DETERMINANTS OF LIQUIDITIY POSITION IN COMMERCIAL BANK OF NEPAL

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

by

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Determinants of Liquidity Position In Commercial Bank of Nepal''**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes.

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

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June, 2024

REPORT OF RESEARCH COMMITTEE

Ms. Ambika Giri has defended research proposal entitled **"Determinants of Liquidity Position in Commercial Bank of Nepal"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Asso. Prof. Dr. Kapil Khanal submit the dissertation for evaluation and viva-voce examination.

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We, the undersigned, have examined the dissertation entitled **"Determinants of Liquidity Position in Commercial Bank of Nepal"** presented by Ambika Giri candidate for the degree of Master of Business Studies (MBS Semester) and conducted the viva voce examination of the candidate. We hereby certify that the dissertation is worthy of acceptance.

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ABBREVIATIONS

ANOVA	:	Analysis of Variance
CAR	:	Capital Adequacy Ratio
COVID-19	:	Coronavirus Disease of 2019
GDP	:	Gross Domestic Product
IFR	:	Inflation Rate/Rate of Inflation
LATA	:	Liquid Asset to Total Asset
LR	:	Liquidity position
LTD	:	Loans-to-Deposits
NPL	:	Non-Performing Loans
NRB	:	Nepal Rastra Bank
P-P	:	Probability–Probability or Percent–Percent
ROE	:	Return on Equity
SPSS	:	Statistical Package for the Social Science

ABSTRACT

A solid liquidity position of banking industry of the bank to manage its liquidity results to liquidity position which encourage increments the probabilities of default in the banking industry. This paper aims to examine the frame and pattern of liquidity position in Nepalese commercial banks. The study is an attempt to consider the determinants affecting liquidity position of banks taking into consideration the target population as the Nepalese Commercial Bank for period covering fiscal year 2017 to 2022. To evaluate the impact of the varied determinants on the liquidity positions of the banks, various statistical models including econometric show (regression model) is connected to analyze date to meet the specific goals of the research. The main conclusions stated that there is a notable relationship between several elements that affect the liquidity performance and position of Nepalese joint venture commercial banks.

Keywords: Determinants, Liquidity Performance, statistical models, Population etc.

CHAPTER I
INTRODUCTION

1.1 Background of the Study

One of the worst global financial crises in history, the global fiscal crisis of 2007–2008 caused the banking and monetary sectors to express serious concerns about their liquidity situation (Helleiner, 2011). This financial crisis revealed a notable liquidity mismatch, increased non-performing loans, and eliminated negative effects such as diminished assurance within the banking and monetary framework. Due to their negligence in managing their liquidity prudently, a large number of banks and budgetary institutions experienced liquidity issues during the crisis. The worldwide money related crisis emphasized the significance of liquidity to the proper working of the banking and monetary sectors (Vazquez and Federico, 2015). Earlier to the crisis, asset markets were optimistic, and financing was effectively accessible at low cost. The sharp reversal in market conditions outlined how rapidly liquidity can fade away, and that illiquidity, even if it lasts for a brief period, can have an enduring affect in the global economy.

Before the COVID-19 retreat, many experts in the field of finance believed that the global financial crisis was the most real since the 1930s Great Depression (Reinhart and Reinhart, 2020). In the framework of these global financial crises, problems with liquidity have essentially escalated because of increased loan-to-deposit ratios and a significant increase in non-performing debts. Similar to this, during the COVID-19 recession, the banking and financial industry may face specific liquidity issues because of a rise in credit risk defaults, a decline in recoveries because of a stagnant collateral market, a decrease in cash inflows from loan repayments, reasonable value losses because of an increase in credit spread, a reduction in benefit level, capital consumption, and a decrease in the capital adequacy proportion. Therefore, it is essential to handle the liquidity issue and consider potential.

A few studies done in the past indicate that the primary factor preventing monetary institutions from failing is the decline in bank liquidity both before and during the crisis. Research suggested that during crises, financial institutions' average liquidity can drop by 7% (Boyson et al., 2011). Furthermore, because of the low amount of liquidity in the market, financial institutions seem less ready to lend during times of impending crisis and instead choose to hold more liquidity. As such, they illustrated the correlation between fiscal crises and the generation of liquidity. Simultaneously, a different study clarified that banks experience a lack of liquidity when they find it difficult to sell their assets or convert them into cash without suffering a loss from the depreciation of such assets. Financial institutions are compelled to liquidate their investments and resources at a low cost if they do not have enough rapid offering liquid assets to cover these unexpected large withdrawals.

Furthermore, a budgetary framework with liquidity problems will impede economic growth since an illiquid financial system may result in less loans being given to individuals and businesses (Ndlovu, 2014). As a result, there will be a decrease in financial growth and some materials will be forced to close. This can have an impact on the unemployment rate, the amount of non-performing loans, and the level of consumption.

Banks are financial organizations that act as intermediaries in the economy by transferring financial resources from surplus to deficit financial entities. By collecting short-term deposits and issuing long-term credits, they promote capital formation and saving within the economy. According to Singh and Sharma (2016), liquidity is defined as a bank's ability to absorb increases in resources and pay bills on time without suffering intolerable losses. As a result, banks' fundamental role in the maturity transformation of short-term deposits into long-term credits gives birth to liquidity position. It is widely acknowledged that all businesses, including banks, have liquidity issues. This is evident in the way that the banks operate, offering advances and deposits with different maturities. Therefore, banks must maintain an optimal level of liquidity that can maximize their benefit and empower them to meet their commitment.

In summary, the variables of liquidity situation and their impact on monetary performance have great importance for Nepal's budgetary sector. Furthermore, it is still difficult to assess the duration and severity of the COVID-19 pandemic. It is hinted that the controllers' actions were only temporary ones. Controllers take all necessary steps to maintain liquidity in the banking and financial sectors, but individual institutions also need to be ready for any shifts or turns that are anticipated as a result of the crisis. Therefore, the financial institutions must be able to maintain their liquidity position in order to perform well inside the market. The main focus of this study is identified as being the problems and factors that influence the liquidity position in monetary administration. Thus, the purpose of this study is to discuss the factors affecting Nepal's commercial banks' liquidity status.

1.2 Problem Statement

The purpose of this study is to shed light on the variables influencing the financial health of commercial banks. Due to their core function in converting short-term cash into long-term loans, banks are always susceptible to changes in liquidity that may affect the economy as well as their own organization. The capital and earnings of the bank may be adversely affected by its liquidation position. The leadership team of the bank has made it their top responsibility to guarantee that there are enough funds available at acceptable costs to satisfy future requests from creditors and debtors. By comparing data from the chosen commercial bank, this study ascertains the variables influencing their liquidity by responding to the following research questions:

- What factors affect the liquidity status of Nepal's commercial banks?
- Does the explanatory variable and the liquidity position of the Commercial Bank have any connection?

1.3 Objectives of the Study

Although risk associated with liquidity is a significant fear in the conventional banking literature, the banking industry's research group hasn't given it much attention thus far. The entire economy is at risk from the lack of liquidity problem in addition to the banking sector. The performance of the banking industry has a significant impact on the confidence of the people in the country's economy. As a result, the following goals are taken into consideration while evaluating the factors that influence a bank's liquidity, such as :

- To determine the key factors that affect the banks' liquidity positions in Nepal.
- To evaluate the bank's exposure to Nepal's liquidity condition.

1.4 Hypothesis of the study

In this study, the following hypotheses are investigated:

H01: The liquidity position and capital adequacy do not significantly correlate.

H02: The liquidity situation and non-performing loans do not significantly correlate.

H03: The liquidity position and profitability do not significantly correlate.

H04: The liquidity position and economic growth do not significantly correlate.

H05:The liquidity position and inflation have no visible relationship.

1.5 Rationale of the Study

In order to fill in the gaps mentioned above, this study will add significantly to the body of knowledge by conducting an extensive examination and evaluation of the variables influencing Nepal's financial institution funding status. The implications of the study will be complex and can be characterized under four main topics. First and foremost, the research will be useful in enlightening shareholders on the liquidity of the financial institutions in which they have made investments, as well as related aspects. Furthermore, the performance of the bank is of significance to external parties such as customers, lending agencies, stock exchanges, stock traders, students, etc. The availability of liquidity information helps investors and customers decide which commercial banks to use and what criteria to take into account. In conclusion, the research aims to furnish data.

1.6 Limitations of the Study

There are a few restrictions because the study was completed in part to fulfill the requirements for the Masters of Business Studies degree. The following highlights some of the fundamental limitations encountered throughout the study's execution:
There is not much time or data available to do this investigation.

The quantity of earlier studies on this subject is quite small.

Five commercial banks provided secondary data used in the study. Therefore, it's possible that the conclusions cannot be applied to all commercial banks.

Only certain technical and statistical procedures are employed in this investigation.

CHAPTER II
LITERATURE REVIEW

The theoretical framework for the study is presented in this chapter, which also analyzes empirical research related to the research topic "The Determinants of Commercial Bank's Liquidity position in Nepal." There are no widely recognized metrics for assessing banks' liquidity positions in banking theory or practice. Despite the lack of established indicators, some authors offer their own techniques for expressing and assessing the liquidity condition of specific banks and the financial system. The overview of significant literature is presented in the first section, and the study's empirical review is presented in the second. A literature review is an extensive presentation of earlier studies on a particular subject. The literature review examines academic publications, books, and other materials that are essential to a certain research topic. This study examines the theories regarding contemporary banking liquidity status that investigators have created and applied, and it talks about how relevant they are to this investigation. This chapter also includes a summary of appropriate study hypotheses and experimental material. This review's primary goal is to learn from earlier studies that have effectively employed comparable concepts and approaches within the same field of study.

2.1 Theoretical Review

The following provides examples of the hypotheses that were examined for this study:

2.1.1Three terms: liquidity, position, and management of liquidity

Liquidity is the capacity of a bank to promptly meet its financial obligations incurred during business operations (Duttweiler, 2009). Liquidity thus serves as a qualitative indicator of the banks' sound financial standing. When banks lack the capital to satisfy their commitments without negatively impacting their operations, it is said to be in a liquidity position. As a result, banks must either obtain liquidity at a significant cost or fail to supply enough cash for immediate demands.

The difference in the length of the financial institution's capital and debts, such as the mobilization of short-term deposits into long-term credits, is one of the main elements contributing to its liquidity position (Duttweiler, 2009). Reduced liquidity results from this imbalance because it strikes a healthy equilibrium between the source and the use of capital. Furthermore, in order for the banks to achieve the liquidity requirements, a liquidity mismatch may force them to access more money or sell off assets. As a result, the proceeds from the subsequent sale of its assets might not have been as high as they would have been had the banks been given more time to sell the assets (Duttweiler, 2009). In the same way, the bank's assets connected to financial obligations also influence its liquidity position.

Because of this, banks must effectively handle the liquidity position of having the primary sources of liquidity for the economy. This is because of maturity imbalance. According to Acharya and Skeie (2011), liquid assets frequently act as a safeguard against these maturities in between assets and liabilities. But compared to illiquid assets, owning a large amount of liquid assets comes at the expense of lower returns. Conversely, the bank's capacity to supply liquidity may be greatly diminished if there is insufficient backup of liquid assets. As such, banks' best efforts to maintain a part of liquid assets in the form of cash, short-term debt. or the bank will never be fully shielded from unforeseen liquidity problems by Treasury bills alone.

2.1.2 Indicators of Bank’s Liquidity Position

It is preferable to first identify the widely used measures of a bank's liquidity situation before assessing the influence of the factors on the commercial bank's liquidity position. Aspachs et al. (2005) state that banks have access to a number of tools that can help them protect themselves from liquidity shocks. On the asset side of the balance sheet, for instance, banks keep a reserve of liquid assets. A sizeable sufficient reserve of assets, including cash, deposits with other banks and central banks, government-issued debt instruments, and analogous securities, reduces the possibility that requests for liquidity could jeopardize the bank's capacity to remain stable.

An examination of the balance sheet's composition might reveal crucial information about the liquidity situation of banks. Liquidity ratios, also known as stock approaches, or liquidity gaps, also known as flow approaches, can be used to assess a bank's level of liquidity. The goal of the liquidity gap is to compare the fluctuations in the bank's funds in and out in order to estimate the amount of reserves required over a certain time period. A positive difference between liabilities and assets at any one time represents a surplus that needs to be closed (Bessis, 2011). The asset and liability section of the financial statements is the focal point of liquidity ratios, which use ratios to show trends in liquidity. In contrast, these percentages show that quick access to affordable credit is possible.A portfolio of the bank's easily sellable assets, such as reserve funds, mandatory reserves, or purchases in government securities, could serve as a representation of this.

A number of authors advise utilizing various liquidity ratios, such as total loan to total liabilities, liquid assets to deposits, loans to total assets, loans to deposits, loans to deposits & short-term credit, and liquid assets to deposits, in order to assess a bank's liquidity situation (Chagwiza, 2014). The company's shares strategy uses a range of balance sheet measurements to detect structures in liquidity. Although there is appeal to both strategies, the flow strategy requires far more data and lacks standardized techniques for precise cash flow forecasting. As a result, the holding approach is employed increasingly frequently in academic and practical research.

Two of the previously mentioned liquidity ratios have been used in this study: the loans to deposits ratio and the liquid assets to total assets ratio. The basic goal of calculating the liquidity ratio in the context of Nepal is to determine the proportion of liquid assets to total assets held by the bank. However, it does not measure liquidity position in accordance with NRB requirements. Instead, all commercial banks must conform to the specified mandatory ratio of liquidity under NRB directives. As a result, this study uses the equity approach to calculate two liquidity ratios: the loans to deposits ratio and the liquid assets to total assets ratio.

The ratio of liquid assets to total assets shows how much of the assets are liquid. This metric provides an overview of the banks' overall liquidity position and their corresponding ability to cope with challenges to liquidity. The bank is better equipped to handle liquidity shortages when its portfolio contains more liquid assets. In this way, the loan-to-deposit ratio also offers crucial information on the liquidity position of banks. Banks are more responsive to consumer deposit withdrawals when the ratio is high. This metric aids in determining how exposed banks are to funding sources. A lower ratio suggests that the bank can handle a sudden drop in liquidity better.

2.1.3 Capital Adequacy and Liquidity Position

Modern theories on banking liquidity, however, argue that a bank's capital can also affect its capacity to provide liquidity. It was previously argued (Berger and Bouwman, 2009) that a bank's capital acted as a buffer for risk absorption, including the risk associated with liquidity shortages. According to one body of research known as the liquidity replacement hypothesis, bank capital decreases as liquidity creation increases (Distinguin et al., 2013). Conversely, increased capital helps banks accept higher risks and allows them to supply the economy with more liquidity, according to the risk absorption hypothesis (Von Thadden, 2004).

According to the liquidity substitution theory, banks can replace more dependable and liquid liabilities for capital when they encounter significant levels of illiquidity. Examples of these stable and more liquid liabilities include deposits. Therefore, in the liquidity substitution theory, greater liquidity diminishes capital and raises liquidity position. Because increased capital serves as a safeguard against liquidity runs, banks prefer to strengthen their solvency position by boosting capital when more liquidity is created (Horvath et al., 2014). On the other hand, the risk intake theory is predicated on the bank's functions in risk conversion. It implies that more capital facilitates the generation of liquidity.

2.1.4 Non-performing Loans and Liquidity Position

According to Anbar and Alper (2011), non-performing loans are those on which a bank customer has not made principal or interest payments for more than three months as per the terms of the loan agreement. Non-performing loans are those that have an adverse effect on banks' ability to grow the economy. A rapid rise in non-performing loans is frequently the cause of financial hardship in the banking industry. Financial systems are undoubtedly in charge of coordinating complicated and sophisticated financial transactions. Financial organizations, such as commercial banks, are essential for financing and distribution. These ensure that certain operations are carried out accurately and fairly. The process by which the financial institutions turn risk-free deposits into dangerous loans is known as "risk transformation" in technical language.For the financial institutions, these riskier loans yield the biggest returns. Nevertheless, a portion of these high-risk loans ultimately lose their ability to be repaid and become non-performing. Fiscal equilibrium is essential for both steady and quick economic growth. The non-performing loans held by the bank, which depend on its stock quality, credit risk, and efficiency in allocating resources to profitable industries, are among the several measures of financial stability. The primary cause of the liquidity problem, particularly opens banks for not having enough money for processes, is non-performing loans. The result of credit risk, or the ability of customers to fulfill their repayment commitments, is liquidity situation.

2.1.5 Profitability and Liquidity Position

Better financial soundness has an impact on the bank's capacity to take on risk and its capacity for transform liquidity, and profitability takes this into consideration (Munteanu, 2012). Despite contributing significantly to the bank's operating profit, loans are the riskiest resource it may own. Because high-risk loans are advanced against client funds, banks therefore frequently have liquidity positions. However, more risk translates into better returns, which increases commercial banks' potential for profit. It is important to note at this time that banks with high loan volumes will also have stronger liquidity positions. As a result, commercial banks must balance earnings and liquidity.Banks lose out on profitable investments with high returns when they maintain a large number of liquid assets in their portfolio (Kamau, 2009). Liquidity position and the rate of return from bank assets are fundamentally correlated with risk and return. It would seem that a loan improves a bank's return while also strengthening its liquidity position, and vice versa. As a result, a larger liquidity ratio may indicate that the bank is not as successful as its competitors. As a result, the management must decide how to balance profitability and liquidity. Financial institutions suffer from excess liquidity, as noted by Myers and Rajan (1998). They proposed that while having more liquid assets makes it easier to acquire money quickly, it also lowers the firm's ability to obtain outside capital may be affected by management's reliability in keeping to a holding investments strategy that safeguards investors' money. This suggests that there is a negative correlation between bank liquidity and profitability.

2.1.6 Economic Growth and Liquidity Position

Economic expansion is probably going to have an impact on bank operations and investment choices, including bank liquidity profiles (Shen et al. 2010). For instance, during an economic boom, there is a greater need for unique financial offerings, which might help banks grow their loan and stocks inventories more quickly. Conversely, economic downturns accelerate the declines in loan availability.

The correlation between banks' preference for liquidity and economic growth is crucial for understanding the fundamental instability of the capitalist system as an autonomous market process, claims the theory of bank liquidity and financial vulnerability. Investment levels rise during times of economic expansion, which are marked by a high degree of trust among financial institutions on their profitability. Banks shift away from preferred liquidity during this expansion phase and toward riskier capital assets that yield larger returns. Banks are advancing higher-interest short-term borrowings rather than holding as much liquid assets in this context of expansion (Painceira 2010). Likewise, the loanable fund theory of interest maintains that banks' supply of loans, or illiquid assets, rises when an economic slump is ending or the economy is experiencing a boom.

A bank's propensity to store liquidity increases in recessionary times, when credit availability is limited. However, when lending prospects improve during economic expansion, banks reduce their liquidity reserves (Aspachs et al., 2005). It follows that increased economic growth should cause banks to reduce their liquidity reserves and encourage them to extend additional credit.

Two theories are put out by Bordo et al. (2001) to explain why a bank's liquidity run occurred in response to an unpredictable and simultaneous rise in customer withdrawals. According to their explanation, bank liquidity runs are a result of fear or mass psychology, which means that if people act in a scared manner expecting a financial crisis, the crisis is certain to occur. According to Bordo et al. (2001), shocks to the core components of the economy cause crises, which are an inherent component of economic growth. Asset returns are predicted to decline during slumps or depressive disorders in the economy. Loan repayment will be difficult for clients, and savers will want to safeguard themselves because they anticipate a rise in defaults or nonperforming loans will attempt to remove bank deposits in an effort to save their money. Banks run the risk of going bankrupt because they are stuck between the illiquidity of their loans and the liquidity of their deposits.

2.1.7 Rate of Inflation and Liquidity Position

An expanding body of theoretical work explains the mechanisms via which even expected rises in inflation restrict the financial sector's capacity to utilize resources efficiently. The importance of information disparities in credit markets is highlighted by recent theories, which also explain how a sudden rise in inflation can have a negative effect on the credit market and adversely impact the performance and operations of the financial sector. These hypotheses are all characterized by an indigenous informational friction with varying degrees of intensity. Consequently, a rise in the overall rate of inflation has the potential to reduce the actual rate of return on assets as well as money (Munteanu, 2012). Credit market frictions are made worse by the projected decline in real returns. Due to the fact that these market conflicts cause credit to be limited, credit raising prices gets harsher when 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. Consequently, if inflation rises, so too will the quantity of short-term or liquid assets held by economic actors, such as banks (Munteanu, 2012).

2.2 Empirical Review

The purpose of the study is to illustrate the variables influencing commercial banks' company values. The research provided evidence that a company's worth is influenced by a number of variables, including its dividend policy, earnings, size, and rate of growth. A few articles on comparable topics have been reviewed by the study. Table 1 presents an overview of the most important articles on this topic. The empirical evidence on the factors influencing bank liquidity is reviewed in the section that follows, with an emphasis on more recent studies as these are most likely to be proof of the current state of affairs.

Kapur Manoj et al. (2022) This study aims to validate the variables that affect the banks' liquidity in the United Arab Emirates. The main author's argument, which is expanded upon in this research study, aims to demonstrate the test of significance and offer hard data supporting the assumption that the unique and market-related factors that have been found have a major influence on the liquidity risk faced by UAE banks. In order to determine the relationship between the dependent and independent variables, the primary author used linear regression. After the test of significance was passed, the factors were ranked using the MURAME approach as part of the ultimate thesis research objectives (the MURAME approach is not included in this research paper). The study report focuses on top 10 UAE banks; the research is done between 2010 and 2019. The study uses market parameters like GDP, inflation, unemployment, and oil prices as well as particular variables like deposit growth, NPL, CAR, and ROA to examine the relationship between these factors and the dependent variable, liquidity. A range of assessments are carried out to determine how liquidity affects peculiar and market-related variables.

Priyanka Basnet and Raghu Bir Bistaa (2022) One of the key sources of liquidity used by commercial banks to keep up the money supply to meet requirements from the consumer and business sectors is time deposits. The question of what determines time deposit is a curious one in this context. Based on 15 years' worth of time series data sets from 2000–01 to 2017–18 of the sample commercial banks published by the Nepalese central bank, this article analyzes the factors influencing time deposits in the country's commercial banks. The study discovered an inclining trend for both internal and external factors, such as GDP, deposit, capital, bank size, remittance, and public debt, but a varying trend for liquidity in commercial banks when using multiple regression models and descriptive statistics as analytical methods.In this trend, time deposits and remittance inflow have a major impact on the commercial banks' liquidity. In addition, the positive trend in total deposits from 1994 to 2017 was influenced by the good trend in time deposits from 1994 to 1995. The study also discovered that while inflation rate is a substantial negative determinant of time deposits in commercial banks, GDP per capita, US exchange rate, interest rate, and bank branch are beneficial and significantly determinants. For the time deposits, the internal variables have a greater determining influence than the external variables. Time deposits are undoubtedly a dependable and long-term source of bank liquidity for commercial banks, as their success and financial stability rely on the internal factors dominate the external ones. In order to increase the competitiveness and intelligence of bank policies, including interest rate policy and branch of the commercial banks, and to properly mobilize the dispersed small resources across the nation for higher rates of capital formation, investment, and economic growth, commercial banks should reform as mentioned in the monetary policy and money market dynamics.

Goet, Joginder (2021) This study examines the effects of macroeconomic and bank-specific variables on loans and advances (LNLA) of joint venture banks operating in Nepal, including total deposit (LNTD), cash reserve ratio (CRR), interest spread rate (ISR), and inflation rate (IR). Four of the seven joint venture banks' panel data (28 observations) have been used to evaluate the influence and relationship between the components of lending practices. Seven years' worth of secondary panel data (2013/2014–2019/2020) were utilised. The results of this investigation indicate a strong, positive association between LNLA and LNTD. There is a substantial inverse relationship between LNLA and IR. Additionally, this study reveals that LNTD and IR significantly affect LNLA, although CRR and LNLA is not significantly impacted by SR.

The investigation into Bosnia and Herzegovina's (B&H) financial position and factors influencing it's banking industry is presented by Ganic (2014). It analyzes data from 2002 to 2012 with the goal of examining banks' reliance on the liquidity situation in the context of the nation's 17 commercial banks. The statistical significance and power of particular variables were investigated through the use of multiple regression analysis, which included correlation, ANOVA, R-squared and F-test, among other data analytic techniques. The independent variables of the model were capitalization, GDP, RR, LTD, NPL, ROE, LLR, and IRM. The dependent variables were L1 risk, or liquid assets to total assets, and L2 risk, or liquid assets to client deposits and short-term financing. The model was tested twice.

The investigation revealed that the proportion of liquid assets to total assets has been declining over time. Depending on whatever variable is chosen as the dependent variable, several factors influence liquidity in the banking industry. The bank's liquidity situation is positively impacted by CAP, LLR, TOA, RR, LTD, and IRsp in the model where L1 Risk is the dependent variable; in contrast, CAP, LLR, TOA, GDP, RR, and IRsp have positive effects in the model assessed by L2 Risk.

In his research, Moussa (2015) used a sample of eighteen banks to determine the variables determining bank liquidity during the 2000–2010 time frame in Tunisia. There are two estimated metrics of liquidity: total loans / total deposits and liquid assets / total assets. Financial performance, capital / total assets, operating costs / total assets, GDP growth rate, inflation rate, and delayed liquidity were found to have an important effect on bank liquidity through the use of the static panel and dynamic panel methods. On the other hand, it was discovered that bank liquidity was not significantly impacted by size, aggregate loans / total assets, financial costs / sum credits, or total deposits / total assets.

In his analysis of 43 Kenyan banks, Muriithi (2014) discovered that non-performing loans have an impact on commercial banks' liquidity positions when they have a significant proportion of non-performing loans. The analysis discovered that the two factors that had the biggest adverse impact on liquidity situation were capital sufficiency and non-performing loans. In order to help reduce the liquidity position, the study advised banks to determine the necessary size of the loan book, capital sufficiency, and percentage of non-performing loans. Commercial banks should to have a system in place for locating loan defaulters and taking appropriate legal action against them.

According to Choon et al. (2013), there are important aspects that account for the liquidity of Malaysian commercial banks. The independent factors in this study have been divided into macroeconomic and bank-specific categories. While the macroeconomic parameters include the Gross Domestic Product, Inter-Bank Rate, and Financial Crisis, the bank-specific ones are Bank Size, Capital Adequacy, Profitability, and Non-Performing Loans. From 2003 to 2012, fifteen Malaysian commercial banks provided secondary data for this investigation..

The conclusions of this study are founded on a fixed effect model using annual data and panel data. The statistical software used is E-view 6 and Stata 11. With the exception of interbank rates, all of the criteria considered are relevant, according to the research paper's empirical findings. The gross domestic product, profitability, and non-performing loans are the variables that positively affect bank liquidity. Conversely, variables that have a negative impact on bank liquidity include interbank rate, bank size, capital adequacy, and financial crises, however these effects have been negligible.

According to Choon et al. (2013), non-performing loans, GDP, and profitability all significantly increased banks' liquidity, but capital adequacy had a negligible negative impact. The purpose of the study is to illustrate the variables influencing commercial banks' company values. These studies provided evidence that a company's worth is influenced by a number of variables, including its dividend policy, profitability, size, and rate of growth. A few articles on comparable topics have been reviewed by the study. Table 1 presents an overview of the most important articles on this topic. The empirical evidence on the factors influencing bank liquidity is reviewed in the section that follows, with an emphasis on more recent studies as these are most likely to be indications of the current state of affairs.

In his paper "Determinants of Commercial Banks' Liquidity in Hungary," Vodova (2013) examined data spans from 2001 to 2010 in an effort to determine the factors influencing the liquidity of Hungarian commercial banks. Data analysis with regression was performed to figure out the factors influencing the liquidity of Hungarian commercial banks. The study showed that bank liquidity is inversely correlated with bank size, interest margin, monetary policy interest rate, and interest rate on interbank transactions, and positively correlated with bank capital adequacy, loan interest rates, and profitability. However, it is unclear how bank liquidity and the GDP growth rate relate to one another.

The study article by Munteanu (2012) aims to determine the determinants influencing bank liquidity more than a panel of 27 Romanian commercial banks from 2002 to 2010 using a multiple regression model. The prior to the crisis and crisis periods (2008–2010) are studied independently. Effective tools for managing liquidity were employed, including L1 (Net Loans/Total Assets) and L2 (Liquid Assets/Deposits and Short-Term Funding). The dependent variable was found to be explained by the GDP, unemployment rates, inflation rate, interest rate, and credit risk rate as external factors and by internal criteria such as cost to income ratio, interbank funding, capital adequacy, asset quality, and funding cost in the study. The bank's liquidity was positively correlated with the rate of inflation, interest rates, cost to income ratio, capital adequacy, and interbank funding. GDP is negatively connected to funding costs, credit risk, unemployment, and asset quality.

Iqbal (2012) investigated the bank's size, NPL, ROA, ROE, and CAR in relation to the liquidity status of Pakistani conventional and Islamic banks in his journal article, "Liquidity position Management: A Comparative Study between Conventional and Islamic Banks of Pakistan." Analyzing the liquidity positions of Pakistan's Islamic and conventional banks between 2007 and 2010 was the study's main goal. Five Islamic and five conventional banks make up the sample for this study, and ratio analysis, regression analysis, descriptive statistics, and Pearson's correlation analysis are the techniques used. Independent variables include things like the bank's size, the NPLs ratio, ROE, CAR, and ROA, and the liquidity position—a measurement of the banks' most liquid assets—is an example of a dependent variable. Ratio study demonstrates that Islamic banks have a stronger liquidity position than traditional banks. The trend of the Islamic banks' non-performing loan (NPL) ratio is downward, indicating that they are performing better than traditional banks. There is a positive correlation between the liquidity position and both the ROA and CAR. Furthermore, there is a favorable correlation between the liquidity situation and both the bank's size and NPL.

According to Bordo et al. (2021), there are two possible reasons why a bank's liquidity run occurred: either way, consumer withdrawals increased unpredictably and simultaneously. According to their explanation, bank liquidity runs are a result of crisis or mass psychology, which means that if people act in a frightened manner expecting a financial crisis, the crisis is certain to occur. According to Bordo et al. (2001), shocks to the core components of the economy cause crises, which are an inherent component of economic growth. Asset returns are predicted to decline during recessions or depressions in the economy. Loan repayment will be difficult for borrowers, and depositors will want to safeguard themselves because they anticipate a rise in defaults or nonperforming loans.Banks run the risk of going bankrupt because they are stuck between the illiquidity of their loans and the liquidity of their deposits.

The study article by Munteanu (2012) aims to determine the determinants determining bank liquidity over a panel of 27 Romanian commercial banks in 2002 to 2010 using a multiple regression model. The pre-crisis and crisis periods (2008–2010) are studied independently. Effective tools for managing liquidity were employed, such as L1 (Net Loans/Total Assets) and L2 (Deposits and Short-Term Funding; liquid assets).The dependent variable was found to be explained by the interest rate, credit risk rate, inflation rate, GDP, and unemployment rates as internal and external determinants, respectively, and by capital sufficiency, asset quality, interbank funding, funding cost, and cost to income ratio in the study. The bank's liquidity was positively correlated with the rate of inflation, interest rates, cost to income ratio, capital adequacy, and interbank funding. However, according to the results of the linear multivariate regression model, adversely correlated with funding costs, credit risk rate, unemployment, and asset quality.

In his paper "Determinants of Commercial Banks' Liquidity in Hungary," Vodova (2013) examined data spanning from 2001 to 2010 in an effort to figure out the factors influencing the Hungarian commercial banks' liquidity. Panel data regression analysis was performed to determine the factors influencing the liquidity of Hungarian commercial banks. The research demonstrated that bank liquidity is inversely correlated with bank size, interest margin, monetary policy interest rate, and interest rate on interbank transactions, and positively correlated with bank capital adequacy, loan interest rates, and profitability. However, it is unclear how bank liquidity and the GDP growth rate relate to one another.

The research on liquidity status and its drivers in Bosnia and Herzegovina's (B&H) banking industry is presented by Ganic (2014). It analyzes data from 2002 to 2012 with the goal of examining banks' exposure to liquidity situation in the context of the nation's 17 commercial banks. Multiple regression analysis, including correlation, R-squared, ANOVA, and F-test, was used to assess the statistical significance and power of particular variables using a range of data analytic techniques. Capitalization, NPL, ROE, LLR, TOA, GDP, RR, LTD, and IRM were the independent variables of the model that were evaluated twice: first with L1 risk (liquid assets to total assets) and again with L2 risk (liquid assets to client deposits and short-term financing) as dependent variables. The investigation revealed that the proportion of liquid assets to total assets has been declining over time. Depending on whatever variable is chosen as the dependent variable, several factors influence liquidity in the banking industry. The bank's liquidity situation is positively impacted by CAP, LLR, TOA, RR, LTD, and IRsp While CAP, LLR, TOA, GDP, RR, and IRsp have positive effects in the model assessed by L2 Risk, L1 Risk is the dependent variable in this model.

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total assets, financial costs / total credits, and total deposits / total assets were found to have little effect on the liquidity of banks.

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According to Choon et al. (2013), there are important aspects that account for the liquidity of Malaysian commercial banks. The independent factors in this study have been divided into macroeconomic and bank-specific categories. While the financial Crisis is one of the macroeconomic parameters, the Interbank Rate, and the GDP, the bank-specific ones are Bank Size, Capital Adequacy, Profitability, and Non-Performing Loans. From 2003 to 2012, fifteen Malaysian commercial banks provided secondary data for this investigation.

The conclusions of this study are based on panel data and a fixed effect model with annual data. The statistical programs employed are Stata 11 and E-view 6. With the exception of interbank rates, all of the criteria considered are relevant, according to the research paper's empirical findings. The gross domestic product, profitability, and non-performing loans are the variables that positively affect bank liquidity. Conversely, variables that have a negative impact on bank liquidity include interbank rate, bank size, capital adequacy, and financial crises, however these effects have been negligible.

Authors	**Title**	**Design**	**Data analysis tools**	**Major findings**
Manoj Kapur et.al (2022)	A study conducted using empirical data from the banking	Descriptive	Regression and multiple correlation analysis	The liquidity risk for UAE banks is significantly impacted by the market-related and idiosyncratic factors that have been discovered, as demonstrated by the test of significance and tangible proof.

	industry in the United Arab Emirates on the factors influencing banks' liquidity.			As part of the final thesis research objectives, the factors have been rated utilizing the MURAME technique in respect to the dependent and independent variables, and once the test of significance has been proven.
Raghu Bir Bistaa, & Priyanka Basnetb (2022)	Measuring Determinants of Time Deposit in The Commercial Banks in Nepal	Descriptive	Multiple regression models as the analytical tools	The commercial bank should reform as mentioned in the monetary policy and money market dynamics to improve the competitiveness and smartness of bank policy including interest rate policy and branch of the commercial banks for effective mobilization of the scattered small resources all over the country for higher rate of capital formation, investment, and economic growth.
Joginder Goet (2021)	Effect of Determinants of Lending Behavior on Loan and Advances in Joint Venture Commercial Banks in Nepal	Descriptive	Statistics, Correlation and Multivariate regression analysis	This study finds that there is the significant and positive correlation between LNLA and LNTD. LNLA has significant and negative correlation with IR. This study also finds that the LNTD and IR have significant impact on LNLA but CRR and ISR do not give any significant influence on LNLA.
Moussa (2015)	The determinants of bank liquidity	Descriptive	Static panel and method of panel dynamic	It was discovered that the GDP growth rate, inflation rate, and financial performance all significantly affected bank liquidity. It was shown that non-performing loans and capital adequacy had the biggest detrimental effects on liquidity risk.
Muriithi (2014)	The impact of non-	Mixed method	Correlation and	Recommended that banks to establish the required level of

	performing loans on the risk of liquidity of commercial banks in Kenya		regression model	non-performing loans, capital adequacy and loan book size to reduce liquidity risk
Ganic (2014	liquidity risk and its determinants in banking sector of Bosnia and Herzegovina	Descriptive	Multiple regression analysis including the F-test, ANOVA, R-squared, and correlation	showed that the growth of the economy and capital had a favorable effect on the risk of liquidity.
Choon et. al. (2013)	Determine the important variables that account for the liquidity of Malaysian commercial banks.	Quasi-experimental and descriptive	Multiple correlation	discovered that while capital sufficiency had a negligible negative impact on bank liquidity, non-performing loans, profitability, and GDP had a large positive affect.
Vovoda (2013)	Determinants of Commercial Banks' Liquidity in Hungary	Descriptive	Regression analysis	demonstrated that while the relationship between economic growth rate and liquidity was unclear, banking liquidity is positively correlated with capital adequacy and profitability.
Munteanu (2012)	Romanian bank liquidity and the factors influencing it. Procedia Financial and Economic Sciences	Mixed	linear multivariate regression model	It was discovered that the correlation between liquidity risk and capital adequacy, economic growth, and inflation rate was positive.
Iqbal (2012)	Liquidity Risk Management: An Analysis	Descriptive	Descriptive statistics, regression analysis,	found indicates the relationship between liquidity risk and profitability, capital adequacy, and non-performing

	Comparing Pakistan's Conventional and Islamic Banks		ratio analysis, and Pearson's correlation analysis	loans is positive.

2.3 Research Gap

The results and conclusions should contribute to reducing the gaps in the relevant literature that currently exist, considering the goals and constraints of this investigation. The results of this investigation will add to the body of knowledge regarding Nepal's banking sector.

A review of the literature revealed that the majority of empirical research on bank liquidity was conducted after the 2008 financial crisis. The necessity of liquidity for the smooth operation of financial markets and the banking industry was underlined by the global financial crisis. nevertheless a notable vacuum remains in the empirical literature about liquidity situation and the markers that indicate it. There aren't many research that try to figure out what influences liquidity position in Nepal's commercial banking sector. According to the studies previously mentioned, choices made by the central bank as well as bank-specific elements like profitability and capital adequacy as well as macroeconomic elements like various interest rates and environmental variables affect how liquid a commercial bank is.

There had been very few, if any, empirical research conducted on the factors influencing the liquidity of Nepali commercial banks at the time this study was conducted. Given that Nepal's banking sector is continually expanding and changing, it is critical to determine the key factors influencing banks' liquidity positions by conducting empirical research on the country's current commercial banks. As a result, some factors influencing the bank's liquidity have been determined and studied in this study.

CHAPTER III
RESEARCH METHODOLOGY

A systematic investigation should employ a series of steps and a collection of scientific procedures known as research methodology. To put it another way, research methodology outlines the procedures and techniques used during the whole investigation. It is a method for methodically resolving the research issue. It might be viewed as a science that studies scientific research methodology. The five components of the research methodology are separated.

3.1 Research Design

Because the goals of the study were achieved by applying pre-existing theories and concepts, this research was implemented. The primary Nepalese commercial bank's performance was investigated through a quantitative approach that involved the systematic and objective collection, evaluation, verification, and synthesis of historical data. The paid-up capital of the top five private commercial banks was taken into consideration. For the period of 2017–22 to (i.e., five years), the majority of Secondary sources such as the published Annual Report and Basel–III disclosures report were used to get the data. With the aid of suitable statistical or financial instruments, this study combined descriptive and analytical research methodologies. The variables' mean, standard deviations, minimum and maximum values, and other descriptive data have been utilized to explain the sample's properties throughout that time. Regression of the econometric model and Pearson's Correlation Coefficient have been employed in implied research. As a result, it facilitates inference from a sample of the population and helps determine the connection between the research's variables, i.e., how the dependent variable could be explained by a number of independent factors.

3.2 Population and Sample Technique

The study's scope was limited to Nepal's private commercial banks. At the time of the study, Nepal had 20 operational commercial banks, each having a branch location across the nation. Five joint venture banks make up my population. Of these, all joint venture commercial banks were chosen on the basis of their paid-up capitals, which included 100% of Nepal's commercial banks' overall membership. The selection of the samples is also based on the data's accessibility. The sample is representative of the characteristics of the population that it was taken from. So, a well-chosen sample can be applied to represent the population. The following sample banks were chosen for this study:

- Himalayan Bank
- Standard Charter Bank
- NMB Bank
- EBL Bank
- ***NSBI***

The factors influencing Nepali commercial banks were examined using the secondary data. The sample size of commercial banks used in this investigation is displayed in Table 4.

Table 4

Sample size of commercial bank

Banks	Study Period	Observation
Himalayan Bank	2017-2022	5
Standard Charter Bank	2017-2022	5
NMB Bank	2017-2022	5
EBL Bank	2017-2022	5
NSBI	2017-2022	5
Total Sample		25

3.3 Nature and sources of data

The majority of the secondary sources from which the research's data were gathered. The balance sheet, profit and loss account, and other necessary financial statements for this study were gathered from the five banks' public annual reports and accounts for the fiscal years 2017–2022. Stated alternatively, all relevant information was gathered from a variety of sources, such as the corresponding banks' annual reports, Nepal Rastra Bank's official websites, the Nepal Security Board, the Ministry of Finance, and Nepal Stock.

Exchange, trade associations, several journals, and the internet databases of the chosen banks were gathered for this investigation..

- **Methods of Analysis**

The data that was gathered was mostly analyzed using SPSS software. The gathered data was methodically imported into the SPSS program, and descriptive, multiple regression, and Pearson's correlation analyses were conducted in accordance with the study's methodology.

The study employed a variety of techniques, including regression of the econometric model, descriptive statistics, and Pearson's correlation coefficient.

3.4.1 Descriptive Statistic

This study finds, presents, and analyzes descriptive data related to the variables of the sampled commercial banks, such as the maximum, minimum, mean, and standard deviation. The mathematical mean of the variables included in the research is reported by the mean value. The variable's lowest and maximum values represent its lowest and highest values, respectively. The variability or diversity of each variable in the data set is displayed by the standard deviation. High standard deviation values indicate that the data set is spread out over a wide range of values, whereas lower standard deviation values suggest that the information are likely to be quite close to the mean.

3.4.2 Pearson's Correlation Coefficient

The degree to which two or more variables are connected to or correlated with one another can be measured using correlation. The Pearson product-movement coefficient, also known as the Pearson correlation and employed in this work, is the most used bi-variant correlation statistic. A perfect positive relationship is represented by a correlation coefficient of +1, and a perfect negative relationship by a correlation coefficient of -1.

3.4.3 Econometric Model

The econometric model that will be employed is multiple regression. numerous regressions are analyses in which numerous independent variables are jointly regressed against the dependent variable. The dependent variable estimate's value is impacted by changes in the independent variables, as indicated by the regression coefficient. Put another way, the marginal link between each independent variable and the value of the dependent variable is represented by The marginal link between each independent variable and the value of the dependent variable is represented by the regression coefficient for each independent variable, which is the influence of all other independent variables in the regression model being constant. A variety of statistical and financial techniques are needed for the investigation of the performance of ten of the top commercial banks. These tools enable the researcher to assess financial statements like the balance sheet and profit and loss accounts in order to arrive at a conclusion.

The functional form:

$LRit = \beta 0 + \beta xit + eu$… ....(i)

With t' standing for the time-series dimension and 'i' for the observation of each bank at that particular point in time. With respect to the explanatory variables, t=1,..., T; i=1,, N, the dependent variable is Lit on the left, the intercept term is β0, β is a k×1 vector of parameters to be estimated, and xit is a 1 × k vector of observations.

These equations can be used to represent our models: LRit = f (GDP, INF, LNTA, ROE, NPL, CAR)

β0 + β1CARit + β2NPLit + β3ROEit + β4GDPit + β5IFRit + eu equals LR1it. As LR2it is composed of β0, β1CARit, β2NPLit, β3ROEit, β4GDPit, β5IFRit, and eu. LR1it = LR2 is the ratio of liquid assets to total assets.
Liquid Assets to Total Deposit and Short-Term Financing Ratio, or LR2it = LR2, CARit is the ith bank's capital adequacy for the year t.

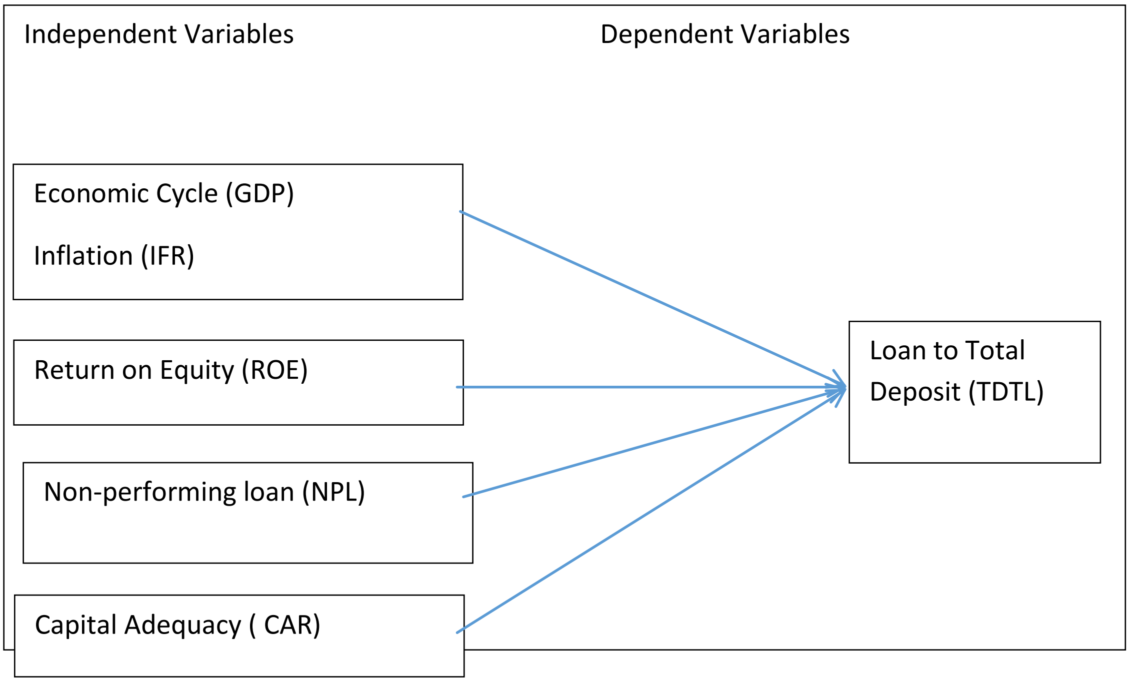
NPLit = The bank's non-performing loan for the year t. Return on Equity (ROEit) is the bank's equity for the year t.

GDPit is equal to Nepal's real domestic product / GDP growth for the year t. IFRit is equal to Nepal's inflation rate for year t.eu = Stochastic/Error term

Research Framework and Definition of variables

The basis for all of the research on "The Determinants of Commercial Bank's Liquidity position in Nepal" is the research framework that is displayed below. The relationship between various variables is elaborated in the image below, which also discusses the theory underlying the relationships between various independent and dependent variables.

Figure 1. Research Framework



Conceptual framework of the study

The study attempts to investigate the effect of specific variables, such as capital adequacy, non-performing loans, profitability, economic growth, and inflation, on the liquidity of the commercial bank based on this research framework and the objectives. This study tests the hypothesis about the relationship between liquidity situations and its determinants in an effort to better understand the relationship between dependent and independent variables. The factors that are utilized are as follows:

3.5.1 Liquidity of Banks

The liquidity ratio of a banking organization is the amount of cash and cash assets that are available for conversion. The ratio itself compares the bank's liquid assets to the amount of debt it has to pay off within the allotted period. Put another way, it evaluates whether the bank would have sufficient assets to meet its obligations to creditors and depositors in the event that they were called upon for payment right now. The ratios listed below were applied:

3.5.2 Liquid Assets to Total Assets Ratio

We can learn more about a bank's overall ability to absorb liquidity shocks from this ratio (LR1). Assuming that each bank in the sample has 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 LR1 value could also be seen as inefficient because liquid assets have higher opportunity costs for the bank and provide lesser income. As such, it is imperative to maximize the relationship between profitability and liquidity.

3.5.3 Loan to Deposits Ratio

Liquid liabilities and illiquid assets are related by the liquidity ratio (LR2). It shows the proportion of the bank's unstable funding that is invested in non-performing loans. A bank's liquidity can be evaluated by comparing its total loans to its total deposits over the same time period, which is known as the loan-to-deposit ratio. The bank could not have adequate liquidity to meet any unforeseen funding requests if the ratio is excessively high. On the other hand, the bank could not be making as much money as it could if the ratio is too low. Demand, time/fixed, and savings deposits make up the total amount of deposits used in this analysis.

3.5.4 Capital Adequacy Ratio

Bank capital is a source of funding for managing liquidity positions as well as a cushion to withstand unforeseen losses. The link between bank capital and liquidity is explained by two theories. The first one makes the assumption that bank liquidity is positively impacted by capital levels. Khoury (2015) investigated the factors that affect liquidity in the banking industry in Lebanon. She discovered that the capital level influences the ratio of liquid assets to total assets and liquid assets to deposits in a positive and statistically significant way, supporting the risk absorption concept. Numerous additional researchers discovered the same beneficial correlation between a bank's capital level and the ratio of liquid assets to total assets. According to the second theory, increased capitalization could cause liquidity issues a bad relationship, for example (Bhatia et al., 2012). As a result, the research anticipates that capital level and liquidity will positively correlate..

3.5.5 Non-performing Loans

The quality of assets, which primarily refers to bank loan quality, is seen to be the primary internal factor influencing a bank's liquidity. When a borrower misses three months or more of payments, the loan is deemed non-performing. It should come as no surprise that numerous research have established a negative correlation between bank liquidity and asset quality (Munteanu, 2012 and El-Chaarani, 2019). The outcome that surprised people the most was

(Roman et al., 2015). Between 2004 and 2011, they investigated the factors that affected liquidity in the nations of Central and Eastern Europe. They anticipated that bank liquidity would be adversely and considerably impacted by the assets quality, as shown by the ratio of nonperforming loans to total loans. Unexpectedly, no nation's evidence of a bad relationship was found. Additionally, they discovered in the same. Examine the strong positive correlation that exists between bank liquidity and asset quality in Romania, Lithuania, and the Czech Republic. Additionally, they disclosed that throughout the global crisis, these countries' regulators forced banks to raise their liquidity ratios. As a result, the research predicts that nonperforming loans and liquidity will be negatively correlated.

3.5.6 Profitability

It is one of the primary indicators of efficiency and the capacity of the company to turn a profit. According to Vodova's (2013) research, bank liquidity is significantly impacted negatively by performance level. Profitability and liquidity have an inverse connection, which means that a company's funding options are more constrained the more liquid it is to liquid assets, making them unavailable for investments or profitable activities. This is in line the theory of risk and return, which maintains that there is a direct correlation between risk and return. Therefore, the analysis anticipates that profitability and liquidity will be negatively correlated.

3.5.7 Economic Growth

It is a very significant indicator of the state of the country's economy. Simply expressed, GDP represents the total monetary worth of completed goods and services produced in a nation over a specific time period. Business activity develops during economic growth, which is why it is expected that the need for loans would rise. Consequently, banks will find it easier to grant loans when their liquid assets decline. This may result in a negative correlation between liquidity and economic growth. Trenca et al. (2015) examined 40 commercial banks' macroeconomic factors across six countries in Southern Europe between 2005 and 2011. They discovered that the GDP, which measures economic growth, has a statistically significant negative effect of bank liquidity. Additionally, Singh and Sharma (2016) demonstrated by OLS regression on a sample of 59 Indian banks that bank liquidity is negatively impacted by GDP. However, other researchers discovered that banks favor maintaining a high degree of liquidity in a boom since they don't think their clients will be able to make their instalment payments when the economy is struggling. Ahmad and Jan

(2017) examined 31 Pakistani banks over a ten-year period, from 2005 to 2014, and found a positive relationship between GDP and bank liquidity. As a result, the research forecasts a negative correlation between liquidity and economic growth.

3.5.8 Inflation Rate

It is a quantitative indicator of how the general rate of increase in the cost of several goods and services is happening quite quickly and how much less money can be bought with that money as a result. According to some writers, people's purchasing power would decrease as inflation rises, requiring them to spend more money on the same goods. As a result, bank liquidity will decline due to an increase in loan demand (Trenca et al., 2015; Bhatia et al., 2012). Additionally, increased rates of inflation worsen macroeconomic circumstances generally and reduce liquidity (Vodova, 2013). Conversely, other investigations found a favorable correlation. (El-Chaarani, 2019) employed WLS regression over a three-year period on 183 Middle Eastern banks and discovered that with increasing liquidity rises in addition to inflation. (Singh and Sharma, 2016) discovered similar findings. As a result, the research anticipates that the inflation rate and liquidity will positively correlate.

The study's dependent and independent variables, substitutes, and anticipated results are shown in the tables below:

Table 2

Summary of dependent variables and indicators

Dependent Variable

Liquidity Risk Model 1 LR_1

L Liquidity position or risk Model 2 LR_2

Table 3

Summary of independent variables, indicators, and expected outcomes

Independent Variables		
Capital Adequacy	CAR	Capital Adequacy Ratio as per Basel III (+)
Non-Performing Loans	NPL	Non-Performing Loan to Total Loan (-)
Profitability	ROE	Net Profit/Total Shareholder's Equity (-)
Economic Growth	GDP	GDP growth rate (-)
Inflation	IFR	CPI inflation rate (+)

CHAPTER IV
RESULTS AND DISCUSSION

The main objective of data analysis is to examine the strength and direction of the effects of both internal and external variables on the liquidity situation in the context of Nepalese commercial banks. As a result, the statistical and economic models that are employed to analyze secondary data are covered in this section. There are two subsections that contain the data analysis techniques employed in this study. Secondary data analysis is covered in the first part. Descriptive statistics, regression analysis, correlation analysis, and so on are included in this. The findings of these analyses are presented in the second section. This study examines how internal and external factors affect liquidity position using a regression model. We examined how these variables affected Nepalese commercial banks' liquidity situation with the use of regression equations.

4.1Analysis of Data

To prepare the data for analysis and to ensure that the research produced trustworthy results, various tests were conducted. The purpose of these tests was to determine if, upon regressing the explanatory factors against the dependent variables, the assumptions the ordinary least square assumptions of the traditional linear regression model are satisfied. As a result, the tests of the traditional linear regression model are presented in the next subsection.

4.1.1 Test of Normality

The purpose of a normality test on data is to ascertain whether or not the data is well-modeled by a normal distribution and to calculate the likelihood that an underlying random variable would follow a normal distribution. The variables were tested using graphical methods (dot plot and histogram) to see whether they were regularly distributed.

Graphical tests for normality. The best method to assess the distance of data from Gaussian (normal) is to examine a graph and determine whether the distribution significantly deviates from a normal distribution with a bell shape. The graphs make it clear that the residuals are normally distributed, the histogram appears symmetric, and the normal p-p plot is consistent with the line.

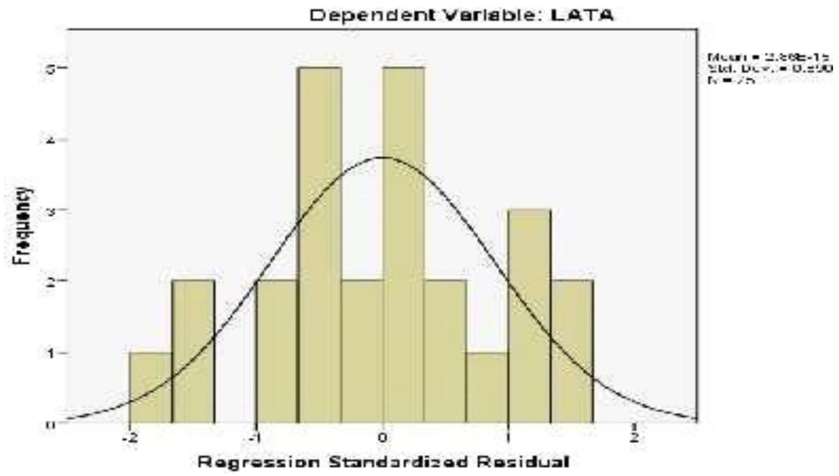


Figure 2

Normality test of Liquid Asset to Total Asset Ratio

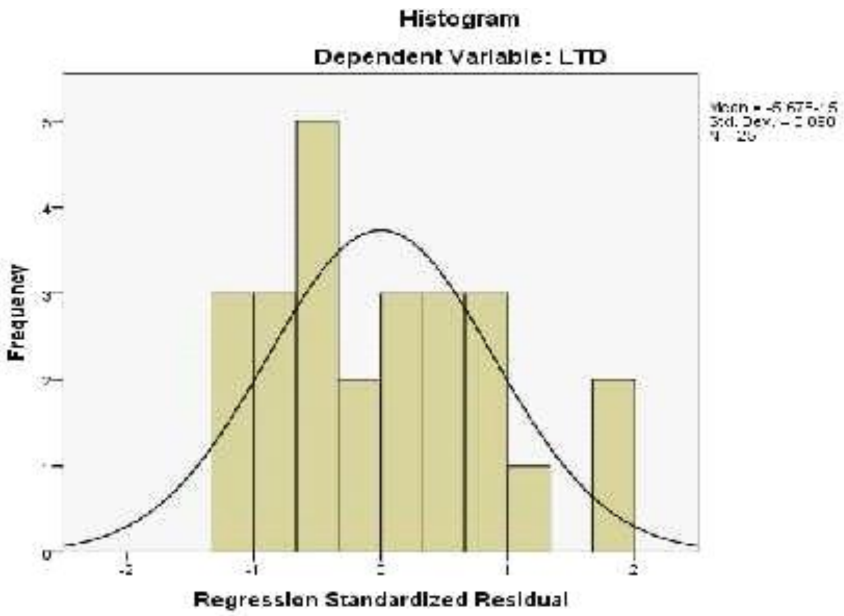


Figure 3

Normality test of Loans to Deposits Ratio

The normality assumption is satisfied as required by the normal distribution curves shown in Figures 2 and 3. The bell-shaped histogram indicates that the residuals have a regular distribution around their mean of zero.

Additionally, the normal probability plots, as seen in Figures 4 and 5, were utilized to test the data's normality..

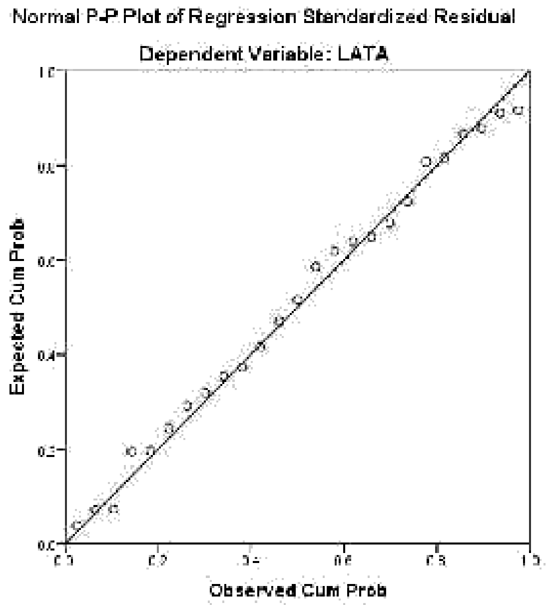


Figure 4

Normal P-P plot for Liquid Asset to Total Asset Ratio

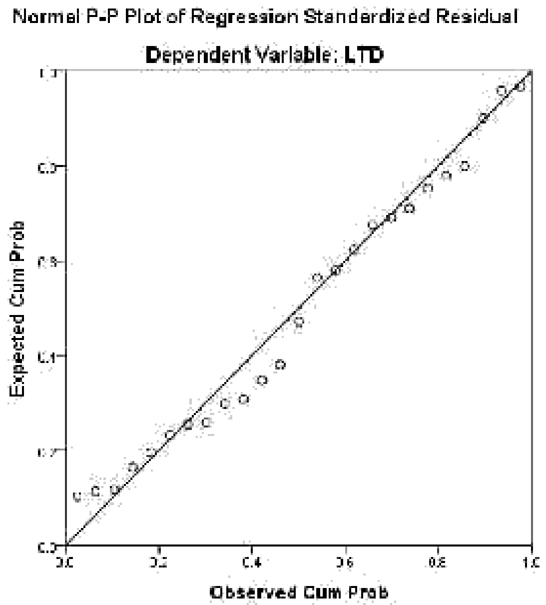


Figure 5

Normal P-P plot for Loans to Deposits Ratio

The dots in Figures 4 and 5 above appear to be roughly straight on the line, supporting the "normal" assumption. Therefore, it can be said that the conclusions drawn from the sample in this study regarding the population parameter are reliable.

4.1.2 Multicollinearity Test

A linear relationship between two predictors is known as collinearity. When two or more predictors have a strong linear relationship, it is referred to as multicollinearity. One problem with multiple regression is multicollinearity. We claim the model has complete collinearity if a freely moving variable is an exact linear combination of the other independent variables (Nadarajah, 2008). When there is a strong but imperfect connection between two explanatory variables, multicollinearity is present (Wooldridge et al., 2016). Multicollinearity is generally present when there has a greater absolute correlation coefficient than 0.7 between two or more independent variables.

Table 5

Correlation matrix of independent variables

Dependent Variable		CAR	NPL	ROE	GDP	LFR
CAR	Pearson Correlation	1.000				
	Sig. (2-tailed)					
NPL	Pearson Correlation	-0.098	1.000			
	Sig. (2-tailed)	0.641				
ROE	Pearson Correlation	-0.306	-0.314	1.000		
	Sig. (2-tailed)	0.137	0.126			
GDP	Pearson Correlation	0.171	- 0.190	0.124	1.000	
	Sig. (2-tailed)	0.413	0.363	0.553		
LFR	Pearson Correlation	-0.279	0.065	0.145	-0.897	1.000
	Sig. (2-tailed)	0.177	0.756	0.489	0.000	

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

Kennedy (2008) claimed that when the correlation coefficient between the variables is more than 0.70, there is a multicollinearity problem. In conclusion, there might be a multicollinearity issue in this research that could affect how reliable regression analysis is. As previously indicated, multicollinearity may be present in the predictor correlation matrix.

While multicollinearity is inherently multivariate, correlation matrix can serve as a useful tool for identifying multicollinearity and highlighting areas that require additional research, even though correlation mostly discusses bivariate linear relationships. Table 5 displays the correlation matrix between the independent variables. There were not many data correlations between the independent variables, according to the correlation matrix results. On the other hand, the inflation rate (IFR) and the external factors have a strong negative association and GDP (gross domestic product), of which the coefficient is 0.897.

Table 6

GDP's correlation with other independent factors

Collinearity Statistics

Model		Tolerance	VIF
1	IFR	.914	1.094
	CAR	.819	1.221
	NPL	.856	1.168
	ROE	.781	1.280

a. Dependent Variable: GDP

Table 7

IFR's correlation with other independent variables

Statistics of Collinearity

Model		Tolerance	VIF
1	GDP	.923	1.083
	CAR	.832	1.202
	NPL	.848	1.179
	ROE	.772	1.295

a. Dependent Variable: IFR

While the The association between one independent variable and a group of other variables can be ascertained using the Variance Inflation Factor (VIF), The bivariate link or correlation between two independent variables can be ascertained using a correlation plot. VIF is recommended for improved comprehension. As a result, this study used the VIF to further investigate the issue of multicollinearity between GDP and IFR. VIF calculates the percentage that one variable's variation may be attributed to another. Regression analysis is performed to achieve this, with one of the associated variables acting as the dependent variable and the other variables acting as predictor variables. The VIF can be calculated by dividing one by the tolerance, which is equivalent to one minus R-squared. As per the guidelines of VIF above 10 suggests the potential for multi-collinearity, as a rule of thumb. There are no examples of multicollinearity amongst the independent variables used in the study in Tables 6 and 7, where the VIF values for each variable are less than 2.

4.1.3 Descriptive Statistics

This section presents the descriptive statistics for the independent and dependent variables. Liquidity as determined by the Loans to Deposits Ratio (LR2) and Liquid Assets to Total Assets Ratio (LR1) are the dependent variables. The other independent variables include the GDP, inflation rate (IFR), return on equity (ROE), non-performing loan (NPL), capital adequacy ratio (CAR), and gross domestic product (GDP). Each dependent and explanatory variable had a total of 25 observations. The findings of the variables' descriptive statistics are given in Table 6.

Table 8
Characteristic statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
LR_1	25	0.1017	0.2339	0.1743	0.0387
LR_2	25	0.7933	1.0475	0.9032	0.0607
CAR	25	0.1098	0.1791	0.1356	0.0169
NPL	25	0.0055	0.0291	0.0138	0.0066
ROE	25	0.0799	0.2196	0.1434	0.0346
GDP	25	0.0059	0.0822	0.0495	0.0303
IFR	25	0.0415	0.0993	0.0586	0.0219

The descriptive statistics for the independent and dependent variables are shown in Table 8. The dependent variables are the loans to deposits ratio (LR2) and the liquidity situation as determined by the liquid assets to total assets ratio (LR1). The bank's ability to manage assets to pay bills on time and avoid unacceptably large losses is measured by its liquidity. The remaining factors are the independent variables, which include the rate of inflation, profitability, non-performing loans, and capital adequacy. Each variable's minimum, maximum, mean, and standard deviation are displayed in the table. The total number of observations divided by the sum of the observations yields the mean. The variance's squared root is the standard deviation. It shows the degree to which the data resembles the mean. The value of the minimal variable is the lowest. The variable's maximum value is its greatest value.

Between 2021 and 2022, the ratio of liquid assets to total assets had an average value of 10.17%. For Nepal's commercial banks, the ratio of liquid assets to total assets exhibits a moderate dispersion from its mean, as indicated by the 3.87 percent standard deviation. The ratio of liquid assets to total assets had maximum and minimum values of 23.39 percent and 17.43 percent, respectively. Likewise, the sample's loans to deposits ratio varied from 79.33 and 104.75 percent. The optimal loan-to-deposit ratio is often between 80 and 90 percent. Nonetheless, the loan to deposit ratio appears to have been widely distributed with a standard deviation of 6.07 percent and a mean value of 90.32 percent. The primary cause of the discrepancy is because the NSBI's high loans-to-deposit ratio in 2021 and 2022. While NSBI failed to keep its ratio below 100%, the other commercial banks in the sample group appeared to have done so appropriately, meaning that their loans-to-deposits ratio was the greatest.

The capital adequacy ratio's mean value and standard deviation among the independent variables were 13.56 percent and 1.69 percent, respectively, with data ranging from 10.98 percent for NMB Bank in 2018 to 17.91 percent for EBL Bank in 2020. Non-performing loans, which gauge the caliber of bank loans, was the other factor influencing the liquidity position of commercial banks. With 0.55 percent as the lowest and 2.91 The average proportion of non-performing loans in the total amount of loans and advances to clients was 1.38 percent, with the maximum being that %. The highest value was recorded by Standard Charter Bank in 2020, indicating a higher credit risk within the institution. There wasn't much the distribution of non-performing loans among Nepali banks, as indicated by the 0.66 percent standard deviation.

Likewise, the standard deviation of 3.46 percent and the mean of 14.34 percent are found for profitability as determined by Return on Equity (ROE). The return on equity for the various sample banks varied from 7.99% to 21.96%. This demonstrates the significant profit disparity that exists among Nepali banks.

The macroeconomic indicators that have the potential to influence banks' liquidity status over time made up the remaining independent variables. The average real GDP growth rate during the previous five years was 4.95 percent, which is the average growth rate of the national economy. With a standard deviation of 3.03 percent, the economy's largest growth was 8.22

percent in 2017 and its minimum growth was just 0.59 percent in 2018, with little divergence from the average growth for the research period. Finally, the average inflation rate for the five-year period from 2016 to 2020 was 5.86 percent, with a standard deviation of 2.19 percent. In 2018, the rate of inflation reached its highest point at 9.93 percent 2020 saw the lowest percentage, 4.15 percent.

4.1.4 Correlation Analysis

In order to examine the relationship between two or more variables, a correlation matrix is created. The extent of a linear relationship between two variables is described by means of this statistical technique. Brooks (2008) states that when y and x are said to be correlated, it indicates that they are being handled in a fully symmetrical manner. According to this, there is proof of a linear link between the two variables, and changes in one of them are often related to the other to the degree indicated by the correlation coefficient, without implying that either alterations in x lead to modifications in y or alterations in y lead to modifications in x.

The Pearson's correlation is the bi-variant correlation statistic utilized in this investigation. Correlation analysis is therefore used to identify multicollinearity issues and determine whether independent and dependent variables are related in any way.The correlation between the independent and dependent variables is displayed in Table 9..

Table 9

Correlation of dependent with independent variables

Independent Variables		CAR	NPL	ROE	GDP	IFR
	Sig. (2-tailed)	0.596	0.530	0.223	0.357	0.052
TR2	Pearson Correlation	0.165	0.355	-.556**	0.139	0.251
	Sig. (2-tailed)	0.430	0.082	0.004	0.508	0.226
LR1	Pearson Correlation	0.112	0.132	0.253	-0.192	0.393

** At the 2-tailed 0.01 significance level, there is a correlation.

Liquidity ratio (LR1), or the ratio of liquid assets to total assets, exhibited a negative correlation with GDP (coefficient of correlation of 0.192), but a positive correlation with CAR, NPL, ROE, and IFR (correlations of 0.112, 0.132, 0.253, and 0.393, respectively). At the 0.01 level, it was discovered that none of the independent variables had a meaningful link with the bank's liquidity.

The loans to deposit (LR2) liquidity ratio result is somewhat at odds with the LR1 results. There was a positive association between the loans to deposits ratio and GDP and CAR, with correlation coefficients of 0.139 and 0.165, respectively. Furthermore, it exhibited a negative association with the remaining independent variables, NPL, ROE, and IFR, with correlation coefficients of 0.355, 0.556, and 0.251, correspondingly. At the 0.01 level of significance, the Loans-to-Deposit ratio and ROE showed a significant association. At the 0.01 level, it was discovered that none of the independent variables had a significant connection with liquidity. It is important to remember that just because independent and dependent variables are correlated, it does not follow that the independent variables will have a substantial impact on the regression.

4.1.5 Regression Analysis

The coefficients, which show how much each variable influences the dependent variable, might be positive or negative under the regression outputs. The R-square statistic is used to calculate the percentage of the variance in the independent variable (X) that accounts for the entire variation in the dependent variable (Y). R square has a range of 1 to 100%. Less variation in Y can be explained by variance in X if the R-square value is near to 1%. A near to 100% R-square indicates that a large change can be accounted for by a change in X. The power of the model to explain is indicated by R2 values, and in this study, the adjusted R2 value takes the loss of degrees. In order to determine the models' explanatory strength, the freedom related to include additional variables was inferred. Consequently, multivariate regression analysis was carried out for each model. The ANOVA table and R2 value were used to test the models' significance. A regression model is said to have fit the data if the "sig." value is less than or equal to 0.05. The values of the Durbin Watson statistic vary from 0 to 4. Autocorrelation is indicated by a number close to 2, positive correlation is indicated by a value near 0, and negative correlation is indicated by a value near 4.

Regression Analysis for Model 1

The dependent variable in model 1 was liquid asset to total asset (LR1). It shows the sort of relationship that exists between the dependent variable and all other explanatory factors as well as whether the regression model fit the data..

Table 10

Regression coefficients of LR_1 (model 1) with independent variables

Model	unstandardized coefficients		standardized coefficient	t	sig.
	B	Std. Error	Beta		
Constant	- 0.204	0.105		- 1.944	0.067
CAR	0.909	0.425	0.397	2.140	0.046
NPL	1.870	1.070	0.320	1.749	0.096
ROE	0.171	0.246	0.153	0.694	0.496
GDP	1.280	0.604	1.002	2.119	0.047
IFR	2.403	0.839	1.360	2.863	0.010

a. Dependent Variable: LATA

Table 10 displays the findings of a regression study using five explanatory variables and the liquid asset to total asset ratio as the dependent variable for a sample of five Nepalese commercial banks. The dependent variable's level of impact over each variable is indicated by beta. The regression model that results from applying the coefficients found in the regression analysis is as follows:

LR1= -0.204 + 0.909 (CAR) + 1.870 (NPL) + 0.171 (ROE) + 1.280 (GDP) + 2.403 (IFR)

Table 11

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.683a	0.467	0.327	0.032	1.994

- Predictors: (Constant), IFR, NPL, CAR, ROE, GDP
- Dependent Variable: LATA

Table 11 provides the explanatory strength of the model is indicated by the R square values, and in this study, the adjusted R square value takes into account the loss of degrees of freedom that comes with including more variables. It was discovered that the model's coefficient of determination (R2) was 0.467. This showed that changes in the non-performing loan ratio, profitability, rate of economic growth, inflation rate, and capital adequacy ratio all contributed to the 4.67 percent explanation of variance in the ratio of liquid assets to total assets.

Table 12

Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.017	5	0.003	3.330	.025b
Residual	0.019	19	0.001		
Total	0.036	24			

- Dependent Variable: LATA
- Predictors: (Constant), IFR, NPL, CAR, ROE, GDP

Table 12 presents the analysis of variance (ANOVA) results. The null hypothesis, according to the F-statistics value, is that all of the slope parameters are jointly zero. The test statistics' accompanying F-statistics demonstrate that, even at the 0.01 level of significance, the null hypothesis should be rejected. Based on the table, the model's F-statistic was determined to be 3.330 at a significance level of 0.025. At the 0.05, the regression is statistically significant level of significance since 0.025 is smaller than 0.05.

Regression Analysis for Model 2

The dependent variable in model 2 was the loans to deposits ratio (LR2). It shows the sort of relationship that exists between the dependent variable and all other explanatory factors as well as whether the regression model fit the data..

Table 13

Regression coefficients of LR_2 (model 2) with independent variables

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
Constant	1.253	0.131		9.552	0.000
CAR	- 0.611	0.532	- 0.170	- 1.148	0.265
NPL	- 5.482	1.340	- 0.599	- 4.092	0.001
ROE	- 1.426	0.308	- 0.813	- 4.636	0.000
GDP	0.296	0.756	0.148	0.391	0.700
IFR	- 0.024	1.051	- 0.009	- 0.023	0.982

a. Dependent Variable: LTD

The results of the regression analysis for the sample of five Nepalese commercial banks using the loans to deposits ratio as the dependent variable and five explanatory factors are shown in Table 13. The dependent variable's level of impact over each variable is indicated by beta. The regression model that results from applying the coefficients found in the regression analysis is as follows:

LR1= 1.253 – 0.611 (CAR) – 5.482 (NPL) – 1.426 (ROE) + 0.296 (GDP) – 0.024 (IFR)

Table 14

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.812a	0.660	0.570	0.040	1.536

- Predictors: (Constant), IFR, NPL, CAR, ROE, GDP

- Dependent Variable: LTD

Table 14 gives an overview of the regression's outcome. The explanatory strength of the model is indicated by the R square values, and in this study, the adjusted R square value takes into account the loss of degrees of freedom that comes with including more variables. It was discovered that the model's coefficient of determination (R2) was 0.660. This showed that 6.60 percent of the variance in the liquid asset to total asset ratio could be explained by changes in the capital adequacy ratio, non-performing loans, profitability, rate of economic growth, and inflation rate combined..

Table 15

Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.058	5	.012	7.370	.001[b]
Residual	.030	19	.002		
Total	.088	24			

- Dependent Variable: LTD

- Predictors: (Constant), IFR, NPL, CAR, ROE, GDP

Table 15 gives the analysis of variance (ANOVA) result. The null hypothesis, according to the F-statistics value, is that all of the slope parameters are jointly zero. The test statistics' accompanying F-statistics demonstrate that, even at the 0.01 level of significance, the null hypothesis should be rejected. Based on the table, the model's F-statistic was determined to be 7.370 at a significance level of 0.001. The regression is statistically significant at the 0.05 level of significance since 0.001 is smaller than 0.05.

4.2 Finding

Liquid asset to total asset and loans to deposits were the dependent variables in the regression equation for the risk models 1 and 2, while the explanatory variables were capital adequacy (CAR), non-performing loan (NPL), profitability (ROE), GDP, inflation (IFR), and economic growth.

Table 16

Summary of hypothesis testing

	Sign	Reject H0	Sign	Reject H0
Capital Adequacy (CAR)	+	Yes	-	No
Non-Performing Loan (NPL)	+	No	-	Yes
Profitability (ROE)	+	No	-	Yes
Economic Cycle (GDP)	+	Yes	+	No
Inflation (IFR)	+	Yes	-	No

Independent Variables LR1 Risk LR2 Risk

Capital Adequacy. The bank's liquidity as measured by LR1 was positively impacted by capital adequacy, but the liquidity as evaluated by LR2 was negatively impacted. This is predicated on the risk absorption theory. This theory holds that banks with higher capital adequacy ratios are better able to absorb risks and provide the general public with larger levels of liquidity through loans and deposits. Stated differently, banks with better capital adequacy ratios attract more deposits and send out good signals to the general public. As a result, banks are able to store more liquid assets, which improves their ability to provide liquidity for the general population. On the other hand, the variable's coefficient value shows a change in the capital adequacy ratio of Banks to a less proportionate rise/fall in the liquidity position of Nepal's commercial banks (i.e., 0.909 percent in LR1 and -0.611 percent in LR2). With CAR, LR1 exhibits a substantial association while LR2 exhibits a negligible one.

Non-Performing Loan. The percentage of non-performing loans compared to the total volume of loans in the case of liquidity model 1 has a statistically insignificant relationship with the liquidity of banks; in the case of liquidity model 2, however, the link is substantial.

In contrast to LR2, which indicates a negative link between NPL and liquidity and represents the irresponsible lending practices of some commercial banks, LR1 shows a positive influence, which may indicate prudent strategy on the part of banks as they manage their liquidity position carefully to counterbalance the increased credit risk. In model 1, the variable's coefficient value was 1.870, while in model 2, it was -5.482.

Profitability. In Model 1, there is a positive but negligible correlation between ROE and the liquidity situation. The table demonstrates that a one percent rise in ROE causes a 1.5 percent change in the liquidity situation as determined by the ratio of liquid assets to total assets. It shows how a bank's liquidity situation has adjusted in response to changes in ROE. The positive correlation shown in Nepal between the liquidity ratio (LR1) and return on equity (ROE) could potentially be attributed to the public's heightened perception of profitable banks, which has subsequently led to a rise in deposits for these institutions. However, in the case of Model 2, the ROE result is the opposite. This is because a rise in the amount of loans disbursed is directly according to the profitability of the bank. More loans disbursed relative to total deposits indicates a decrease in liquid assets held by the bank on its balance sheet. As a result, ROE and the liquidity ratio (LR2), as determined by the loans to deposits ratio, have a substantial and negative relationship.

Economic growth. With a beta coefficient of 1.280 and a p-value of 0.047 for model 1 and a beta coefficient of 0.296 and a p-value of 0.7 for model 2, respectively, the real GDP growth rate in Nepal had an insignificantly positive impact on the liquidity ratio (LR2) but a positively significant statistical effect on commercial banks' liquidity as determined by LR1. The high rate of inflation may be the cause of the real GDP growth rate's beneficial effects. Furthermore, the favourable impact on GDP growth rate indicates that liquidity and the economic cycle are typically inversely correlated. The majority of borrowers wish to take out a loan for expansion when they have excellent investment opportunities. Banks that aim to meet the increasing demand for loans will have to deal with less liquidity. In an economic banks own a larger percentage of liquid assets during a downturn because lending possibilities are less favourable.

Inflation rate. According to the study, the beta value of 2.403 for LR1 indicates a positive correlation between the commercial banks' liquidity ratio and inflation rate. It suggests that the banking sector's liquidity ratio will rise by an average of 2.40 percent for every 1% increase in the inflation rate. Additionally, a t-test on the data revealed that the association is significant at the 0.05 level of significance because the p-value is 0.010, which is less than the significance level of 0.05. However, the analysis revealed a statistically negligible effect on the commercial bank's liquidity situation as determined by LR2. For liquidity position model 2, the beta coefficient was 0.024 and the p-value was 0.982, meaning that the level of importance. The real rate of return on assets generally declines when the rate of inflation rises, not only 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. As a result, there is a positive correlation between bank liquidity and the inflation rate.

4.3 Discussion

In order to attain results, five sample banks—Himalayan Bank, Standard Chartered Bank, NMB Bank, EBL Bank, and NSBI—were chosen based on paid-up capital. The results indicate that the bank's liquid assets have significant correlations with CAR, GDP, and IFR, and that the liquidity position is significantly affected by NPL and ROE. This outcome is in line with the findings of Moussa (2015) and Manoj Kapur et al. (2022). The study's findings conflict with Muriithi (2014).

Descriptive and analytical research methods, similarly to those used by Moussa (2015), Ganic (2014), and Manoj Kapur et al. (2022), have been used to carry out the technique. However, Muriithi (2014) used a broader methodology in their earlier research..

In order to achieve my research goals, I used five samples and secondary data, which is comparable to the thirteen samples Muriithi (2014) took, and Manoj Kapur et al. (2022). My sample strategy is basic random, which differs from Muriithi (2014) and is comparable to Vovoda (2013). He applied the cluster sampling technique.

The current analysis is based on five years' worth of commercial bank data, whereas the researcher Manoj Kapur et al. (2022) has access to seven years' worth. The numerous changes occurring in the banking sector in Nepal hence call for an updating and validation of the previous research on these problems. The goal of a previous study by Muriithi (2014) was to examine how non-performing loans affect commercial banks' liquidity risk. In order to lower liquidity risk, it explicitly looks at the effects of loan book size, capital sufficiency, and non-performing loans; however, my research looks at the factors that affect a bank's liquidity situation in Nepal and determines the relationship between dependent and independent variables. A previous study by Muriithi (2014) included a number of variables, including interbank funding, asset quality, capital adequacy, and internal factor, GDP, unemployment, inflation, interest rate, and credit risk rate. The factors I'm using for my research are: Liquid Assets to Total Assets (LATA) is a dependent variable, and the following are independent variables: GDP, inflation, non-performing loans (NPL), profitability (ROE), and capital adequacy ratio (CAR). It is discovered that while NPL and ROE have little impact on a bank's holding of liquid assets, CAR, GDP, and IFR do. According to model 2 of the liquidity position, CAR, GDP, and IFR have no effect on the bank's loan to deposit ratio liquidity, but NPL and ROE do, according to Muriithi (2014), who bases this on the research that shows these factors have a substantial impact.

The current study serves as a supplement to address the shortcomings and restrictions of earlier research. Thus, from an academic and policy perspective, this study will benefit all interested parties, including scholars, students, stakeholders, civil society, businesspeople, investors, policymakers, and the government. The goal of this study was to examine the liquidity status and identify the factors that influence the liquidity of Nepal's commercial banks. Therefore, it can serve as a resource for researchers in the future.

This study shows that as banks get greater in size their liquidity rises. The factors that determine a bank's liquidity condition might differ not only between periods but also between individual banks. As a result, the management of the bank must research and determine the factors that affect each bank's liquidity status.

CHAPTER V
SUMMARY AND CONCLUSION

5.1 Summary

The primary emphasis of this study was the factors influencing the banking industry's liquidity condition in Nepal. Five Nepalese commercial banks were included in the study. According to the descriptive study, the bank's liquid assets to total assets had a minimum, maximum, mean, and standard deviation of 0.1017, 0.2339, 0.1743, and 0.0387, respectively, while the loans to deposits had a mean, maximum, standard deviation of 0.7933, 1.0475, 0.9032, and 0.0607, respectively. The bank's CAR was determined by descriptive analysis to have a minimum of 10.98 percent, a maximum of 17.91 percent, a mean of 13.56 percent, and a standard deviation of 1.69 percent, accordingly. NPL had the following values: 0.55 percent for the minimum, 2.91 percent for the maximum, 1.38 percent for the mean, and 0.66 percent for the standard deviation. The ROE's minimum, maximum, mean, and standard deviation were 7.99%, 21.96%, and 14.34%, respectively.

The correlation analysis revealed a negative association with GDP and a somewhat positive correlation with CAR, NPL, ROE, and IFR for the dependent variable as evaluated by LR1. For liquidity position model 1, none of the associations were statistically significant. However, the correlation matrix revealed that the loans to deposits ratio, the dependent variable as measured by LR2, only had a positive association with GDP and CAR and a negative correlation with NPL, ROE, and IFR. A statistically significant negative connection (p-value = 0.004) was observed between LR2 and ROE (0.556).

Multiple regression analysis demonstrated that the determinants of the liquidity position of commercial banks in Nepal were, for CAR, NPL, ROE, GDP, and IFR, respectively, 0.909, 1.870, 0.171, 1.280, and 2.403 for liquidity position model 1. Conversely, the determinants of the liquidity position of commercial banks in Nepal measured by liquidity position model 2 were, for CAR, NPL, ROE, GDP, and IFR, -0.611, -5.482, -1.426, 0.296, and -0.024, respectively. Regression study revealed that only LR2 (loans to deposits ratio) and LR1 (liquid asset to total assets ratio) were significantly impacted by CAR, GDP, and IFR, while LR2 (loans to deposits ratio) was significantly impacted by NPL and ROE.

5.2 Conclusion

Liquidity is defined by the Bank for International Settlements/BIS (2008) as a bank's capacity to get the money needed to pay obligations when they become due without suffering any sizable losses. All organizations, including banks, must deal with liquidity positions. The fact that the banks offer loans and deposits with different maturities—that is, short-term deposits for long-term loans—makes their liquidity situation clear. Furthermore, if liquidity is not generated appropriately, it might result in low profitability (in the case of high liquidity) or insolvency (in the case of insufficient liquidity). The ideal level of liquidity is closely tied to efficient banking operations.

To avoid experiencing a liquidity crisis and disrupting the economy as a whole, banks should always maintain their liquidity. In order to determine the factors influencing the liquidity of the banking sector in Nepal, this study examines the relationship between the explanatory variables—capital adequacy ratio, nonperforming loans, return on equity, GDP rate, and inflation rate—and the dependent variable in the two estimated models, LR1 (liquid assets to total assets ratio) and LR2 (loans to deposits ratio).

For the sample of five commercial banks in Nepal, secondary data was used between 2017 and 2021. Utilizing a quantitative method, the desired result was attained. Over the course of the years 2017–2021, a sample of five banks' websites provided the quantitative data. Using the statistical software SPSS, a regression model was used to examine the acquired data. The following conclusion has been reached following the hypothesis testing.

The mean LR1 score for Nepal's commercial banks was 17.43%, with a standard deviation of 3.87 percent. This indicates a low degree of variation in the ratio of liquid assets to total assets from the mean. With a standard deviation of 6.07 percent, the mean LR2 value was 90.32 percent.

The study reveals that the bank's liquid asset holdings are significantly affected by CAR, GDP, and IFR, whereas NPL and ROE have no discernible impact. However, according to model 2 of the liquidity situation utilized in this study, NPL and ROE have a substantial impact on the bank's loans to deposit ratio liquidity whereas CAR, GDP, and IFR have no influence.

In terms of the relationships between the study's variables, liquidity position model 1 has a negative connection with GDP and a positive correlation with CAR, NPL, ROE, and IFR. However, the liquidity position model 2 shows a negative link with NPL, ROE, and IFR, whereas the GDP and CAR showed a positive correlation with LR2. Only ROE, or the loans to deposits ratio, demonstrated a significant connection with LR2 out of all the independent factors.

In all models, there was a positive correlation between capital adequacy and liquidity position because banks with greater capital ratios attract more deposits and send out good signals to the general public. It had the same negligible effect as in LR1 and LR2. According to LR1, NPL showed a positive impact, which may indicate that banks are following prudent policies and managing their liquidity positions carefully to counterbalance the rising credit risk. Conversely, LR2's negative association with liquidity position represents the commercial bank's hurried loans to deposits ratio in 2020–21 and 2021/22. In the instance of Nepal, the positive correlation between ROE and liquidity may be the consequence of profitable banks' enhanced goodwill in the eyes of the general population, which consequently led to a rise in their level of deposits. The larger the bank, the higher the bank liquidity. GDP and liquidity have a contradictory connection. Because lending possibilities are less favorable during an economic downturn, banks keep a larger proportion of liquid assets. Even if the economy is expanding, banks are lending more money and holding fewer liquid assets, which raises the ratio of loans to deposits.

In summary, the goal of this research was to examine the liquidity status of Nepali commercial banks and identify the factors that influence their liquidity. The connection between the independent and dependent variables has also been looked at. Therefore, it can serve as a resource for experts in the future who would like to conduct research on this subject.

5.3 Implications

Investigation on the factors determining banking liquidity in Nepal, considering macroeconomic, bank-specific, and other regulatory, economic, and social factors, is necessary, based on the analysis, debates, and conclusions of this study. The factors that determine a bank's liquidity status might change not only between periods but even within a single bank. As a result, each bank's management needs to research and determine what factors affect its liquidity status. The purpose of this study is to provide comprehensive, up-to-date evidence to banking professionals so they may make informed decisions when developing company policies pertaining to liquidity situation management. It will assist the banks in minimizing their liquidity position by assisting them in comprehending the key elements It has an impact on bank liquidity and figuring out how to reduce those risks. To have a better knowledge of the factors influencing the liquidity situation of commercial banks in Nepal, more research in this field is needed, with an emphasis on macroeconomic and various bank-specific aspects.

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Appendix

Appendix 1

Descriptive data of sample banks

Year	Bank	LATA	LTD	CAR	NPL	ROE	GDP	IFR
2017	HBL	0.1700	0.8112	0.1235	0.0189	0.1699	0.0059	0.0993
2018	HBL	0.2107	0.7933	0.1137	0.0160	0.1933	0.0822	0.0445
2019	HBL	0.1017	0.8808	0.1147	0.0077	0.1619	0.0670	0.0415
2020	HBL	0.1376	0.9346	0.1231	0.0055	0.1847	0.0699	0.0464
2021	HBL	0.1487	0.9298	0.1248	0.0176	0.1284	0.0227	0.0615
2017	SCB	0.2142	0.8667	0.1492	0.0068	0.1566	0.0059	0.0993
2018	SCB	0.1972	0.8878	0.1302	0.0083	0.1665	0.0822	0.0445
2019	SCB	0.1050	0.8846	0.1266	0.0136	0.1471	0.0670	0.0415
2020	SCB	0.1793	0.8511	0.1326	0.0278	0.1300	0.0699	0.0464
2021	SCB	0.1476	0.8416	0.1354	0.0291	0.0892	0.0227	0.0615
2017	NMB	0.2339	0.8421	0.1098	0.0181	0.2196	0.0059	0.0993
2018	NMB	0.2240	0.8540	0.1361	0.0168	0.1649	0.0822	0.0445
2019	NMB	0.1762	0.8957	0.1575	0.0088	0.1354	0.0670	0.0415
2020	NMB	0.2192	0.9499	0.1545	0.0082	0.1332	0.0699	0.0464
2021	NMB	0.2213	0.9140	0.1508	0.0268	0.0894	0.0227	0.0615
2017	EBL	0.2112	0.8967	0.1295	0.0079	0.1724	0.0059	0.0993
2018	EBL	0.1674	0.8900	0.1480	0.0136	0.1692	0.0822	0.0445
2019	EBL	0.1965	0.8995	0.1791	0.0082	0.1656	0.0670	0.0415
2020	EBL	0.1217	0.9219	0.1527	0.0098	0.1282	0.0699	0.0464
2021	EBL	0.1446	0.8900	0.1324	0.0115	0.1465	0.0227	0.0615
2017	NSBI	0.1984	0.9390	0.1169	0.0115	0.1052	0.0059	0.0993
2018	NSBI	0.1816	0.9372	0.1450	0.0186	0.1277	0.0822	0.0445
2019	NSBI	0.1218	1.0475	0.1336	0.0105	0.1108	0.0670	0.0415
2020	NSBI	0.1770	1.0390	0.1175	0.0101	0.1105	0.0699	0.0464
2021	NSBI	0.1516	0.9826	0.1535	0.0139	0.0799	0.0227	0.0615

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Abstract A solid liquidity position of banking industry of the bank to manage its liquidity results to liquidity position which encourage increments the probabilities of default in the banking industry. This paper aims to examine the frame and pattern of liquidity position in Nepalese commercial banks. The study is an attempt to consider the determinants affecting liquidity position of banks taking into consideration the target population as the Nepalese Commercial Bank for period covering fiscal year 2017 to 2022. To evaluate

the impact of the varied determinants on the liquidity positions **of the banks, various statistical models including econometric** show (**regression model) is** connected to analyze **date to meet the specific** goals **of** the **research. The** main conclusions **stated that there is** a notable relationship **between** several elements **that** affect **the liquidity performance and** position **of Nepalese** joint venture **commercial banks. Keywords** :Determinants, **Liquidity**

Performance, statistical models, Population etc.

CHAPTER I INTRODUCTION 1.1 Background of the Study One of **the** worst **global financial**

crises in history, the global fiscal crisis of 2007–2008 caused the banking and monetary sectors to express serious concerns about their liquidity situation (Helleiner, 2011). This financial crisis revealed a notable liquidity mismatch, increased non-performing loans, and eliminated negative effects such as diminished assurance within the banking and monetary