

# **FACTOR AFFECTING LIQUIDITY IN NEPALESE DEVELOPMENT BANKS**

A Dissertation submitted to the Head of Research Department, Shanker Dev Campus in  
partial fulfillment of the requirements for the Master's Degree

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March, 2024

## CERTIFICATION OF AUTHORSHIP

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

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

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## REPORT OF RESEARCH COMMITTEE

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## ACKNOWLEDGEMENTS

This study entitled “**Factor Affecting Liquidity in Nepalese Development Banks**” has been prepared in partial fulfillment for the Degree of Master of Business Studies (MBS) under the Faculty of Management, Tribhuvan University is based on research models involving the use of quantitative aspect of factor affecting liquidity of development banks of Nepal.

I have great satisfaction and pleasure to express my appreciation and sincerity to my dissertation supervisor Asso. Prof. Dr. Kapil Khanal of Shanker Dev Campus, TU for his excellent and effective guidance and supervision. I will remain thankful for his valuable direction useful suggestion and comments during the course of preparing this dissertation without his help this work would not have come in this form. I also would like to extend my debt of gratitude Asso. Prof. Dr. Sajeeb Kumar Shrestha, Head of Research Department and I owe a deep debt of gratitude to Asso. Prof. Dr. Krishna Prasad Acharya, Campus Chief of Shanker Dev Campus who provided me an opportunity to undertake this research work.

I highly appreciate to all the staffs of respective development banks, NRB Library, Shanker Dev Campus Library and TU Central Library for their valuable advices and support in collecting and presenting the necessary data. I would also like to express my thankfulness to my friends, my family members as well as all known people who supported as well as inspired me directly or indirectly to complete this dissertation. With help and support, I have been able to complete this work. I would like to take the responsibility of any possible mistakes that may have occurred in the report. I would be delighted to welcome readers for their suggestion and recommendation to improve the report.

Sahadev Jaishi

Date: .....

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## ABBREVIATIONS

ATM	:	Automated Teller Machine
BS	:	Bikram Sambat
CAR	:	Capital Adequacy Ratio
GBBL	:	Garima Bikas Bank Limited
GDP	:	Gross Domestic Products
INF	:	Inflation Rate
IT	:	Information Technology
JBBL	:	Jyoti Bikas Bank Limited
JVBs	:	Joint Venture Banks
KSBBL	:	Kamana Sesa Bikas Bank Limited
L & A	:	Loan and Advance
LATA	:	Liquid Assets to Total Assets Ratio
LSIZE	:	Natural Logarithm of Bank Size or Total Assets
MNBBL	:	Muktinath Bikas Bank Limited
NMB	:	NMB Bank Limited
NPLR	:	Non – Performing Loan Ratio
NRB	:	Nepal Rastra Bank
ROA	:	Return on Assets
SD	:	Standard Deviation
TA	:	Total Assets
TU	:	Tribhuvan University

## ABSTRACT

This study examines the determinants of liquidity of development banks in Nepal. The study has applied ordinary least square (OLS) regression models to a panel data of development banks for the period from 2012/13 to 2021/22. This study shows that development banks have kept significant cash holdings relative to their overall assets, and their efficient risk management suggests that they have an adequate amount of liquidity. The correlation study reveals an insignificant positive association between non-performing loans, the capital adequacy ratio, and liquid assets as a proportion of total assets (LATA). Liquidity (LATA) was then significantly positively correlated with both the rates of inflation and return on assets. Furthermore, there is a significant negative correlation between bank size and LATA. The multiple regression analysis reveals that there is significant positive impact of capital adequacy ratio on liquidity of the development banks while non-performing loan and inflation rate have insignificant negative impact on liquidity. Besides these, return on assets had insignificant positive impact on liquidity (liquid assets to total assets) of the development banks. Moreover, bank size had significant negative impact on liquidity. Hence, this study concluded that capital adequacy ratio and bank size are the key factors of liquidity in Nepalese development banks.

*Keywords: Liquid assets to total assets ratio, capital adequacy ratio, non-performing loan ratio, profitability and inflation rate.*

# CHAPTER - I

## INTRODUCTION

### **1.1 Background of the study**

Development bank liquidity is the ability of banks to finance asset growth and repay debt when it matures without incurring unmanageable losses. Banks are susceptible to liquidity risk since they have a significant role in transforming short-term deposits into long-term loans (Basel Committee, 2008). Banks need liquidity in order to provide loans and cash on demand to its clients. In difficult times, a bank's lack of cash could lead to insolvency. The Basel Committee on Banking Supervision therefore introduced the "Liquidity Coverage Ratio" (LCR) and "Net Stable Funding Ratio" (NSFR) in the Basel III accord, updating and improving bank risk management practices and reviving liquidity management. The primary objective of LCR is to guarantee that, in cases of extremely severe liquidity as defined by regulators, the development bank maintains an adequate level of free and excellent liquid assets to satisfy demands for thirty calendar days. In terms of liquidity risk profiles, the NSFR is intended to ensure that long-term assets are funded with a minimal quantity of reliable commitments (Basel Committee, 2008).

Reaching the ideal amount of liquidity is highly dependent on a number of factors, including a bank's size, composition, type, and degree of activity complexity. The development bank's liquidity management must adhere to a decision-making framework for controlling liquidity risk, as well as a suitable funding plan, exposure limitations, and a set of guidelines for allocating liquidities in an emergency. Each bank needs to have a clear policy for managing its liquidity that is shared throughout the entire company. Development banks require senior managers with a strong background in this subject as well as trained understanding and expertise in it. These managers are able to recognize these circumstances and respond appropriately. And if all of these things come to pass, then big investors will be able to have good faith in these development banks (Vaidya, 2014).

Ogbuabor and Malaolu (2013) stated that a development bank's activities may suffer greatly from a lack of money. It ruins the long-term client relationships and ultimately causes the specific development bank to go bankrupt if the liquidity situation is not

properly handled. Bank liquidity is favorably impacted by increases in capital adequacy, inflation, the percentage of non-performing loans, and interest rates on loans and interbank transactions. Vodova (2013) argued development banks frequently strive to strike a balance between profitability and liquidity. Profitability, according to Vento and Ganga (2009), is an assessment of a company's capacity to generate revenue from its invested capital. Liquidity is crucial to the smooth operation of a financial organization. The liquidity condition of development banks attracts interest from all parties. Consequently, a bank must ensure that there is sufficient liquidity, or none at all, to cover any upcoming commitments (Kurawa & Abubakar, 2014).

The issue of development bank liquidity creation has become an increasingly prominent topic of study for financial institutions in recent years. Most people now think that development banks create liquidity by changing the maturities of items on their balance sheets, both the liability and the asset side. By means of this technique, development banks can retain illiquid money for the non-banking population while offering liquid currency to both depositors and borrowers. The bank creates liquidity on both sides of the balance sheet by making long-term loans and short-term deposits available at the same time, extending the idea of classic maturity transformation. The most liquid asset is cash, which is especially vulnerable to demand from depositors who are also the owners of liabilities, or from the exercise of claim rights by owners of off-balance sheet loan obligations (Saunders, 2005). Therefore, the management of the development bank must be able to regularly measure and monitor its liquidity situation in order to both immediately satisfy the demands of obligation holders and borrowers and optimize profit.

Bhattarai (2016) found a positive correlation between profitability, operating expense-to-asset ratio, capital adequacy ratio, and liquidity in the context of Nepal. Liquidity, however, has a negative correlation with the ratios of financial expenses to deposits and credit. It is unclear how the deposits to assets ratio affects liquidity. According to Gautam (2016), the liquidity of Nepalese development banks is positively impacted by bank size, capital adequacy, and inflation rate; negatively impacted by nonperforming loans, profitability, and GDP growth rate. The liquidity of Nepalese development banks is statistically significantly impacted by capital adequacy, non-

performing loans, and profitability; bank size, GDP growth rate, and inflation rate have a statistically negligible effect. However, capital adequacy, non-performing loans, bank size, profitability, GDP growth rate, and inflation rate are the primary factors influencing the liquidity of this industry. The ability of a development bank to obtain capital in assets to satisfy both anticipated and unforeseen cash and collateral requirements at a reasonable price without suffering unbearable losses is referred to as liquidity (Kumar & Yadav, 2013). The first type of liquidity risk, according to Baral (2005), arises when depositors of development banks attempt to withdraw money from the bank.

The liquidity of development banks is influenced by many different factors. Several factors need to be looked into in order to control the liquidity in development banks. The liquidity of development banks is determined by a combination of bank-specific and macroeconomic factors. The nation's economic characteristics, such as GDP, inflation, exchange rates, and so forth, as well as the general economic trend are considered macroeconomic aspects. Examples of internal factors that are peculiar to a bank are loan growth, profitability, deposit ratio, non-performing loan, capital sufficiency, and bank size (Khanal, 2019). Therefore, this study aimed to analyze the factors affecting liquidity of development banks in Nepal.

## **1.2 Problem statement**

The ideal liquidity level is necessary for development banks to function successfully and efficiently. When we refer to development banks as liquid, we mean that they have the capacity to meet the demands of both increasing the number of borrowers and depositors without experiencing any disruptions to their normal business operations. They need to have sufficient liquid assets on their balance sheet in order to do this. More important than simply maintaining liquidity is correctly identifying and addressing major issues that impact the liquidity of development banks.

The efficient operations of banks are closely associated with the optimal level of liquidity. Due to strong integration, dependencies, and the contagion effect, poorly managed liquidity can result in low profitability in the case of high liquidity or insolvency in the case of low liquidity, which would ultimately destroy shareholder wealth and cause the entire financial institutional framework to collapse. As a result,

empirical research is crucial for evaluating and determining the factors that influence development banks' liquidity. A development bank that lacks liquidity is one that is unable to raise enough money at a fair cost, either by taking on more obligations or by quickly converting assets. When banks lack sufficient liquidity, they are unable to meet their debt obligations without first turning their assets into liquidity at a fair price. In extreme cases, insufficient cash might potentially lead to development banks going insolvent. Thereafter, a decline in finance liquidity resulted in serious problems. Liquidity and liquidity risk are important and often discussed topics (Diamond & Rajan, 2005).

Lotto and Mwemezi (2015) found that while non-performing loans and inflation had a positive impact on banks' liquidity, capital adequacy, bank size, and interest rate margin had a statistically significant negative impact. However, the GDP growth rate and profitability had only statistically negligible influence on bank liquidity, despite their expected positive connections. Boadi, Li, and Lartey (2016) found there is a significant positive association and influence on liquidity between capital adequacy, asset quality, management efficiency, and gross domestic product. Singh and Sharma (2016) discovered a connection between bank size, deposits, profitability, enough capital, GDP, and inflation. Additionally, it was shown that bank size and GDP had a detrimental impact on bank liquidity. Conversely, bank liquidity was positively impacted by deposits, profitability, capital adequacy, and inflation.

Joshi (2016) concluded that the main factors influencing the liquidity of Nepalese commercial banks are interest margin, profitability, Tobin's Q, treasury bill rates, and GDP. Shaha et al. (2018) observed that the GDP has a statistically significant impact on bank liquidity, but it affects bank liquidity differently. Profitability has an insignificant association with liquidity, however there is a statistically significant negative link between deposits and bank liquidity. Ojha (2018) found that there is a significant relationship between a variety of characteristics and how well Nepalese commercial banks perform in terms of liquidity. The findings also showed that ROA, ROE, NPL, GDP, and IBR all significantly affect LIQ. Bhattarai (2019) indicated that the non-performing loan ratio was found to have a considerable but negative impact on liquidity among the bank-specific characteristics. Regarding macroeconomic

variables, the findings showed that the model's liquidity (liquid asset to total asset ratio) was significantly positively impacted by GDP.

Khanal (2019) found that ROA has a positive significant influence on the loan to deposit ratio, whereas ROE, size, and inflation have negative significant effects on liquidity. Likewise, the loan to deposit ratio is positively negligibly impacted by NPL, but negatively and insignificantly by GDP and CAR. Al-Qudah (2020) asserts that whereas inflation had a positive impact on banks, GDPG had a negative one (LIQ). In contrast, capital adequacy and deposit growth had a positive significant impact on Jordanian banks' liquidity, whereas NPL and SIZE had a negative significant influence. On the other hand, ROA had a very little negative impact on (LIQ). Abdelmagid (2020) found that there was no statistically significant correlation seen between the size of banks, the GDP unemployment growth rate, and the inflation rate and liquidity. Ahamed (2021) came to the conclusion that liquidity risk and asset size were negatively correlated. The liquidity risks were positively, although not significantly, correlated with return on equity and capital adequacy ratio. When it comes to macroeconomic considerations, domestic credit and GDP have a positive impact on liquidity risks, whereas inflation has a negative impact. Adnan and Yasin (2022) mentioned bank size, profitability, and capital sufficiency all significantly improved bank liquidity.

Ever since the start of the last two decades, Nepal's banking sector has been essential to the country's economic development. The bulk of Nepal's financial sector is made up of banks because the country lacks a secondary market. Development banks are crucial to Nepal's financial intermediation process since they own a sizable share of the country's financial sector. Actually, the banking sector in Nepal now acts as the glue that holds the country's economy together. Development banks in Nepal need to keep enough liquidity to meet the needs of both present and potential customers. There is a contradictory relationship between factors and bank liquidity in Nepal, according to empirical evidence. Thus, the objective of this research is to determine how bank-specific characteristics affect liquidity in Nepalese development banks. That being said, the research aims to address the following questions:

1. What is the existing position of liquidity of development banks in Nepal?



2. Whether there is association between different factors and liquidity of development banks or not?
3. Do specific factor have an effect on liquidity of development banks Nepal?

### **1.3 Objectives of the study**

The overall purpose of this research is to investigate factor affecting liquidity of development banks in Nepal. Specifically;

1. To analyze the existing position of liquidity in Nepalese development banks.
2. To examine the relationship between specific factors and liquidity of Nepalese development banks.
3. To investigate the impact of specific factors on liquidity of Nepalese development banks in Nepal.

### **1.4 Research hypotheses**

The following hypotheses were developed to break down the above research questions. Therefore, this research work attempted to test the following hypotheses in the case of development banks in Nepal.

1. H<sub>1</sub>: Capital adequacy has positive and significant impact on development banks liquidity.
2. H<sub>2</sub>: Non-performing loan ratio has positive and significant impact on development banks liquidity.
3. H<sub>3</sub>: Bank size has positive and significant impact on development banks liquidity.
4. H<sub>4</sub>: Return on assets has positive and significant impact on development banks liquidity.
5. H<sub>5</sub>: Inflation rate has positive and significant impact on development banks liquidity.

### **1.5 Rationale of the study**

This study mainly focuses on identifying the macroeconomic and bank-specific determinants on bank liquidity in the context of Nepalese development banks. The non-banking sector as well as banking and financial institutions may find this study useful. The banking, non-banking, and financial institutions sectors all benefit from the study of liquidity. Because of insufficient liquidity, it is essential to comprehend the ramifications. In the end, the bank raises the risk associated with liquidity, which

keeps liquidity levels high. If liquidity risk rises, the development bank will not be able to meet its commitments regarding deposit withdrawal, debt maturity, and funding for investment and loan portfolio. A variety of things influence liquidity. Of those, the macroeconomic and bank-specific factors have the most influence. Therefore, the goal of this study is to determine how macroeconomic and bank-specific factors affect liquidity. Because banks and other financial institutions in Nepal are now dealing with this issue, managing the liquidity situation is getting harder. Numerous investigations have been conducted across global settings to ascertain the influence of macroeconomic and bank-specific variables on liquidity. Regarding the banking environment in Nepal, no detailed research has been done on the macroeconomic and bank-specific factors influencing liquidity. Thus, to the extent possible, this work closes the knowledge gap and supports future research in nations such as Nepal. Additionally, it benefits the economy and society's financial sectors. As a result, the main audiences for this study are the academic community, regulatory agencies, development banks, and society at large.

### **1.6 Limitations of the study**

The study has some limitations. The main limitations of the study are as follows:

- This study concentrates only factor influencing of liquidity and ignores the other financial aspects.
- The period of the study is limited from fiscal year 2012/13 to 2021/22.
- The study is basically based on secondary data.
- This study used descriptive statistic, correlation analysis and multiple regression analysis.

## **CHAPTER - II**

### **REVIEW OF LITERATURE**

The literature review is a vital and necessary phase in every research undertaking. In order to do fresh research, it involves reviewing research papers or other relevant claims in the relevant field of study to become aware of all prior studies, their flaws, and their conclusions. This chapter can be related to by looking at and evaluating a few pertinent books, articles, published and unpublished works in various economic journals, magazines, newspapers, the yearly balance statement of the relevant banks, previous theses on comparable topics, and subject-related web searches. This chapter is divided into two sections: the theoretical review and the empirical review.

#### **2.1 Theoretical review**

##### **2.1.1 Theories of liquidity**

Even though different financial institutions may have different specific approaches, a review of the general theories of liquidity in this section can help paint a clearer picture of how banks manage their liquidity. The following are the dividend theories:

###### **2.1.1.1 Financial fragility theory**

According to the theory of financial intermediation, banks are essential to the economy because they provide long-term illiquid assets to fund short-term liquid obligations. In their capacity as liquidity providers, banks create liquidity by holding illiquid assets and distributing cash and demand deposits to the rest of the economy. Banks provide vital functions on both the asset and liability sides of their balance sheets: on the asset side, they lend money to customers in need of liquidity, and on the liability side, they provide depositors with access to liquidity when needed. Diamond and Rajan (2005) stated that depositors have greater access to their money than they would have if they made the same direct investment and expected the same return. We call this liquidity generation. Businesses that borrow money may also see banks as more reliable sources of funding than other companies or individuals because banks can shield borrowers from the possibility of funding interruptions brought on by liquidity problems. Diamond and Dybvig (1983) emphasize the "preference for liquidity" in the face of economic agents' uncertainty in order to justify the continued

existence of banks. Because they provide better liquidity insurance than the financial markets, banks are necessary, but as insurers of liquidity, they are also vulnerable to transformation and run-on-deposit risks. In general, the more liquidity banks offer to the outside market, the greater the chance that they would incur losses from having to liquidate illiquid assets to meet customer demands for liquidity.

### **2.1.1.2 Keynes liquidity preference theory**

The literature on finance and economics looks at several reasons why companies would keep liquid assets. Keynes (1936) identified three motives for people's preference for and desire for liquidity. In this instance, the transaction motivation is that companies keep cash on hand to cover their requests for inflows and outflows of funds. To facilitate transactions, cash is kept on hand; this is why liquidity is necessary. The amount of money needed depends on a number of factors, including how much is earned, how often it is earned, and how it is used. Keeping cash on hand serves as a company's emergency reserve. Cash retained as a precaution might be used to meet short-term commitments for which the cash inflow may have been benchmarked if anticipated cash inflows are not received as expected. Holding cash is speculative because it gives a company the option to seize unique possibilities that, if swiftly seized, will benefit the company.

### **2.1.1.3 Asset conversion theory**

In the second decade of the 1940s, this hypothesis was developed. H.G. Moulton developed the shift ability hypothesis of bank liquidity, arguing that there is no need to rely on maturities if commercial banks have a sizable quantity of assets that may be transferred to other banks for cash without suffering a meaningful loss in an emergency. This point of view states that in order for an asset to be completely shiftable, it must be instantly transferable without causing capital loss when the need for liquidity arises. However, during a general crisis, all banks must have these kinds of assets on hand so that they can be transferred to the central bank, which serves as the lender of last resort. This theory has certain elements of truth (Nwaezeaku, 2006).

However, it is not without flaws. First off, the financial system does not get liquidity from the simple transfer ability of assets. It is totally dependent on the state of the

economy. Second, the shift ability argument fails to take into account the fact that the bank is unable to transfer shares or debentures to other parties during periods of severe depression. Nobody wants to purchase them in such a scenario, and those who do want to sell them. Third, even if a single bank could have enough shiftable assets, if it attempts to sell them during a bank run, it might have a negative impact on the whole banking system. Fourth, if all banks were to move their assets at the same time, it would quickly have severe effects on both the lenders and borrowers (Anyanwu, 1993).

#### **2.1.1.4 Commercial loan theory**

This theory first came into being in the early 1920s. The real bills school of thought holds that commercial banks should only make short-term, profitable loans to companies that can pay them back quickly. The costs of production, storage, transportation, and distribution are covered by self-liquidating loans. When such objects are subsequently sold, the loans are perceived as automatically evaporating. Such a short-term self-liquidating productive debt has three advantages. Since they are initially a liquid state, they naturally dissolve themselves. Second, there is no chance of them incurring bad debts because they mature quickly and are used for beneficial uses. Third, because these loans are profitable, the banks benefit (Sinkey, 1983).

#### **2.1.1.5 The anticipated income theory**

H.V. Proch's expected income hypothesis was created in 1950 and was based on the US commercial banks' practice of offering term loans. This idea states that the bank prepares the long-term loan's liquidation from the borrower's projected revenue, irrespective of the type and form of the borrower's company. A term loan is one that lasts more than a year but less than five years. It is awarded in opposition to the hypothecation of stock, machinery, and even real estate. When issuing this loan, the bank places limitations on the borrower's financial activity. Nzotta (1997) states that the theory highlights a borrower's earning potential and credit quality as the most important safeguards for guaranteeing sufficient liquidity.

Dodds (1982) argued that this theory satisfies the three goals of liquidity, safety, and profitability, making it better than the shift ability hypothesis and the real bills doctrine. The bank receives assurance of liquidity when the borrower maintains savings and makes timely installment loan repayments. It complies with the safety principle as the bank offers a loan based on the borrower's capacity to repay the loan during its duration and their guarantee of a steady income, in addition to a strong security. Finally, the term loan has a lot of advantages for the company.

#### **2.1.1.6 Liquid asset theory**

This focuses on the asset side of the balance sheet and makes the case that banks need to keep significant amounts of liquid assets as a safety net against unanticipated events or as a means of meeting demand for easily marketable short-term liquid assets. However, given the dynamic nature of the money market today, this strategy is highly costly (Ngwu, 2006).

#### **2.1.1.7 The liabilities management theory**

Late in the 1960s and early in the 1970s, this hypothesis was created. This theory holds that since banks may borrow reserve money in the money market in an emergency, they do not need to give self-liquidating loans and maintain liquid assets. A bank can obtain reserves by establishing new obligations from various sources against it. These sources include of the issuance of time certificates of deposit, borrowing from the central bank and other commercial banks, raising capital through the issuance of shares, and repurchasing profits. This idea states that a bank may bid higher prices on the market to satisfy its liquidity needs. Put another way, they can satisfy their liquidity demands by taking out a loan on the money market, as opposed to making self-liquidating loans (Ngwu, 2006).

### **2.1.2 Factors of bank liquidity**

#### **Loan growth**

Comptroller's Handbook (1998) explained that the majority of commercial banks' primary line of business is lending. Usually, the biggest asset and main source of income is the loan portfolio. It poses one of the biggest risks to the safety and soundness of banks as a result. Since loans are illiquid assets, a bank's asset portfolio

will contain more illiquid assets as the quantity of loans increases. In reality, Pilbeam (2005) asserts, loan demand which serves as the foundation for loan growth has a significant impact on the quantity of liquidity that banks have. The bank often holds more liquid assets (i.e., short-term assets) when demand for loans is low, and less liquid assets (i.e., long-term loans, which are typically more profitable) when demand for loans is high. Thus, an increase in advances and loans has a detrimental effect on banks' liquidity.

### **Profitability**

The effect of improved financial soundness on banks' capacity to absorb risk and convert liquidity is explained by profitability (Rauch et al., 2008). A healthy and successful banking industry helps keep the financial system stable by making it more resilient to adverse shocks (Athanasoglou et al., 2005). The majority of a bank's operational revenue comes from loans and advances, which are among its highest earning assets. Given that loans and advances are based on client deposits, banks are exposed to liquidity risk in this regard. Banks can earn more profit potential and receive better interest rates when they make more loans and advances to their clients; nevertheless, this might have an impact on the bank's liquidity. As a result, banks must balance profitability and liquidity.

Diverse literary works have varied perspectives on the relationship between profitability and liquidity. Bourke (1989) asserts that banks with higher levels of liquid asset holdings have a favorable impression in the funding markets, which lowers financing costs and boosts profitability. However, Molyneux and Thornton's (1992) research suggested that keeping liquid assets has an adverse connection with profitability and costs the bank an opportunity. The negative effects of increased liquidity for financial institutions were further highlighted by Myers and Rajan (1998), who noted that while "more liquid assets increase the ability to raise cash on short notice, they also reduce management's ability to commit credibly to an investment strategy that protects investors." Ultimately, this can sometimes lead to a reduction in the "firm's capacity to raise external finance." This suggests that there is a negative correlation between bank liquidity and profitability. A move from short-term securities to long-term securities or loans boosts a bank's return but also raises its liquidity risks, illustrating the trade-offs that typically exist between return and

liquidity risk. The two divergent points of view presented a challenge to bank management about profitability and liquidity.

### **Capital adequacy ratio**

Theoretical literature on the relationship between the formation of capital and liquidity yields two contradictory predictions. A group of hypotheses known as the financial fragility-crowding out hypothesis postulates that the production of liquidity is inhibited by increasing capital. Another set of findings, which we call the risk absorption hypothesis, contends that capital has a favorable impact on the generation of liquidity.

Diamond and Rajan (2001) create a relationship bank that asks investors for money to fund an entrepreneur. An entrepreneur's inability to put in effort reduces the amount of bank financing that is available. More importantly, the bank may choose not to try, which would limit its ability to raise money. Because depositors can run on the bank in the case that the bank threatens to withhold effort, a deposit contract increases the creation of liquidity while reducing the bank's holdup issue. Capital suppliers are less likely to contribute money since they cannot run on the bank, which reduces the quantity of liquidity provided. Consequently, the higher a bank's capital ratio, the less liquidity it will generate.

Gorton and Winton (2000) demonstrate how the crowding out of deposits caused by a greater capital ratio may limit the generation of liquidity. They contend that investments in bank equity capital are not as successful as deposits as liquidity hedges for investors. Consequently, increased capital ratios cause investors' money to move from relatively liquid bank deposits to relatively illiquid bank capital, which lowers investors' total liquidity. Another argument is that banks are better able to generate liquidity when they have more capital. Two lines of literature serve as the foundation for this idea. Papers (Diamond & Dybvig 1983, Allen & Gale, 2004) in one strand make the claim that banks take on risk while creating liquidity. The risk and severity of losses from having to sell illiquid assets to satisfy customers' needs for liquidity increase with the amount of liquidity provided. Papers (Bhattacharya & Thakor 1993) in another strand make the argument that bank capital increases banks' ability to



tolerate risk and absorbs it. When these two threads are combined, the hypothesis that banks may be able to produce greater liquidity is produced.

### **Interest rate**

According to the Keynesian liquidity preference theory, as consumers cling onto liquid assets, interest rates would rise in tandem with an increase in liquidity preference. The lending rate is the bank rate that typically satisfies the private sector's needs for short- and medium-term funding. This rate is typically varied based on the financing goals and the creditworthiness of the borrowers. The interest rate charged is determined by the amount of money available in the market, the going rate, and the particulars of the contract, like the term length. The average lending interest rate is used to calculate bank lending rates (Keynes, 1936).

### **Non-performing loans**

Loans that are long-term principal and interest-only obligations that are not being repaid in accordance with the terms and conditions of the loan contract are referred to as non-performing loans. Therefore, a lending facility that violates the provisions of the loan agreement by failing to make principle and interest payments on time is considered non-performing. Consequently, the quantity of non-performing loans serves as a gauge for the caliber of bank assets (Lotto & Mwemezi, 2015).

The banking industry may have efficiency issues as a result of non-performing loans. Numerous economists have discovered that failed banks are typically found far from the most-efficient frontier because these institutions do not maximize their lending decisions by making less loans than demanded (Barr et al., 1994). Bloem and Gorter (2001) state that while non-performing loan problems can influence any industry, financial institutions with significant loan portfolios, including commercial banks and mortgage financing organizations, are most severely impacted. Furthermore, the size of the bad loan portfolios will have an impact on banks' capacity to extend credit. Large amounts of non-performing debt may cause international investors and depositors to lose faith in the bank, which might spark a bank run and cause liquidity issues. Consequently, the quantity of non-performing loans has a detrimental effect on the liquidity of banks.

**Bank Size**

Vento and Ganga (2009) argued that big banks would profit from lower funding costs and be able to engage in riskier assets because of implicit guarantees. Large banks' "too big to fail" status may therefore encourage moral hazard behavior and excessive risk-taking. Large banks have less incentive to keep liquid assets if they believe they are "too big to fail." They depend on the Lender of Last Resort's liquidity support in the event of a shortage. Large banks would thus probably create more liquidity, which puts them at risk of losing money if they have to sell illiquid assets to meet client requests for liquidity (Berger & Bowman, 2009). Therefore, there may be a positive correlation between illiquidity and bank size. But tiny banks are probably more concerned with conventional intermediation and transformational efforts.

**Gross domestic product**

The relationship between bank liquidity preference and the economic cycle is essential to understanding the underlying instability of the capitalist system as an endogenous market process, claims the theory of bank liquidity and financial fragility. Investment levels rise during times of economic expansion, which are marked by a high degree of confidence among economic units on their profitability. Economic units become less interested in liquidity during this growth and become more interested in riskier, higher-returning capital assets. Economic units are more likely to incur higher-interest short-term debt and keep less liquid capital assets in this environment. Pilbeam (2005) extended version of the loanable fund theory of interest, a growth or contraction of the economy boosts the availability of loans, or illiquid assets, for banks.

**Inflation rate**

Current theories highlight the significance of informational asymmetries in credit markets and show how rising inflation rates negatively impact credit market frictions, which in turn negatively impacts the performance of the financial sector (banks and equity markets) and, ultimately, long-term real activity (Huybens & Smith, 1999). These hypotheses are all characterized by an endogenous informational friction with varying degrees of intensity. Because of this characteristic, a rise in inflation reduces the actual rate of return on assets overall as well as on money. Credit market frictions are made worse by the projected decline in real returns. Credit is rationed as a result

of these market frictions, and credit rationing gets worse as inflation increases. As a result, there are negative effects on capital and long-term investment, less loans are made by the financial sector, and resource allocation is less effective. In turn, when inflation rises, so too will the quantity of short-term or liquid assets held by economic actors, such as banks.

### **2.1.3 Why bank face liquidity problem**

From the arguments above, it should be evident that banks have significant liquidity issues. Banks are significantly exposed to liquidity concerns for a number of reasons. After taking out sizable loans from other lending organizations, individuals, and companies for short-term deposits and reserves, banks lend the money back to their customers for long-term credit. As a result, the maturity dates of the majority of banks' assets and liabilities are not exactly in line with one another. It is rare for the cash coming in to pay liabilities to precisely match the cash going out. Banks keep an abnormally high percentage of obligations due to quick payment, such as demand deposits, NOW accounts, and money market borrowings, which is a concern associated with the maturity mismatch scenario. As a result, banks have to be prepared to handle sudden cash needs, which can occasionally be high, particularly at the end of the week, on the first of each month, and during particular periods of the year (Bhandari, 2004).

The bank's susceptibility to interest rate fluctuations is another factor contributing to its liquidity issues. Some depositors will remove their money in pursuit of better returns elsewhere when interest rates climb. As a result, shifting interest rates have an effect on both the demand for loans and deposits from customers, which both significantly affect a bank's liquidity position. Furthermore, changes in interest rates have an immediate impact on the cost of borrowing in the money market as well as the market prices of any assets the bank might need to sell in order to generate more liquid funds. Meeting customer demand for liquidity must be a bank's top concern, even above these other considerations. If the institution fails in this area, public trust in it could be seriously harmed. If the bank had to close its teller windows and teller machine one morning because of a temporary cash shortage that made it impossible for it to process checks or fulfill requests for deposit withdrawals, customers' reactions would be understandable (a situation that occurred to a bank in Montana a

few years prior, sparking a federal investigation). Keeping in constant contact with the bank's largest depositors and owners of large amounts of idle credit is one of the most important duties of a bank's liquidity management. This enables the manager to make sure there are enough funds available and to choose whether and when money will be taken (Bhattarai, 2016).

## **2.2 Empirical review**

Lotto and Mwemezi (2015) examined assessing the determinants of bank liquidity: Experience from Tanzanian banks. This study examined the variables impacting the liquidity of Tanzanian banks. Panel regression was employed for secondary data obtained from the publicly accessible bank financial statements of 49 banks in the sample, spanning the years 2006 to 2013. The results demonstrated that while inflation and non-performing loans positively impacted banks' liquidity, capital sufficiency, bank size, and interest rate margin had a statistically significant negative impact. However, despite their observed positive correlations, the GDP growth rate and profitability had a statistically insignificant effect on banks' liquidity. The study's findings indicate that smaller banks are seen to be more liquid than larger banks because they allocate a larger portion of their capital to short-term loans with short maturities rather than long-term loans that take years to mature.

Singh and Sharma (2016) analyzed an empirical analysis of macroeconomic and bank-specific factors affecting liquidity of Indian banks. This study investigated into the macroeconomic and bank-specific variables that affect Indian banks' liquidity. This study used OLS, fixed effect, and random effect estimates on a data set of 59 banks from 2000 to 2013 in order to investigate the association. Bank-specific criteria that have been studied include deposits, capital adequacy, cost of funding, profitability, and size of the bank. The macroeconomic variables taken into account are GDP, inflation, and unemployment. Additionally, an ownership-based liquidity trend analysis of Indian banks was conducted in this study. Results show that bank ownership has an impact on banks' liquidity. The current research panel data analysis revealed that macroeconomic (apart from unemployment) and bank-specific (apart from funding cost) factors had a major impact on bank liquidity. These include GDP, inflation, capital sufficiency, bank size, deposits, and profitability. Furthermore, it was shown that bank liquidity was negatively impacted by GDP and bank size.

Conversely, bank liquidity was positively impacted by deposits, profitability, capital adequacy, and inflation. The impact of funding costs and unemployment on bank liquidity was negligible. In order to improve knowledge of liquidity in developing economies such as India, this article presents fresh data.

Boadi, Li and Lartey (2016) investigated determinants of liquidity of rural and community banks in Ghana. This study evaluated the determinants impacting the liquidity performance of Ghanaian Rural and Community Banks (RCBs) using the macroeconomic variables and the CAMEL regulatory measures. One moderating variable that was used was the market jurisdiction of RCBs. From 2005 to 2013, the study used panel data pertaining to 114 rural and community banks, and the panel least square fixed effect approach estimate was utilized. The results showed that the gross domestic product, asset quality, managerial effectiveness, and capital sufficiency all had a significant beneficial impact on liquidity. Evidence supporting the contradicting effects of profitability and managerial effectiveness over time on banks' liquidity performance was discovered. It also backs existing research on bank performance that revealed conflicting results from macroeconomic factors. Additionally, it shows that the liquidity performance of RCBs is negatively impacted by any careless investment. Additionally, rural and community banks' market jurisdiction has a big impact on how well their liquidity performs.

Joshi (2016) administered idiosyncratic and macroeconomic determinants of liquidity: a case of Nepalese commercial banks. This study evaluated at the macroeconomic and peculiar factors that affect liquidity in Nepalese commercial banks. The research is predicated on aggregated cross-sectional data from 20 commercial banks spanning a 7-year timeframe from 2007 to 2013. Dependent variables are the ratios of liquid assets to total assets and liquid assets to total deposits. The following are considered independent variables: interest margin, profitability, Tobin's Q, loan growth, total assets, GDP, inflation, and rates on Treasury bills. In order to estimate the link between liquidity and idiosyncratic and macroeconomic factors, the ordinary least square technique has been used. Liquidity has a positive effect on GDP and Tobin's Q, according to OLS estimates. It suggests that a rise in GDP and Tobin's Q causes a rise in liquidity. Similarly, the analysis demonstrates that liquidity has a negative effect on bank size, interest margin, profitability, loan growth, and Treasury bill rates.

It demonstrates how a rise in loan volume, interest margin, profitability, bank size, and treasury bill rates all contribute to a fall in liquidity. The results of the regression analysis demonstrate the significance of beta coefficients for GDP, Tobin's Q, interest margin, profitability, and treasury bill rates. The study indicates that the primary factors influencing the liquidity of Nepalese commercial banks are interest margin, profitability, Tobin's Q, treasury bill rates, and GDP.

Shaha et al. (2018) analyzed factors affecting liquidity of banks: Empirical evidence from the banking sector of Pakistan. This study investigated into the variables influencing the liquidity of Pakistani banks. Using pertinent econometric parameters, the study's sample of 23 banks spans the years 2007 through 2016. The results show that internal variables such bank size, cost of funds, and capital adequacy ratio (CAR) are statistically significant but have different relationships with the ratios of total loans to total deposits and liquid assets to total assets, respectively. The study found that while external or macro variables like GDP are statistically significant, they have distinct effects on bank liquidity. Another external factor that affects bank liquidity in very different ways is unemployment; nonetheless, it has a statistically significant influence on the first measure of bank liquidity and a statistically negligible impact on the second measure. Furthermore, the data showed that while deposits and bank liquidity have a negative and statistically significant link, profitability and liquidity have no meaningful association.

Ojha (2018) analyzed macroeconomics and bank-specific factors affecting liquidity: A study of Nepali commercial banks. The purpose of this study was to investigate the structure and trends of Nepalese commercial banks' NPL, return on assets, return on equity, CAR, GDP, inflation, and interbank rate. The goal of the study is to examine how liquidity and characteristics unique to Nepalese commercial banks relate to one another. For the objective of the study, panel data from commercial banks from 2010–11 to 2016–17 was obtained. Multiple regression analysis, correlation, mean, and standard deviation have all been utilized to diagnose data in order to achieve the particular goals of the study. The main conclusions indicated that a number of variables that affect the liquidity performance of commercial banks in Nepal have a substantial relationship with one another. The findings also showed that ROA, ROE, NPL, GDP, and IBR all significantly affect LIQ.

Bhattarai (2019) examined Impact of bank specific and macroeconomics variables on liquidity of Nepalese commercial banks. The purpose of this study was to analyze the liquidity factors of Nepalese commercial banks. In the study, panel data of commercial banks covering the years 2011–12–2016–17 were analyzed using ordinary least square (OLS) regression models. The ratios of liquid asset to total asset and total credit to total loan served as the dependent variable in this research, which was compared to both macroeconomic and bank-specific variables. The current study intends to narrow the existing gap by empirically investigating bank-specific factors such as return on equity (ROE), non-performing loan ratio (NPL) and size (LnTA), and macroeconomic drivers such as GDP and inflation rate (INF). The banks chosen for the study were selected using the convenience sampling technique. Descriptive and causal comparative research designs have been used in this study. The Statistical Package for Social Sciences (SPSS)-20 version was used for data analysis. The findings showed that the non-performing loan ratio has a significant but negative effect on liquidity among the bank-specific characteristics. Regarding macroeconomic variables, the findings showed that the model's liquidity (liquid asset to total asset ratio) is significantly positively impacted by GDP. Similarly, the relationship between profitability (return on equity) and liquidity (credit to deposit ratio) in the second model is found to be negative but significant.

Khanal (2019) examined determinants of liquidity in commercial banks of Nepal. The purpose of this study is to determine what factors influence liquidity in Nepalese commercial banks. For this study, the descriptive research designs have been used. Panel data from 10 Nepalese commercial banks with 100 observations from 2007–2008 to 2016–17 is used in the research. The loan to deposit ratio, or LIQ, is a dependent variable that gauges liquidity. The independent variables include the inflation rate, GDP growth rate, bank size, NPL (non-performing loan to total loan ratio), CAR (total capital adequacy ratio), and ROA (return on asset). For this inquiry, secondary data have been used. The Random Effect Model is a crucial analytical technique in panel data analysis (REM). Regression study results indicated that ROA has a positive significant influence on the loan to deposit ratio, whereas size, inflation, and ROE have negative significant effects on liquidity. Likewise, the loan to deposit ratio is positively negligibly impacted by NPL, but negatively and

insignificantly by GDP and CAR. The results of the study indicate that significant variables influencing bank liquidity include size, inflation, ROA, and ROE.

Bhati et al. (2019) analyzed factors affecting the liquidity of commercial banks in India: a longitudinal analysis. This study investigated at how several macroeconomic, bank-specific, and regulatory factors affected Indian banks' long-term liquidity decisions. The study employs a random effect panel data regression model for this aim, testing it across a 21-year period from 1996 to 2016 using data on Indian banks. The analysis's findings demonstrate divergent correlations between the independent and dependent variables as determined by the four liquidity ratios. Interestingly, Indian banks are less dependent on liability-based liquidity and more on asset-based liquidity. More particular, a substantial correlation was seen between the macroeconomic variables of discount rates, call rates, foreign currency reserve, US dollar exchange rate, consumer price index, and gross domestic product and the liquidity ratio of L1, or liquid assets to total assets. Additionally, L1 demonstrated a strong correlation with the capital to total assets and bank size factors that are unique to banks. The cash reserve ratio and profitability as measured by return on equity and non-performing assets, which are regulatory considerations, were shown to have little impact on the liquidity of Indian banks.

Al-Qudah (2020) examined macroeconomic and bank-specific variables and the liquidity of Jordanian commercial banks. This study sought to investigate the effects of bank-specific variables (profitability (ROA), capital adequacy (CADEQ), non-performing loans (NPL), deposit growth (DEPG), and macroeconomic variables (real GDP growth (GDPG), inflation rate (INF)) on the liquidity (LIQ) of thirteen listed commercial banks in Jordan between 2011 and 2018. Lagrange multiplier test, Hausman test, fixed effects model, random effects model, panel data analysis, and pooled least square were all employed. The results of the random effects model demonstrate that macroeconomic factors significantly affect the liquidity of Jordanian commercial banks since GDPG has a negative effect on banks and inflation has a positive influence (LIQ). Conversely, among the characteristics unique to each bank, capital adequacy and deposit growth significantly affect banks' liquidity (LIQ), but NPL and SIZE significantly affect Jordanian commercial banks' liquidity negatively.



However, ROA has a negligible detrimental effect on (LIQ). According to the study's conclusions, in order to keep adequate levels of liquidity, commercial bank divisions should be aware of their internal and external factors.

Bista and Basnet (2020) investigated determinants of bank liquidity in Nepal. This study used an econometric model to investigate factors influencing bank liquidity in Nepali commercial banks during a 12-year period, from 2004 to 2015. Bank liquidity is determined by its deposit base, capital adequacy, and remittance behavior. Deposits have a major influence on bank liquidity, which is also significantly impacted by capital adequacy. Long-term bank liquidity of the commercial bank is increased by capital adequacy, bank size, and government spending, while it is decreased by deposits. As a result, internal factors have a greater impact on bank liquidity than macroeconomic ones. Consequently, in order to achieve financial health, stability, and growth, commercial banks must maintain bank liquidity over both short and long terms in accordance with the aforementioned regulatory provisions and monetary policy criteria.

Abdelmagid (2020) analyzed factors affecting liquidity of Islamic banks in Saudi Arabia. The main objective of this research was to look at the variables influencing Saudi Arabia's Islamic banks' liquidity. The data for the four Islamic banks that are active in Saudi Arabia covered the years 2007–2017. Panel fixed and random effect regression estimations were utilized for the analysis of both internal and external components. The findings of the panel data regression analysis indicated that the capital adequacy of Islamic banks is positively correlated with the murabaha profit margin rate and negatively correlated with the liquidity of Islamic banks. It is unclear how profitability, interbank transactions, and Islamic bank liquidity are related to one another. The study also discovered that the liquidity of Saudi Islamic banks is not statistically significantly impacted by bank size, GDP unemployment growth rate, or inflation rate. Thus, while establishing their strategies to effectively manage their liquidity situation, Islamic banks in Saudi Arabia need to take into account both the internal and external environment in addition to internal considerations, rules, and procedures.

Ahamed (2021) examined determinants of liquidity risk in the commercial banks in Bangladesh. The study examined at both external and bank-specific factors that impact Bangladeshi commercial banks' liquidity risk. Regression analysis was performed using panel data, and data from 23 banks spanning the years 2005 to 2018 were used in the study. Asset size is one of the bank-specific characteristics that negatively affects liquidity risk. Better liquidity conditions and reduced liquidity risk are associated with higher bank sizes. Liquidity concerns have a positive but negligible link with return on equity and capital adequacy ratio. When it comes to macroeconomic considerations, domestic credit and GDP have a positive impact on liquidity risks, whereas inflation has a negative impact. Credits from the public and private sectors raise investments, which support GDP growth. Increased domestic lending limits liquidity and raises the risk of insolvency. The banks' risk of liquidity is strongly correlated with the loan outstanding to asset ratio. In order to boost profitability, banks often raise the loan and advance disbursement, which dries out cash and increases liquidity risk.

Obeidat et al. (2022) investigated internal liquidity determinants analysis of commercial banking industry of Jordan. The purpose of the study was to identify potential internal variables influencing Jordan's commercial banking sector's liquidity status. The study considers a number of potential factors, such as bank size, profitability, credit growth rate, client deposits, financial leverage, and capital sufficiency. Thirteen of the fifteen listed banks at the Amman Stock Exchange have secondary data available for the years 2008–2019. This data is collected and examined. To accomplish the objectives of the study, an aggregate of 1,092 observations are utilized in the analysis. Every hypothesis is examined at the 95 percent confidence level, or 5 percent coefficient of significance. Descriptive statistics, such as the mean, standard deviation, minimum and maximum values, and correlations, are employed in data analysis. Regression analysis and correlation testing were used to evaluate the hypothesis, and the study's conclusion is that capital sufficiency, bank size, and profitability all significantly increase bank liquidity. Additionally, the study shows that client deposits and financial leverage have a negative, substantial influence on bank liquidity. Moreover, the study suggests that there is no significant impact of the credit growth rate on bank liquidity.

Table 1  
*Summary of Empirical Review*

S. N.	Date	Authors	Topic	Objectives	Methodology	Major Findings
1	2015	Lotto, J., & Mwemazi, J.	Assessing the determinants of bank liquidity: Experience from Tanzanian banks.	This study investigated the determinants of banks' liquidity in Tanzania.	The panel regression was employed for secondary data extracted from published bank financial statements of 49 banks in the sample, covering the period from 2006 to 2013.	The results found that inflation and non-performing loans positively impacted banks' liquidity while capital sufficiency, bank size, and interest rate margin had a statistically significant negative impact. However, GDP growth rate and profitability had a statistically insignificant effect on banks' liquidity.
2	2016	Singh, A., & Sharma, A. K.	An empirical analysis of macroeconomic and bank-specific factors affecting liquidity of Indian banks.	This main purpose of the study to analyze the investigate the bank-specific and macroeconomic factors that determine the liquidity of Indian banks.	This study used OLS, fixed effect and random effect analysis to analyze the data.	This study found that GDP, bank size and cost of funding have significant negative effect on liquidity. Likewise, capital adequacy ratio, unemployment rate and deposit over ratio have significant positive effect on liquidity. Finally, ROA and inflation have insignificant positive impact on liquidity.
3	2016	Joshi, A.	Idiosyncratic and macroeconomic determinants of liquidity: a case of Nepalese commercial banks.	This study examined the idiosyncratic and macroeconomic determinants of liquidity in Nepalese commercial banks.	The pooled least square method has been used to measure the relationship between bank liquidity with idiosyncratic and macroeconomic variables.	This study shows that interest margin, total assets, and profitability all considerably lower liquidity. Then, Tobin's Q and GDP have a significant positive impact on liquidity. Similarly, whereas loan growth and Treasury bill rates have a negligible negative impact on liquidity, the inflation rate has a negligible positive influence.
4	2016	Boadi, E. K., Li, Y., & Lartey, V. C. (2016).	Determinants of liquidity of rural and community banks in Ghana	This study analyzed the determinants of Rural and Community Banks (RCBs) liquidity performance in Ghana	The panel least square fixed effect method estimation were used for the research.	The findings indicated that there was a substantial positive association and impact on liquidity between capital sufficiency, asset quality, management efficiency, and gross domestic product. It also backs existing research on bank performance that revealed conflicting results from macroeconomic factors

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5	2018	Shaha, S. Q. A., Khana, I., Shaha, S. S. A., & Tahir, M.	Factors affecting liquidity of banks: Empirical evidence from the banking sector of Pakistan.	This research investigated factors affecting liquidity of banks operating in Pakistan.	The estimation techniques used for the study were the Augmented Dickey-Fuller test, pairwise Granger causality test and autoregressive distributed lag (ARDL).	of the banks This study revealed that capital adequacy, cost of funding, total assets and GDP have significant positive effect on LATA whereas, deposit ratio has significant negative effect on LATA but ROA has insignificant positive effect on LATA. At the same time, CAR, cost of funding, deposit ratio, total assets and GDP have significant negative impact on LDR but ROA has insignificant positive effect on LDR.
6	2018	Ojha, P. R.	Macroeconomics and bank-specific factors affecting liquidity: A study of Nepali commercial banks.	This study aimed to examine the form and pattern of liquidity in Nepalese commercial banks.	Mean, standard deviation, correlation and multiple regression analysis have been used to diagnose data to meet the specific objectives of research.	This study found that return on assets, return on equity, non-performing loan and interbank rate (IBR) have significant negative impact on liquidity. Likewise, capital adequacy ratio (CAR) and gross domestic product (GDP) have significant positive effect on liquidity.
7	2019	Bhattarai, B. P.	Impact of bank specific and macroeconomics variables on liquidity of Nepalese commercial banks.	The objective of this study was to analyze the liquidity determinants of Nepalese commercial banks.	The study has applied ordinary least square (OLS) regression models to a panel data of commercial banks for the period from 2011/12 to 2016/17.	This study found that ROE, GDP and bank size (LNTA) have insignificant positive effect on LIQ whereas, NPL has significant negative impact on LIQ but INF has insignificant negative impact on LIQ. Then, ROW has significant negative impact on LDR but NPL, GDP, bank size and inflation rate have insignificant negative impact on LDR.
8	2019	Bhati, S., De Zoysa, A. & Jitaree, W.	Factors affecting the liquidity of commercial banks in India: A longitudinal analysis.	This study examined the long-term effect of various regulatory, bank-specific and macroeconomic factors on the determination of liquidity in Indian banks.	For this purpose, the study uses a random effect panel data regression model and tests it with data on Indian banks for 21 years, covering the period from 1996 to 2016.	Capital to total assets ratio, total assets, exchange rate and consumer price index have significant negative effect on liquidity. Likewise, lending rate, cash reserve ratio and non-performing loan to loan and advance have insignificant negative impact on liquidity. Then, money & short call rate, GDP have significant positive impact on liquidity and ROE has insignificant positive effect

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9	2019	Khanal, S.	Determinants of liquidity in commercial banks of Nepal.	This study aimed to identify the determinants of liquidity in Nepalese commercial banks.	For the purpose of this study, the secondary data have been used. Random Effect Model (REM) of panel data analysis is used as a major tool of analysis.	on liquidity. This study found that CAR and GDP have insignificant negative impact on liquidity. NPL has insignificant positive impact on liquidity and ROA has significant positive impact on liquidity. Finally, ROE, SIZE and Inflation rate (INF) has significant negative impact on liquidity.
10	2020	Bista, R. B., & Basnet, P.	Determinants of Bank Liquidity in Nepal.	This study examined determinants of bank liquidity of the commercial bank in Nepal based on 12 years long time series data base from 2004 to 2015.	The study utilized multiple regression econometric model.	This study found that total deposit, remittance inflow and deposit to money supply have significant positive impact on LATA but government expenditure has insignificant negative impact. At the meantime, CAR and SIZE have significant negative impact on LATA but inflation rate has insignificant positive impact on LATA. Deposit has significant negative impact on LDR and inflation rate, deposit money supply, remittance have insignificant negative effect on LDR. iv. Finally, SIZE and government expenditure have positive effect on LDR.
11	2020	Al-Qudah, A. M.	Macroeconomic and bank-specific variables and the liquidity of Jordanian commercial banks	This study aimed to explore the impact of macroeconomic and bank-specific variables on the liquidity.	Panel data analysis, Pooled least square, fixed effects model and random effects model, Lagrange multiplier test, and Hausman test were used.	This study found that inflation has a positive impact while GDPG has a negative impact on banks (LIQ). On the other hand capital adequacy and deposit growth have a positive significant impact on banks liquidity while NPL) and SIZE have a negative significant impact on liquidity.
12	2020	Abdelmagid, D. A.	Factors affecting liquidity of Islamic banks in Saudi Arabia	The main purpose of this study was to investigate factors affecting liquidity of Islamic banks in Saudi Arabia	This study used panel fixed and random effect regression to analyze the data.	This study demonstrated that the capital adequacy of Islamic banks is favorably correlated with the profit margin rate and negatively correlated with the liquidity of Islamic banks. It is unclear how profitability, interbank transactions, and Islamic bank liquidity are related to one another. The study also discovered that the liquidity

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13	2021	Ahamed, F.	Determinants of liquidity risk in the commercial banks in Bangladesh.	The study examined the bank-specific and external factors that affect the liquidity risk in commercial banks in Bangladesh.	This study used descriptive analysis, correlation and multiple regression analysis.	of Saudi Islamic banks is not statistically significantly impacted by bank size, GDP unemployment growth rate, or inflation rate. Liquidity is found to be negatively impacted by both asset size and inflation rate. Similarly, GDP, ROE, and domestic credit all contribute to some improvement in liquidity. Finally, it can be said that the capital adequacy ratio significantly improves liquidity.
14	2022	Obeidat, M. I. S., Adnan, M., & Yasin, M.	Internal liquidity determinants analysis of commercial banking industry of Jordan.	The study aimed to determine the possible internal factors affecting the liquidity position of the commercial banking industry of Jordan.	This study used descriptive analysis, correlation and multiple regression analysis.	This study showed that the Jordanian banking industry's liquidity was significantly positively impacted by profitability and bank size. Then, the CAR, financial leverage, and credit growth rate have little beneficial effects on liquidity. Lastly, there is a noticeable detrimental effect of client deposits on liquidity.

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### 2.3 Research gap

The term "research gap" describes the difference between this research and earlier research. First, there is a research gap in terms of time between this study and earlier ones. Although they had previously researched earlier eras, their study included the years 2021–2022. Subsequently, whereas earlier research likewise employed a limited time frame of no more than five years, this study covered ten years. None of the studies included control variables, and they did not support earlier international research suggesting that the liquidity of development banks is influenced by a variety of factors or causes. This study used descriptive analysis, correlation analysis and multiple regression analysis which were not analyzed for data analysis and also this study has tried to use t-test and multicollinearity test. Moreover, this study has taken three major four development banks which are Jyoti Bikas Bank Limited, Muktinath Bikas Bank Limited, Kamana Sesa Bikas Bank Limited and Garima Bikas Bank Limited since those development banks were not included by the previous

researchers. They only studied in commercial banks. Therefore, this study tries to fulfill the study gap or knowledge gap.

## **CHAPTER - III**

### **RESEARCH METHODOLOGY**

It explains the procedures, instruments, methods, and approaches employed in the report's preparation and data analysis. It involves meticulous study, particularly by looking for fresh information in any field to choose the best research methods. The study's goals have been attained by employing the following approach.

#### **3.1 Research design**

A research design is an organized framework and approach to inquiry that is developed to find answers to research problems and manage deviations. Descriptive and causal research design were used in this study to address problems related to the variables influencing liquidity. While the causal research design examines the relationship and impact of independent variables like liquid assets to total assets, capital adequacy ratio, non-performing loan ratio, return on assets, bank size, and inflation rate on liquidity of development banks in Nepal, the descriptive research design uses mean, minimum, maximum, and standard deviation to analyze the position of liquidity and its factors.

#### **3.2 Population and sample, and sampling design**

There are 17 development banks operating in Nepal (till January, 2023) which are assumed to be the population of the study but it is not possible to study all of these development banks within this study. So, taking the total number of development banks as population of the study, only four development banks, namely Jyoti Bikas Bank Limited, Muktinath Bikas Bank Limited, Kamana Sesa Bikas Bank Limited and Garima Bikas Bank Limited has been taken as sample. This study is based on purposive sampling method because these development banks are top four in terms of profitability as well as high liquidity banks in the present context. Moreover, these development banks are taken due to the availability of data. Therefore, the researcher has chosen these development banks in this study.



### **3.3 Nature and sources data, and instruments of data collection**

This study used only secondary sources for its data. These include numerous reports and directions from Nepal Rastra Bank, as well as yearly and quarterly reports from certain development banks. The necessary data for the research has been gathered from books, journals, papers, relevant websites, published and unpublished theses and dissertations, and other sources.

### **3.4 Method of analysis**

The way the data are arranged makes it simple to perform the computations and determine the results. To evaluate the data and their numerical values, various ratios, means, standard deviations, correlations, regression, and hypothesis testing are used. Descriptive and inferential statistics are the two main categories into which statistics falls. Several of the instruments utilized in this study are among them.

#### **3.4.1 Descriptive statistics**

##### **Arithmetic mean**

The result of dividing the total of all the values in a distribution by the total number of values in the distribution is the mean. Therefore, the mean is a variable's arithmetic average. Thus, the term "average" also refers to the arithmetic mean.

##### **Standard deviation**

The ranges and magnitude of deviations from the mean or center are shown by the standard deviation. It is frequently employed to calculate how much values deviate from the mean. It displays the difference between a single number and the average value. It quantifies the overall risk of the data that is changing over the course of the time period in analytical terms. More danger is indicated by more value, and vice versa.

#### **3.4.2 Inferential statistics**

##### **Correlation of coefficient (r)**

The correlation coefficient allows us to ascertain both the direction and intensity of the relationship between two sets of scores. The covariance of two variables can be divided by the total of their standard deviations to find the coefficient. The size of the

correlation coefficient indicates the strength of the linear relationship between two variables. There is no association when the correlation value is 0. As the strength of the association between the variables improves, the correlation value climbs to +1, and as the relationship strength decreases, it increases to -1. In light of the fact that a connection between two variables is absolutely negative at -1 and perfectly positive at +1.

### **Multiple regressions analysis**

Regression analysis is a mathematical technique that measures the average relationship between two or more variables expressed in terms of the original units of the data. The assessment or forecast of one variable's value based on the supply of another variable in which there are independent and dependent variables is known as regression. Independent factors are sometimes known as predictor variables, and response variables are dependent variables. Regression analysis uses regression coefficients, represented by the letter "b," to help us calculate the change in response variable due to a one unit change in predictors.

### **The model**

The researcher is used liquid assets to total assets ratio (dependent) as a measure of bank liquidity and five predictors (independent variables) are chosen to be analyzed. Those chosen variables are both internal variables and external variables such as capital adequacy ratio (CAR), profitability of the bank (ROA), non-performing loan ratio (NPLR), bank size (SIZE) and external factor i.e. inflation rate (INF). Therefore, the following model has been employed for the study of relationship and effect of the study variables.

$$LATA = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPLR_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \beta_5 INF_{it} + e_{it}$$

Where:

LATA = Liquid assets to total assets of bank  $i^{th}$  for the time period  $t$

CAR<sub>it</sub> = Capital adequacy ratio of bank  $i^{th}$  for the time period  $t$

NPLR<sub>it</sub> = Non-performing loan ratio for time period  $t$

ROA<sub>it</sub> = Return on assets of bank  $i^{th}$  for the time period  $t$

SIZE<sub>it</sub> = Bank size or total assets of bank  $i^{th}$  for the time period  $t$

INF<sub>t</sub> = Inflation rate for time period  $t$

$\beta_0$  = The intercept (constant)

$\beta_1, \beta_2, \beta_3, \beta_4,$  and  $\beta_5$  = The slope which represents the degree with which bank performance changes as the independent variable changes by one unit variable.

$e$  = error component

### 3.5 Research framework and definition of variables

The researcher develops the following conceptual framework for the study based on reviews of the theoretical and empirical literature.

#### Independent Variables

#### Dependent Variable

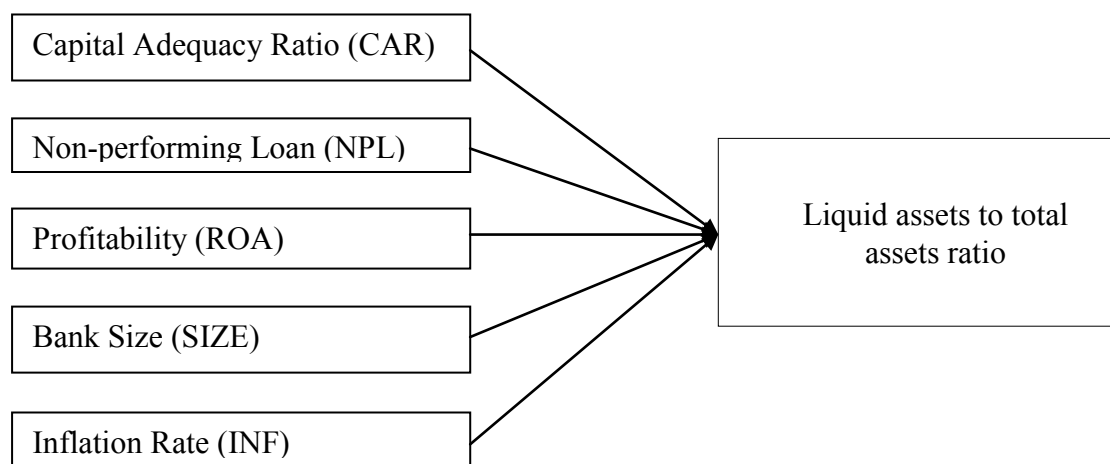


Figure 1 Research framework of the study

Source: Ojha (2018); Khanal (2019); Bhattarai (2019); Bhati, De Zoysa and Jitaree (2019); Bista and Subedi (2020)

#### Dependent variable

##### Liquid Assets to Total Assets Ratio

The ratio of liquid assets to total assets ought to provide insight into a bank's overall ability to withstand liquidity shocks. Assuming that all development banks have the same level of market liquidity, the capacity to withstand a shock to liquidity generally increases with the proportion of liquid assets in total assets. However, a high ratio value can also be regarded as inefficient. Liquid assets have higher opportunity costs for the development bank since they produce less income. Liquid assets divided by total assets yields this ratio. Bhattarai (2019) and Bista and Basnet (2020) used as dependent variables in their study of factor affecting liquidity in Nepalese banks. Therefore it is necessary to optimize the relation between liquidity and profitability.

## **Independent variables**

### **Capital adequacy Ratio**

Development banks' capital consists of excess cash, undivided earnings, common shares, a contingency reserve, and additional capital reserves. The literature review part discusses the two opposing theoretical stances on the relationship between bank liquidity and capital adequacy. These are the financial fragility-crowding of deposit hypothesis and the risk absorption idea. While the second argument refutes the first's claim that bank liquidity and capital adequacy are negatively connected. The second hypothesis was taken into consideration because it has been applied in several of the empirical studies that this study examined. Ojha (2018) found that capital adequacy ratio (CAR) had significant positive effect on liquidity. However Bhati, De Zoysa and Jitaree (2019) concluded that capital to assets ratio had significant negative effect on liquidity. The proxy for capital adequacy used in this study was the ratio of total capital fund to risk weighted assets.

### **Non-performing loans**

Non-performing loans are defined as long-term principal and interest-only loans that are not being repaid in compliance with the terms and conditions of the loan agreement. This evaluates the asset quality of the bank. Unlike other banks, loans make up a sizable share of company assets. The profitability of development banks would decrease if this loan was determined to be uncollectible, and many depositors would grow suspicious of the organization and turn against it. Bhattari (2019); Bhati, De Zoysa and Jitaree (2019) found that non-performing loan had negative impact on liquidity. On the other hand, Khanal (2019) found that NPL had positive effect on liquidity. Therefore, it is expected that there is negative relationship between liquidity and the amount of non-performing loans. The proxy used for non-performing loans was the percentage of non-performing loans in the total amount of development bank loan.

### **Profitability of the bank (ROA)**

Investment of a development bank's whole available fund is restricted by liquidity requirements. Profitability and liquidity are two requirements that banks must meet, and there are inherent tensions between the two that must be resolved. Profitability

will rise when more liquid assets are invested in earning assets like advances and loans, at the price of liquidity. Development banks should thus always aim for a balance between profitability and liquidity in order to meet both the needs for liquidity and the aspirations of shareholders for wealth. Owolabi et al. (2011) argued that there is a trade-off between profitability and liquidity, with an increase in one leading to a drop in the other. Vodova (2013) pointed to a detrimental impact on liquidity and profitability as determined by return on equity. Return on equity (ROE) and return on asset (ROA) are the two metrics most frequently used to assess profitability. In this study, return on asset (ROA), which gauges the development banks' overall financial performance, serves as a stand-in for profitability. ROA is calculated as the ratio of net profit before taxes to total asset value.

### **Bank size**

The size of a bank indicates its overall ability to perform intermediary duties. Big development banks are probably going to create more liquidity, which puts them at risk of losing money if they have to sell illiquid assets to meet client demands for liquidity. Small banks do, however, have limited liquidity because they are probably concentrated on traditional intermediation and transformation activities (Rauch et al., 2008; Berger & Bowman, 2009). Greater market share and market dominance are possessed by larger companies in terms of customer base and investment volume.

### **Inflation rate**

A rise in inflation lowers the actual rate of return on assets overall, not just on money, claims a contemporary theory of information asymmetry in the credit market. Credit market frictions are made worse by the projected decline in real returns. Credit is rationed as a result of these market frictions, and credit rationing gets worse as inflation increases. As a result, there are negative effects on capital and long-term investment, less loans are made by the banking sector, and resource allocation is less effective. In turn, when inflation rises, so do the amounts of liquid or short-term assets held by economic actors, such as banks. Bhattarai (2019); Khanal (2019) found that inflation rate had negative effect on liquidity. However, Singh and Sharma (2016) found that inflation rate had insignificant positive impact on liquidity. To proxy inflation the annual gross inflation rate was used.

## CHAPTER - IV

### RESULTS AND DISCUSION

The major objective of this study is to investigate the factors affecting liquidity of development banks in Nepal. Therefore, this chapter, which is divided into three sections, deals with the findings and their analysis. The study's liquidity position and descriptive and correlation analyses of its variables were reported in the first section. The fulfillment of the assumptions of the linear regression model was shown in the second section, and the discussion was put out in the third.

#### 4.1 Results

##### 4.1.1 Descriptive Statistics of Variables

Table 2 presents the descriptive statistics for the variables utilized in the investigation. The findings indicate that the liquidity indicators, which include the minimum and maximum liquidity measures, are liquid assets to total assets (LATA) and the capital adequacy ratio (CAR), non-performing loan ratio (NPLR), return on assets (ROA), bank size (SIZE), and inflation rate (INF).

Table 2

*Descriptive Statistics of Variable of Sample Development Banks*

Variables	N	Minimum	Maximum	Mean	Std. Deviation
<b>Independent Variables:</b>					
CAR	40	11.19	30.60	15.0737	3.98681
NPLR	40	0.02	4.14	0.9775	0.95077
ROA	40	0.33	3.14	1.6568	0.58129
LSIZE	40	3.38	5.08	4.2496	0.49470
INF	40	3.60	9.93	6.5510	2.30905
<b>Dependent Variables:</b>					
LATA	40	7.24	39.12	21.2738	7.60920

Source: Appendix –II

Table 2 shows the descriptive statistics of dependent and independent variables used in the study. Higher capital ratio values are associated with enhanced depositor safety, according to the independent variable CAR, because shareholder equity serves as a buffer against hardship. From 11.19 to 30.60 percent, the CAR fluctuated. The average CAR is then 15.0737 percent, with a low variance of 3.98681. In a similar vein, the non-performing loan ratio shows a range of values, from a minimum of 0.02

percent to a maximum of 4.14 percent, with an average of 0.9775 percent and a standard deviation of 0.95077.

The average return on assets for the research period was 1.6568 percent with a standard deviation of 0.58129, the highest return on assets being 3.14 percent, and the lowest being 0.33 percent, according to ROA. The assets size control variable ranges from 3.38 to 5.08, with a mean of 4.2496 and a standard deviation of 0.49470. The macro independent variable inflation rate (INF) has a standard deviation of 2.30905 and an average of 6.5510 percent, with a range of 3.60 to 9.93 percent. Furthermore, during the course of the research period, the dependent variable, or liquidity indicator ratio the average ratio of liquid assets to total assets has had a standard deviation of 7.60920 percent and a maximum ratio of 39.12 percent, with a minimum of positive 7.24 percent.

#### 4.1.2 Correlation Analysis

A correlation matrix is a table that shows the correlation coefficients between variables. Each table cell shows the correlation between two matched variables. A correlation matrix is a useful tool for summarizing data. This provides us with a brief summary of the variables that exhibit varying degrees of importance and correlation. The absence of a linear relationship between the two variables is indicated by a correlation value of 0. A perfect positive relationship is represented by a correlation coefficient of +1, while a perfect negative relationship is represented by a correlation coefficient of -1.

Table 3

#### *Pearson Correlation Coefficients of Study Variables*

	CAR	NPLR	ROA	LSIZE	INF	LATA
CAR	1					
NPLR	.122	1				
ROA	-.040	-.307	1			
LSIZE	-.084	-.257	-.661**	1		
INF	-.207	.339*	.381*	-.703**	1	
LATA	.288	.082	.667**	-.840**	.467**	1

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

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

Source: Appendix-III

Table 3 reveals the correlation test between both dependent and independent variables using correlation coefficient matrix. The correlation test shows that capital adequacy ratio (CAR) has insignificant positive relation with liquid assets to total assets (LATA) in 5 percent level of significance. Then, there is insignificant positive correlation between non-performing loan and liquid assets to total assets. Likewise, return on assets (ROA) has significant positive relationship with liquidity (LATA). Similarly, bank size (LSIZE) has significant negative relation with LATA. Finally, this analysis also shows that inflation rate (INF) has significant positive relationship with LATA of the development banks.

#### 4.1.3 Regression Analysis

In contrast to simple regression analysis, which uses one independent variable to estimate the values of a dependent variable, coefficient analysis uses two or more independent variables to estimate the values of a dependent variable. Multiple regression analysis helps to understand how the variable moves relative to other variables. According to the model's theoretical description, the LATA's evaluation of the relationship between components and liquidity would be based on the capital adequacy ratio, non-performing loan ratio, return on assets, bank size, GDP growth rate, and inflation rate. The theoretical claims presented above can be formulated as follows:

Table 4

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 <sup>a</sup>	.792	.761	3.72041

a. Predictors: (Constant), INF, CAR, ROA, NPLR, LSIZE

b. Dependent Variable: LATA

Source: Appendix-IV

The R square is 0.792. This implies that the independent variables (INF, CAR, ROA, NPLR, LSIZE) account for 79.20 percent of the variation in the dependent variable (LATA). The R value in this study, which is 0.890, shows that the study variables have a high association with one another. This suggests that the independent factors had a significant impact on the liquidity. Because of its tiny value, the standard error of estimate is perfectly correlated with regression analysis.



Table 5

*Analysis of Variance (ANOVA)*

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1787.487	5	357.497	25.828	.000 <sup>b</sup>
	Residual	470.609	34	13.841		
	Total	2258.096	39			

a. Dependent Variable: LATA

b. Predictors: (Constant), INF, CAR, ROA, NPLR, LSIZE

Source: Appendix-IV

An analysis using ANOVA (F-value) suggests that the influence of dependent variables may be explained by the greatest number of potential combinations of predictor variables. Findings indicate that the ROA indicator has a major influence. The F-values of 25.828 ( $p = 0.000 < 0.05$ ) for the LATA proxy variables INF, CAR, ROA, NPLR, and LSIZE indicate a strong statistical correlation between the independent variables and the dependent variable (LATA).

Table 6

*Regression Coefficient of Independent Variables with Liquidity (LATA)*

Variables	Coefficients	t-statistics	Sig.-value	VIF
(Constant)	65.058	4.140	.000	
CAR	.421	2.531	.016	1.237
NPLR	-.553	-.629	.533	1.963
ROA	2.152	1.183	.245	3.152
LSIZE	-12.104	-4.819	.000	4.351
INF	-.262	-.639	.527	2.524

Source: Appendix-IV

Table 6 presents the regression coefficient of independent variables capital adequacy ratio, non-performing loan ratio, return on assets, bank size and inflation rate of development banks and the intercept value of dependent variable LATA. It shows that variance inflation factor (VIF) is below 10. That's why, there is no multicollinearity in the model. Regression coefficient ( $\beta$ ) for CAR is 0.421. According to the statistics, there would be a 0.421 percent increase in LATA for every 1 percent increase in CAR. Furthermore, at the five percent significance level, the p value of CAR, which is 0.016, exhibits statistical significance. As a result, the CAR has significantly improved the LATA of Nepal's development banks. The coefficient of regression ( $\beta$ ) for NPLR is -0.553. This means that the LATA would have decreased by -0.553

percent if the non-performing loan ratio (NPLR) had increased by one percent. Furthermore, at the five percent significance level, the NPLR seems to be statistically insignificant based on its p value of 0.533. As a result, NPLR has very little negative effect on LATA.

Likewise, the coefficient of regression ( $\beta$ ) for return on assets (ROA) is 2.152. According to the statistics, there would be a 2.152 percent increase in LATA for every 1 percent increase in ROA. Furthermore, at the five percent significance level, the rise is statistically negligible, according to the ROA p value of 0.245. Consequently, the positive impact of ROA on the LATA of Nepal's development banks is minimal. At the same time, -12.104 is the LSIZE coefficient of regression ( $\beta$ ). The data indicates that a one percent growth in LSIZE would result in a -12.104 percent decline in LATA. Additionally, the statistical significance of LSIZE at the five percent significance level is shown by its p value of 0.000. This suggests that the LATA of sample development banks is considerably affected by LSIZE. In the end, the coefficient of regression ( $\beta$ ) for INF is -0.262. According to the statistics, LATA would fall by -0.262 percent for every percent increase in INF. Furthermore, INF's p value of 0.527 indicates statistical significance at the five percent significance level. As a result, the INF has very little negative effect on the LATA of Nepal's development banks.

#### **4.2 Discussion**

The main objective of this study was to identify the factors affecting liquidity of Nepalese development banks. To comply with the objectives of the study, four development banks specific and one macroeconomic variable/factor were used. The bank specific variables include; capital adequacy ratio, bank size, non-performing loans and profitability and the macroeconomic variable i.e. inflation rate. The study was used panel data for the sample of four development banks in Nepal which had ten years of banking service over the period 2012/13 to 2021/22. The bank specific data were mainly collected from annual audited financial reports of the respective sample development banks and the macroeconomic data were collected from economy survey.

The correlation analysis shows that capital adequacy ratio (CAR) has insignificant positive relation with LATA. This is consistent with the previous study of Ojha (2018); Singh and Sharma (2016) but it contradicts with Lotto and Mwemezi (2015) mentioned that there is negative relationship with CAR and LATA of the banks. Then, there is insignificant positive correlation between non-performing loan and liquid assets to total assets which is consistent with the findings of Lotto and Mwemezi (2015) but it is inconsistent with the findings of Ojha (2018).

However, return on assets (ROA) has significant positive relationship with LATA. This is consistent with the findings of Ojha (2018); Singh and Sharma (2016) and Shaha, Khana, Shaha and Tahir (2018). Similarly, bank size (LSIZE) has significant negative relation with LATA. This is consistent with the findings of Joshi (2016). However, it contradicts with the findings of Boadi, Li and Lartey (2016). Finally, inflation rate (INF) has significant positive relationship with LATA. This is consistent with the findings of Joshi (2016); Lotto and Mwemezi (2015); Ojha (2018).

The regression results found that capital adequacy ratio has significant positive effect on liquid assets to total assets (LATA) of banks. This result is consistent with the results identified by Ojha (2018); Singh and Sharma (2016); Shaha, Khana, Shaha and Tahir (2018) but opposite to the findings of Bhati, De Zoysa and Jitaree (2019); Bista and Basnet (2020). At the same time, NPLR has insignificant negative effect on (liquidity) liquid assets to total assets ratio of sample banks. This was consistent with the findings of Bhattarai (2019); Ojha (2018); Bhati, De Zoysa and Jitaree (2019); Al-Qudah (2020). ROA has insignificant positive effect on liquid assets to total assets ratio of sample banks. This study is similar to the prior study of Singh and Sharma (2016); Lotto and Mwemezi (2015). However, it contradicts with the findings of Ojha (2018); Al-Qudah (2020).

Bank size has significant negative effect on liquid assets to total assets ratio of sample banks. This is consistent with the findings of Bista and Basnet, (2020); Bhati, De Zoysa and Jitaree (2019); Lotto and Mwemezi (2015); Singh and Sharma (2016) but opposite to the findings of Bhattarai (2019); Shaha, Khana, Shaha and Tahir (2018). On the macroeconomic variable, Inflation rate has insignificant negative effect on liquid assets to total assets ratio of sample banks. The result is line with findings of

Bista and Basnet (2020); Lotto and Mwemezi (2015), Al-Qudah (2020) but the result is inconsistent with the findings of Bhati, De Zoysa and Jitaree (2019); Bhattarai (2019).

## CHAPTER – V

### SUMMARY AND CONCLUSION

#### 5.1 Summary

Liquidity of a bank is the ability of financial institutions to have sufficient cash reserves to meet their maturing obligations. The fees a bank charges for its services and the interest it gets on its assets are its main sources of revenue. When income exceeds expenses, finance companies, like other businesses, turn a profit. The liquidity of development banks is impacted by several factors. Several factors need to be taken into account while managing development banks' liquidity. The liquidity of development banks is impacted by both bank-specific and macroeconomic variables. Macroeconomic factors are those that have to do with the state of the economy as a whole or its features, such as inflation. Internal factors such capital sufficiency, bank size, non-performing loan, profitability, etc. are examples of features unique to individual banks.

The main objective of this research is to examine at the factors that are influencing Nepal's development banks' liquidity. The additional specific objectives are to assess the present situation of liquidity in Nepalese development banks, look into the relationship between particular factors and these banks' liquidity, and find out how certain factors affect these banks' liquidity in Nepal. Descriptive and causal research designs have been used to examine the factors influencing the liquidity of Nepal's development banks in order to meet the study's particular objective. Descriptive research design is adopted for analyzing status and pattern of liquidity whereas causal research design is followed to analyze the effect of factors on liquidity of development banks. Currently, there are 17 development banks operating in Nepal (till January, 2023) which are the population of the study. However, four development banks namely; Jyoti Bikas Bank Limited, Muktinath Bikas Bank Limited, Kamana Sesa Bikas Bank Limited and Garima Bikas Bank Limited are selected as sample on the basis of purposive sampling method because these development banks are top four in terms of profitability as well as high liquidity banks in the present situation. Moreover, these development banks are taken due to the availability of data. In order to analyze the factors affecting liquidity, computed ratios for four development banks for ten consecutive years .i.e. from 2012/13 to

2021/22 were collected from an audited financials report of development banks were collected for the same years. This study used descriptive analysis, correlation analysis and multiple regressions analysis to analyze the data with the help of SPSS software. The dependent variable is liquidity indicator i.e. liquid assets to total assets ratio and independent variables are capital adequacy ratio, non-performing loan, profitability (ROA), bank size and inflation rate to analyze the factors affecting liquidity of development banks in Nepal.

According to this analysis, development banks have kept significant cash holdings relative to their overall assets, and their efficient risk management suggests that they have an adequate amount of liquidity. The correlation study reveals an insignificant positive association between non-performing loans, the capital adequacy ratio, and liquid assets as a proportion of total assets (LATA). Liquidity (LATA) was then significantly positively correlated with both the rates of inflation and return on assets. Furthermore, there is a significant negative correlation between bank size and LATA. The multiple regression analysis reveals that there is significant positive impact of capital adequacy ratio on liquidity of the development banks while non-performing loan and inflation rate have insignificant negative impact on liquidity. Besides these, return on assets had insignificant positive impact on liquidity (liquid assets to total assets) of the development banks. Moreover, bank size had significant negative impact on liquidity. Hence, this study concluded that capital adequacy ratio and bank size are the key factors of liquidity in Nepalese development banks.

## **5.2 Conclusion**

Based on key findings, descriptive statistics lead to the conclusion that the banks' liquidity position during the study period was high in terms of the ratio of liquid assets to total assets, indicating that development banks had kept up acceptable levels of liquidity and seamless day-to-day operations for operating risk. However, because of the low standard deviation, the ratio of liquid assets to total assets shows little fluctuation.

The correlation analysis concluded that there is insignificant positive association between capital adequacy ratio (CAR) and liquid assets to total assets (LATA). Similarly, non-performing loan has insignificant positive relationship with liquid

assets to total assets. At the meantime, return on assets has significant positive relationship with liquidity whereas bank size has negative and insignificant relation with LATA. Moreover, inflation rate has significant positive association with LATA of the development banks in Nepal.

The regression analysis concluded that there is significant positive impact of capital adequacy ratio on liquidity of the development banks in Nepal. However, non-performing loan and inflation rate have insignificant negative impact on liquidity. However, there is positive and insignificant impact of return on assets on liquidity of the development banks. Further, bank size has significant negative impact on liquidity. Therefore, this study concluded that capital adequacy ratio and bank size are the key factors of liquidity of development banks in Nepal.

### **5.3 Implications**

Drawings from the research summary and conclusions indicate the following implications:

- This study found that the effect of capital adequacy ratio and bank size have significant impact on liquidity (LATA) which indicates that CAR bank size return on assets are the major factors of liquidity of development banks in Nepal. These results and data motivate regulators, policymakers, and bank management to maintain both short- and long-term bank liquidity in accordance with IMF principles and criteria in order to decrease the likelihood of a liquidity crisis.
- Individuals businesses, and the economy as a whole, in addition to the banks themselves, benefit from the numerous internal and external (bank inflation rate) elements that affect banks' liquidity, according to the study's findings. As a result, the financial industry performs better in the economy and in society at large.
- The primary financial and liquidity issues that Nepalese development banks face in both their short- and long-term cycles are covered in this study, which makes it noteworthy. The study can assist decision-makers and policymakers in Nepal's banking industry in managing the risks mentioned above.

- Some of the most recent data, statistics, and liquidity-related difficulties may be found in this research. Consequently, this study will be important for future researchers and students as well as bankers, investors, and depositors.
- Increasing the study time and sample size may produce more consistent results in further investigations. Investigating the effects of additional macroeconomic variables and other proxies for internal and external factors on liquidity is also crucial. Examples of these are return on equity, deposit ratios, investment sizes, management performance, loan growth, etc.