

CHAPTER I

INTRODUCTION

1.1 General Background

Liquidity can be defined as the ability of a financial institution to meet all legitimate demands for funds (Yeager and Seitz 1989). It is also defined as the ability of bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (Bank for International Settlement 2008). A bank needs to hold liquid assets to meet the cash requirements of its customers...if the institution does not have the resources to satisfy its customers' demand, then it either has to borrow on the inter-bank market or the central bank". It follows therefore that a bank unable to meet its customers' demands leaves itself exposed to a run and more importantly, a systemic lack of confidence in the banking system.

Liquidity means a business ability to meet its payment obligations, in terms of possessing sufficient liquid assets. An act of exchange of a less liquid asset with a more liquid asset is called liquidation. In banking, liquidity is the ability to meet obligations when they come due without incurring unacceptable losses. There are two general broad concepts of liquidity. The first is monetary liquidity, which is characterized by the availability of cash or near cash in relation to the general demand of goods and financial assets. The trends of monetary liquidity are generally associated with the general state of the economy, economic cycles and consumer confidence. Second concept of liquidity is related to the way the transfer of cash and goods or financial securities is performed in the market in relation to trading, price, return, volatility, market depth and the interdependencies between these factors (Ivanchuk, 2004)

Liquidity risk arises from the fundamental role of banks in the maturity transformation of short term deposits into long term loans. It is the inability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. It is the risk that a bank will be unable to meet its obligations as they come due because of the inability to liquidate assets or inadequate funding sources. It includes the risk that a bank cannot easily unwind or offset specific

exposures without significantly lowering market prices because of inadequate market depth or market disruptions (Decker, 2000)

Based on the review of above discussion and given definitions, Liquidity is the ability of a financial institution to meet all legitimate demands for funds. It plays a pivotal role in the successful operation in any business. It is referred to a bank's ability to meet the cash demands and obligations that it holds with minimal of tolerable loss. The specific purpose of the study is to assess the significant determinants of liquidity, examine the relationship between the macro economics variables and specific variables on liquidity and significant impact on bank specific variables and macro economic variables liquidity of selected commercial banks of Nepal

1.2 Statement of the Problems

Liquidity is a financial term that means the amount of capital that is available for investment. Liquidity refers to the ability of the bank to ensure the availability of funds to meet financial commitment or maturing obligations at a reasonable price at all times. Bank liquidity means a bank having money where they need it particularly to satisfy the withdrawal needs of the customers. (Wasiuzzaman and Tarmizi, 2010)

Liquidity is an important determinant of financial distress; because without liquidity a bank cannot meet the deposit withdrawals and satisfy customer loans (Mervin, 19420). However being too liquid is costly yet having too little liquidity is also risky, calling for a need for commercial banks to have a trade - off between liquidity risk and costs associated with illiquidity. (Beaver, 1996)

Nepal Rastra bank, the central bank of Nepal, regularly monitors and supports to maintain liquidity level of commercial banks to avoid crises. Nepal Rastra bank monetary policy highlighted the shortage of liquidity in Nepalese banking sectors and adopts various policy measures to improve the liquidity position of banks and overall management of liquidity to achieve desire economic growth. Increase and decrease in liquidity has emerged as a new challenge for Nepalese banking sectors. Hence, there is always challenge for banks to maintain optimum level of liquidity considering internal as well as external factors. Therefore, this study aims to fill a gap by

examining the impact of bank specific factors and macro-economic factors on liquidity in Nepalese commercial banks.

The research question for this research is derived from the problem in order to identify the determinants of macroeconomic variables and bank specific variables on commercial bank liquidity of Nepal. The present study attempts to deal with following issues:

1. What are the determinants of Liquidity in commercial banks of Nepal?
2. What is the relationship between bank specific variables and macro-economic variables on liquidity of commercial banks in Nepal?

1.3 Purpose of Study

The main purpose of the study is to examine the determinants of banks' liquidity of Nepalese Commercial banking sectors. The specific objectives of the study are streamlined as follows:

1. To assess the determinants of liquidity in commercial banks of Nepal.
2. To examine the relationship between micro economic variables and specific variables on liquidity of commercial banks in Nepal.

1.4 Conceptual Framework

The conceptual framework is developed from the review of literature. It shows the relationship between the independent variables such as bank specific and macroeconomic and dependent variables such as bank liquidity measured by liquid assets to total assets and liquid assets to deposit and borrowing ratio. Macroeconomic variables consist of gross domestic product growth, and inflation whereas, bank specific variables consists of capital adequacy, bank size and deposits.

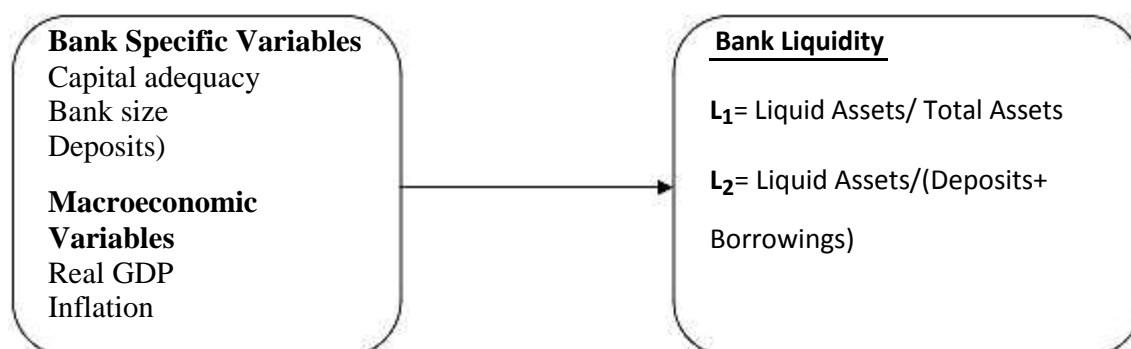
Independent Variables**Dependent Variables**

Figure 1. 1 Conceptual framework between dependent and independent variables.

1.5 Research Hypothesis

Hypothesis 1 (H1): There is positive and significant relationship between Capital Adequacy, Bank size, GDP, Inflation and (liquidity/Total Assets) of the commercial bank of Nepal.

Hypothesis 2 (H2): There is positive and significant relationship between, Capital Adequacy bank size, GDP, inflation and (Liquidity/Borrowing+Deposit) of the commercial bank of Nepal.

1.6 Significance of the Study

This study aims to investigate the determinants of commercial bank liquidity in Nepal using a more efficient statistical tool. Most of the studies in this subject matter have been conducted in developed countries. However, such kind of research is limited in underdeveloped economics like Nepal. This research will contribute to solve the problem stated which will be very useful in formulating the policies and procedures for Nepalese banking sectors.

Liquidity is most important for the operation of the business houses. It is the basic input needed to keep the business running in continuous basis. The crucial part of manage working capital which is required to maintain liquidity in day-to-day operations to ensure its smooth running and meets its obligations (Eljelly, 2004). So this study might be helpful for the management of concerned bank as well as it might be valuable for getting relevant information about the liquidity of selected commercial

banks in Nepal. This study can be helpful for not only banking sectors but also for non-banking sectors as well. Malik and Ahmed (2013) observed that a performance of chemical sectors in terms of market to book value is affected by firm and industry specific factors related to liquidity management. Thus the study of liquidity management helps not only banking and financial institution but also non-banking sectors.

This research will help commercial banks and non-banking sectors to reassess their strategies to cope to get more information about determinants that affect commercial banks liquidity and also help to select appropriate techniques suited to manage liquidity and develop a time bound action plan. It will help policy makers to find out the degree to which policy initiatives are responsible for liquidity related decisions on the parts of banks.

The study has great contribution to the existing knowledge in the area of factors determining commercial banks liquidity in the context of Nepal. This in turn contributes to the wellbeing of the financial sector of the economy and the society as a whole. Therefore, the major beneficiaries from this study are each commercial bank, regulatory bodies, the academic staff of the country and the society as a whole in the country

1.7 Limitations of the Study

Every study is conducted under any constraints and limitations. Likewise, this study is also limited by some constraints.

1. The accuracy of study will be depending upon the data provided by sample banks.
2. Only five banks will be chosen under study to represent 28 commercial banks so that the result depends upon representation of population by sample.
3. Even if there are numerous variables that affect commercial banks performance, the study concentrated only on five variables (bank size, asset quality, liquidity management, GDP and inflation).
4. Only five year data (2006/2007 to 2016/017) will uses.
5. This research is limited to available literature and observations for theoretical part.

6. The research focused only on the commercial banks of Nepal; other financial intermediaries are not included

1.8 Organization of the Study

The study will be divided into five different chapters. They are introduction, review of literature, research methodology, presentation and analysis of data and summary, conclusion and recommendations.

Chapter I: Introduction chapter describes what the research is all about and provides brief outline of the research topic. This chapter comprise of the introduction of the subject, statement of problem, objectives of the study, research questions, hypothesis, operational definition and assumptions, significance of study, limitation of the study and organization of the study.

Chapter II: Literature Review and Theoretical Framework .The second chapter is deals with the major findings of the earlier research studies and other precious writing relevant to the subject matter of the present study. This chapter also includes the review of the theoretical background being implemented as for the internal and macroeconomic determinants of commercial bank's performance in Nepal.

Chapter III: Research Design and Methodology the third chapter deals with the research design and methodology. This chapter includes various techniques, methods along with research design employed to conduct the research.

Chapter IV: Result. This chapter consists of systematic presentation and analysis of financial statement employing financial and statistical tools. It also includes the major findings

Chapter V: Conclusion. This chapter includes the summary, conclusion and implication of the study. It also provides recommendations to the stakeholder of the research subject

CHAPTER II

LITERATURE REVIEW

This chapter's deal with the review of theoretical studies, empirical studies and conceptual framework associated with bank specific and macro-economic determinants of liquidity. This chapter provides theoretical framework of the study and deals with findings, methodology and result of the previous studies on determinants of liquidity. It is an integral and mandatory process in research works that consist of reviewing studies and other relevant proposition in the related area of the study so that the basis of this study, research gap and substantial facts about the variables used can be demonstrated.

2.1 Theoretical Review

2.1.1 Liquidity in Banking

Liquidity can be defined as the ability of a financial institution to meet all legitimate demands for funds (Yeager and Seitz 1989). It is also defined as the ability of bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. Moore (2009) explained that a bank needs to hold liquid assets to meet the cash requirements of its customer demand. If the institution does not have the resources to satisfy its customers demand, then it either has to borrow on the inter-bank market or the central bank. It follows therefore that a bank unable to meet its customers' demands leaves itself exposed to a run and more importantly, a systemic lack of confidence in the banking system. The typical bank assets which are liquid according to that definition include cash, reserves representing an excess of reserves required by law (i.e., funds held in the account at the central bank), securities (e.g., government debt, commercial paper), and interbank loans with very short maturity (one to three days).

There is a large volume of theoretical literature dealing with bank liquidity creation (Bryant 1980; Diamond & Dybvig, 1983). Most researches focuses on measuring the amount of liquidity created in the banking sector (Deep & Schaefer 2004 and Berger & Bowman, 2007); yet few studies shed light on the determinants of bank liquidity

creation. Therefore, this chapter focuses on the review of relevant theoretical and empirical literatures on bank liquidity and other core aspects of the topic under study. This review of the literature establishes the framework for the study and clearly identifying the gap in the literature that help to formulate the research hypotheses for the study.

Bank Liquidity Creation and Financial Fragility Theory:

According to the theory of financial intermediation, an important role of banks in the economy is to provide liquidity by funding long term, illiquid assets with short term, liquid liabilities. Through this function of liquidity providers, banks create liquidity by holding illiquid assets and provide cash and demand deposits to the rest of the economy. "Preference for liquidity" under uncertainty of economic agents to justify the existence of banks: banks exist because they provide better liquidity insurance than financial markets (Diamond and Dybvig 1983). However, as banks are liquidity insurers, they face transformation risk and are exposed to the risk of run on deposits. More generally, the higher is liquidity creation to the external public, the higher is the risk for banks to face losses from having to dispose of illiquid assets to meet the liquidity demands of customer

"Liquidity transformation gap" (also called, "LT gap") as the difference of liquid liabilities and liquid assets held by a bank, scaled by total assets (Deep and Schaefer 2004). If the difference is positive, the bank invests liquid liabilities into illiquid assets and performs a significant amount of liquidity creation. Schaefer consider only the maturity to define the liquidity of bank assets and liabilities. They consider as liquid all assets and liabilities that mature within one year. Berger and Bouwman (2009) define the liquidity of bank assets and liabilities not only based on their maturity but also by considering their category. In addition, their indicator includes on and off-balance sheet items. Then, by considering the "liquidity transformation gap" or the "liquidity creation".

The existence of the fragility itself gives banks the right incentives to create liquidity (Diamond and Rajan 2001). According to them, any kind of regulation such as, capital standards impair this liquidity creation and should thus be avoided. Kashyap et al. (2002) conducted a related analysis justifying the existence of banks liquidity

creation. They argue that because banks carry out lending and deposit taking under the same roof, synergies must exist between these two tasks. These synergies can be found in the way deposits and loan commitments are secured through the holding of liquid assets as collateral against withdrawals. They regard these liquid assets as costly overheads. These overheads can be shared by the two separate functions, hence the synergy. A detailed analysis of the link between liquidity shortages and systemic banking crises was given by (Diamond & Rajan, 2001). It is argued that the failure of a single bank can shrink the pool of available liquidity to the extent that other banks could be affected by it. A contagion effect is the result. However, as solvency and liquidity effects interact it is hard to determine the root of a crisis.

Financial Fragility is the vulnerability of a financial system to a financial crisis. It is defined as the degree to which small shocks have disproportionately large effects (Allen and Gale (2004)). Fragility as a financial system's susceptibility to large-scale financial crises caused by small, routine economic shocks (Lagunoff and Schreft 2001)

According to the fundamental equilibrium or business cycle view, financial crises arise from the poor fundamentals of the economy, which make it vulnerable during a time of duress such as a recession. According to the self-fulfilling or sunspot equilibrium view, the economy may always be vulnerable to a financial crisis whose onset may be triggered by some random external event, or simply be the result of herd mentality

It is argued financial systems are vulnerable to a financial crisis in the form of a bank run due to the inherent nature of banking (Diamond and Dybig 1983). Banks serve as intermediaries between depositors and borrowers. Depositors want immediate access to their deposits, while borrowers are not able to pay on demand. This creates a fundamental fragility, as a bank's assets cannot be liquidated in the event of a crisis to pay all depositors. This tension makes the financial system susceptible to a sudden change in demand for money by depositors, resulting in a bank run.

It is argued that financial fragility arises from linked portfolios of investors (Lagunoff and Schreft 2001). If investors have linked portfolios such that if one investor withdraws funds the investment will fail and the other investor will also take a loss,

then any event that causes investors to change their portfolio could cause others to take losses. If these losses are large enough to prompt further portfolio changes, a small change could initiate a chain reaction of losses. Moreover, they argued that investors will anticipate the possibility of such a chain reaction, so that the belief that it may happen in the future could cause investors to reallocate their portfolios, thus triggering a self-fulfilling crisis.

It is argued financial fragility as large effects from small shocks. They formalize this idea by considering the case of an economy in which the size of financial shocks approaches zero (Allen and Gale 2004). They show that even in such an economy there will still be significant fluctuations arising solely from these vanishingly small financial shocks. In their view, banks are risk-sharing institutions where deposits act to insure depositors against a lack of access to money. Even minuscule shocks can set off self-reinforcing price changes.

Quantitative Framework for Measuring Liquidity Risk

Liquidity risk of banks can be measured by liquidity gap/flow approach or liquidity ratio/stock approach. The liquidity gap is the difference between assets and liabilities at both present and future dates. At any date, a positive gap between assets and liabilities is equivalent to a deficit that has to be filled. Liquidity ratios are various balance sheet ratios which should identify main liquidity trends. These ratios reflect the fact that bank should be sure that appropriate, low-cost funding is available in a short time. This might involve holding a portfolio of assets than can be easily sold (cash reserves, minimum required reserves or government securities), holding significant volumes of stable liabilities (especially deposits from retail depositors) or maintaining credit lines with other financial institutions.

Joint Forum of the Basel Committee (2006) stated banks liquidity risk includes two types of risk: funding liquidity risk and market liquidity risk. Funding liquidity risk is the risk that the bank will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the firm. Market liquidity risk is the risk that a bank cannot easily offset or eliminate a position at the market price because of

inadequate market depth or market disruption. There are strong interactions between funding liquidity risk and market liquidity risk, especially in periods of crisis

Three main sources of liquidity risk: on the liability side, there is a large uncertainty on the volume of withdrawals of deposits or the renewal of rolled-over inter-bank loans, especially when the bank is under suspicion of insolvency or when there is an aggregate(Rochet 2008) .

Liquidity shortage, on the asset side, there is an uncertainty on the volume of new requests for loans that a bank will receive in the future, and off-balance sheet operations, like credit lines and other commitments, positions taken by banks on derivative markets.

2.1.2 Determinants of Bank Liquidity -Theory

Capital Adequacy and Bank Liquidity

The theoretical literature produces two opposite predictions on the link between capital and liquidity creation. One set of theories which we refer to collectively as the financial fragility-crowding out hypothesis predicts that higher capital reduces liquidity creation. Another set of contributions which we refer to as the risk absorption hypothesis suggests that capital positively affects liquidity creation

Diamond and Rajan (2001) model a relationship bank that raises funds from investors to provide financing to an entrepreneur. The entrepreneur may withhold effort, which reduces the amount of bank financing attainable. More importantly, the bank may also withhold effort, which limits the bank's ability to raise financing. A deposit contract mitigates the bank's holdup problem because depositors can run on the bank if the bank threatens to withhold effort and therefore maximizes liquidity creation. Providers of capital cannot run on the bank, which limits their willingness to provide funds, and hence reduces liquidity creation. Thus, the higher a bank's capital ratio, the less liquidity it will create.

Gorton and Winton (2000) show how a higher capital ratio may reduce liquidity creation through the crowding out of deposits. They argue that deposits are more effective liquidity hedges for investors than investments in bank equity capital. Thus,

higher capital ratios shift investors' funds from relatively liquid bank deposits to relatively illiquid bank capital, reducing overall liquidity for investors.

An alternative viewpoint is that higher capital enhances banks ability to create liquidity. This insight is based on two strands of the literature. One strand consists of papers (e.g. Diamond & Dybvig 1983, Allen & Gale, 2004) that argue that liquidity creation exposes banks to risk. The more liquidity that is created, the greater is the likelihood and severity of losses associated with having to dispose of illiquid assets to meet the liquidity demands of customers

Another strand consists of papers (e.g., Bhattacharya and Thakor 1993, Repullo 2004) that posit that bank capital absorbs risk and expands banks' risk-bearing capacity. Combining these two strands yields the prediction that higher capital ratios may allow banks to create more liquidity

Bank size and Bank Liquidity

According to the "Too big to fail" argument, large banks would benefit from an implicit guarantee, thus decrease their cost of funding and allows them to invest in riskier assets (Iannotta ET al.2007). Therefore, "Too big to fail" status of large banks could lead to moral hazard behavior and excessive risk exposure. If big banks are seeing themselves as "Too big to fail", their motivation to hold liquid assets is limited. In case of a liquidity shortage, they rely on a liquidity assistance of Lender of Last Resort. Since small banks are likely to be focused on traditional intermediation activities and transformation activities (Berger & Bouwman, 2009) they do have small amount of illiquidity and large amount of liquidity

Deposit and Bank Liquidity

Liquidity as a subject of study has gained considerable attention of researcher and policymaker in recent year. Liquidity problem arises when deposit in banks are withdrawn unexpectedly (Arif & Naumen, 2012). To counter such situation, bank needs to hold adequate liquidity levels. Bonner et al (2013) and Kashyap et al (2002) argued that as demand deposit increase, liquidity asset holding also increase. Alger and Alger (1999) provided empirical insights into liquid assets held by Mexican

banks. This study summarized 10 predictions based on various theories and applied panel data estimates from January 1997 to March 1999. They assumed that at a given level of deposit, if there is more risk for borrowers as in the case of economic recession, liquid assets should also be increased by banks.

GDP and Bank Liquidity

According to the theory of bank liquidity and financial fragility, the relationship between banks' liquidity preference and the business cycle is fundamental to explain the inherent instability of the capitalist system as an endogenous market process. In periods of economic expansion, which are characterized by a high degree of confidence of the economic units about their profitability, there is a rise in the level of investment. During this expansion, economic units decrease their liquidity preference, preferring riskier capital assets with higher returns. In this environment, economic units are more likely to hold less liquid capital assets and to incur short-term debt with higher interest rates. As Pyle (2005) augmented the "loanable funds theory of interest" states that the supply for loans (i.e. illiquid assets for banks) increases when the economy is at a boom or going out of recession.

Aspachs et al. (2005) indicated that banks' liquidity during periods of economic downturn, when lending opportunities may not be as good and they run down liquidity buffers during economic expansions when lending opportunities may have picked up. Thus, it can be expected that higher economic growth makes banks run down their liquidity buffer and induce banks to lend more.

Inflation and Bank Liquidity

Recent theories emphasize the importance of informational asymmetries in credit markets and demonstrate how increases in the rate of inflation adversely affect credit market frictions with negative repercussions for the financial sector (both banks and equity market) performance and therefore long-run real activity (Huybens and Smith, 1999). The common feature of these theories is that there is an informational friction whose severity is endogenous. Given this feature, an increase in the rate of inflation drives down the real rate of return not just on money, but on assets in general. The implied reduction in real returns exacerbates credit market frictions. Since these

market frictions lead to the rationing of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment. In turn, the amount of liquid or short term assets held by economic agents including banks will rise with the rise in inflation.

2.2 Empirical Review

Bunda and Desquilbet (2008) showed that there is positive and statistically significant effect of capital adequacy, lending interest rate, public expenditure to GDP, and growth on liquidity of banks under five liquidity measures. On the other hand, the presence of prudential regulation and financial crises showed negative and significant impact on bank liquidity position. It also revealed that in hard pegs and in pure floats, commercial banks are more liquid than in intermediary regimes (bank liquidity smile). However, the effect of bank size is insignificant.

Moore (2010) investigated the effects of the financial crisis on the liquidity of commercial banks in Latin America and Caribbean countries. The study had three main goals: discussing the behavior of commercial bank liquidity during crises in Latin America and the Caribbean; identifying the key determinants of liquidity, and; to provide an assessment of whether commercial bank liquidity during crises is higher or lower than what is consistent with economic fundamentals. Liquidity which was measured by loan to-deposit ratio should depend on: cash requirements of customers, captured by fluctuations in the cash-to-deposit ratio expected to have negative impact, the macroeconomic situation, where a cyclical downturn should lower banks' expected transactions demand for money and therefore lead to decreased liquidity expected to have positive impact on liquidity, and money market/short term interest rate as a measure of opportunity costs of holding liquidity expected to have negative effect on liquidity. The regression model was estimated using ordinary least squares. The result of the study showed that the volatility of cash-to-deposit ratio and money market interest rate have negative and significant effect on liquidity. Whereas, liquidity tends to be inversely related to the business cycle in half of the countries studied, suggesting that commercial banks tend to error on the side of caution by holding relatively more excess reserves during downturns. Generally, the results

showed that on average, bank liquidity is about 8% less than what is consistent with economic fundamentals.

Vodova (2011) aimed to identify important factors affecting commercial banks liquidity of Czech Republic. In order to meet its objective, the researcher considered bank specific and macroeconomic data over the period from 2001 to 2009 and analyzed them with panel data regression analysis by using E Views 7 software package. The study considered four firm specific and eight macroeconomic independent variables which affect banks liquidity. The expected impact of the independent variables on bank liquidity were: capital adequacy, inflation rate and interest rate on interbank transaction/money market interest rate were positive and for the share of non-performing loans on total volume of loans, bank profitability, GDP growth, interest rate on loans, interest rate margin, monetary policy interest rate/repo rate, unemployment rate and dummy variable of financial crisis for the year 2009 were negative whereas, the expected sign for bank size was ambiguous (+/-). The dependent variable (i.e. liquidity of commercial banks) was measured by using four liquidity ratios such as liquid asset to total assets, liquid assets to total deposits and borrowings, loan to total assets and loan to deposits and short term financing.

Vodova (2011) revealed that bank liquidity was positively related to capital adequacy, interest rates on loans, share of non-performing loans and interest rate on interbank transaction. In contrast, financial crisis, higher inflation rate and growth rate of gross domestic product have negative impact on bank liquidity. The relation between the size of the bank and its liquidity was ambiguous as it was expected. The study also found that unemployment, interest margin, bank profitability and monetary policy interest rate/repo rate have no statistically significant effect on the liquidity of Czech commercial banks.

Fadare (2011) investigated on the banking sector liquidity and financial crisis in Nigeria with the aim of identifying the key determinants of banking liquidity in Nigeria and assessed the relationship between determinants of banking liquidity and financial frictions within the economy. It was employed a linear least square model and time series data from 1980 to 2009. The study found that only liquidity ratio, monetary policy rate and lagged loan-to-deposit ratio were significant for predicting banking sector liquidity. Generally, the result suggested that during periods of

economic or financial crises, deposit money banks were significantly illiquid relative to benchmarks, and getting liquidity monetary policies right during these periods is crucial in ensuring the survival of the banking sector.

Bhati and Dezoysa (2013) studied the liquidity management in India from 1998 to 2010 and analyze the determinants of liquidity in India. The focus is in the liquidity of banks and non-banking financial institutions. Liquidity risk has been measured by two methods. The first method is liquidity gap which is difference between assets and liabilities at present and future dates. The second method has uses various Liquidity ratios. Linear regression model has been used and estimates the liquidity variables suggest that discount rates and SLR has a negative impact on liquidity of banks. An increase in cash reserve ratio has a positive influence on liquidity of banks. In case of non-bank financial institution, the determining factors of liquidity are only discount rates and cash reserve ratios. SLR has no influence on liquidity.

Rasin and Stefanovski (2013) examined the linkages between idiosyncratic risk and liquidity on sample of European equity covering the last 15 years and consisting of monthly return on stocks overs 178 periods from 1998 to 2012. This study, idiosyncratic risk is indirectly estimated and extracted by running OLS regression on Fama French three factor model, and once more directly by EGARCH model. The result of the study is fairly strong and reveals that there is indeed a link between liquidity and idiosyncratic risk. The liquidity proxy has a significant impact on idiosyncratic risk estimated with EGARCH throughout the entire sample period.

Mehmed (2014) stated in his study “An Empirical study on liquidity risk and its determinants in Bosnia and Herzegovina” aims to examine bank exposure to liquidity risks in the context of 17 out of 28 commercial banks in B&H, by using data in the period 2002-2012. In the empirical parts of the research the multiple regression analysis will be applied with the aim to test the statistical significance and explanatory power of selected variables using various data analysis technique. The model was tested two times one with L1 risk (Liquid assets/total assets) and one with L2 risk (liquid assets/total deposit plus short term financing) as dependent variables.

Sudhirman (2014) investigated the determinants of liquidity in Indonesia. In this study the indicators used to measure liquidity is the ratio of liquid assets to total deposit plus

short term borrowing and the determinants of bank liquidity can be grouped into internal factors and external factors. Internal factors are liquidity determinants comes from specific banking performance, previous year's liquidity, capital, assets quality, efficiency, profitability, and funding. While external factors are determinants factors of bank liquidity that comes from state of macro economy consisting of interest rates, inflation, and capital market development and GDP growth rates. Generalized moment methods is used in the study and the empirical finding indicates the liquidity of previous years, capital, assets quality, profitability and funding effect on liquidity of banks. Only variables capital adequacy shows negative effect whereas other variables shows positive effect

Arabsalehi, Beedel, and Moradi (2014) carried out to examine the impact of stock market liquidity on companies economic performance. To measure the stock liquidity, Amihud illiquidity method is used. Economic value added (EVA), Tobins Q, and return on assets (ROA) ratio have been used to measure the economic performance of companies. Researchers uses the sample of 97 firms from the period of 2003 to 2012. With the help of regression model, this study founds the firm with liquid stocks have better economic performance as measured by EVA and Tobins Q. But study found no evidence that liquidity has a positive impact on economic performance as measured by ROA.

Moussa (2015) examined a sample of 18 banks to identify the factors which influence bank liquidity in Tunisian context in period (2000-2010). Two measures of liquidity (liquid assets /total assets) and (total loan/total deposits) were estimated. Through the method of static panel and method of panel dynamic, it was found that (financial performance, capital/total assets, operating cost/total assets, growth rate of GDP, inflation rate, delayed liquidity) have significant impacts on bank liquidity while (size, total loan/total assets, financial cost/total credit, total deposit /total assets) does not have significant impact on bank liquidity.

Alshatti (2015) investigated the effect of liquidity management on profitability in 13 Jordanian commercial banks during the time period of 2005-2012. By utilizing the data of annual reports of Jordanian commercial banks, which issued by Amman Stock Market, to be in the form of panel study type since this types of study dealing with the same people, groups, or organization across multiple time periods. Augmented

Dickey Fuller (ADF) stationary test model was used to test for a unit root in the time series of research variables and then testing hypothesis by using regression analysis and study also used two regression model and first models measure the effect of liquidity management indicators on profitability in the Jordanian commercial banks, where return on equity was proxy for the banks. Second model measures the effect of liquidity management indicators on profitability in the Jordanian commercial banks, where (ROA) was the proxy for profitability

Fidmure (2015) investigated whether bank liquidity creation fosters economic growth in a large emerging market, Russia. This study uses a panel data set covers the period from 2004 to 2012. This study used the empirical analysis by estimating the fixed effect model and GMM estimation to examine the relation of liquidity creation to economic growth for a given time period. The result of the study showed that liquidity creation role of banks is beneficial for economic growth. Liquidity creation is positively associated with growth even this link is only significant when we compute liquidity creation based on maturity classification. This study also shows that this effect was not washed out by financial crises.

Melese and Laximikantham (2015) examined the impact of bank specific factors on liquidity in Ethiopian commercial banks. This study has targeted the commercial banks which include both public bank as well as private banks. The panel secondary data was quantitative in nature and encompasses seven years banks audited financial statements (Balance sheet and income statement). Hence, the data used for the study was pure quantitative. The frame for the sample included commercial banks having at least seven years working experience from 2007 to 2013 of 10 commercial banks. The study used panel/longitudinal data model which involves pooling of observation on cross sectional over several time periods and the regression models are also used to identify the relationship between dependent variables and independent variables. The result of regression analysis revealed that, natural logarithm of total assets as a proxy for bank size was found to be statistically significant and has positive influence on liquidity of commercial banks. Whereas, capital adequacy, return on assets were statistically significant but have negative influence on liquidity of commercial banks. Loan growth and non-performing loan have no significant influence on liquidity of commercial banks.

2.2.1 Review of Nepalese Studies

Baral (2005) examined the health checkup of commercial bank in the framework of CAMEL in the context of joint venture bank in Nepal. The study examined financial health of joint venture in CAMEL framework. The study used loan to total deposit ratio and cash and equivalents to total assets ratio as a measure of liquidity position of commercial banks

Khatiwada (2005) made a descriptive analysis of effectiveness monetary policy transmission mechanism. This study has argued that the credit availability channel is likely to be the most direct and powerful channel of transmission of monetary impulse in Nepal because of the existence of the insatiable demand for credit at the prevailing interest rate in the formal financial sectors. It also argued that interest rate channel and wealth effect channel are weak in Nepal because of no proper term structure of interest rate consistent with liquidity and maturity of financial instruments, weak or lag in linkage between short term interest rates and long term interest rates and bond market at primitive stage of development, among others. Despite the focus on Nepalese monetary policies and financial sectors development, these studies do not test the existence of transmission mechanism of Nepalese monetary policies based on either aggregate time series data or micro economic data.

Subbha (2006) studied factor affecting liquidity of commercial banks in Nepal. The study found that there is a negative and significant relationship between nonperforming loan and liquidity ratios. It means that increase in non-performing loan leads to decrease in liquidity ratios. However, the study found that there is positive relation between capital adequacy and liquidity ratios. It means the increase in capital ratio leads to increase in liquidity ratios.

Shahi (2008) studied the relationship between liquidity and profitability as indicated by return on assets and return on equity of commercial banks in Nepal. The study shows that higher the return on assets and return on equity, higher will be the increase in liquidity of commercial bank. Similarly, lower the return on assets and return on equity, lower will be the liquidity position of commercial banks.

Shrestha (2012) found that overall profitability of commercial banks has normally an increasing trend. Overall trend of liquidity ratios is not largely smooth. Fluctuating trend of liquidity ratio does not make easy in increase trend of profitability of commercial banks in Nepal. The study examined liquidity management as well as profitability position of commercial bank. The study reported a largely smooth trend of average profitability of commercial banks, although the trend of liquidity ratios is fluctuating.

Sharma (2016) carried out the study on determinants of liquidity in Nepalese commercial banks. The study is based on 126 observations of 18 commercial banks between 2008 and 2014. The result shows that liquid asset to total assets is positively correlated to return on assets and credit to deposit ratios. It indicates higher the return on assets and credit to deposit ratio, higher will be liquid assets to total assets ratio. However, the study also reveals that bank size, total deposit to total asset ratio and net interest margin is negatively correlated to liquid asset to total asset ratios. It shows that increase in bank size, total deposit to total asset ratio and net interest margin leads to decrease in liquid asset to total assets.

Bariya et al. (2016) assessed the relationship between liquidity and profitability of Nepalese commercial banks. The result showed that return on assets is positively correlated to liquidity management and financial leverage. It means that increase in return on assets leads to increase in liquidity management and financial leverage. However, return on assets has negative and insignificant relationship to current ratio and size which implies that increase in return on assets leads to decrease in current ratio and size.

Maharzan et al. (2016) assessed the relationship between liquidity and profitability of commercial bank in Nepal. The study is based on 120 observations from 20 commercial banks between 2008 and 2013. The result shows return on assets is positively correlated with debt to equity and non-performing loan to gross loan ratios. It means that increase on return on assets will leads to increase on debt to equity and non-performing loan to gross loan ratio. However, it is negatively correlated to loan to deposit ratios. It indicates that increase in return on assets leads to decrease in loan to deposit ratios.

Subedhi and Neupane (2013) studied the relationship between liquidity of selected Nepalese commercial banks and their impact on financial performance. The study used questionnaire as a primary source and quarterly publication of banks as a secondary source and analyzed through different statistical tools such as descriptive statistics, correlation and multiple regression with variance inflation factor. Multivariate linear regression model is used and sample covering the period from 2002/03 to 2011/12. The result of regression analysis showed that capital adequacy, on-performing loan had negative and statistically significant impact on bank liquidity whereas loan growth, GDP, short term interest rate has negative and statistically insignificant impact on bank liquidity

2.3. Research Gap

In line with the above theoretical as well as empirical review, liquidity is important to all business specially for banking industry since their function is creation of liquidity both on the asset and liability side of their balance sheet. It also revealed that banks liquidity can be affected by different factors such as bank specific, macroeconomic and regulatory factors. While this study also focused on some of the bank specific and macroeconomic factors affecting liquidity.

According to the review, most of the empirical studies done on the area of bank liquidity were done following the U.S. subprime mortgage crisis. Although liquidity problems of some banks during global financial crisis re-emphasized the fact that liquidity is very important for functioning of financial markets and the banking sector, an important gap still exists in the empirical literature about liquidity and its measurement. Only few studies aimed to identify determinants of liquidity. Studies cited above suggest that commercial banks liquidity is determined both by bank specific factors (such as size of the bank, profitability, capital adequacy and factors describing risk position of the bank), macroeconomic factors (such as different types of interest rates and indicators of economic environment) as well as the central bank decisions.

To the knowledge of the researcher there is limited empirical studies done regarding to determinants of banks liquidity in Nepal. Since the banking industry is in the growth stage with opening of new banks, it is important to notify the important

determinants of bank liquidity by making empirical investigation to already established banks. Nepalese financial system represent a unique structure of underdeveloped capital and money markets where banking system is the major source of borrowing for individual as well as business and corporate houses. Similarly, the presence of foreign investors in Nepalese banking sectors and implementation of international standards of regulation makes it a unique system to carry out research activities. Therefore, the study investigated some of bank specific and macroeconomic factors affecting banks liquidity.

2.4. Definition of the Variables

Table 2.1: Variables and Its Measurement

S.N	Name of variables	Symbols	Measurement
1	Liquidity/Total Assest	L1	Liquidity/Total Assest
2	Liquidity/Deposit+Borrowing	L2	Liquidity/Deposit+Borrowing
3	Bank size	BS	Log of total assets
4	Capital Adequacy Ratio	CAR	Tier1+TierII/Risk Weight Assest
5	Deposit	DEP	Saving Amount of deposit
6	Gross Domestic Product	GDP	Log of Real GDP
7	Inflation	INF	Inflation Rate

Independent Variables

Capital Adequacy

Capital adequacy shows the strength of bank capital against the vagaries of economic and financial environment. Generally, the capital is positively related to the financial performance of banks. The capital of bank is a common equity plus qualifying cumulative perpetual preferred stock plus minority interest in equity account of consolidated subsidiaries. Thus, it is a primary means of protection against the risk of insolvency and failure. The financial fragility crowding out deposit hypothesis predict negative relation whereas, risk absorption hypothesis suggests positive relationship between capital adequacy and liquidity.

Bank size

Bank size measures its general capacity to undertake its intermediary functions. Large banks are likely to perform higher levels of liquidity creation that exposes them to losses associated with having to sell illiquid assets to satisfy the liquidity demands of customers. However, since small banks are likely to be focused on traditional intermediation activities and transformation activities (Rauch et al., 2008; Berger & Bowman, 2009) they do have small amount of liquidity. Larger company has larger market share and market power in respect of customer and investment volume.

Deposit

A deposit is a sum of money which is in a bank account or savings account, especially a sum which will be left there for some time. Bank deposits consist of money placed into banking institutions for safekeeping. These deposits are made to deposit accounts such as savings accounts, checking accounts and money market accounts. One of the most prominent roles performed by banks is the creation of liquid claims on illiquid assets. This is often done by offering demand-deposit contracts (Diamond & Dybvig, 1983). Such contracts give depositors options to withdraw their deposits when they need liquidity. Increase in deposit by customers' leads to amount of money available to the bank.

GDP

It is the largest quantitative measure of total economic activity. It is the sum total value of goods and services that is produced within the boundary of country in the specified periods of time. It is the monetary value of goods and service that is produced within the national economy. It is one of the strong determinants of liquidity because there are so many factors linked with GDP

Inflation

Inflation is the sustainable increase in general price level that are the value of money decrease. An increase in the rate of inflation drives down the real rate of return not just on money, but on assets in general. The implied reduction in real returns exacerbates credit market frictions. Since these market frictions lead to the rationing

of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment.

Dependent Variables

Bank Liquidity

The bank liquidity as a dependent variable consists of Liquid assets to total assets (L1) and Liquidity assets to total deposits plus short term borrowing.

Liquid Assets to Total Assets Ratio (L1)

Liquid assets to total assets ratio should give us information about the general liquidity shock absorption capacity of a bank. As a general rule, the higher the share of liquid assets in total assets, the higher the capacity to absorb liquidity shock, given that market liquidity is the same for all banks in the sample. Nevertheless, high value of this ratio may be also interpreted as inefficiency. Since liquid assets yield lower income liquidity bears high opportunity costs for the bank. Therefore, it is necessary to optimize the relation between liquidity and profitability. According to the NRB establishment proclamation liquid assets of banks include cash on hand, deposit in other banks, and short term government securities, money at call. This measure of liquidity was taken as benchmark measure.

$$L1 = \text{Liquid Assets} / \text{Total Assets}$$

Liquid Assets to Deposit and Borrowing Ratio (L2)

The liquidity ratio identifies liquidity trend of bank. This ratio focuses on bank sensitivity towards sudden withdrawal of deposits. If the ratio is greater than 1, the bank is able to meet its obligation in terms of withdrawal of deposits. It is more focused on the bank's sensitivity to selected types of funding (we included deposits of households, enterprises and other financial institutions). The ratio L2 should therefore capture the bank's vulnerability related to these funding sources.

$$L2 = \text{Liquid Assets} / (\text{Deposit} + \text{Borrowing})$$

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the research design and methodology. It presents the step by step process about how the study was conducted and how the research problem was addressed. It further sets out overall plan associated with a study and provides a basic framework on which the study is based. This chapter therefore explains the methodology that is employed in this study which includes various sections describing research plan and design, description of the sample, instrumentation, data collection procedure and time frame, validity and reliability of the study and analysis plan. This chapter will also set guidelines for chapter four for data presentation, descriptive and empirical analysis of factor that determines liquidity of commercial banks.

3.1 Research Methodology

Before presenting the analysis and interpretation of data, it is necessary that research methodology be described first. Methodology thus, describes the process applied in the entire aspects of study and helps to resolve the systematic problems. Research methodology is also used to collect information and data and sets out overall plan associated with a study. Hence, Research methodology is defined as the systematic way of solving any problem and is a science of studying the scientific conduct of research. The present research includes all the necessary steps, for the research design in accordance with the requirements of the subject.

3.2 Research Plan and Design

This study is based on descriptive research design and casual comparative research design. Some financial and Statistical tools were adopted to evaluate the determination of liquidity in Nepalese Commercial Bank (Nepal Bank, Nabil Bank NIBL Bank NIC Asia Bank And Siddhartha bank.). The study is mainly based on secondary data gathering from annual report of selected commercial banks especially profit and loss account, balance sheet and other publication.

3.3 Population and Sample

There are 28 commercial bank listed in NEPSE up to end of the fiscal year 2017/2018. Since Five Commercial Bank has been taken as sample from the whole population of 28 banks. This study is based on convenient sampling method. The sample banks were given below.

Table 3.1: List of Selected Five Commercial Banks of Nepal

S. No.	Name of Bank
1.	Nepal Bank Ltd
2.	Nabil bank Ltd
3.	Nepal Investment Bank
4.	Nic Asia Bank
5.	Siddhartha Bank

3.4 Sources of Data and Data Collection Procedure

This section describes how data were collected to carry out this study; the study is based on secondary data. The necessary secondary data and information has been collected from the annual reports of selected commercial banks, Banking and Financial Statistics and Bank Supervision Report published by Nepal Rastra Bank. For conceptual and literature review, various reports, articles, books and the thesis of various authors are used, at the same time; time series data is collected from economic survey report of different period.

3.5 Data Analysis and Tools Used:

The financial and statistical tools were applied in order to examine and compute the impact of independent variables on the dependent variables, MS-excel (2007) and SPSS(24.0) software was used for data calculation and analysis. The regression model was used for testing the hypothesis. The Pearson correlation coefficient was used to examine the correlation between the study variables.

3.5.1 Financial Tools

Ratios are the most commonly used financial tools which will be used in this study as well. These ratios help in simplifying the annual reports data into more understanding view point which aid in predicting the future and knowing the present. The ratios are used in this study are as bellows

1. Liquid Assets to Total Assets Ratio (L1)

Liquid assets to total assets ratio should give us information about the general liquidity shock absorption capacity of a bank. As a general rule, the higher the share of liquid assets in total assets, the higher the capacity to absorb liquidity shock, given that market liquidity is the same for all banks in the sample

$$L1 = \text{Liquid Assets} / \text{Total Assets}$$

2. Liquid Assets to Deposit and Borrowing Ratio (L2)

The liquidity ratio identifies liquidity trend of bank. This ratio focuses on bank sensitivity towards sudden withdrawal of deposits. If the ratio is greater than 1, the bank is able to meet its obligation in terms of withdrawal of deposits. Lower value indicates a bank's increased sensitivity related to deposit withdrawals

$$L2 = \text{Liquid Assets} / (\text{Deposit} + \text{Borrowing})$$

3. Capital adequacy

Capital adequacy is one of the elements that indicate the measurement of financial strength of a bank. It is the capital position of the bank which somewhat assure depositors that they will be compensated if any failure occurs. The capital adequacy ratio here is extracted from annual report which is calculated as the ratio of regulatory capital (tier I + tier II) to total risk weighted assets. The formula for the calculation is as bellow.

3.5.2 Statistical Tools

1. Descriptive Analysis:

To define characteristics between dependent and independent variables descriptive statistics of the variables (both dependent and independent) were calculated over the sample period. A descriptive statistics method helps the researcher in picturing the existing situation and allows relevant information. It is used to describe the characteristic of the variables. Descriptive statistics transform raw data into the form that make it easy to understand and interpret

The mean represents the average value of the variable while median reveals the centre value of the data. Standard deviation is a measure of the dispersion of a set of data from its mean. Maximum and minimum shows lowest and highest values of the data. Small standard deviation shows data point is inclined to be extremely close to mean while high value of standard deviation shows data set is border out over a large range of value

2. Correlation coefficient Analysis

Correlation coefficient is a relative measure of co-movements between variables. It is the measurement of linear relationship between two or more variables. It values lie between -1 to +1.

3. Regression Analysis

The models employed in this study intend to analyze the relationship between internal as well as macroeconomic determinants of liquidity. The following regression model is used in this study in an attempt to examine the empirical relationship between the of bank specific and macroeconomic variables on Liquidity of Nepalese commercial bank. Therefore, the following model equation is designed to test the hypothesis. From the conceptual framework the function of dependent variables (i.e. Determinants) takes the following form:

Determinants= f (CAR, Bank size, Deposit, GDP, INF)

More specifically, the given model has been segmented into following models:

Model I

Model I tries to find out the determinants of liquidity

$$L1_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 \log(TA)_{it} + \beta_3 \log GDP_{it} + \beta_4 INF_{it} + \beta_5$$

Dep + ϵ_{it} **Model II**

Model II tries to find out the determinants of liquidity

$$L2_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 \log(TA)_{it} + \beta_3 \log GDP_{it} + \beta_4 INF_{it} + \beta_5 Dep + \epsilon_{it}$$

Where,

- β_0 = Constant term
- CAR = Capital Adequacy Ratio
- BS = Bank size defined by the log of total assets
- Deposit = Deposit of bank on the year.
- GDP = Gross Domestic Product defined by log of real GDP
- INF = Inflation
- L1 = Liquidity/total assets.
- L2 = Liquidity/Deposit + Short Term Borrowing
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Regression coefficients
- ϵ = Error item
- i = commercial bank
- t = index of time periods

4. ANOVA

Analysis of variance, or ANOVA, is strong statistical technique that is used to show difference between two or more means or components through significance tests. It is a collection of statistical models used to analyze the differences among group means and their association. It also shows us a way to make multiple comparisons of several population means.

5. Model Summary

The model summary gives the total variability in the dependent variable explained by the model. This then indicates the percentage of the variability in the dependent variable explained by factors not included on the study.

CHAPTER IV

RESULTS

This chapter is based on analysis and interpretation of data collected during the study of Bank Specific and macroeconomic determinants of liquidity of commercial banks in Nepal. Data has been analyzed with reference to the objectives of study as mentioned in the chapter earlier. The data for this study was obtained from published financial statements of the selected commercial banks in the sample, Nepal Rastra Bank's Supervision Report and Nepal Rastra Bank.

These secondary data were analyzed by using SPSS software. In this section, the first section deals with determinants of liquidity. Then, the descriptive statistics and the correlation analysis are discussed. Finally, the results of the regression analysis are discussed by supporting empirical evidence. Hence, the systematic and orderly interpretations and analysis of findings is discussed in this chapter.

4. Descriptive Analysis

The descriptive statistics for the dependent and independent variables are presented in table 4.1 to explain their characteristics. The dependent variables are liquidity measured by liquid assets to total assets ratio (L1) and liquid assets to deposits and borrowing ratio (L2). The remaining are the independent variables.

Table 4.1: Descriptive Statistics for Variables

	N	Minimum	Maximum	Mean	Std deviation
Liquid Asset/Total Asset	50	1.58	20.17	11.8812	4.07861
Liquid Asset/(Deposit+Borrowing)	50	5.56	23.10	14.1028	4.43590
Capital Adequacy Ratio	50	-10.87	12.72	5.1690	5.20967
Log Bank Size	50	4.09	5.49	4.7922	.27979
Log Real GDP	50	4.72	5.87	5.6953	.33179
Inflation	50	5.10	12.60	8.4500	2.12768
Deposit	50	16.91	91.76	81.2263	9.71488

Source: SPSS output result outcome

Liquidity Asset / Total Asset are the major indicator of Determinants of liquidity. The mean value of L1 is 11.8% indicating that during the period 2007/8 to 2016/17. The standard deviation of L1 is 4.07% which show small variations. The Minimum and Maximum Value is 1.58% and 20.17%. The determinants of Liquidity are measured by Liquid asset / (Short term Deposited + Borrowing) show that Mean value is 14.10% which is Slightly higher than Mean Value of L1 with The maximum value of L2 is 23.10% and Minimum Value is 14.10. There is moderate dispersion of L2 towards its mean value among banks that is shown by standard Deviation is 4.43. Regarding the independent variables, the capital adequacy ratio shows the proportion of owner's equity to total risk weighted assets. The mean value of CAR is 5.16% which is lower than minimum requirement of 10% Nepal Rastra Bank's directives 2016 and Basel II requirements. The standard deviation of the CAR is 5.20 % which is small variation. The minimum and maximum values of CAR are -10.19% and 12.72% respectively.

The bank size signified by log of TA varies from a minimum value of 4.09 to maximum value of 5.49% leading to an average of 4.79%. The standard deviation of bank size is 0.27979 from mean value. Likewise, the Deposit ratio signifying the liquidity varies from minimum 16.91 percent to maximum 91.76 percent leading to average of 81.2263percent. The standard deviation is 9.71488 from mean value The remaining independent variables were the macroeconomic indicators that can affect banks liquidity position over time. The mean value of real GDP growth rate was 5.69% indicating the average real growth rate of the country's economy over the past 10 years. The maximum growth of the economy was 5.49 and the minimum was 4.09. The general inflation rate 8.45 of the country on average over the past ten years was more than the average GDP. The maximum inflation was 12.60 and the minimum were 5.10. The rate of inflation is little dispersed over the periods under study towards its mean with standard deviation of 2.12

Since Capital Adequacy Ratio is negatively related and other factors like Deposit, GDP Inflation etc are positively related.

Table 4.1 demonstrates the mean, standard deviation, minimum and maximum values for the dependent and independent variables for sample banks for the study period of 2007/2008 to 2016/2017. (Liquid Asset/Total Asset) which is denoted by L1 and

(Liquid Asset /Deposit+Borrowing) which is denoted by L2, in percent are the dependent Variable. The independent variables are Bank Size (Bank Size, log of total bank assets), Capital Adequacy Ratio, Deposit (Deposit/TotalAssest), INF (Inflation, in percentage) and real GDP (log real Gross Domestic Product) and N refers to the total number of observations.

On average, banks in our sample have a Liquid Asset/Total Asset L1of 11.8812 percentage and Liquid Asset/ (Deposit Borrowing) L2 of 14.1028 percentages over the entire time period from 2008 to 2017. The maximum and minimum values of L1 are 20.17 and 1.58 percentage respectively with standard deviation of 4.076861 percentages from mean value.

The bank size signified by log of TA varies from a minimum value of 4.09 to maximum value of 5.49 leading to an average of 4.7922. The standard deviation of bank size is 0.27979 from mean value. Likewise, the Deposit ratio signifying the liquidity varies from minimum 16.91 percent to maximum 91.76 percent leading to average of 81.2263percent. The standard deviation is 9.71488 from mean value.. The log of real GDP is found to be minimum of 4.72 and maximum of 5.87 leading to an average 5.6953 with standard deviation of .33179 from mean value. Similarly, the inflation rate is found to be minimum of 5.1 percent and maximum of 12.6 percent leading to an average 8.45 percent. Standard deviation of inflation is 2.22 percent.

The variation as indicated by SD is largest for Deposit and lowest for BankSize.0.27979

4.1 Correlation Analysis

Correlation is a way to index the degree to which two or more variables are associated with or related to each other. The most widely used bi-variant correlation statistics is the Pearson product-movement coefficient, commonly called the Pearson correlation which was used in this study. Correlation coefficient between two variables ranges from +1 (i.e. perfect positive relationship) to -1 (i.e. perfect negative relationship). The sample size is the key element to determine whether or not the correlation coefficient is different from zero/statistically significant.

Table 4.2: Pearson Correlation between (Liquid Assets/Total Assets) and (Liquid Assest/ Deposit + Borrowing) and Independent Variable

	Correlations						
	Liquid assets by Total Asset	Liquid Asset/(Deposit Borrowing)	Capital Adequacy Ratio	Log Bank Size	Log Real GDP	Inflation	Deposit
L1	1						
L2	.969**	1					
Car	-.266	-.255	1				
Log bank size	.075	.142	.093	1			
Log Real GDP	.108	.149	.202	.494**	1		
Inflation	.124	.118	-.106	-.137	.304*	1	
Deposit	.400**	.187	.009	-.188	-.085	.107	1

****Correlation ship is significance at the 0.01level (2-tailed)**

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

Table 4.2 shows that Liquid Assets/Total Assets is positively correlated with bank size, deposit, Inflation and negatively correlated with, CAR, with the coefficient of 0.075, 0.108, 0.124, and 0.400 respectively. (Liquid Assets/Deposit+Borrowing) is positively correlated with bank size, deposits, inflation and negatively correlated with Capital Adequacy with the coefficient of 0.142, 0.149, 0.118, 0.187 and -0.255 respectively.

According to Liquid Assets/Total Assets as well as (Liquid Assets/ Deposit + Borrowing) Bank size has positive relationship with banks liquidity in Nepal having coefficient of correlation 0.075 and 0.142 respectively. This shows that increase in bank size leads to increase in liquidity. This based on the argument of small banks

focus on traditional intermediation and transformation activities and hold less liquid asset. Bank size is positively correlated with GDP and negatively correlated with inflation and Deposit having a coefficient of -0.137,-0.188, respectively.

According to Liquid Assets/Total Assets and Liquid Assets/Deposit+ Borrowing Capital Adequacy Ratio has Negative Relationship with bank liquidity in Nepal having coefficient of correlation -0.266 and -0.255 respectively.

According to Liquid Assets/Total Assets as well as Liquid Assets/Deposit +Borrowing bank deposit has statistically significant and positive linear relationship with banks liquidity in Nepal having coefficient of correlation 0.400and 0.187 respectively.

Among the macroeconomic factors affecting liquidity, real GDP growth rate has Positive correlation with liquidity of commercial banks in Nepal which has a correlation coefficient of 0.108 and 0.149 respectively. GDP is positively related with Inflation and negatively correlated with Deposit having coefficients of correlation with 0.304 and -0.085 respectively.

4.2 Regression Analysis

Regression analysis is a statistical tool applied for the investigation of relationships between variables. The regression of Determinants of liquidity in Nepalese commercial bank has been analyzed by Liquid Assets/Total Assest and Liquid Assest/ (Deposit+Borrowing). During this analysis, Model summary has been presented to identify the explanation of independent variables on dependent variables and ANOVA analysis is done to test the significance of the model and the joint effect of independent variables on dependent variable.

Regression analysis is further carried to test the validity of tally with the result obtained from correlation analysis, test hypothesis and to test multiple regression models.

4.2.1 Model Summary

The model summary gives the total variability in the dependent variable explained by the model. This then indicates the percentage of the variability in the dependent variable explained by factors not included on the study. The regression model for L1 (LiquidAssest/TotalAssest)_t = $\beta_0 + \beta_1 \text{CAR}_{it} + \beta_2 \log \text{Bank Size} + \beta_3 \log \text{GDP}_{it} + \beta_4 \text{INF}_{it} + \beta_5 \text{Deposit} + \epsilon_{it}$ and L2 Liquid Assest/(Deposit +Borrowing) = $\beta_0 + \beta_1 \text{CAR}_{it} + \beta_2 \log \text{Bank Size} + \beta_3 \log \text{GDP}_{it} + \beta_4 \text{INF}_{it} + \beta_5 \text{Deposit} + \epsilon_{it}$. Capital Adequacy Ratio (Capital Adequacy/Total Assets)

Real gross domestic product (log of real GDP in millions rupees), Bank size (log of total assets in millions rupees inflation (INF in percentage) and Deposit (Deposit/Total Assest) are independent variables and Determinants of Liquidity measured by Liquid Asset/Total Assest and Liquid Assest/(Deposit+ Borrowing) are considered dependent variables.

Table 4.3: Model summary Liquid Assets/Total Assets

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of Estimate
1	.731 ^a	.535	.201	3.64667

- Predictors: (Constant), Deposit, Capital Adequacy ratio, Inflation, Real GDP
- Dependent Variable : Liquid Asset by Total Assest

Table 4.4 Model Summary on (Liquid Asset/Deposit + Borrowing)

Model Summary

Model	R	R Square	Adjusted R Square	Std Error of Estimate
1.	.656 ^a	.430	.070	4.27895

- Predictors: (Constant), Deposit, Capital Adequacy ratio, Inflation, Bank size, Gross domestic product
- Dependent Variable : Liquid Asset by (Deposit+ Borrowing)
- Source: SPSS output result outcome

Table 4.3 demonstrates that the multiple correlation coefficient $R = .731$ indicated that there was a high degree positive correlation between CAR, Bank size, Real GDP, Deposit and Inflation on Liquid Asset/Total Assets on Liquidity of the Nepalese commercial banks. Also, the value R-Square is .535, indicates that 46.5 percent of variations in Liquid Asset/Total Asset of Nepalese commercial banks were explained by independent variables included in the model. However, the remaining 46.5 percent changes in Liquid Asset/Total Asset of Nepalese commercial banks are caused by others factors that are not included in the model.

Similarly, Table 4.4 demonstrates that the multiple correlation coefficient $R = .656$ indicated that there was a moderate positive correlation between CAR, Bank size, Real GDP, Deposit and inflation on Liquid Asset/Deposit+Borrowing of the Nepalese commercial banks. Also, the value R-Square is .430, indicates that 43 percent of variations in Liquid Asset/ (Deposit+Borrowing) of Nepalese commercial banks were explained by independent variables included in the model. However, the remaining 57 percent changes in Liquid Asset/Deposit+Borrowing) of Nepalese commercial banks are caused by others factors that are not included in the model

4.2.2 ANOVA

The study sought to establish analysis of variance (ANOVA) which was a collection of statistical models used to analyze the differences among group means and their association. The ANOVA statistics presented was used to present the regression model significance.

Table 4.5 ANOVA test on Liquid Asset/Total Asset

Model	Sum of Squares	Df	Mean Square	F	SIG
Regression	222.995	5	45.999	3.459	.040 ^a
Residual	585.122	44	13.298		
Total	815.117	49			

- a. Predictors: (Constant), Deposit, Capital Adequacy ratio, Inflation, Bank size, Real GDP
- b. Dependent Variable : Liquid Asset by Total Assets

Table 4.6 ANOVA test on Liquid Asset by Deposit+ Borrowing**ANNOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	158.570	50	31.714	1.732	.047^a
Residual	805.614	44	18.309		
Total	964.184	49			

Predictors: (Constant), Deposit, Capital Adequacy ratio, Inflation, Bank size, Gross domestic product

Dependent Variable : Liquid Asset by (Deposit+ Borrowing)

Source: SPSS output result outcome

Based on Table 4.5 ANOVAs, the p Value is 0.040 which is less than alpha value 0.050. Therefore the model is a good Predictor of the relationship between the dependent and Independent Variables. As a result, the independent variables CAR, Bank Size, GDP, Inflation, Deposit and Dependent Variables Liquid Assets by Total Assets and Liquid Assets by (Deposit + Borrowing) are Significant in Explaining the Variance between Independent Variables and Dependent Variables.

Based on Table 4.6 ANOVAs, the p Value is 0.047 which is less than alpha value 0.050. Therefore the model is a good Predictor of the relationship between the dependent and Independent Variables. As a result, the independent variables CAR, Bank Size, GDP, Inflation, Deposit and Dependent Variables Liquid Assets by Total Assets and Liquid Assets by (Deposit + Borrowing) are Significant in Explaining the Variance between Independent Variables and Dependent Variables.

4.2.3 Regression Coefficient

The results are based on panel data of 5 Nepalese commercial bank with 50 observations for the period of 2007/08 to 2016/17 by using linear regression model. The following panel regression models were estimated;

$$L1_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 \log \text{Bank Size}_{it} + \beta_3 \log GDP_{it} + \beta_4 INF_{it} + \beta_5 \text{Deposit}_{it}$$

$$+ \epsilon_{it} \quad L2_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 \log \text{Bank Size}_{it} + \beta_3 \log GDP_{it} + \beta_4 INF_{it} +$$

$$\beta_5 \text{Deposit}_{it} + \epsilon_{it} \quad \text{Where;}$$

L1 = Liquidity Assest/Total Assest, L2= Liquidity Assest /Deposit+Borrowing, CAR=Capital Adequacy Ratio BS= Bank Size, GDP= Real Gross Domestic Product, INF= Inflation, DE= Deposit ϵ = Error item, β_0 =Constant, i= Commercial Bank, t= index of time periods

1, 2, 3, 4, 5 are parameters to be estimated .

Table 4.7: Regression coefficient Liquid Asset /Total Asset and affecting factors

a

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-20.226	12.101		-1.671	.102
	Capital adequacy ratio	-.241	.104	-.308	-2.313	.025
	Bank size	1.692	2.309	.116	.733	.467
	Gross domestic product	1.780	2.068	.145	.861	.044
	Inflation	.033	.281	.017	.118	.307
	Deposit	.183	.055	.435	3.327	.002

a. Dependent Variable: Liquid asset by total asset

Source: SPSS output result outcome

The findings as computed on table 4.8 indicated that Capital Adequacy Ratio had a p-value=0.025, less than the significance level of 0.05. This showed a Strong relationship between Car as a factor affecting Liquid Assest /Total Assets of selected commercial banks. The beta coefficient of bank size is Negative. So, result indicated there is Negative and Significant relationship between Car and Liquid Assest /Total Assest. Similarly, Bank Size had a p-value of 0.467, more than the significance level of 5%. This shows a weak relationship between Bank Size as a internal factor determining Liquid Assest /Total Assest of commercial banks in Nepal. Moreover, the results depict positive as well as insignificant relationship between Bank Size and ROE as 1 percent increase in Bank Size will decrease Liquid Assest/Total Assest by approximately 2.133. Likewise Real GDP has a p-value of 0.044 which showed a

Strong relationship between real GDP and Liquidity of commercial bank as measured by Liquid Asset/Total Asset. There is Positive and significant relationship between real GDP and Liquid Asset/Total Asset as 1 percent increase in real GDP will lead to decline in Liquid by 0.861. The inflation has a p- value .307 which indicates that there is weak correlation between inflation and Liquid Assets /Total Assets of commercial bank as Liquidity measured by Liquid Asset/Total Asset. Inflation holds positive and insignificant relation with Liquid Asset/Total Asset. Hence Deposit has a P Value = 0.02, less than significance Level of 0.05. The Result Indicate there is Significant and Positive Relationship. Since Real GDP and Deposit has Positive and Significant Relationship with Liquid Asset by Total Asset. So H01 is accepted.

Table 4.8: Regression coefficient for Liquid Asset/Deposit+Borrowing and affecting factors

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-15.678	14.199		-1.104	.276
	Capital adequacy ratio	-.252	.122	-.296	-2.061	.045
	Bank size	2.319	2.709	.146	.856	.397
	Gross domestic product	1.918	2.426	.143	.791	.043
	Inflation	.081	.329	.039	.245	.807
	Deposit	.103	.064	.225	1.599	.040

a. Dependent Variable: Liquid asset by deposit +borrowing

Source: SPSS output result outcome

The findings as computed on table 4.9 indicated that Capital Adequacy Ratio had a p-value=0.045, less than the significance level of 0.05. This showed a Strong relationship between Car as a factor affecting Liquid Asset /Total Assets of selected commercial banks. The beta coefficient of bank size is Negative. So, result indicated there is Negative and Significant relationship between Car and Liquid Asset /Deposit+Borrowing. Similarly, Bank Size had a p-value of 0.397, more than the significance level of 5%. This shows a weak relationship between Bank Size as a internal factor determining Liquid Asset /Deposit +Borrowing of commercial banks in Nepal. Moreover, the results depict positive as well as insignificant relationship

between Bank Size and Liquid Asset /Deposit+Borrowing as 1 percent increase in Bank Size will decrease Liquid Asset/Total Asset by approximately 0.856. Likewise Real GDP has a p-value of 0.043 which showed a Strong relationship between real GDP and Liquidity of commercial bank as measured by Liquid Asset/Deposit+Borrowing. There is Positive and significant relationship between real GDP and Liquid Asset/Deposit+Borrowing as 1 percent increase in real GDP will lead to decline in Liquid by 0.791. The inflation has a p- value .807 which indicates that there is weak correlation between inflation and Liquid Assets /Total Assets of commercial bank as Liquidity measured by Liquid Asset/Total Asset. Inflation holds positive and insignificant relation with Liquid Asset/Deposit+Borrowing. Hence Deposit has a P Value = 0.040, less than significance Level of 0.05. The Result Indicate there is Significant and Positive Relationship. Since Real GDP and Deposit has Positive and Significant Relationship with Liquid Asset by Deposit+Borrowing. So H₀₂ is accepted.

4.3 Major Findings

This study attempts to analyze the Determinants of liquidity of the commercial banks in Nepal. More specifically, the study aims to examine the Relationship between of bank specific and macroeconomic variables on selected commercial bank liquidity in the case of Nepal of the period of 2005 to 2016. This study has taken liquid asset /total asset and liquid asset/deposit and borrowing to measure the liquidity of Nepal by selecting the bank specific and macro-economic variables of Nepal. In this case, the findings from descriptive statistics, correlation analysis, ANOVA test and linear regression model assumption were presented as follows.

- 1) The descriptive result showed that the dependent variable, Liquid Assest /Total assets of Nepalese commercial banks is found ranging from 1.58 percent to 20.17 percent with an average of 11.8812 percent. Liquid Assest/Deposit+ Borrowing is found ranging from -5.56percent to 23.10 percent with an average of 14.1028 percent. Hence, this showed that standard deviation from mean of Liquid Assest/Deposit+Borrowingis greater than that of Liquid Assest/Total Assest with 4.43590 of L₂versus 4.07861 of L₁.
- 2) Similarly, the independent variables, Capital Adequacy Ratio is found ranging from -10.87 percent to 12.72 percent with an average of 5.1690 with SD of

5.20967. The Capital Adequacy Ratio has Negative Minimum Value (-10.87) due to loss in two governments bank i.e. Nepal Bank Ltd during the study Period.

Bank size is found ranging from 4.09 percent to 5.49 percent on log leading to an average of 4.7922 with SD of 0.27979. Likewise, Real GDP is found ranging from 4.72 percent to 5.87 percent on log leading to an average of 5.6953 with SD of .33179 from mean. Inflation is found ranging from 5.1 percent to 12.6 percent leading to an average of 8.45 percent with SD of 2.1276 percent from mean. Deposit ratio is found Ranging from 16.91 to 91.76 to an average 81.2263 with a SD 9.71488.

- 3) The result of correlation coefficient showed significant positive relation with Real GDP and Deposit with Liquid Assets /Total Assets and Insignificant Positive Relationship with Bank Size and Inflation. .
- 4) Similarly, the result of correlation coefficient showed significant positive relation with Real GDP and Deposit with Liquid Assest by deposit +Borrowing while significant negative relation with Capital Adequacy Ratio. The result of correlation coefficient also showed insignificant positive relation with Bank Size and Real GDP on Liquid Assets by Deposit+ Borrowing.
- 5) The findings also revealed that the value of R square on Liquid Assets /Total Assest is .535 which means that around 53.5 percent variation in Liquid Assest/Total Assest is explained by the regression equation involving independent variables Car, bank size, Deposit, real GDP and inflation. The ANOVA test showed F- value of 3.459 which is also is significant at 5% level.
- 6) The findings also revealed that the value of R square on Liquid Assets / (Deposit+Borrowing) is .430 which means that around 43.0 percent variation in Liquid Assest/(Deposit+Borrowing) is explained by the regression equation involving independent variables Car, bank size, Deposit, real GDP and inflation. The ANOVA test showed F- value of 1.732 which is also is significant at 5% level.
- 7) Similarly, the regression model on Liquid Assest/Total Assest revealed that the beta coefficient for Bank size, GDP, Deposit ratio and inflation are positive. Similarly, for the Capital Adequacy Ratio coefficient is negative. The

result also revealed that CAR, real GDP and Deposit of the bank are significantly related with Liquid Assest /Total Assest with 5% level of significance whereas Bank Size and Inflation are insignificant even on 5% level of significance.

- 8) The regression model on Liquid Assets/Deposit+Borrowing revealed that the beta coefficient for bank size, real GDP, Deposit and inflation are positive. Similarly, for the Capital Adequacy Ratio, beta coefficient is negative. Whereas GDP CAR and Deposit of Nepalese commercial banks are significantly related with Liquid (Assest/Deposit+Borrowing)at 5% level of significance; remaining other independent variable remain insignificant at 5% level.

4.4 Discussion

Liquidity creation is the primary reason why commercial banks exist. The aim of this study was to identify determinants of liquidity of commercial banks in Nepal .This study has mainly focused on Determinants of Liquidity in Nepalese Commercial Banks. This study used independent variables: Capital Adequacy Ratio bank size, CD ratio, Deposit GDP and inflation while the dependent variables are Liquidity Assest/Total Assest (L1) and Liquidity Asset/Deposit+Borrowing (L2). The study is carried out on the selected 5 Nepalese commercial banks over the period of 2007/2008 to 2016/2017.

The discussion of relationship between bank capital and liquidity creation framed under two hypotheses i.e. risk absorption hypothesis and financial fragility /crowding out deposit hypothesis. The result shows the negative impact of capital adequacy on liquidity which is not in line with hypothesis 1 and findings is based on the financial fragility-crowding out of deposit hypothesis. According to this argument financial fragility structure, characterized by lower capital, tends to favor liquidity creation while higher capital ratios may crowd out deposits and thereby reduce liquidity creation. The finding is consistent with the study of Ferrouhi and Lehadiri (2014) on the liquidity of Moroccan banking industry, Malik and Rafique (2013) on liquidity of Pakistani commercial banks, Tesfaye (2012) on liquidity of Ethiopian commercial banks. CAR plays a significant negative role in liquidity of countries like Nepal.

Bank size has positive coefficient on liquidity of commercial banks measured by liquid assets to total assets and liquid assets to deposit plus borrowing ratios. Bank size found to be a positive and statistically insignificant. The coefficient value of 1.692 indicated that one unit increases in the total asset, resulted in the rises of 2.319 units in liquid assets of Nepalese commercial banks, holding other variables constant. The coefficient value of 2.319 indicated that one-unit increase in total asset resulted in the rise of 2.319 units in liquid asset of Nepalese commercial banks. This is in the line of Rauch et al. (2008) and Berger and Bouwman (2009), Apsachs, Nier, and Tiesset (2005).

Real GDP growth rate has positive coefficient on liquidity of commercial banks measured by liquid assets to total assets and liquid assets to deposit plus borrowing ratios. Which indicate the economic expansion enhances the commercial bank ability to fund additional assest and meet the obligation at desirable cost. It can be used as indicator or signal the direction of commercial bank liquidity. This is the line of Chikoko (2013), Choon Hooi, Murthi and Shven (2013), Mousa (2015). Hence, gross domestic product plays an significant positive role in liquidity of commercial banks in Nepal.

Inflation has positive and insignificant impact on banks liquidity measured by liquid assets to deposit and liquid assets to deposit plus borrowing ratios. The positive coefficient of inflation in the case of both liquidity ratios is based on the argument on the theory of information asymmetry, stating in the inflationary economy economic units including commercial banks are refraining from long term investments due to the decline in the real value of their investments that exacerbate the credit market rationing and prefer to hold risk free/liquid assets. This is in the line of Tseganesh (2012) and Horbath et. al. (2014). Hence, Inflation plays a Insignificant positive role for liquidity in Nepalese commercial banks.

Deposit has positive coefficient on liquidity of commercial banks measured by liquid assets to total assets and liquid assets to deposit plus borrowing ratios. This indicates that increase in deposit leads to increase in liquid asset/total assets and increase in deposit leads to increase in liquid asset by total deposit plus short term borrowing of commercial banks. A deposit is in the line of Bonner et al (2013) and Kashyap et al (2002). Hence, Deposit plays a significant positive role in liquidity of countries like Nepal.

CHAPTER V

CONCLUSION

This chapter presents the brief summary of the entire study. In addition, the major conclusions are discussed based on the findings of the study in separate section of this chapter which is followed by some recommendations regarding the Determinants of liquidity commercial banks in Nepal. Finally, the chapter ends with the scope of the future studies in the same field.

5.1 Summary

The major objective of this study was to examine the determinants of Liquidity commercial banks in Nepal. According to previous studies made on the determinants of Liquidity is affected by both bank specific and macroeconomic factors. Internal factors are mainly influenced by a bank's management which are also known as bank specific factors. Those factors include CAR, Bank size, asset quality, liquidity management etc. Similarly, macroeconomic factors represent events outside the control of the banks and also called external factor such as real GDP, Inflation etc.

According to previous studies made on the determinants of financial performance, performance is affected by both firm-specific and macroeconomic factors. Internal factors are mainly bank size, liquidity, assets quality, Non Performing Loan, Return on Equity, Interest rate on Margin management efficiency, credit risk etc. Similarly, macroeconomic factors represent events outside the control of the bank and also called external factor such as GDP, Inflation, interest rates etc. However, this study entirely focused on internal factors such as Bank size, asset quality and liquidity management and the external variable real GDP and Inflation.

Conceptual framework of the study explains the systematic explanation of the relationship among the dependent and independent variables for the purpose of explaining the internal as well as macroeconomic factors affecting the Determinants of Liquidity where dependent variable is taken as Liquidity Assest/Total Assest (L1) and Liquidity Assest/Deposit+Borrowing (L2), whereas the independent variables are CAR, Bank size, Deposit by, real GDP and inflation.

By using internal factors such as CAR, Bank size, Deposit and the external variable real GDP and Inflation this study examined the determinants of financial performance of five commercial banks in Nepal over the period 2007/2008 to 2016/2017 leading to total 50 observations. This study has employed descriptive research design and causal comparative research design to deal with issues associated with the impact of internal and macroeconomic factors affecting the financial performance of Nepalese commercial banks. The study is based on secondary data and the samples are chosen through convenience sampling method to collect the data of those commercial bank for the study. Statistical package for social science (SPSS) software is used to analyze the data and to get the required information and results. The data were analyzed using descriptive statistics, correlation and multiple linear regression analysis. The analyses were made in line with the specific research objectives and stated hypotheses formulated in the study. Data used for the internal factors were obtained from respective bank financial reports, NRB Supervision report and also from NRB's Banking and Financial statistics, whereas data of macroeconomic factors were obtained from Economic Survey

The mean value of L1 and L2 is 11.8812% and 14.1028.49% which ranges from 1.58% to 20.17% and 5.56% to 23.10% respectively. The standard deviations of 4.078% show dispersion of liquid assets to total assets ratio from its mean for the selected commercial banks in Nepal. The standard deviation of 4.43% shows moderate dispersion of L2 towards the mean value among the banks.

In relation to financial performance measured by Liquidity Assets/Total Assets; CAR Real GDP and Deposit have significant impact on the Determinants of Liquidity Nepalese commercial banks, but Inflation and Bank Size no significant impact. Bank Size, Real GDP, Deposit and Inflation have positive coefficient, but CAR have negative coefficient. On the other hand, in Determinants of Liquidity measured by Liquidity/Deposit+Borrowing; ; CAR Real GDP and Deposit have significant impact on the Determinants of Liquidity Nepalese commercial banks, but Inflation and Bank Size no significant impact. Bank Size, Real GDP, Deposit and Inflation have positive coefficient, but CAR have negative coefficient.

5.2 Conclusions

The aim of this study is to examine the relationship between bank specific and macroeconomic variables and on selected commercial bank liquidity in the case of Nepal of the period of 2005 to 2016. This study has taken liquid asset /total asset and liquid asset/deposit and borrowing to measure the liquidity of Nepal by selecting the bank specific and macro-economic variables of Nepal. From our findings and discussions above, we can conclude that bank specific and macroeconomic variables have an imperatively significant role on banks liquidity in Nepal.

The result indicates that, when bank specific variables and macro-economic variables are regressed with liquidity ratios it is find that variables I.e. CAR, Real GDP, and Deposit has a significant effect on liquidity whereas variables i.e. Bank size and Inflation has insignificant effect on liquidity. Variables i.e. Deposit, Real GDP bank size and inflation has positive impact on liquidity. Variables i.e. Capital adequacy, have negative impact with liquidity. Hence, bank specific and macro-economic variables plays effective role on determining liquidity of commercial banks in Nepal. The two measures liquid assets to total assets and liquid assets to deposit and borrowing gives same coefficient signs and the same conclusion.

5.3 Implications

Liquidity position of Nepalese commercial banks has been in the fluctuation trends hence understanding the underlying factors that influence liquidity of Nepalese commercial banks is essential for bank manager and other stakeholders. The determinants of liquidity vary significantly across the countries therefore same factor may have different impact on various economies. Therefore, determining factor affecting liquidity of commercial banks has greater significance in the field of research practical and theoretical concern.

The study observes negative impact of capital adequacy ratio with liquidity of commercial banks. The relationship supports the assumption of financial fragility-crowding out deposit hypothesis on Nepalese commercial banks that sufficient capital adequacy ratio decrease liquidity position of commercial banks in Nepal. Crowding

out deposit hypothesis states that increase in capital ratio leads to increase in illiquid capital by shifting investors fund from deposit.

The study result indicates that size of company is positively and insignificantly related to Determinant of Liquidity. It indicates that large bank size performs better than the smaller banks due to existence of economies of scale. So, bank should give higher consideration on increment of the assets to expand their operation and to take advantage of economies of scale

The study observes the significant positive relationship between deposit and liquidity of commercial banks for liquidity. Therefore, Nepalese commercial banks willing to increase the liquidity position should try to increase the deposit. Increase in deposit can leads to increase in availability of current money for bank.

Real GDP has the positive and Significant Relationship with determinants of Liquidity with Nepalese Commercial of Bank. It shows that Nepalese Bank wills Increases Economy Efficiency, Investment and Growth.

Inflation shows insignificant effect on liquidity of commercial banks suggesting that liquidity condition of bank may change depending upon macro-economic condition of the country

Therefore, bank authority should carefully observe the macroeconomic condition while formulating liquidity position of their respective banks Higher Inflation leads to Increases rate of Interest rate and business people as to pay higher rate of interest rate on Borrowing.

The study points out the determinants of liquidity. The study aids to the current stage of knowledge on determinants of liquidity and open grounds for future research on the area. There has to be further research on the area of factor affecting bank liquidity in Nepal by incorporating regulatory, economic, social factors and other bank specific and macro economic factors.

5.4 Areas for the Future Research

The recommended areas for future research are mentioned below:

- i. The future researchers could replicate the study but consider other methods of analysis such as Hausman Test, VAR Model, Co integration analysis and observe if the results would be different.
- ii. The liquidity of the bank also depends upon the impact of rules and regulations of central bank, character of the bank, short term interest effect, etc. which this study has not studied. Thus, further study can be carried out with such factors through the primary data.
- iii. Even though the study is carried out by taking sample of commercial banks only. The further researches can include samples of development bank and other financial institutions more number of observations to obtain the various determinants of liquidity
- iv. The study was only limited to five variables that affect the financial performance of Nepalese commercial bank. Thus, more research could be done to determine the factors like : management efficiency, credit risk, real interest rate , Non Performing loan etc that may affect financial performance
- v. The future study can integrate primary data along with the secondary data in order to test impact of internal and macroeconomic variables in commercial bank performance.

REFERENCES

- Allen, F., & Gale, D. (2004). Financial intermediaries and markets. *Journal of European Economic association*, 72(5), 1023-1061.
- Alshatti, A.S. (2015). The effect of the liquidity management on profitability in the Jordanian Commercial banks. *International Journal of Business and Management*, 10(1), 62-72.
- Arabsalehi, M., Beedel, M., & Moradi, A. (2014). Economic performance and stock market Liquidity. *International Journal of Economy, Management and social sciences*, 9(3), 2-9.
- Arif, A., & Nauman, A. (2012). Liquidity risk and performance of banking system. *Journal of Financial regulation and compliance*, 20(4), 182-195.
- Aspachs, A. (2005). Liquidity, Banking Regulation and the Macro economy: Evidence on bank Liquidity holdings from a panel of UK-resident banks. *Bank of England Working Paper*, 9(3), 140-165.
- Bank for International Settlement. (2008). BIS 78th Annual report. Retrieved from <http://www.bis.org/publ/arpdf/ar2008e.htm>
- Baral, K. J. (2005). Health checkup of commercial banks in the framework of Camel: a case study of joint venture banks in Nepal. *Journal of Nepalese Business studies*, 2(1), 4-53
- Bariya, R., Budhathoki, R., Dahal, S., Maharjan, S., & Rana, S.K. (2016). The relationship between profitability and liquidity: A case of Nepalese commercial banks. *Nepalese Journal of Management*, 3(1), 69-81.
- Bhati, S.S., & DeZoysa, A. (2012). An examination of factor affecting Liquidity Management Indian financial system. *timer conference paper series*, 5-17
- Bhattacharya, S., & Thakor, A. (1993). Contemporary banking theory. *Journal of Financial Intermediation*, 3(2), 2-50.
- Bloem, M.A., & Gorter, N.C. (2001). Treatment of Non-Performing Loans in Macroeconomic Statistics. *International Monetary Fund Working Paper*, 2001-209.

- Bonner, C., Van Lelyreld, I., & Zymek, R. (2013). Banks liquidity buffers and the role of liquidity regulation. *Journal of financial service Research*, 1-24.
- Bunda, I., & Desquilbet, J.B. (2008). The bank liquidity smile across exchange rate regimes, *international economic journal*, 22(3), 361-386.
- Deep, A., & Schaefer, G. (2004). Are banks liquidity transformers? *Harvard University Faculty Research, Working Paper*, 55(3), 89-107.
- Diamond, D.W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal Of Political Economy*, 105(91), 401-419.
- Diamond, D.W., & Rajan, R.G. (2001). Liquidity risk, liquidity creation, and financial fragility: a theory of banking. *Journal of Political Economy*, 109(2), 287-327.
- Fadare, S.O. (2011). Banking sectors liquidity and financial crises in Nigeria. *International Journal of economics and finance*, 3(5), 3-11.
- Gorton, G., & Winton, A. (2000). Liquidity provision, bank capital, and the macro economy. *University of Minnesota, Working Paper*, 97-167.
- Huybens, E., & Smith, B. (1998). Financial market frictions, monetary policy, and capital accumulation in a small open economy. *Journal of Economic Theory*, 81(5), 33-40.
- Iannotta, G., Nocera, G., & Sironi, A. (2007). Ownership structure, risk and performance in the European banking industry. *Journal of Banking & Finance*, 31(5), 21-29.
- Kashyap, A.K., Rajan, R., & Stein, J.C. (2000). What do a million observations on banks say about the transmission of monetary policy? *American Economic Review*, 407-428.
- Khatriwada, Y.R. (2005). Monetary policy. Fifty years of Nepal Rastra Bank (part III).
- Lagunoff, R. & Schreiff, S. (2001). A model of financial fragility. *Journal of Economic Theory*, 99(3), 220-264.
- Maharjan, A., Yadav, A., Poudel, B., Shrestha, B., & Bishnu, A. (2016). The relationship between bank credit risk, Liquidity and profitability in Nepalese commercial banks

- Mehmed, G. (2014). An empirical study on liquidity risk and its determinants in Bosnia & Herzegovina. *The Romanian Economic Journal*, 52(4), 157-184.
- Melese, N., & Laximikantham, D. (2015). Determinants of banks liquidity: empirical evidence On Ethiopian commercial banks. *Journal of economics and sustainable development*, 6(15), 36-46.
- Moore, W. (2009). How do financial crises affect commercial bank liquidity? *Evidence from Latin America and the Caribbean*, 52-102.
- Pilbeam, K. (2005). *Finance and financial markets*. 2nd ed., New York: Palgrave Macmillan.
- Rasin, S.B. (2014). Stock market size, liquidity and economic growth in Nepal. *Journal of Banking*, 1(2), 1-13.
- Rochet, J.C. (2008). Liquidity Regulation and the Lender of Last Resort. *Banque de France Financial Stability Review*, 3(3), 45-52.
- Sharma, P. (2016). Determinants of commercial banks liquidity in Nepal. *Nepalese journal of business*, 3(3), 126-138.
- Shrestha, B.P. (2012). Impact of liquidity on profitability of commercial banks in Nepal. *Nepalese journal of management*, 5(1), 27-38.
- Subbha, S. (2006). Risk management of commercial banks in Nepal: A comparative study between NCC bank ltd. and NBB bank ltd. *An unpublished Master Thesis*, Central Department of Management. T.U. Kathmandu.
- Subedhi, S., & Neupane, B. (2013). Determinants of banks liquidity & their impacts on financial performance in Nepalese commercial banks. *Nepalese journal of management*, 6(2), 25-37
- Sudhirman, S.N. (2014). Determinants of bank liquidity in Indonesia. *International Annual Symposium on Management*, 5(6), 1-16.
- Vodova, P. (2011). Liquidity of Czech commercial banks and its determinants. *International Journal of mathematical models and methods in applied science*, 50(3), 1060-1067
- Yeager, F.C., & Seitz, N.E. (1989). *Financial institution management: Text and Cases*. 3rd ed, New Jersey: Prentice Hall Inc.