**IMPACT OF LIQUIDITY ON PROFITABILITY OF NEPALEASE COMMERCIAL BANK**

*By*

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# Chapter - I

# Introduction

## 1.1 Background

The term liquidity is often used in multiple contexts. An asset’s liquidity can be used to describe how quickly, easily and costly it is to convert that asset into cash (Berger & Bouwman, 2009). Liquidity can also be used to describe a company by the amount of cash or near cash assets a company has; the more liquid assets, the higher a company’s liquidity. Financial ratios that measure liquidity are referred to as a company’s liquidity ratios. One such ratio is the current ratio which determines a company’s ability to pay short term debts as they come due. Liquidity has many definitions but the one that can be derived from the ratio is the probability that a company will not be able to pay its short term obligations as they come due. This inability can lead a company to face serious financial problems. In addition to this, Liquidity can also be defined in terms of the counterparty to a transaction. In this sense the term means the risk inherent in the fact that the counterparty may not be able to pay or settle the transaction even if they are in good financial standing, because of a lack of liquidity (Petria&Petria, 2009). The liquidity in the commercial bank represents the ability to fund its obligations by the contractor at the time of maturity, which includes lending and investment commitments, withdrawals, deposits, and accrued liabilities (Amengor, 2010).In every system, there are major components that feature paramount for the survival of the system. This is also applicable to the financial system. Profitability is a measure of firm’s efficiency (Khan & Jain, 1998). It is also a control measure of the earning power of a firm as well as operating efficiency. Weston and Copland (1998) described profitability as net result of a large number of policies and decisions. Ratios are used to measure profitability and give final answers to how effectively the firm is being managed in terms of its financial performance. Therefore, management, creditors and owners are also interested in the profitability ratio of the firm (Pandey, 1995). Short-term profitability refers to a firm’s ability to make an operating profit for which financial ratios on a yearly basis are used (Bierman & Smidt, 1980). This study also did not emphasise the liquidity management. Pradhan (2007) evaluated the financial ratios, financial distress and stakeholder losses in corporate restructuring and attempted to explain the behaviour of financial ratios in financially distressed firms. Regmi (2005) analysed the profitability of Nepalese commercial banks by analysing the relationships between EPS, DPS and MPS of the banks. The study, however, did not deal with the profitability forecasting through liquidity ratios. The banking institution had contributed significantly to the effectiveness of the entire financial system as they offer an efficient institutional mechanism through which resources can be mobilized and directed from less essential uses to more productive investments (Wilner,2000). Banks should be equipped to deal with the changing monetary policy that shapes the overall liquidity trends and the banks own transactional requirements and repayment of short term borrowing (Saunders et.al, 1990). There are a number of other risks faced by banks such as credit risk, operational risk and interest rate risk, which may culminate in the form of Liquidity (Brunnermeier and Yogo, 2009). Practically, profitability and liquidity are effective indicators of the corporate health and performance of not only the commercial banks but all profit-oriented ventures. These performance indicators are very important to the shareholders and depositors who are major publics of a bank. As the shareholders are interested in the profitability level, the depositors are concerned with liquidity position which determines a bank's ability to respond to the withdrawal needs which are normally on demand or on a short notice as the case may be Stable Macroeconomic Environment to enhance liquidity management and ensure macroeconomic profitability, there is the compelling need to insulate monetary policy from the pressure of financing the government fiscal deficit. Also, the monetary authorities should have freedom in the management of interest rate in order to sufficiently influence transactions in the intervention securities and enhance the effectiveness of instruments for liquidity management. Uncontrolled financing of the deficit by the CBN, either through ways and means advances or the absorption of unsubscribed government debt issues, increase bank liquidity thereby constraining the effectiveness of instruments for liquidity management (Amarachukwu Ona,2003)

General banking business involves the mobilization of funds from excess or surplus units of the economy and giving out to deficit units as loans and advances. This is called financial intermediation. Liquidity is the ability of financial institutions to meet their short-term obligations. It is the ability of banks to change their assets into cash in a shortest possible time. The performance of these functions by banks opens them to several risks; prominent among these is Liquidity. Liquidity is the risk of loss to a bank resulting from its inability to meet its needs for cash. The liquidity of a commercial bank is its ability to fund all contractual obligations as they fall due.

In financial system bank’s role is differentiated as financial intermediaries, funds facilitator and supporter. Commercial banks accept deposits from individuals and businesses, which make use of them for productive purposes in the economy. The banks are, therefore not only the store houses of the economy’s wealth, but also provide financial resource for the businesses. Due to these diversified operations banks may expose to Liquidity, as they are absolutely accountable to make funds available, when required by the depositors or conversion of its financial assets in to liquid funds to meet their obligations.

Liquidity was an instrumental factor during the recent financial crisis. As uncertainty led funding sources to evaporate, many banks quickly found themselves short on cash to cover their obligations as they came due. In extreme cases, banks in some countries failed or were forced into mergers.

## 1.2 Focus of the Study

Bank should have ready access to immediately expendable funds at reasonable cost precisely at the time those funds are needed. Lack of adequate liquidity is often one of the first signs that a Bank is in serious financial trouble (Rose, 1999). Bank should have adequate liquidity to minimize both asset side Liquidity and liability side Liquidity of a commercial bank. Both the liquidity deficit and more liquidity surplus indicate the problem in the financial health of a commercial bank. More liquidity surplus hurts the profitability of the commercial bank as it reduces the return on assets. Similarly, liquid deficit also costs much to the commercial banks in term of the higher purchasing price of liquidity and affects the reputation of the banks. Therefore, the commercial banks should strike the trade-off between the profitability and Liquidity of Banks and financial institutions can acquire information about clients and achieve more efficient resource allocation by lending to different industries and engaging in multiple business activities. Liquidity is one of the major threatening factors for banks with an unsound risk assessment and control policy. In the face of current events in the BFIS, these risks cannot be ignored as they have considerable bearing on the performance and survival of banks. Bank has to maintain sufficient amount of liquid assets. The liquidity of assets helps to convert it in cash within short period of time. The bank must hold a sufficient large proportion of its assets in the form of cash and liquid assets for the purpose of earnings and profitability. If the bank keeps liquidity the uppermost, its profit will be low. In the other hand, if it ignores liquidity and aims at earning more, it will be disastrous for it. Thus while managing the investment portfolio bank should maintain the proper balance between profitability and liquidity, which results in relatively high degree of safety. Liquidity is seen as a profit-lowering cost, a loan default increases the Liquidity because of the lowered cash inflow and depreciations it triggers. Therefore, the result highlighted that liquidity is positively correlated with loan default rate. However, during the crisis, banks moved from a risk of withdrawal of deposits, or even from bank runs, to a risk of drying up other funding sources, specifically the interbank market. Non-performing loans have a negative relationship with Liquidity; while return on assets, return on equity and size have a positive relationship with Liquidity. However, evidence suggests that the extent to which banks create liquidity differs by bank size, ownership structure and the extent to which they are focused on retail banking activities.

Liquidity most important factors for banking survival. To investigate the importance of liquidity for banks, the study have to examine how Liquiditys have an effect on bank earnings. To promote economic activities and economic growth in a country, financial intermediation is the major functions of banks and financial institutions. Berger and Bouwman (2009) empirically show that the 2007 banking crisis was preceded by a substantial creation of liquidity of US banks. Vazquez and Federico (2015) analyzed that banks having a low liquidity structure (risk level of high liquidity) and a high leverage before the crisis were most at risk of bankruptcy. Demirguç-Kunt and Huizinga (2010) found that the dependence of banks on the inter-bank market increases the probability of their bankruptcy.

In the context of Nepal, Neupane and Subedi (2013) concluded that the impact of bank liquidity on financial performance was non-linear. Gautam (2016) showed that bank size and inflation are have a positive impact on liquidity; while non-performing loans, profitability and GDP growth rate have negative impact on liquidity of Nepalese commercial banks. Karki (2004) revealed that liquidity ratio was relatively fluctuating over the period, return on equity was found satisfactory and there is positive relationship between deposit asset ratio and loan advances and profitability.

Manandhar (2014) concluded that there is positive relationship between liquidity, inflation and gross domestic product with bank profitability in terms of return on assets and return on equity. Khatri (2015) revealed that there is positive relationship between return on assets and size of banking sector, bank loan, and gross domestic product growth rate. Pradhan (2014) found that there is positive relationship between the gross domestic product and market share with bank profitability, whereas inflation and liquidity are negatively related to bank profitability. Bhusal (2015) found that there is a significant positive relationship between liquidity and profitability of commercial banks in Nepal. It indicates that higher the liquidity higher will be profitability of BFIS.

## 1.3 Statement of the Problem.

This study investigates the factor affecting the effect of Liquidity of Nepalese commercial banks. The study contributes the literature examining strictly regulated Nepalese commercial banking sector with a new dataset. Though there are above mentioned empirical evidences in context of other countries and in Nepal on the effect of Liquidity on banking earnings of commercial banks, there is no enough evidence about the factors affecting the effect of Liquidity on banking earnings using the most recent data.

Therefore, this study deals with following issues:

1. What is the profitability position of commercial banks in Nepal?
2. What is the liquidity position of commercial banks in Nepal ?
3. Does liquidity affect the profitability of commercial banks in Nepal?

## 1.4 Objective of the study

The major objective of the study is to assess the current situation of liquidity and profitability on Nepalese commercial banks. The specific objectives are as follows:

1. To measure the profitability position of commercial banks in Nepal.
2. To assess the liquidity position of commercial banks in Nepal.
3. To analyze the impact of liquidity on profitability of commercial banks in Nepal.

## 1.5 Research Hypothesis

The dependent variables and independent variables used in this study are as follows:

**Dependent variable**

The measures of bank performance may be varied and the choice of the specific performance measure depends on the objective of the study. In theoretical literature the performance measures could be found such as: traditional measures of performance (ROA - return on assets, ROE - return on equity), economic measure of performance (EVA- economic value added, RAROC- risk adjusted return on capital) and market based measure of performance (total share return, price-earnings ratio, price-to-book value, credit default swap). Thus, choice of the best measure of performance is tedious task. Moreover, studying the bank performance concept may generate different results depending on the nature of the stakeholders which analyze the term. If they are depositors, the capacity of banks to manage their savings is the measure of performance; if they are equity-holders, then the performance is reflected in obtaining the satisfied levels of divisible profit and if they are banks' managers, then the performance is considered from profit point of view and also taking into considerations employees‟ requests. Such multitude of opinions opens new directions in banking performance research, but this study points out single classical performance indicators: ROA which express the risk taking behavour of bank management in obtaining the satisfied level of profit per unit of total resources. In such a scenario, thus, this study has used ROA as dependent variables to represent bank performance.

**Independent Variables**

***Loan To Deposit Ratio***

This is an independent variable for the determination of the performance and is considered as the core measure of a bank's financial strength from a regulator's point of view ***.*** The researchers have developed the hypothesized model, the credit deposit ratio is commonly used statistic for assessing a return on assets and net profit margin were used as indicator of profitability while liquidity ratio, credit to deposit ratio were used as a proxy of liquidity measures. This empirical analysis reveals that there is insignificant positive relationship between credit to deposit ratio and liquidity and profitability. H1 testing states that LDR significantly affects ROA, in accordance with the concept that the amount of funds channeled to customers in the form of credit causes the amount of idle funds to decrease so that interest income increases, increasing which will increase ROA.

***H1: Loan To Deposit ratio has a significant and Positive effect on Return on Assets.***

***Cash reserve ratio***

Cash reserve ratio is one of the control variable used in analyzing effect of credit risk on the performance of banks. Traditionally, cash reserve ratio (CRR) has been one of the monetary tools in the hands of the central bank. *Cash reserve ratio (CRR)* is a specified minimum fraction of the total deposits of customers which commercial banks have to hold as *reserves* with the central bank. By changing *CRR,* the central bank *can* control the amount of liquidity. If the reserve requirement is raised, banks will have less money to loan out and this effectively reduces the amount of capital in the economy, therefore lowering the money supply. It will mean less money for investment and spending, and would stunt the growth of the economy. It would also mean that banks earn less interest and expect that their profitability may decline. Moreover, cash reserve requirement does not earn *any* income for the commercial banks and thus, may be viewed as a drain on the profitability of banks.

A number of empirical literatures have investigated the link between the changes in cash reserve ratio (CRR) and bank profitability. However, Cash reserve ratio has a positive relationship between CRR and banks profitability. Based on the theory and majority of the past empirical evidences, a positive relationship *is expected between cash reserve ratio (CRR) and* bank‟s performance (β2>0).

***H2: Cash reserve ratio has a significant and Positive effect on Return on Assets.***

***Capital adequacy ratio***

. Capital requirement (capital adequacy) is the amount of capital a bank or other financial institution has to hold as required by its financial regulator. This helps to ensure that institutions are not involving in or holding investments that amplify the risk of default. In addition, to guarantee that financial institutions have enough capital to sustain operating losses while honouring withdrawals.

Basel Committee on banking supervision (1988) has introduced a capital measurement system which is generally referred to as the Basel Accord. This framework has been replaced by new and significantly more complex capital adequacy framework known as Basel II. Whilst Basel II considerably changes the calculation of the risk weights, it sets aside the calculation of capital alone. Basel II is based on a three pillars concept, which helps in boosting stability in the financial system: First pillar-minimum capital requirements (addressing risk), Second pillar- supervisory review and Third pillar- market discipline.

The capital capital adequency ratio has found negative association between capital adequacy ratio and ROA and the coefficient was statistically not significant (p> 0.05). Gizaw, Kebede and Selvaraj (2015) find that CAR has a significant negative effect on ROE, but not on ROA. However, Alshatti (2015) found effect of the capital adequacy ratio on the financial performance of banks. On this basis a negative relationship between capital adequacy ratio and bank‟s performance is expected and the coefficients to be negative (β1< 0).

***H3: Capital adequacy ratio has not significant and negative effect on Return on Assets.***

**Liquidity Ratio**

Liquidity ratio is a measurement of a company’s capacity to pay for its [liabilities](https://www.investopedia.com/terms/l/liability.asp) with its assets. Liquidity is caused by various determinants such as elements of liquid assets or dependence on external funding, as well as factors of a supervisory, regulatory or macroeconomic character. The current ratio and cash ratio has a negative relationship with dependent variable (return on assets and return on equity. Moreover, the results also indicate that the quick ratio, current ratio, cash ratio has a positive relationship with earning per share. . On this basis a positive relationship between liquidity ratio and bank‟s profitability is expected and the coefficients to be positive (β1> 0).

***H4: Liquidity ratio has significant and Positive effect on Return on Assets***

## 1.6 Significance of the Study

This study is focused on determining the effect of Liquidity on financial performance of Nepalese commercial banks. It focuses on studying the relationship among different dependent variables and independent variables. Manager and potential investors are always concerned about the liquidity and profitability ratios.

Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term compulsions. A study of liquidity is of major importance to both the internal and external analysis because of its close relationship with day-to-day operations of a business .Profitability and liquidity as performance indicators are very important to the major stakeholders: shareholders, creditors and tax authorities. The shareholders are interested in the profitability of banks because it determines their returns on investment. Depositors are concerned with the liquidity position of their banks because it determines the ability to respond to their withdrawal needs, which are normally on demand or on a short notice as the case may be. The tax authorities are interested in the profitability of the banks in order to determine the appropriate tax obligation.

The analysis of liquidity and profitability position of commercial banks in Nepal plays vital role in the managerial decisions. Every organization has to analyze its financial performance in every step of its operation, promotion and expansion. All financial decisions of commercial banks are for the betterment of shareholder’s wealth. There should be an effective system of funds allocation in order to safeguard the banks from the danger of liquidity. An appropriate level must be achieved between them.

Each commercial bank should work to maximize its profits, and at the same time be able to meet the financial requirements of its depositors by holding a sufficient amount of liquidity, in order to achieve a balance between the performance and liquidity. The problem lies in how to choose or select the optimal point or level at which banks can maintain their assets in order to achieve these two objectives together. Each level of liquidity has a different effect on the levels of profitability and the problem arises when the commercial banks try to maximize their profit at the expense of neglecting the liquidity which may cause a technical and financial hardship with the consequent withdraw of deposits. Therefore, every commercial bank should work to maximize its profits and at the same time be able to meet the financial requirements of its depositors by holding enough amount of liquidity, in order to achieve a balance between the profitability and liquidity.

Regarding banks of Nepal, various studies have been carried out so far. Thus, it is difficult to find Nepalese literature on this subject. The study, therefore, bridges the gap between Liquidity and its effect on financial performance. The study can be further used in the future for others who are interested in finding the effect of Liquidity on financial performance. The study has significance as it contributes to the existing knowledge in the area of factors affecting profitability of commercial banks. It can be useful not only for commercial banks but also for other financial institutions operating within the country. It contributes to the welfare of the economic sectors and other financial sectors. Thus, the study is significant to graduate students, financial analysts, academic staffs, regulatory bodies, government, society and other interested individuals and parties.

**1.7. Limitations of the Study**

a) The study will include only 7 years data.

b) The study will consider only the secondary data.

c) Only limited statistical and financial tools will be used in the study.

## 1.8 Organization of the Study

This study has been divided into five chapters.

Chapter one is the introduction that includes the background of the study, focus of the study, statement of the problems, objective of the study, significance of the study, limitations of the study and organization of the study.

The second chapter is the review of literature. This chapter includes the theoretical concept, review of journals and articles, previous studies and research gap. This chapter view the relevant previous studies made on the liquidity management and principles set on it.

The third chapter is the research methodology. This chapter includes the detail framework of the study, such as research design, population and sample, variable, data collection, sources of data and analysis tools of techniques etc.

The fourth chapter of this research is data presentation and analysis. In this chapter, the secondary data collected from different sources are presented in systematic format, such as, table, chart and figures. And these data have been analyzed using different financial and statistical tools. In addition to that, the major findings of the study were drawn out.

The last and the fifth chapter include summary, conclusion and recommendations.

At the end of this study bibliography and appendix are attached

# Chapter II

# Literature Survey and Conceptual Framework

This chapter provides conceptual framework of the study and deals with review of empirical studies with effect of liquidity on bank performance. It is an imperative task to review different foreign and Nepalese literatures on the topic to study, so that it will be easier to reach at an important conclusion. This chapter is divided into three chapters. First chapter consists of a depth review of related studies in the context of both developed and emerging country around the world, second chapter consist review of past studies and finally the third chapter presents concluding remarks on the conceptual and empirical review.

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## 2.1 Conceptual Review

The trend of commercial banking is changing rapidly. Competition is getting stiffer and, therefore, banks need to enhance their competitiveness and efficiency by improving performance. Normally, the financial performance of commercial banks and other financial institutions has been measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget or a mix of these methodologies (Avkiran 1995). Gopinathan (2009) has presented that the financial ratios analysis can spot better investment options for investors as the ratio analysis measures various aspects of the performance and analyzes fundamentals of a company or an institution. Furthermore, Ho and Zhu (2004) have reported that the evaluation of a company’s performance has been focusing the operational effectiveness and efficiency, which might influence the company’s survival directly. The empirical results of the researches (Tarawneh, 2006) explained that a company, which has better efficiency, it does not mean that always it will show the better effectiveness. Alam (2011) study concludes that ranking of banks differ as the financial ratio changes. Bakar and Tahir (2009) in their paper used multiple linear regression technique and simulated neural network techniques for predicting bank performance. ROA was used as dependent variable of bank performance and seven variables including liquidity, credit risk, cost to income ratio, size and concentration ratio, were used as independent variables.

They concluded that neural network method outperforms the multiple linear regression method however it need clarification on the factor used and they noted that multiple linear regressions, not withstanding its limitations, can be used as a simple tool to study the linear relationship between the dependent variable and independent variables. Neceur (2003) using a sample of ten Tunisian banks from 1980 to 2000 and a panel linear regression model, reported a strong positive impact of capitalization to ROA. There are number of studies, which examine the bank performance using CAMEL framework, which is the latest model of financial analysis. Elyor (2009) has used CAMEL model to examine factors affecting bank profitability with success. The CAMEL Framework is the most widely used model. The Central bank of Nepal (NRB) has also implemented CAMEL Framework for performance evaluation of the banks and other financial institutions.

This chapter provides review of major empirical studies associated with the effect of Liquidity on bank performance. Many authors have given their conclusions on the similar study supported with their findings. The result shown by one greatly supports or might vary with the other since it depends on the availability of data and scope of the study. The reviews of empirical works made on different periods along with major conclusions are presented in this chapter. In addition, reviews of related Nepalese studies have also been made.

This chapter provides the review of some empirical and theoretical literature on the effect of Liquidity on banking earnings of Nepalese commercial bank and presents the conceptual framework of the study. A literature review is a text written by someone to consider the critical point of current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. In this chapter, the brief review of existing studies has been presented.

## 2.2 Review of Previous Studies

Flannery (1981) examined the significant relationship between market interest and commercial bank profitability. The study used computed data of 135 banks from 1959 to 1978. The study employed market discount rate, bank’s profit margin, market condition, and bank cost and bank actual profit variables for it.

Tabari (2015) investigated the impact of Liquidity on performance of commercial banks in Iran. The data were collected from the year 2003 to 2010 from the website of the central bank of Islamic republic of Iran. The study considered bank size, Liquidity, gross domestic product, bank’s capital and inflation as a proxy variable of Liquidity. The result showed that bank’s size, bank’s capital, gross domestic product and inflation have positive relationship with the bank profitability. However, there is negative relationship between Liquidity and bank profitability in Iran.

Bohara (2017) analyzed the effect of bank capital on profitability and risk of Nepalese commercial banks. The study was based on secondary sources of data which were collected for the commercial banks of Nepal from 2009 to 2014. The study considered return on assets, return on equity and variance of return on assets as dependent variables. However, the study used capital adequacy ratio, liquidity ratio, foreign ownership, inflation, GDP are positively correlated to bank performance (ROA and ROE).

Shen (2009). investigated the causes of Liquidity, using an unbalanced panel data set of 12 advances economies commercial banks over period 1994-2006. The study has applied panel data instrumental variables regression, using two-stage least squares (2SLS) estimators to estimate bank Liquidity as an important determinant of bank performance. The causes of Liquidity include components of liquid assets and dependence on external funding, supervisory and regulatory factors and macroeconomic factors. Besides, this study found that Liquidity is negatively related with bank performance in market based financial system. The result reveals that the increase in Liquidity leads to decrease in the bank performance. However, it has no effect on bank performance in bank based financial system.

Francis (2013) investigated the key determinants of commercial banks’ profitability in Sub-Saharan Africa. The analysis used an unbalanced panel of 216 commercial banks drawn from 42 countries in Sub- Saharan Africa for the period 1999 to 2006. Using the cost efficiency model, bank profitability was estimated using panel random effects method in static framework. The study revealed that the importance of bank level factors such as assets, operational efficiency and macro economic factors such as growth in GDP and inflation in explaining banking profitability. However, operational efficiency and liquidity ratio were negatively and significantly related to bank profitability.

Lee(2013) investigated the determinants of bank’s profitability and its implications on risk management practices in United Kingdom. The study employed regression analysis on a time series data between 1999 to 2006 and six measures of determinants of bank’s profitability were employed. This study examined liquidity, credit and capital as internal determinants of bank’s performance. GDP growth rate, interest rate and inflation rate were used as external determinants of bank’s profitability. Return on assets (ROA) was used found that liquidity have negative impact on bank’s profitability.

Allen and Gale (2000) investigated how the level of competition affects diversification and earnings using a sample of 978 banks in 55 emerging and developing countries over an eight year period 2000–2007. We shed further light on the competition-earnings nexus by examining the complex interaction between three key variables: the degree of bank market power, diversification and earnings. The core finding is that competition increases earnings as diversification across and within both interest and non-interest income generating activities of banks increases. Our analysis identifies revenue diversification as a channel through which competition affects bank insolvency risk in emerging countries. The results are robust to an array of controls including alternative methodology, variable specifications and the regulatory environments that banks operate in. The study showed that the banking system is more concentrated when the loan portfolio is risky.

García-Marco and Robles-Fernández (2008), examined the determinants of European bank risk-taking during major financial crisis. Using a sample of banks from 26 countries over the period 2005–2015. The study examines the nature of the relationship between bank risk, bank characteristics, and regulatory, institutional and macroeconomic variables. The study used a dynamic panel data modelling structure to capture the potential discrepancies in risk-taking behaviour. The study sub divide the sample into two sub-samples (East Europe and West Europe countries). The study shows that macroeconomic and regulatory variables seem to have non-negligible impact on bank risk-taking attitudes. The study has documented the relationship between bank risk, internal and external factors differs across samples. The Z-score indicator reveals the degree of exposure to operating losses, which reduces capital reserves that could be used to offset adverse shocks. Besides, these authors argue that entities with low capital and a weak financial margin relative to the volatility of their returns will score high on this indicator.

Liquidity has a negative impact on the performance of commercial banks in Euthopia and there was an inverse relationship between liquidity and return on equity and the coefficient of liquid assets to total assets were positively and directly related with return on equity. The study also found that capital adequacy of all banks in Ethopia were above threshold, means there were sufficient capital that can cover the risk weighted assets. The study used different ratio when analyzing liquidity effect on bank performance and these liquid assets/net profit, liquid/total assets, net loans/net deposits, and interest income/net deposit and income interest.

Bourke (1989) analyzed the performance of banks in twelve countries or territories in Europe, North America and Australia. The data collected were analyzed using both descriptive and regression analysis statistics. This study used multiple regression model represented by ordinary least square (OLS) as a technique to examine the impact of liquidity ratio on the financial performance of selected banks. The study found positive relationship liquidity ratio and profitability.

Horváth (2009) studied the determinants of interest rate margins of Czech banks employing bank-level dataset at the quarterly frequency in 2000-2006. The study found that more efficient banks exhibit lower margins and there is no evidence that the banks with lower margins would compensate themselves with higher fees. The study found that net interest margin has negative significant impact on banking earnings. Larger banks also tended to charge lower margins, while higher capital adequacy was associated with lower margins contributing to banking earnings.

Lartey et al. (2013) investigated the relationship between the liquidity and profitability of banks listed on Ghana Stock Exchange. The financial reports of the seven listed banks were studied and relevant liquidity and profitability ratio were computed. Seven out of nine listed banks were involved in the study and the study period was from 2005 to 2010. The trend in liquidity and profitability were determined by use of time series analysis. The main liquidity ratio was regressed on the profitability ratio. It was found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana.

Chang (2013) determined net interest margin dynamics in 141 countries over the period 1987 – 2008, finding that there exists an inverse relationship between net interest margin and change in globalization for each country, implying that globalization improves the efficiency of banking system. Thus net interest margin can be linked to a variety of macroeconomic, and bank specific parameters – overall macroeconomic parameters, internal risk controls, management strategy, etc. This study argues for the hypothesis that net interest margin should be considered in addition to other asset profitability indicators for evaluating the effectiveness and earnings of a bank.

González (2005) investigated that there is a positive and significant relationship between size and bank risk-taking. It used a panel database of 251 banks in 36 countries to analyze the impact of bank regulation on bank charter value and risk-taking. The study used two-stage least squares analysis that includes the influence of regulatory restrictions

Acharya(2002). revealed that diversification of loans does not typically improve performance or reduce risk in Italian banks. The study used a unique data set of 105 Italian banks over the sample period from 1993 to 1999. The study examined the effect of focus (specialization) vs. diversification on the return and the risk of banks. The study revealed that industrial loan diversification reduces bank return while endogenously producing riskier loans for all banks in the sample. The study further found that sectoral loan diversification produces an inefficient risk-return tradeoff only for high risk banks, and geographical diversification results in an improvement in the risk–return tradeoff for banks with low levels of risk.

Kattel (2015) analysed the financial soundness of joint venture banks and private sector banks in Nepal by using banko meter model for the period covering 2007- 2012. The bankometer model was used developed according to International Monetary Fund guidelines. The study has found that all the private and joint venture banks are in sound financial position. The finding of the study reveals that private sector banks are financially sounder in comparison to joint venture banks. The study concludes that bankometer model will help the bank's internal management to mitigate the insolvency risk within proper control and supervision at the operational level.

Bhusal (2015) investigated a relationship between bank size, non-performing loan with banks performance. This study used multiple regression analysis on 110 observations of 11 commercial banks of Nepal from 2004 to 2013. This study revealed positive relationship between bank size with return on assets. Whereas non-performing loan has a negative and significant relationship with return on equity.

Pradhan (2014) investigated the major factors affecting the profitability in Nepal Oil Corporation. The study was descriptive and causal comparative research designs to deal with the fundamental issues associated with the impact of bank specific and macro-economic variables on profitability of Nepal Oil Corporation. The study period was from 2004 to 2014.The results showed that operating cost and interest rate have a negative impact on profitability whereas Gross domestic product; Inflation and size have a positive impact on profitability. This implies that the profitability of Nepal Oil Corporation depends on macroeconomic factors and microeconomic factors. Thus government policies on employment and investments should be intensified to increase the profitability of Oil Corporation.

Singh (2017) revealed that capital adequacy ratio, bank size and credit risk have positive impact on bank performance. Regarding the macroeconomics variables, economic growth and inflation positively related return on assets and return on equity. Estimated regression models are used to analyze the impact of bank specific and macro-economic variables on financial performance. The study is based on the 35 observations of 5 commercial banks for the period of 2011-2018.

## 2.3 Research Gap

In this study, the major area in disclose the impact of liquidity on profitability of Nepalese commercial banks. This study shows that the unique feature of finding. Previous research on the basis of financial performance liquidity analysis of commercial bank in Nepal. But, this reason is aboutinvestigating liquidity in the context of asset- liability mismatches & financial institutions also should realize that liquidity is a short-run phenomenon that has to be analyzed as such. From the above literature, it can be concluded that there are no any similar findings of the studies. A review of the available literature on liquidity management indicates that most of the studies have used either time series or cross chapter data. These studies have attempted to identify the effect of Liquidity on performance of commercial banks using panel data. However, such studies have applied the conventional regression analysis and examined whether the data fits into fixed effect or random effect model.

The concept of liquidity is very important for every economy. In this regard, study should be carried out to identify which factors affect the liquidity performance. Nepalese financial structure is unique in nature, where BFIs are the major source of fund mobilization. Therefore, this study is very necessary in order to find the major factors that affect liquidity

## 2.4 Conceptual Framework

This chapter provides the conceptual framework of study and describes about variables that have been used in study and the relationship between the variables. In this study, dependent variable is banking earnings (and risk) of the commercial banks of Nepal which is measured by using ROA and ROE. The independent variables are Liquidity Ratio, Cash Reserve Ratio, Loan To Deposit Ratio and Capital Adequency Ratio. Thus, the following conceptual model is framed to summarize the main focus and scope of this study in terms of variables included. The conceptual frameworks that describe the dependent and independent variables used in the study are shown in the Figure.

Independent variables Dependent variables

* **Return on Equity**
* **Return on Assets**
* **Liquidity Ratio**
* **Cash Reserve Ratio**
* **Loan to Deposit Ratio**
* **Capital Adequacy Ratio**

# Chapter III

# RESERCH METHODOLOGY

It is the explain that going to employed in this study which includes various chapters 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. In the absence of methodology, it is likely that the conclusions drawn may be misunderstood. The context of the study is presented, which provides the background against which the findings of the study will assessed form which reliability and dependable conclusions were made. Thus, it provides a description of research plan and design, nature and sources of data, selection of enterprises, method of analysis and empirical models for the study.

## 3.1 Research Design

The research design undertaken in this study consists of descriptive research design to deal with the fundamental issues associated with the effect. The descriptive research design will be adopted for fact of finding and searching adequate information about the effect of Liquidity on banking earnings of Nepalese commercial banks. Descriptive research is a process of accumulating facts. It describes phenomenon as they exists. Such design involves the systematic collection and presentation of data to give clear picture of a particular situation. Descriptive research design helps to reduce data into manageable form.Descriptive research design use to establish the cause and effect of Liquidity and banking earnings. It also attempts to determine the cause or consequences of differences that already exist between the variables and the relationship between independent variables, dependent variables and control variables. This design has been adopted to ascertain and understand the directions, magnitudes and forms of observed relationship between Liquiditys on banking earnings of Nepalese commercial banks.

# 3.2 Description of Samples

For the study purpose, banks involving services at least for seven years have been considered for sample. Since, all of them are not provided scope for the study, 5 commercial banks out of 27 as a sample in randomly basis for the period 2011/12 to 2017/18 considering latest data of 7 years, making total of 35 observations.

**Table 1: List of sample banks which are randomly selected for the study along with the study period and number of observations**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Name of the banks** | **Study period** | **Observations** |
| 1 | Machapuchhre Bank Limited | 2011/12- 2017/18 | 7 |
| 2 | NIC Asia Bank Limited | 2011/12-2017/18 | 7 |
| 3 | Citizens Bank International Limited | 2011/12-2017/18 | 7 |
| 4 | Siddhartha Bank Limited | 2011/12-2017/18 | 7 |
| 5 | Global IME Bank Limited | 2011/12-2017/18 | 7 |
| **Total number of observations** | | | **35** |

# 3.3 Nature and Sources of Data

The chapter elaborates on how data will be collected to carry out this study. The study based on the secondary data which will be gathered form 5 commercial banks in Nepal for the period of 7 years. The necessary secondary data and information will be collected from the Annual Reports of selected commercial banks, Banking and Financial Statistics and Bank Supervision Report published by Nepal Rastra Bank. The variables used in the study are cash reserve ratio, capital adequacy ratio, loan to deposit ratio and current ratio.

# 3.4 Method of Analysis

The following regression model is used in this study in an attempt to examine the empirical relationship of effect of liquidity on banking profitability 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. banking profitability) takes the following form:

More specifically,

**Model 1**

**ln Z-score ROA =β0+lnβ1LR + lnβ2CRR +lnβ3LDR+ lnβ4CAR+ *eit***

**Model 2**

**ln Z-score ROE = β0+lnβ1LR + lnβ2CRR +lnβ3LDR+ lnβ4CAR+ *eit***

Where,

Z = Z- score to measure the banking profitability. It is calculated as:

ZROA= Z score on return on assets

ZROE = Z score on return on equity

The following chapter describes the independent variables used in this study.

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Independent Variables** | **Description** | **Measurement** |
| 1 | Liquidity | Liquidity ratio | Ratio of liquid asset to total liability |
| 2 | Cash | Cash reserve ratio | Ratio of total cash reserve to total deposit |
| 3 | Loan | Loan to deposit ratio | Ratio of total loan to total deposit. |
| 4 | Capital | Capital adequacy ratio | Total capital / Risk weighted assets(Loan) |

# 3.5 Limitations of the Study

a) Historical data of only 7 years (i.e. 2011/12 to 2017/18) have been collected and analyzed.

b) The study will be considering only the secondary data.

c) Only limited statistical and financial tools, including simple average, profitability ratio (i.e., ROA

And ROE) and other four liquidity ratios as well as simple regression models were used for data analysis.

# Chapter IV

This chapter presents the systematic and orderly results of the study in the form of presentation, interpretation and analysis of the secondary data. The basic steps in the analytical process consist of identifying issues, determining the availability of suitable data, deciding the method appropriate for answering the questions of interest, applying the methods and evaluating, summarizing and communicating the result. Chapter four provides systematic presentation, interpretation and analysis of secondary data in order to deal with various issues associated with the effect of liquidity factors on banking profitability of the selected Nepalese commercial banks.

The purpose of this chapter is to analyze and interpret the data collected during the study. Various statistical tools described in chapter three have been used for this purpose. This chapter is divided into four sections. The first section deals with structure and pattern analysis of data, , second section deals with the correlation analysis, third section deals with step wise regression analysis and the final section wraps up this chapter with concluding remarks about the result derived for the secondary data.

**4.1 Structure and pattern analysis**

This chapter deals with the structure and pattern of loan to deposit ratio (LDR), cash reserve ratio(CRR), capital adequacy ratio(CAR), current ratio(CR) and the bank profitability ( ROA and ROE) of selected Nepalese commercial banks. It includes average values and standard deviations.

**4.1.1 Structure and pattern of banking profitability.**

The banking profitability, in this study is the dependent variable which is measuredby ROA and ROE.

The structure and pattern of of return on assets for the period of 2011/12 to 2017/18 has been presented in Table 4.1.

**Table 4.1: Structure and pattern of Z Score return on assets**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Mean** | **SD** |
| **CZBIL** | **1.1** | **1.51** | **1.7** | **1.72** | **2.23** | **1.28** | **1.94** | **1.6400** | **0.384318** |
| **GIBL** | **1.13** | **1.38** | **1.63** | **1.42** | **1.55** | **1.7** | **1.67** | **1.497143** | **0.202461** |
| **MBL** | **0.15** | **0.48** | **1.09** | **1.25** | **1.49** | **1.87** | **1.42** | **1.107143** | **0.59952** |
| **NICA** | **1.64** | **1.33** | **1.58** | **1.24** | **1.52** | **1.6** | **0.87** | **1.397143** | **0.275603** |
| **SBL** | **1.12** | **1.46** | **1.93** | **1.51** | **1.69** | **1.56** | **1.56** | **1.547143** | **0.244521** |
| **Mean** | **1.028** | **1.232** | **1.586** | **1.428** | **1.696** | **1.602** | **1.492** |  |  |
| **SD** | **0.540712** | **0.42611** | **0.307945** | **0.199424** | **0.308188** | **0.216148** | **0.396573** |  |  |

The average return on assets across the years has fluctuated widely over the period of time. The structure and pattern of average ROA of selected Nepalese commercial banks revealed that average mean is highest for CZBIL (1.64) followed by SBL(1.547143),GBIL(1.497143), NICA(1.397143), MBL(1.107143)

Going through the individual bank the ROA varies widely within individual banks also. The ROA has increased from 1.1 in 2011/12 to 1.94 in 2017/18 for CZBIL, from 1.13 in 2011/12 to 1.67 in 2017/18 for GIBL, from 0.15in 2011/12 to 1.42 in 2017/18 for MBL, from 1.12 in 2011/12 to 1.56 in 2017/18 for SBL, However, The ROA has decreased , from 1.64 in 2011/12 to 0.87 in 2017/18 for NICA.

The variation in ROA as indicated by standard deviation is highest for MBL followed by CZBL, NICA, SBL and GIBL.When the ROA is compared over a period of time for individual banks, it may be seen that ROA has increase in majority of the selected commercial banks in recent years.The average return on assets is highest for CZBL in every study period from 2011/12 to 2017/18. However, it is lowest for MBL.

**Table 4.2: Structure and pattern of Z Score return on Equity (In percentage)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Mean** | **SD** |
| **CZBIL** | **9.85** | **14.97** | **19.08** | **19.2** | **20.48** | **17.17** | **13.92** | **19.11167** | **4.752832** |
| **GIBL** | **13.57** | **16.5** | **15.93** | **13.68** | **15.96** | **16.88** | **16** | **18.08667** | **3.090864** |
| **MBL** | **1.54** | **5.97** | **18.18** | **18.74** | **20.25** | **14.27** | **11.82** | **15.12833** | **7.402567** |
| **NICA** | **19** | **15.66** | **12.77** | **13.27** | **28.4** | **17** | **18.27** | **20.72833** | **6.143225** |
| **SBL** | **14.25** | **18.34** | **24.03** | **20.19** | **20.11** | **14.3** | **14.56** | **20.96333** | **4.967965** |
| **Mean** | **11.642** | **14.288** | **17.998** | **17.016** | **21.04** | **15.924** | **14.914** |  |  |
| **SD** | **6.517681** | **4.817891** | **4.159251** | **3.27787** | **4.521576** | **1.499777** | **2.404596** |  |  |

The average return on equity across the years has fluctuated widely over the period of time. The structure and pattern of average ROE of selected Nepalese commercial banks revealed that average mean is highest for SBL (20.96333) followed by NICA(20.72833), CZBIL(19.11167), GIBL18.08667) andMBL(15.12833)

Going through the individual bank the ROE varies widely within individual banks also. The ROE has increased from 9.85 in 2011/12 to 13.92 in 2017/18 for CZBIL, from 13.57 in 2011/12 to 16 in 2017/18 for GIBL, from 1.54in 2011/12 to 11.82 in 2017/18 for MBL, from 14.25 in 2011/12 to 14.56 in 2017/18 for SBL, However, The ROE has decreased , from 19 in 2011/12 to 18.27 in 2017/18 for NICA.

The variation in ROE as indicated by standard deviation is highest for MBL followed by NICA, SBL, CZBIL and GIBL.

When the ROEis compared over a period of time for individual banks, it may be seen that ROE has increase in majority of the selected commercial banks in recent years.

Theaverage return on equity is highest for SBL in every study period from 2011/12 to 2017/18. However, it is lowest for MBL

**Table 4.3: Structure and pattern of Loan to Deposit Ratio**

***In percentage***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2017/18** | **2017/18** | **Mean** | **SD** |
| **CZBIL** | **74.4** | **72.05** | **74.98** | **74.74** | **77.63** | **77.34** | **77.87** | **75.57286** | **2.139421** |
| **GIBL** | **71.37** | **74.14** | **73.35** | **75.91** | **76.81** | **72.44** | **75** | **74.14571** | **1.923026** |
| **MBL** | **66.63** | **72.37** | **73.29** | **78.77** | **76.26** | **76.58** | **76.13** | **74.29** | **3.998812** |
| **NICA** | **73.77** | **72.35** | **74.92** | **73.1** | **78.52** | **76.34** | **74.12** | **74.73143** | **2.105837** |
| **SBL** | **75.4** | **76.53** | **73.34** | **76.71** | **77.55** | **76.71** | **74.23** | **75.78143** | **1.523466** |
| **Mean** | **72.314** | **73.488** | **73.976** | **75.846** | **77.354** | **75.882** | **75.47** |  |  |
| **SD** | **3.506912** | **1.890217** | **0.88968** | **2.125095** | **0.861237** | **1.959316** | **1.563378** |  |  |

The structure and pattern of loan to deposit ratio of selected Nepalese commercial banks shows that SBL has highest average loan to deposit ratio is 775.78 followed by CZBIL (75057286), NICA(74.73143), MBL (74.29) and GIBL (74.14571) of the period of time. The average LDR is 72.314 in 2011/12 and it is 75.47 in 2017/18. The highest average LDR is 77.354 in 2015/16.

The loan to deposit ratio varies widely within the individual banks also. It has increased from 74.4 in 2011/12 to 77.87 percent in 2017/18 for CZBI,from 71.37 in 2011/12 to 75.00 in 2017/18 for GIBL, from 66.63 in 2011/12 to 76.13 in 2017/18 for MBL, from 73.77 in 2011/12 to 74.12 in 2017/18 for NICA but decrease from 75.40 in 2011/12 to 74.23 in 2017/18 for MBL. However there is fluctuation in LDR of each bank in every fiscal year.

The average loan to deposit ratio is biggest for SBL through the study period i.e. 2011/12 to 2017/18 and it is smallest for GBIL in same period.

The variation in loan to deposit ratio as indicated by standard deviation is highest for MBL and followed by CZBL, NICA, GIBL and SBL.

**Table 4.4: Structure and pattern of Capital Adequacy Ratio.**

*(In percentage)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2017/18** | **2017/18** | **Mean** | **SD** |
| **CZBIL** | **15.58** | **13.33** | **13.64** | **13.45** | **12.4** | **16.99** | **15.64** | **14.43286** | **1.645982** |
| **GIBL** | **12.68** | **12.06** | **13.13** | **12.98** | **12.35** | **12.72** | **11.93** | **12.55** | **0.453064** |
| **MBL** | **15.04** | **12.66** | **10.38** | **12.24** | **12.23** | **17.48** | **15.6** | **13.66143** | **2.452213** |
| **NICA** | **11.01** | **14.18** | **14.89** | **13.16** | **12.66** | **13.95** | **12.54** | **13.19857** | **1.284775** |
| **SBL** | **11.05** | **12.28** | **12.27** | **11.19** | **11.32** | **13.21** | **12.47** | **11.97** | **0.801145** |
| **Mean** | **13.072** | **12.902** | **12.862** | **12.604** | **12.192** | **14.87** | **13.636** |  |  |
| **SD** | **2.159692** | **0.861812** | **1.680824** | **0.908036** | **0.512123** | **2.209695** | **1.826508** |  |  |

The structure and pattern capital adequacy ratio of selected Nepalese commercial banks showed that average is highest CAR for CZBIL (14.43286) followed by MBL (13.66143), NICA (13.19857),GIBL (12.55) and SBL (11.97).

The average capital adequacy ratio across the years have fluctuated widely over the period of time. The capital adequacy ratio varies widely within the individual banks also. It has changed from 15.58 in 2011/12 to 15.64 in 2017/18 for CZBL, from 12.68 in 2011/12 to 11.93 in 2017/18 for GIBL, from 15.04 in 2011/12 to 15.60 in 2017/18 for MBL, from 11.01 in 2011/12 to 12.54 in 2017/18 for NICA and from 11.05 in 2011/12 to 12.47 in 2017/18 for SBL.

The average capital adequacy ratio has been decrease from 13.1072 in 2011/12to 13.636 in 2017/18 for overall study period due to increase in risk weight assets.

The variation in capital adequacy ratio as indicated by standard deviation is highest for MBL followed by CZBL, NICA, SBL and GBIL.

**Table 4.5: Structure and pattern of Cash Reserve Ratio(CRR) of selected Nepalese commercial banks for the period of 2011/12 to 2017/18.**

*(Rupees in percentage)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2017/18** | **2017/18** | **Mean** | **SD** |
| **CZBIL** | **29.11** | **31** | **29.59** | **28.43** | **24.63** | **24.16** | **20.64** | **26.79429** | **3.720237** |
| **GIBL** | **32.44** | **32.66** | **31.46** | **30.59** | **26.84** | **34.52** | **26.31** | **30.68857** | **3.061102** |
| **MBL** | **15.34** | **10.93** | **9.24** | **11.02** | **26.84** | **26.29** | **25.26** | **17.84571** | **7.9784** |
| **NICA** | **30.31** | **28.68** | **29.32** | **28.21** | **23.79** | **25.79** | **23.84** | **27.13429** | **2.653695** |
| **SBL** | **27.01** | **28.31** | **30.14** | **24.94** | **23.06** | **25.6** | **27.39** | **26.63571** | **2.32831** |
| **Mean** | **26.842** | **26.316** | **25.95** | **24.638** | **25.032** | **27.272** | **24.688** |  |  |
| **SD** | **6.723702** | **8.781795** | **9.377457** | **7.875689** | **1.741456** | **4.128386** | **2.615544** |  |  |

Table 4.5 shows that average cash reserve ratio is highest for GIBL (30.68857) followed by CZBIL (26.79429),SBL (26.63571), NICA (27.13429) and ,MBL (17.8451).

The average CRR across the years have fluctuated widely over the period of time. The average CRR is 26.842 in 2011/12 and it is 24.688 in 2017/18.

The CRR varies widely within the individual banks also. It has changed from 29.11 in 2011/12 to 20.64 in 2017/18 for CZBIL, from 32.44 in 2011/12 to 26.31 in 2017/18 for GIBL, from 15.34in 2011/12 to 25.26 in 2017/18 for MBL, from 30.31 in 2011/12 to 23.84 in 2017/18 for NICA, from 27.01 in 2011/12 to 27.39 for SBL. There is highly deviation in MBL and lower deviation in SBL which show by standard deviation. Standard deviation of MBL (7.9782) and followed by CZBIL(3.720237), GIBL(3.061102), NICA(2.653695) and SBL(2.32831).

Figure 4.5: shows the pattern of Average loan to total assets trend of Nepalese commercial banks.

**Table 4.6: Structure and pattern of Liquidity ratio of selected Nepalese commercial banks for the period of 2011/12 to 2017/18**.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Banks** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2017/18** | **2017/18** | **Mean** | **STD** |
| **CZBIL** | **1.1** | **1.1** | **1.08** | **1.07** | **1.08** | **1.11** | **1.14** | **1.28000** | **0.198914** |
| **GIBL** | **1.07** | **1.05** | **1.08** | **1.09** | **1.08** | **1.09** | **1.08** | **1.256667** | **0.194398** |
| **MBL** | **1.02** | **1.03** | **1.04** | **1.05** | **1.06** | **1.12** | **1.10** | **1.239267** | **0.19462** |
| **NICA** | **0.98** | **1.06** | **1.09** | **1.08** | **1.09** | **1.09** | **1.02** | **1.234933** | **0.195775** |
| **SBL** | **1.07** | **1.07** | **1.08** | **1.08** | **1.08** | **1.11** | **1.10** | **1.265123** | **0.195777** |
| **Mean** | **1.048426** | **1.062** | **1.07457** | **1.075435** | **1.07902** | **1.104884** | **1.086852** |  |  |
| **STD** | **0.048122** | **0.024729** | **0.019009** | **0.014739** | **0.009354** | **0.012511** | **0.045482** |  |  |

Table 4.6 shows that average liquidity ratio is highest for CZBIL (1.28000) followed by SBL(1.265123), GIBL (1.256667), MBL(1.239276) and NICA (1.234933). There is not huge varies of any bank in current ratio over the study which shows by standard deviation. The higher deviation has CZBIL(0.198914) and lowest deviation has GIBL over the study period of selected Nepalese commercial bank.

The average liquidity ratio across the years has nearly over the period of time. The LR seems in same range within the individual banks also. It has increased from 1.1 in 2011/12 to 1.14 in 2017/18 for CZBIL, from 1.07 in 2011/12 to 1.08 in 2017/18 for GIBL, from 1.02 in 2011/12 to 1.10 in 2017/18 forMBL, from 0.98 in 2011/12 to 1.02 in 2017/18 for NICA, from 1.07 in 2011/12 to 1.10 in 2017/18 for SBL.

## 4.7 Descriptive statistics

The descriptive statistics used in this study consist of mean, standard deviation, minimum, and maximum values associated with variables under consideration. Table 4.7 summarizes the descriptive statistics of variables used in this study during the period 2011/12 to 2017/18 for 5 commercial banks of Nepal.

**Descriptive statistics**

***(****This table shows the descriptive statistics of dependent and independent variables of commercial banks for the study period of 2011/12 to 2017/18. Dependent variables are Z-score ROA and Z-score ROE.* They can be defined as Z- score to measure the banking profitability and independent variables are LDR (loan to deposit ratio),CAR(capital adequacy ratio), CRR(cash reserve ratio) LR(Liquidity ratio).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Statistics** | | | | | | | |
| Particulars | | ROA | ROE | LTDR | CAR | CRR | LR |
| N | Valid | 35 | 35 | 35 | 35 | 35 | 35 |
| Missing | 0 | 0 | 0 | 0 | 0 | 0 |
| Mean | | 1.43 | 16.11 | 74.90 | 13.16 | 25.81 | 1.07 |
| Std. Deviation | | 0.39 | 4.71 | 2.43 | 1.65 | 6.01 | 0.03 |
| Minimum | | 0.15 | 1.54 | 66.63 | 10.38 | 9.24 | 0.98 |
| Maximum | | 2.23 | 28.4 | 78.77 | 17.48 | 34.52 | 1.14 |
| Sum | | 50.32 | 564.11 | 2621.65 | 460.69 | 903.69 | 37.64 |

The ROA has a mean value of 1.43% with standard deviation of 0.39%. Credit Deposit Ratio (LTDR) variable has the mean value of 74.90%. Standard deviation of LTDR is 2.43. Cash Reserve Ratio (CRR) has a mean of 25.81%. Capital Adequency Ratio (CAR) variable has the mean value of 13.16%. Standard deviation of LTDR is 1.65. Cash Reserve Ratio (CRR) has a mean of 25.81%.Standard Deviation of CRR is 6.01%. Liquidity Ratio variable has the mean value is 1.07%. It has standard deviation of 0.03% which also shows there was low variability than all other variables used in the study.

**Correlation results**

Table No.4.8 presents two tail bivariate Pearson correlation coefficient and level of significance between the variables under study. The correlation between ROA and ROE is + 0.628; this is significant at the 0.01 level. This value indicates that 39.44 % variance in ROA can be explained by ROE. The correlation between ROA and LTDR is +.574 and it is significance at a level of 0.01. The coefficient of determined indicates that the 32.95 % variation on ROA can be explained by LTDR. The correlation between ROA and CRR is +0.473; this is significant at the 0.01 level indicating 22.37 % variation on ROA can be explained by CRR. Similarly, there is positive correlation between ROA and LR (+0.516) and significant at the 0.01 level. This indicates 26.63 % variation on ROA can be explained by LR. However, there is weak negative correlation between ROA and CAR (-0.009) and this is not significant. The CAR cannot contribute to predict the ROA.

**Table 4.8**

*Correlation Matrix*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | ROA | ROE | LTDR | CAR | CRR | LR |
| ROE | Pearson Correlation | .628\*\* | 1 |  |  |  |  |
| Sig. (2-tailed) | .000 |  |  |  |  |  |
| LTDR | Pearson Correlation | .574\*\* | .568\*\* | 1 |  |  |  |
| Sig. (2-tailed) | .000 | .000 |  |  |  |  |
| CAR | Pearson Correlation | -.009 | -.408\* | .008 | 1 |  |  |
| Sig. (2-tailed) | .959 | .015 | .965 |  |  |  |
| CRR | Pearson Correlation | .473\*\* | .205 | -.062 | .065 | 1 |  |
| Sig. (2-tailed) | .004 | .237 | .725 | .710 |  |  |
| LR | Pearson Correlation | .516\*\* | .060 | .447\*\* | .520\*\* | .273 | 1 |
| Sig. (2-tailed) | .002 | .733 | .007 | .001 | .113 |  |
| N | 35 | 35 | 35 | 35 | 35 | 35 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |
| \*. Correlation is significant at the 0.05 level (2-tailed). | | | | | | | |

**Regression Analysis**

A standard multiple regression was conducted between ROA as the dependent variable and LTDR, CRR and LR as explanatory variables. The R value of model summary table +0.778 represents the combined correlation of all the independent variables which indicates strong positive correlation. The adjusted R2 of 0.567 implies that 56.7 % variation on ROA is explained by the independent variables and 42.4 % remained unexplained by the model. The Durbin-Watson statistics of 2.22 indicates that there is no problem of autocorrelation or serial correlation in the model. In another words, the residual is independent and there is no lagged value effect on the model.

**Table 4.9**

*Model Summary*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model Summaryb** | | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .778a | .605 | .567 | .25910 | 2.220 |
| a. Predictors: (Constant), LR , CRR , LTDR | | | | | |
| b. Dependent Variable: ROA | | | | | |

The ANOVA subtable shows the F-test value of 15.856 which is highly significant with p<0.01. This indicates that multiple linear regression model explain significant amount of variance on ROA.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVAa** | | | | | | |
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 3.193 | 3 | 1.064 | 15.856 | .000b |
| Residual | 2.081 | 31 | .067 |  |  |
| Total | 5.275 | 34 |  |  |  |
| a. Dependent Variable: ROA | | | | | | |
| b. Predictors: (Constant), LR , CRR , LTDR | | | | | | |

**Table 4.10**

*ANOVA Table*

In the coefficients subtable the standardized coefficients beta indicates that LTDR has greater contribution in the model with Beta of 0.537 and it is significant, followed by CRR with Beta of 0.466 and it is also significant, but LR has the lowest contribution in the model with Beta of 0.149 and this is not significant. The unstandardized coefficient B reveals intercept value of the model is -7.884. The coefficient of LTDR is positive 0.087 indicating one unit increase in LTDR resulted to 0.087 unit increase in ROA. Similarly, coefficient value of CRR is 0.031, and the coefficient value of LR is 1.889.

The test of multiple collinearity indicates that there is no problem of multiple collinearity in this model since all the Variance Inflation Factor (VIF) value of independent variables are less than 10.

**Table 4.11**

*Coefficient Table*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| B | Std. Error | Beta | Tolerance | VIF |
| 1 | (Constant) | -7.884 | 1.720 |  | -4.583 | .000 |  |  |
| LTDR | .087 | .021 | .537 | 4.157 | .000 | .764 | 1.309 |
| CRR | .031 | .008 | .466 | 3.883 | .001 | .884 | 1.132 |
| LR | 1.889 | 1.702 | .149 | 1.110 | .276 | .710 | 1.409 |
| a. Dependent Variable: ROA | | | | | | | | |

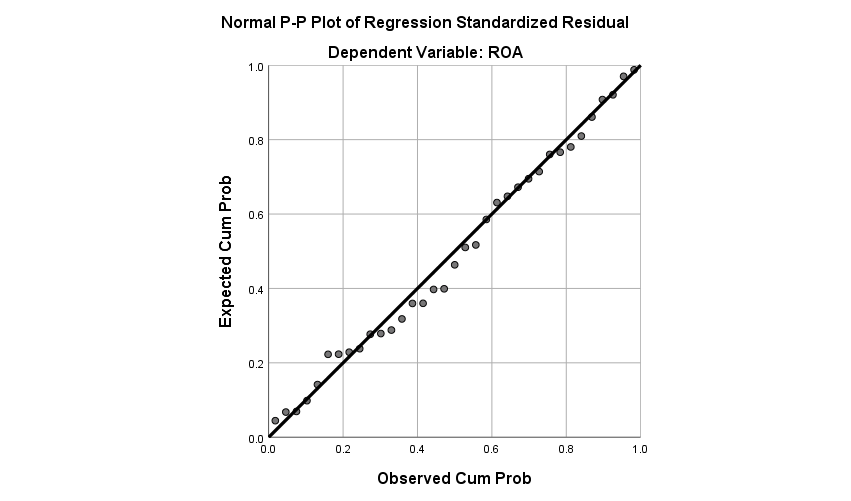
The residuals statistics table reveals that the maximum cook’s distance value is 0.637 which is less than one and mean value is 0.049. It indicates that there is no such influencing data point or outlier that adversely affect the estimation of the model. It means that the residuals are normally distributed.

**Table 4.12**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Residuals Statisticsa** | | | | | |
|  | Minimum | Maximum | Mean | Std. Deviation | N |
| Predicted Value | .2949 | 1.7172 | 1.4377 | .30647 | 35 |
| Std. Predicted Value | -3.729 | .912 | .000 | 1.000 | 35 |
| Standard Error of Predicted Value | .044 | .180 | .081 | .034 | 35 |
| Adjusted Predicted Value | .4314 | 1.7381 | 1.4318 | .30404 | 35 |
| Residual | -.44073 | .58331 | .00000 | .24741 | 35 |
| Std. Residual | -1.701 | 2.251 | .000 | .955 | 35 |
| Stud. Residual | -1.754 | 2.334 | .010 | 1.027 | 35 |
| Deleted Residual | -.46887 | .62723 | .00590 | .29069 | 35 |
| Stud. Deleted Residual | -1.819 | 2.530 | .018 | 1.058 | 35 |
| Mahal. Distance | .024 | 15.520 | 2.914 | 3.771 | 35 |
| Cook's Distance | .000 | .637 | .049 | .115 | 35 |
| Centered Leverage Value | .001 | .456 | .086 | .111 | 35 |
| a. Dependent Variable: ROA | | | | | |

*Residuals Statistics Table*

Normal P-P Plot of regression standardized residual check the normality of the residuals of the model. The P-P plot reveals that the points ae following the diagonal line with no significant deviation. This also indicates the the residuals are normally distributed.



*Figure 4.1* Normal P-P Plot of Regression Standardized Residual

Finally, it can be conclude that the multiple linear regression model is the best fitted model since it has satisfied all the assumptions of regression model and can be used to predict ROA. The model is

ROAit =β0+ β1LTDRit + β2CRRit+ β4LRit + Ɛi

ROAit = -7.884 + .087LTDRit + .031CRRit + 1.889LRit + Ɛi

# CHAPTER V

# SUMMARY AND CONCLUSION

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

## 5.1 Summary

The capital adequacy ratio (CAR) is a measurement of a bank's available capital expressed as a percentage of a bank's risk-weighted credit exposures. The capital adequacy ratio, also known as capital-to-risk weighted assets ratio (CRAR), is used to protect depositors and promote the stability and efficiency of financial systems around the world. Two types of capital are measured: tier-1 capital, which can absorb losses without a bank being required to cease trading, and tier-2 capital, which can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors.

Liquidity ratio is a measurement of a company’s capacity to pay for its liabilities with its assets. Liquidity is caused by various determinants such as elements of liquid assets or dependence on external funding as well as factors of a supervisory, regulator or macroeconomic character. Vodova (2010) found that liquidity is inevitable factor that determines the performance of banks. Salman (2004) concluded that the maturity mismatch is not the only source of liquidity. Bhunia and khan (2011) realized that the liquidity ratio is positively related to ROA and statistically significant.

Laeven et al. ([2014](https://www.tandfonline.com/doi/full/10.1080/23322039.2015.1111489)) explores the relationship between bank size and banking stability. It analyses the relationship between bank size and bank stability with data from 52 countries and finds that larger banks, on average, create more risks than smaller banksKargi (2011)The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks' profitability is inversely influenced by the levels of loans and advances, nonperforming loans and deposits thereby exposing them to great risk of illiquidity and financial instability.

The Cash Reserve Ratio acts as one of the reference rates when determining the base rate. Base rate means the minimum lending rate below which a bank is not allowed to lend funds. The base rate is determined by the Reserve Bank of India (RBI). The rate is fixed and ensures transparency with respect to borrowing and lending in the credit market. The Base Rate also helps the banks to cut down on their cost of lending to be able to extend affordable

Loan-deposit ratio (LTD ratio or LDR) is a ratio between the banks total [loans](https://en.wikipedia.org/wiki/Loans) and total [deposits](https://en.wikipedia.org/wiki/Deposit_account). The ratio is generally expressed in percentage terms If the ratio is lower than one, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. If on the other hand the ratio is greater than one, the bank borrowed money which it reloaned at higher rates, rather than relying entirely on its own deposits. Banks may not be earning an optimal return if the ratio is too low. If the ratio is too high, the banks might not have enough [liquidity](https://en.wikipedia.org/wiki/Liquidity) to cover any unforeseen funding requirements or economic crises. Banking analysts commonly used metric for assessing a bank's liquidity. The LDR is not the only metric used to ascertain a bank's liquidity. Modern banks today have multiple sources of finance beyond equities and deposits. The diversity of financing sources reduces the importance of LDR in determining a bank's health. [Basel III](https://en.wikipedia.org/wiki/Basel_III) which is part of the [Basel Accords](https://en.wikipedia.org/wiki/Basel_Accords) provides various complementary statistics to measure banking liquidity more comprehensively.

The major objective of this study is to examine the impact of liquidity on profitability of Nepalese commercial banks. The specific objectives of this study are as follows: To measure the profitability position of commercial banks in Nepal. , To assess the liquidity position of commercial banks in Nepal. To analyze the impact of liquidity on profitability of commercial banks in Nepal. To identify the most influencing factor affecting the banking stability of the Nepalese commercial banks.

The study is based on the secondary data which were gathered for a sample of 5 commercial banks of Nepal within the time period from 2011/12 to 2017/18, leading to the total of 35 observations. The secondary data have been obtained from Banking and Financial Statistics, Nepal Rastra Bank Bulletin published by the central bank of Nepal, annual audited financial statements and websites of respective commercial banks. The pooled cross-sectional data analysis has been undertaken in the study. The research design adopted in this study is causal comparative type as it deals with effect of loan to deposit ratio , capital adequacy ratio, cash reserve ratio and liquidity ratio with banking profitability as z-score return on assets and z-score return on equity. The statistical methods used in the analysis are descriptive statistics, correlation analysis and regression analysis. Based on the analysis of data, the major findings of the study are summarized as follows:

1. The average z-score return on assets is highest for CTZ (1.64) and lowest for MBL (1.10). Commercial banks in Nepal have slightly fluctuating pattern of z-score return on assets in recent year. It indicates that these days Nepalese commercial banks are being unstable comparison to previous years.
2. The average z-score return on equity highest for SBL (20.96) and lowest for MBL (15.12). It has been found that z-score return on equity has increased in the majority of the commercial banks in recent years .
3. The average loan to deposit ratio is highest for SBL with a mean of Rs. 75.78 percent and lowest for GBIL with a mean of 74.14. The loan to deposit ratio varies widely within the individual banks also. However there is fluctuation in LTDR of each bank in every fiscal year
4. The average capital adquency ratio is highest for CZBL with a mean of 14.43 percent and lowest for SBL with a mean of 11.97 percent. The average capital adequacy ratio across the years have fluctuated widely over the period of time.
5. The average cash reserve ratio is highest for CZBL with a mean of 1.28 percent and lowest for NICA with a mean of 1.23 percent.
6. The average liquidity ratio is highest for GIBL with a mean of 30.68 percent and lowest for MBL with a mean of 17.84 percent. The average liquidity ratio across the years has nearly over the period of time. The LR seems in same range within the individual banks also
7. The descriptive analysis shows that the average z-score return on assets and z-score return on equity in Nepalese commercial banks are 1.43. and 16.11respectively.
8. The descriptive analysis shows that the average Loan to deposit ratio, Capital Adquency ratio , Cash Reserve Ratio and Liquidity Ratio in Nepalese commercial banks are 74.90, 13.16,25.81 percent and 1.07 percent respectively.
9. The correlation analysis reveals that Loan to deposit ratio ,Cash Reserve Ratio and Liquidity Ratio is positively related to z-score return on equity.
10. From the correlation matrix analysis, it is found that The result also shows that there is positive relationship of Loan to deposit ratio ,Cash Reserve Ratio and Liquidity Ratio with z-score return on assets
11. The correlation Matrix shows that there is is negative relationship of Capital Adequacy Ratio with z-score return on assets.

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1. The regression result shows that the beta coefficient of Loan To Deposit Ratio has a positive and significant impact on the level of banking stability . Similarly, the result shows that Capital Adequency Ratio and Liquidity Ratio have positive impact on Z score return on assets.

## 5.2 Conclusion

The major conclusion of this study is that the Loan to deposit Ratio, Capital Adequency Ratio ,Cash Reserve Ratio and Liquidity Ratio are statistically significant factors that determine the stability of Nepalese commercial banks in Nepal. Liquidity management and profitability in commercial banks are two sensitive issues in the operations of commercial banks and of which information on them are seriously hoarded. The major concern of this study was to reconcile the conflicting requirements of bank liquidity and bank profitability arising from the conflicting desires of the two major providers of the bank resources namely the shareholders and the depositors. The shareholders desire maximum profitability as a return on their capital, while the depositors opt for a maximum liquidity as a guarantee for safety and ability to pay their money on demand. From the study, we can rightly conclude that both illiquidity and excess liquidity are "financial diseases" that can easily erode the profit base of a bank as they affect bank's attempt to attain high profitability-level. The pursuit of high profit without consideration to the liquidity level can cause great illiquidity, which reduces the customers' patronage and loyalty. Therefore, any bank that has the aim of maximizing its profit level must adopt effective liquidity management. Effective liquidity management also requires adequate liquidity level which will help commercial banks to estimate the proportion of depositor's funds that will be demanded at any period and arrange on how to meet the demand. The findings of the analysis is based on the significance level (alpha) of 0.05 (95%), degrees of freedom (df) of 2, and two-tailed test indicated. The result show a positive coefficient of determination (R2) indicating that: Return on Assets is influenced by Current Reserve Ratio (CRR) , Loan To Deposit Ratio (LTDR) and Liquidity ratio. In addition, the computed t-values: Loan To Deposit Ratio (LTDR) (t= 4.1, Cash Reserve Ratio (CRR) (t=3.88) and Liquidity Ratio (t=1.11 are higher than the significance threshold of 1.96 (0.05). This then indicate that there is a significant relationship between Profitability of commercial banks and Laon To Deposit Ratio ,Cash Reserve Ratio and Liquidity Ratio. The conclusion of the study is that CRR has great impact on ROA than other components which are influenced by other factors such as savings, interest rates other than CRR , LTDR & LR.

## 5.3 Future scope

The study has examined the effect of liquidity and credit risk on banking profitability of Nepalese commercial banks. There remains enough ground of scope in terms of data, models and methodology for studies in days to come. The study remains enough ground for the further studies, which are listed below:

1. Only limited statistical and financial tools have been used in the study. Hence, the future studies can be carried out by including more statistical and financial tools.
2. This study includes data of “A and B” class financial institution only. Various financial institutions such as finance companies and insurance company are not taken into consideration for the study. Hence, the future studies can be carried out by including other financial institution.
3. The findings of this study cannot be generalized to manufacturing and trading enterprises because the study is only based on the banking sector. Hence, the future studies can be carried out by including manufacturing and trading enterprises.
4. There are other risks such as foreign exchange risk, size risk, technology risk, human resources risk, geographical risk, political risk, economical risk that influence the profitability of the banking system. Thus, the future study can include these variables that will give additional findings in the study.
5. The future studies can select larger sample and more number of observation years for the study that lead to much more valid prediction regarding the effect of liquidity on profitability.
6. This research applies common practices in the measurement of banking profitability namely, the Z score. Future studies may use a combination of data drawn from capital market capitalizations of bank assets and market stability to measure the modified Z score as a means to assess market feedback.

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