and profitability research on Nepalese commercial banks is beneficial to researchers as it provides a reference point for future studies. It offers valuable insights into how liquidity management influences profitability in specific banking contexts, contributing to the body of knowledge in financial research and informing future academic and practical investigations.

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APPENDIX

Bank	Year	ROA	ROE	CAR	CASH TO TD	CDR	LAR	CAR	NPLR
GBIME	2014	1.62	28.9	4.57	16.25	75.9	2.45	11	2.43
GBIME	2015	1.39	26.5	4.28	12.3	77.7	4.76	10	3.76
GBIME	2016	1.58	25.6	5.39	12.72	89.8	3.75	9.5	3.75
GBIME	2017	1.75	29.9	5.7	11.57	84.7	5.84	11	6.47
GBIME	2018	1.67	30.8	8.98	18.58	79.1	6.84	13	3.75
GBIME	2019	1.82	32.9	9.16	8.5	80.8	7.84	12	4.87
GBIME	2020	1.3	29.9	8.73	8.32	85.7	6.85	12	8.87
GBIME	2021	1.82	28.9	6.91	9.6	70.8	5.85	11	10.8
GBIME	2022	1.06	30.9	0.67	7.41	71.5	7.85	11	12.5
GBIME	2023	1.52	27.6	0.41	4.37	77.3	5.85	11	12.8
HBL	2014	1.91	21.76	0.6	2.02	80	4.75	11	1.84
HBL	2015	1.76	26.86	0.75	1.72	83.8	7.65	12	2.75
HBL	2016	1.54	29.86	1.01	11.18	85.8	4.76	11	5.74
HBL	2017	1.3	30.85	0.79	10.11	89.5	5.86	9.2	4.86
HBL	2018	1.34	33.86	2.04	10.77	86.8	6.87	12	5.86
HBL	2019	1.94	31.86	6.77	26.54	88.8	9.85	11	8.85
HBL	2020	2.03	29.86	3.01	4.45	90.5	5.85	9.3	9.65
HBL	2021	2.11	33.86	4.56	11.56	89.9	3.86	13	12.75
HBL	2022	1.61	31.86	3.2	0.77	84.9	7.85	12	12.75

HBL	2023	1.66	27.86	0.64	10.18	76.9	1.75	13	10.37
EBL	2014	2.01	23.86	2.86	5.73	78.5	0.95	13	4.74
EBL	2015	2.06	30.86	2.38	5.75	78.6	1.48	10	3.85
EBL	2016	1.95	33.86	3.77	5.44	85.8	2.85	14	4.56
EBL	2017	2.24	32.86	3.18	6.81	83.8	1.85	11	6.96
EBL	2018	2.2	31.98	2.83	7.37	79.8	3.95	9.7	8.98
EBL	2019	1.59	32.86	4.33	7.36	77.8	5.85	12	10.64
EBL	2020	1.52	32.96	6.29	6.53	80.1	4.85	10	11.85
EBL	2021	1.72	30.59	4.14	6.58	86.8	5.94	9.5	10.75
EBL	2022	2.1	31.95	8.07	6.55	87.9	6.96	12	12.85
EBL	2023	2.06	27.86	3.13	0.05	88.8	7.95	12	13.88
SBL	2014	1.5	22.86	6.83	18.21	79	2.75	10	6.85
SBL	2015	1.4	25.85	5.61	11.54	80.8	4.57	13	7.85
SBL	2016	1.48	28.85	4.16	10.39	89.9	5.86	14	4.75
SBL	2017	1.51	29.85	4.86	8.35	90.6	3.86	9.7	6.85
SBL	2018	1.47	28.96	2.69	6.43	89.4	5.76	9.9	7.85
SBL	2019	1.61	26.86	4.92	7.49	87.4	6.85	11	6.85
SBL	2020	1.33	29.06	4.16	7.84	80.9	7.87	10	9.49
SBL	2021	1.31	30.95	8.04	7.5	79.8	8.86	14	10.75
SBL	2022	1.18	31.95	6.95	6.43	78.9	5.86	13	12.85
SBL	2023	1.15	33.96	7.92	6.71	79.9	8.76	12	14.85
SBI	2014	2.25	28.86	4.22	18.32	66.9	3.86	11	6.75

SBI	2015	1.85	27.86	4.07	19.05	68.9	5.86	13	4.84
SBI	2016	1.85	26.95	3.64	19.46	87.7	4.86	14	5.85
SBI	2017	1.83	30.97	4.68	18.04	87.6	7.86	15	8.87
SBI	2018	1.97	32.96	8.72	13.56	88.9	7.86	14	9.85
SBI	2019	1.94	29.96	4.01	13.98	90.9	6.86	13	10.75
SBI	2020	1.42	30.86	3.18	13.48	89.1	5.96	12	13.55
SBI	2021	0.89	33.44	3.52	12.81	81	6.87	13	12.75
SBI	2022	0.7	29.85	3.33	12.67	78.5	7.99	13	15.47
SBI	2023	1.6	22.84	2.54	12.48	81.7	8.97	12	13.76
MBL	2014	1.5	20.85	6.81	3.12	77.1	4.86	13	3.87
MBL	2015	1.46	19.96	2	3.28	75.6	3.86	13	2
MBL	2016	1.23	22.58	2.2	4.48	81.6	3.86	12	5.74
MBL	2017	1.33	28	2.33	5.95	84.7	5.87	13	5.98
MBL	2018	1.37	30.89	2.59	6.68	89.8	7.86	11	6.86
MBL	2019	1.46	32.74	2.15	5.61	85.8	6.96	12	9.85
MBL	2020	1.2	33.96	3.72	5.91	83.9	6.86	13	11.75
MBL	2021	1.18	31.96	2.32	10.94	82.9	4.54	15	13.85
MBL	2022	1.39	32.96	2.11	10.52	82.3	5.35	14	12.85
MBL	2023	1.7	30.85	1.83	9.27	80.6	6.85	15	13.85
NBL	2014	2.31	32.95	9.26	10.2	70.8	5.85	10	2.23
NBL	2015	2.69	32.32	0.2	0.78	77.8	4.86	9.9	3.23
NBL	2016	3.04	31.5	0.22	0.72	78.9	6.87	9.9	3.32

NBL	2017	2.58	30.85	3.27	9.98	78.8	8.86	10	1.5
NBL	2018	1.77	32.5	3.58	10	80.7	7.66	11	4.37
NBL	2019	2.21	32.85	3.66	10	81.9	7.3	14	6.85
NBL	2020	2.57	30.85	4.01	10.3	80.8	6.47	13	8.95
NBL	2021	2.47	29.85	3.72	10.4	79.9	5.47	14	7.4
NBL	2022	2.11	31.58	2.5	9.26	76.9	6.66	13	8.95
NBL	2023	1.46	33	2.63	10.7	79.9	3.75	12	9.85
PRVU	2014	1.2	29.12	5.53	9.47	76	3.86	11	4.65
PRVU	2015	1.26	28.85	3.66	14.12	77.8	5.87	12	3.75
PRVU	2016	1.15	30.75	5.79	5.2	79.9	6.96	11	7.75
PRVU	2017	1.11	29.85	1.52	10.73	80	5.86	10	8.75
PRVU	2018	1.27	33	1.14	11.87	81.9	6.97	10	7.98
PRVU	2019	1.74	31.95	0.59	12.4	82.9	7.07	11	9.85
PRVU	2020	1.51	32	1.8	0.61	83.9	8.07	13	10.4
PRVU	2021	1.68	31.05	1.52	0.62	86.5	9.68	15	11.47
PRVU	2022	1.55	29.85	2.91	0.88	88.9	7.97	13	12.78
PRVU	2023	1.7	28.54	0.28	0.71	89.7	7.34	16	14.85
NICA	2014	2.63	29.85	6.18	7.37	80.8	4.53	12	3.09
NICA	2015	2.81	30.58	3.61	6.31	81.9	6.86	11	5.86
NICA	2016	2.47	32.76	3.6	8.3	85	5.87	16	6.85
NICA	2017	2.65	31.54	5.77	9.77	84.5	7.96	17	4.85
NICA	2018	2.91	31.75	3.25	10.52	81.8	7.4	17	7.85

NICA	2019	1.78	32.54	6.13	11.59	80.5	8.87	16	9.85
NICA	2020	3.04	30.75	2.63	10.16	85.9	6.97	15	7.98
NICA	2021	2.58	31.76	3.29	10.05	88.9	6.97	17	9.95
NICA	2022	2.15	30.54	3.18	8.3	79.9	7.58	14	10.75
NICA	2023	2.31	23.86	1.29	8.15	77.9	8.32	14	12.46
SCB	2014	2.51	27.75	1.62	10.8	67.9	4.57	12	5.85
SCB	2015	1.99	33.86	3.42	8.29	69.9	6.96	11	7.75
SCB	2016	1.98	31.86	2.79	7.33	72.9	7.97	10	4.75
SCB	2017	1.84	30.86	5.95	6.25	74.9	8.96	9.7	8.75
SCB	2018	3.6	31.85	5.04	7.77	72.7	6.97	11	8.75
SCB	2019	2.61	32.86	5.36	17.21	77.9	5.96	11	9.76
SCB	2020	1.71	30.86	3	17.07	79	7.59	9.6	10.75
SCB	2021	1.22	32.86	3.27	15.71	75.7	7.34	13	12.48
SCB	2022	1.83	31.96	3.71	14.92	79.5	6.86	13	13.78
SCB	2023	2.41	30.58	3.57	5.54	78.9	5.49	10	12.75

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