WOLLEGA UNIVERSITY, COLLEGE OF BUSINESS AND ECONOMICS DEPARTMENT OF MANAGEMENT

The Effect of Liquidity on Financial Performance of Commercial Banks: A Study on Selected Private Commercial Banks in Ethiopia

A thesis submitted to Wollega University, Department of Management in partial fulfilment of the requirement for the Award of the Degree of Masters of Business Administration (MBA).

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As advisors, we hereby certify that we have read and evaluated this thesis prepared, under our guidance, by Getachew Tamiru Tarfasa entitled "*The Effect of Liquidity on Financial Performance of Commercial Banks: A Study on Selected Private Commercial Banks in Ethiopia*''. We recommend that it be submitted as fulfilling the thesis requirement.

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DEDICATION

I give this manuscript to my lovely mother, father and my family for their partnership in the victory of my life.

STATEMENT OF THE AUTHOR

I declare that this thesis entitled "***The Effect of Liquidity on Financial Performance (Profitability) of Commercial Banks: A Study on Selected Private Commercial Banks in Ethiopia*"** is my work and that all sources of materials used for this thesis have been appropriately acknowledged. This thesis is submitted in partial fulfilment of the requirements for M.A. degree in Business Administration at Wollega University. I seriously declare that this thesis is not submitted to any other institution anywhere intended for the award of any degree or diploma. The thesis putted at the University's Library to make available for any person under rules of the Wollega University Library.

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Place: Wollega University, Nekemte

DECLARATION

This is to certify that this thesis entitled "***The Effect of Liquidity on Financial Performance (Profitability) of Commercial Banks: A Study on Selected Private Commercial Banks in Ethiopia***," accepted in partial fulfilment of the requirements for the award of the Degree of Master of Arts in Business Administration by the school of Graduate Studies, Wollega University through the college of Business and Economics, prepared by Getachew Tamiru Tarfasa is a authentic work carried out by him under his advisors guidance. The matter in person in this thesis work has not been submitted earlier for the award of any degree or diploma.

The assistance received during the course of this study has been duly acknowledged. Therefore, we recommend that it can be accepted as fulfilling the research thesis requirements.

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BIOGRAPHIC SKETCH

The author was born from his father Mr. Tamiru Tarfasa Abdisa and his mother Mrs. Alami Kufo Aga in 1985 in East Wollega Zone, Leka Dulacha Woreda, Leka. He attended Primary school at Kewisa Shona Primary school from 1993-2000 G.C, Secondary school in Getama Secondary School from 2001-2002 and Preparatory School in Nekemte Preparatory School from 2003-2004 G.C.

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List of Acronyms & Abbreviations

BLUE	**Best Linear unbiased Estimator**
CBE	**Commercial Bank of Ethiopia**
Fed	**Federal Reserve**
LADR	**Liquid Asset to Deposit Ratio**
LDR	**Loan to Deposit Ratio**
NBE	**National Bank of Ethiopia**
NIM	**Net Interest Margin**
ROA	**Return on Asset**
ROE	**Return on Equity**
SPSS	**Statistical Package for Social Science**
US	**United States**
TCDTAR	**Total customer Deposit to Total Asset Ratio**

ABSTRACT

The financial profitability of any business can be assessed using the well-known concept of liquidity measures. The significance of liquidity to bank performance (profitability) such as Return on asset, Return on Equity, Net Interest Margin might lead to the conclusion that it determines the financial profitability (performance) level of Financial Institution. Although a number of studies have been done, the nature of liquidity indicators that have effect on profitability is still not entirely recognized and standardized. Hence, the main purpose of this study was to assess the effect of liquidity on financial profitability of the selected private commercial banks in Ethiopia from 2007 to 2018. Secondary data was collected from selected private commercial banks in Ethiopia, financial statement data and multiple regression analysis used in the data analysis. The study revealed that liquidity ratio indicators were negatively significant and insignificant effect on the financial profitability ratio indicators of selected private commercial banks in Ethiopia in 12 years. The study established that Liquid asset to deposit ratio and total customers deposit to total asset ratio have negative significant and positive significant effect on the financial profitability particularly on NIM and ROE of selected private commercial banks in Ethiopia in the study period respectively and also Loan to deposit ratio has negative insignificant relationships on financial profitability of NIM, ROA and ROE. On the other hand the study also revealed that Liquid asset to deposit ratio and total customers deposit to total asset ratio have negative insignificant relationship on the financial profitability of ROA and NIM of the selected private commercial banks in Ethiopia in last 12 years from 2007 to 2018 while loan to deposit ratio has negatively insignificant effects on the financial profitability (ROA, ROE and NIM) of selected private commercial banks in Ethiopia in the study period. The study recommends that there is need for financial institution to decrease their liquid asset to deposit ratio but increasing their total customer's deposit to total asset ratio so as to decrease and increase their liquidity as it was found that negatively and positively affect the financial profitability such as NIM and ROE of the selected private commercial banks of Ethiopia respectively. The study further recommends on how to achieve the optimal liquidity level in a Banks with short term obligations.

***Key words**: Liquidity, Liquidity Risk, Financial Profitability and Private commercial Banks.*

CHAPTER ONE: Introduction

1.1 Background of the Study

In Today's World economy, Banking Industry plays a great role in the economy of any country. Commercial banks are the main intermediaries' institutions between the excess money (depositors) and those individuals and business firms with viable projects but requiring money for their investment. Lending money, depositing others money, transferring money locally or globally and working as paying agent are the major functions of Commercial Banks (Simeneh Terefe,2012 and Habtamu ,2004. Beyond the intermediation function, the financial profitability of banks has a great role for economic growth of countries. Good financial profitability rewards the shareholders for their investment. This, in turn, encourages additional investment with loans and brings about economic growth. On the other hand, poor banking financial profitability and performance lead to banking failure and crisis which have a negative effect on the economic growth.

Liquidity creation is a primary source of economic welfare contribution by Commercial banks but also their primary sources of risk or losses (Calomiris and Kahn, 1991). The shortage of cash and deposit or liquid marketable asset is due to a sudden rise in the borrowers' demands above the expected level of banks (Oldfield and Santamero,1997)

In the 2008 financial crisis in U.S and other developed economies financial intermediaries encountered specific liquidity problems (more withdrawal of funds) as well as risk of liquidity in the markets that created solvency problems and they were provided with liquidity by Federal Reserve, bailed out by the government or became insolvent and had to sell themselves or file for bankruptcy. This shows that liquidity is a major risk in Commercial banking and that liquidity management should be a top priority for bank management and regulators.

The history of banking service in Ethiopia was at the early of 20th C(1905)Bank of Abyssinia was established as the first bank in based on the agreement signed between the Ethiopian government and the National Bank of Egypt, which was owned by the British. But currently there are 19 banks in Ethiopia of which 16 are private commercial banks and the remaining are government owned banks in which this changes of banks number and deregulation leads to growing competitiveness in the banking industry in the country. Among these banks eight private commercial are those provides the required capital to the economy in the form of loans and advances which might have some probability to fail to be paid back that is termed as liquidity risk, the chance that a loan will not be repaid timely. Hence, the main concern of the private commercial bank is liquidity risk and its management as deposits or loans and advances are the

main source of income for the bank (Goiteom W/Mariam, 2011).

In different countries and also in Ethiopia, commercial banks play important primary role as financial intermediaries in the economic growth process, channelling funds from savers to borrowers for investment. As financial intermediaries, banks play an important role in the financial operation of an economy. In such a way, stated owned bank and private commercial banks are key providers of funds and their stability is a paramount importance to the financial profitability. As such , an understanding of the indicators of their liquidity and the drivers of bank liquidity for that matter is essential and crucial to the stability of the economy.

Private commercial banks which are a financial institution have to be liquid to meet payment obligations to depositors and creditors. This calls for a sound Asset Liability management by banks. Liquidity analysis considers the selected private commercial banks' ability to meet its obligations and is very critical for these banks to remain a going concern. The liquidity analysis or ratios includes; liquid asset to deposit ratio, loan to deposit ratio, loan to asset ratio and liquid asset to total asset ratio. Thus, the absence of liquidity can lead to failure of bank. It also considers the proportion of liquid assets to total assets along with their deposit renewal rate (Brickworkrating,2010). Abdus Samad et al. (2001) and Pak and Huh (1995) used loan to deposit ratio to calculate the level of liquidity in their study. The liquidity condition of the commercial banks also reliable in all cases, though some measures should be made by the individual bank respective to their matters as per (Habtamu,2004)

Liquidity for private commercial bank means the ability to meet their financial obligation as they come due. Banks are lending finance investments in relatively illiquid assets, but its funds loans with mostly short term liabilities. Thus, one of the main challenges to a bank is ensuring its own liquidity under all reasonable conditions.

Private commercial bank are differs from non-financial institution widely in how the banks manage their liquidity. A small commercial bank derives its funds primarily from customers' deposits, normally a fairly stable source in the aggregate. Its assets are mostly loans to small firms and households, and it usually has more deposits that it can find credit worthy for borrowers. Excess funds are typically invested in assets that will provide it with liquidity such as Fed funds loaned and U.S government securities. The holding of assets that can readily be turned into cash when needed is known as asset management banking. In contrast, large banks generally lack sufficient deposits to fund their main business-dealing with large companies, governments, other financial institutions and wealthy individuals. Most borrow the funds they need from other major lenders in the form of short term liabilities which must be continually rolled over. This is known as liability management, a much riskier method than that gets its liability management. A small

banks will also potential income if gets its asset management wrong. Large commercial banks that get its liability management wrong may fail.

Liquidity risk arises from the fundamental role of private commercial banks in the maturity transformation of short term deposits to long-term loans. Therefore, commercial banks have hold optimal level of liquidity that can maximize their profit and enable them to meet their obligation. The concept of liquidity is more important both for the non-financial and financial institution and commercial banks like private commercial banks are the part of them. Private Commercial banks' profitability have been one of the main concerns of management experts, investors and economic analysts. This concern closely relates to the significant effect of the profitability of financial organization in general and selected private commercial banks particular , on the potential growth of the economy as a whole (Hussainan Bhatti, 2010).

However, the rationale behind of conducting this paper is, since the previous research such as research related liquidity and its determinants with financial profitability a few studies have been made on the effect of liquidity on financial profitability provided by scope banks of this study, it will specifically aimed to investigate about effects of liquidity on financial profitability depending on Return on Equity, Return on Asset and Net Interest Margin against (with) liquid asset to deposit ratio, loan to deposit ratio, loan to asset ratio and liquid asset to total asset ratio. This research would assess indicators of liquidity and their effects on financial profitability of scope commercial banks from 2007 to 2018 which is a recent and base for future financial profitability. Therefore, this study investigated on the effects of liquidity on financial performance (profitability) of selected private commercial banks in Ethiopia by answering the research question such as ; what is the effect of liquid asset to deposit ratio on financial profitability of the selected private commercial bank in Ethiopia ?, what is the effect of loan to deposit ratio on financial profitability of the scope private commercial banks ?, what is the effect of total customer's deposit to total asset ratio on financial profitability of the selected private commercial banks in Ethiopia? And what is the effect of liquid asset to total asset ratio on financial profitability of the selected private commercial banks in Ethiopia? In this research project, the selected private commercial banks' financial analysis relying on liquidity ratios those would be considered and effect on financial profitability analysed in this study.

1.2 Statement of the Problem

Basically the role of commercial banks in the maturity conversion from short term deposits into long-term loans makes commercial banks essentially open to liquidity risk that affects markets as a whole. Liquidity creation will be a primary source of economic welfare contribution by banks but also as its primary source of risk according to Bryant (1980); Diamond and Dybving(1983) or Calomirs and Kahn (1991) cited in Simenesh (2012). And also a sudden rise in the borrowers' demands above the expected levels can lead to shortages of cash and cash equivalent assets or liquid marketable assets (Oldfield and Santamero, 1997). Thus, this financial transaction or commitment has commercial banks' liquidity.

Liquidity risk in commercial banks will be an assassin of bank or collapse otherwise solvent it. This risk can adversely affect both bank's earnings and capital equity. Therefore, it is the top priority of a commercial bank's management to ensure the availability of sufficient funds to meet their future demands of providers and borrowers, at reasonable costs or interest rate. For instance, as Irish bank crisis and United States subprime mortgages crisis reached its peak in the year of 2008 unprecedented level of liquidity support were required from central bank in order to sustain the financial system through policy responses. In such kind of extensive supports a number of banks failed, were forced into mergers. A reduction in funding liquidity then caused significant distress. In response to the freezing up of the interbank market, the European Central Bank and U.S Federal Reserve injected billions in overnight credit into the interbank market. Therefore, some commercial banks needed extra liquidity supports (Bernanke, 2008).

On the other hand, there is a mismatch between assets and liability which liquidity risk arises from maturity mismatches. That means liabilities have a shorter tenor than assets. This mismatch can be measured with the help of maturity gap between assets and liabilities. This is called a liquidity gap of commercial banks. The higher liquidity gap might create liquidity risk to most financial institutions (CBK, 2013). Therefore, commercial banks and their regulators are keeping a control on liquidity position of banks.

Commercial Banks' operation proper and profitable that means banks has to maintain their optimal liquidity. Then we say banks will be liquid, they are able to serve the demand of new borrowers and the withdrawal of cash by their depositors without affecting their day to day activities. So that banks have to keep sufficient liquid assets on their balance sheet. But , what is more necessary behind maintaining their liquidity is that properly identifying and measures the important indicators of liquidity position of private commercial banks?

Studies have been conducted globally and locally in relation to liquidity and financial profitability of commercial banks; The Macaulay (1988) investigated the adoption of liquidity risk management best practices in the United States and reported that over 90% of the banks in the country have adopted the best practices. In their study Tianwei and Paul (2006) found that liquidity risk management significantly led to financial profitability of firm. Maaka (2013) found that profitability of commercial bank is negatively affected due to increase in the liquidity gap.

In Ethiopian context, Belayneh (2011) examined that the impact of bank specific in the case of liquidity is the determinants of profitability of Ethiopian private commercial banks'. This study measured only the profitability in terms of ROA excluding ROE and NIM as dependent variables where as loan, deposits, non-interest income as independent variables. But, this study shows the relation of more liquidity indicators with financial profitability indicators such as ROA, ROE and NIM.

In fact the banking sector in Ethiopia currently acts as the link that holds the country's economy together. Hence, keeping optimal liquidity for commercial banks are very important to meet the demand by their present and potential customers (Simenesh Terefe, 2012).

From the above studies, a few studies have been made on the effect of liquidity on financial performance (profitability) that means there is a scarce empirical study (evidences) on this title. This indicates that there is a skill gap. This study therefore finds to investigate on the effects of liquidity on financial performance of the selected private commercial banks in Ethiopia through answering the following research question; what is the effect of loan to deposit ratio, loan to asset, liquid asset to deposit ratio and liquid asset to total asset ratio on financial profitability?

Therefore, empirical studies are important to identify significant indicators (measurements) of liquidity and their effects on financial profitability in the context of Ethiopia. Thus, this study aimed to contribute as a future literature by empirical data analysis the effects of liquidity on financial profitability of the selected private commercial banks in Ethiopia through analyzing financial statements or data of those significant indicators of liquidity against financial profitability.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of this study was to assess the effect of Liquidity indicators on financial profitability measures of the selected private commercial banks in Ethiopia from 2007 to 2018. The financial profitability ratio indicators were measured by (ROA), (ROE) and (NIM).

1.3.2 Specific Objectives

Specifically, this study addresses the following objectives;

i. To assess the effect of Liquid asset to Deposit ratio on financial profitability ratio indicators of selected private commercial banks for last twelve years.
ii. To determine the effect of Loan to Deposit (liabilities) ratio on financial profitability ratio indicators of selected private commercial banks for last twelve years.
iii. To measure the effect of Total Customer Deposit to total asset ratio on financial profitability ratio indicators of selected private commercial banks for last twelve years.
iv. To identify the significant measure or indicator of liquidity of the selected private commercial banks' financial profitability indicators of selected private commercial banks for last twelve years.

1.4 Research Hypotheses

Based on the study problem and its objectives, the hypotheses can be formulated as follows;-

Hypothesis 1:H0: There is no significant relationship between Liquid asset to Deposit ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.

Hypothesis 2: H0: There is no significant relationship between Loan to Deposit (liabilities) ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.

Hypothesis 3: H0: There is no significant relationship between Total Customer Deposit to total asset ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.

Hypothesis 4: H0: There is no significant relationship between liquidity and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.

Where as, **Ho** is a Null Hypothesis.

1.5 Significance of the Study

This research was emphasis on assessing the effect of Liquidity on Financial profitability indicators provided by private commercial Banks. The major contribution of this investigation would be seen from angles of both theoretical references for the late comers concerning as some sort of literature which is not conducted and helps as starting point for further studies in the future. In addition, this study was used as input for both banks decision makers to identify that may determine bank selection as major factors decisions among customers in which such information would help the management in formulating appropriate marketing strategies to attract and maintain customers. This in turn contributes as input to consider for the well being of the financial sector of the economy and the society as a whole. Therefore, the major beneficiaries from this study are each private commercial bank, regulatory bodies, management body; the academic staff of the selected private commercial banks who will gain insight into their institution can effectively manage their liquidity risk coming up with appropriate practices and the banks as a whole in the country and as well as outside the country .

1.6 Delimitation of the Study

The study was conducted on Selected Private Commercial Banks in Ethiopia for assessing the effects of liquidity indicators such as loan to deposit ratio, liquid asset to deposit and Total customer deposit to total Asset ratio on financial profitability by analyzing the financial statements from 2007 to 2018. This study comprised all private commercial banks which started their operation before 2007. As a result, out of the sixteen private commercial banks, eight (8) private commercial banks; Awash International, Abyssinia, Dashen, Nib International, United, Cooperative Bank of Oromia, Wegagen and Lion International bank were selected under this study. All sample banks were operated for more than decades and the study was used twelve years from 2007 to 2018 of financial statement (data).

1.7 Limitations of the Study

This study had its own limitations in the study period. The first limitation of this study is state owned banks were not considered. Therefore, the study does not reflect the overall image of financial performance of banking industry in Ethiopia. Secondly, due to time constraint this study compiles the twelve year data from 2007 to 2018 of selected private commercial banks in Ethiopia. Moreover, financial constraints were also the important limitation of the study due to the researcher was self sponsored and others.

Therefore, these issues were the most important problems that the researcher encountered during data collection period and analysis.

1.8 Organization of the Study

This paper was categorized into five separate chapters. The first chapter is consists of background of the study, statement of the problem, objectives of the study, significance of the study, scope of the study and limitation of the study. After this introductory chapter the next chapter was review of related literatures on the effect of liquidity on Financial Performance (Profitability) in the selected private commercial banks in 12 years from 2007 to 2018. The third chapter presents research methodology used in the theoretical as well as practical study on the effect of liquidity ratio indicators on financial profitability ratio indicators provided by selected private commercial banks including the research design and sources of data used, and also method of data analysis by model. The fourth chapter presents the data analysis and interpretations and the last chapter represents conclusion and recommendation up on the findings.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURES

2.1 Introduction

In reviewing of the related literatures, the researcher has classified it in to two sections. The first section deals about the theoretical review (i.e. rational choice theories & competitive theories and about conceptual frame work through reviewing of the past studies which are related to the selected variables for this investigation).

The second section of this literature review deals about the empirical review based on the findings of different writers or researchers.

Accordingly, this part of the study reviews the major concepts in the areas of factors measures liquidity against financial profitability of a bank and some theoretical concepts will be reviewed the study basis by considering different variables (independent and Dependents).

The identified variables as of this study are chosen which is perceived to be the major effects of liquidity on financial profitability as per the researcher understanding. These variables are Liquid asset to Deposit ratio (LADR), Loan to deposit ratio (LDR) and Total Customer's Deposit to Total Asset Ratio (TDTAR) as independent variables to measure liquidity of the Commercial banks which influences the financial performance such as Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) as Dependent Variables of the selected private commercial banks in Ethiopia.

In addition, the study within this chapter will be based on conceptual frame work designed in the form of diagram through consideration of independent and dependent variables and relating it to the objectives of the study described in chapter one. Reviewing the theories on the above mentioned areas is aimed to forward a meaningful discussion and analysis regarding Liquidity and profitability of bank as well as the theories stated under this section gives clear justifications for the readers based on the previous studies.

Finally, this section would try to summarize the theories used by different scholars starting from the definitions of basic terms for empirical reviewing aspects as per the researcher knowledge.

2.2 Definition of terms

2.2.1 Concepts of banks' Liquidity and Liquidity Risk

Liquidity can be defined as the ability of current assets to meet current liabilities (working

capital). Liquidity risk is financial risk due to uncertain liquidity or risk of losses. Private commercial banks are a financial institution in the study period.

2.3 Theoretical Review

This study is informed by three theories namely Liquidity and Liquidity Risk Theory, Asset Liability Management Theory and Commercial loan theory of liquidity. These theories provide theoretical evidence on the relationship between Liquidity and financial profitability of banks.

2.3.1 Liquidity Theory

According to business dictionary, liquidity is a measure of the extent to which a person or organization has cash to meet immediate and short-term obligations or assets that can be quickly converted to do this. Liquidity can also be a measure of the ability and ease with which assets can be converted to cash. Liquid assets are those that can be converted to cash quickly if needed to meet financial obligations; examples of liquid assets generally include cash, central bank reserves and government debt. To remain viable, a financial institution must have enough liquid assets to meet its short term obligations, such as withdrawals by depositors.

GARP (2013) defines that liquidity can further be termed as a bank's capacity to fund increase in assets and meet both expected and unexpected cash and collateral obligations at a reasonable cost and without incurring unacceptable losses. And also **liquidity is a financial term that means the amount of capital that is available for investment to obtain return.** Today, most of this **capital is credit, not cash**. Commercial Banks' Liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations. It is the bank's ability to immediately meet cash, cheques, other withdrawals obligations and legitimate new loan demand while abiding by existing reserve requirements.

According to this theory Begg, Fisher and Rudiger (1991) stated that liquidity refers to the speed and certainty with which an asset can be converted back into money (cash, income) whenever the asset holder desires. Cash is the most liquid asset of all. In terms of accounting, liquidity can be defined as the ability of current assets to meet current liabilities (working capital).

A liquid company is one that stores enough liquid assets and cash together with the ability to raise funds quickly from other source to enable it meet its payment obligation and financial commitment in a timely manner.

Different liquidity ratios that are used to measure liquidity of Financial Institutions' like commercial Banks which is not similar to non-financial institutions. These liquidity ratios include:

Liquid asset to Deposit ratio (LADR), Loan to deposit ratio (LDR) and Total customer's Deposit to Total Asset Ratio (TDTAR) used by many scholars and Researchers at different time in different financial institutions.

Yeager and Seitz (1989) defined that Liquidity as the ability of a financial institution to meet all legitimate demands for funds. It is also the ability of banks to fund increases in assets and meet obligations as they come due, without incurring unacceptable risk of losses (Bank for International Settlement 2008). For more explanation, Liquidity is the quality of an asset that makes it easily convertible into cash with little or no risk of loss. Financial institution such as Banks will be liquid when it has sufficient cash and other liquid assets, together with the ability to raise funds quickly from other sources, to enable it to meet or settle its payment of obligation.

According to this theory, the concept of liquidity in finance principally found in two areas: 1st the liquidity of financial instruments in the financial market, and 2nd, the liquidity related to solvency. The former relates to liquid financial markets and financial instruments. Examples of these include: marketable financial instruments, smooth transactions, and no financial barriers. The latter discusses the obligation of bank to make payments to third parties (Fiedler, 2000: p442). For instance it includes, setting up liquidity management policies, reserving liquidity, balancing assets and liabilities and preparing liquid financial instruments.

Liquidity risk management is to balance the demand for liquidity on the liability side with the supply of liquidity on the asset side. If the demand liquidity side is less than supply of liquidity which is known as Liquidity deficit problem or liquidity risk problem, if a bank fail to balance those two sides, a bank do not have sufficient internal liquidity reserves and fail to obtain funds from external sources. Liquidity management refers to the planning and control necessary to ensure that the organization maintains enough liquid assets either as an obligation to the customers of the organization so as to meet obligations incidental to survival of the business or as a measure to adhere the monetary policies of the central bank. For a commercial bank to plan for or manage its liquidity position, it first manages its money position by complying with the legal requirement.

How to manage money position of bank, the bank must avoid surplus (excesses) or deficiencies of primary reserves and bank is expected to maintain level of reserves. These reserves are Statutory requirements stipulated by the central bank specifying the cash reserves equal to certain fraction of the banks' deposits or loans and advances which bank must maintain. Originally, the purpose of the reserve requirement is to compel bank to maintain a reasonable degree of liquidity in order to meet cash demands. But currently, these reserves are used as control device through which the federal government can influence the monetary system. The

regulation of specifying legal minimum reserve requirement and in order to provide against unforeseen large withdrawals, resolve to maintain reserves in excess of their legal requirements. For the fact that keeping excess reserve for the purpose of short run safety means to forgo income or earnings, bank need to manage its reserves adequately. Effective liquidity management therefore involves obtaining full utilization of all reserves (Accenture, 2013).

Liquidity risk management is part of the larger risk management framework of the financial services industry, which concerns all financial institutions. Studying liquidity risk management issues is a critical but complex subject. Failure to address the matter may lead to dire consequences, including banking collapse, and by extension, the stability of the financial system. In fact, most bank failures are due to issues around managing liquidity risk. This is also the reason why regulators are very concerned with the liquidity position of financial institutions and many financial industry professionals believe that the current thinking of regulators appears too centred around the strengthening of liquidity framework (Accenture, 2013).

An asset is liquid if it can be converted or sold quickly without significant losses. What determines the liquidity of an asset is still a disputed issue among theorists (Kyle 1985). The conformist wisdom found in the bank management literature states that an asset is liquid if it is widely known to have low risk (such as government debt) and if it has a short maturity which implies the asset's price is less sensitive to interest rate movements, making large capital losses unlikely (Garber and Weisbrod 1992 and Hempel et al. 1994). 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).

2.3.2 Liquidity Risk Theory

Halling & Hayden (2006) explains that a bank should define and identify the liquidity risk to which it is exposed for all legal entities, branches in which it is active. A bank's liquidity needs and the sources of liquidity available to meet those needs depend significantly on the bank's business, balance sheet structure and cash flow profiles of its on- and off-balance sheet obligations. As a result, a bank should evaluate each major on and off balance sheet position, including the effect of embedded options and other contingent exposures that may affect the bank's sources and uses of funds, and determine how it can affect liquidity risk. A bank should consider the interactions between exposures to funding liquidity risk and market liquidity risk (Jeanne & Svensson, 2007, and Mwangi Mary Njeri,2013).

Moreover, reliance on the full functioning and liquidity of financial markets may not be realistic as asset and funding markets may dry up in times of stress (Perera et al., 2006). Market

illiquidity may make it difficult for a bank to raise funds by selling assets and thus increase the need for funding liquidity. A bank should ensure that assets are prudently valued according to relevant financial reporting and supervisory standards. A bank should fully factor into its risk management the consideration that valuations may deteriorate under market stress, and take this into account in assessing the feasibility and impact of asset sales during stress on its liquidity position (Jenkinson, 2008). For example, a bank's sale of assets under duress to raise liquidity could put pressure on earnings and capital and further reduce counterparties' confidence in the bank, further constraining its access to funding markets. In addition, a large asset sale by one bank may prompt further price declines for that type of asset due to the market's difficulty in absorbing the sale. Finally, the interaction of funding liquidity risk and market liquidity risk may lead to illiquidity spirals, with banks stockpiling liquidity and not on-lending in term interbank markets because of pessimistic assumptions about future market conditions and their own ability to raise additional funds quickly in the event of an adverse shock (Guglielmo, 2008).

A bank should recognize and consider the strong interactions between liquidity risk and the other types of risk to which it is exposed. Various types of financial and operating risks, including interest rate, credit, operational, legal and reputational risks, may influence a bank's liquidity profile. Liquidity risk often can arise from perceived or actual weaknesses, failures or problems in the management of other risk types. A bank should identify events that could have an impact on market and public perceptions about its soundness, particularly in wholesale markets (Akhtar, 2007).

Liquidity risk as one of the major risk of losses from bank, it arises if the cushion provided by the liquid asset is not sufficient to cover and meet its obligation. In such a situation, bank has to fund their liquidity requirements from market (Bank Risk Management Guidelines of NBE, 2010).

However, conditions of funding through market highly relied on liquidity in the market and borrowing institution. Accordingly, shortage of liquidity from an institution may have to undertake transaction with heavy cost resulting in a loss of earning or it could result in bankruptcy if it is unable to undertake transaction even at current market prices for the worst case. In finance, liquidity risk may not be seen as isolated since all financial risks are not mutually exclusive and liquidity risk often caused by other financial risks such as credit risk. For instance, a bank increases its credit risk through assets may increase its liquidity risk as well. Similarly, a large loan default can adversely impact on bank's liquidity position.

At a time bank hold a lower amount of liquid assets that vulnerable to large deposit withdrawals. Liquidity risk occurs when Liability liquidity side increase and asset liquidity side on balance sheet is decreased.

Saunders and Cornett (2008) defined liquidity risk is the risk that an asset cannot convert into cash or that the conversion is costly. Again these Authors state that price risk refers to the risk that the sale price will be lower than the purchase price of an asset. That means both sale price and purchase price of Liquid asset affect bank profitability and Vice versa (Athanasoglou , 2006). Therefore, liquidity risk estimated by dividing the by liquid assets to customer deposits and other short term funding (LADR). If Liquid asset to deposit ratio is increases the decreases the liquidity risk and decrease returns, profit. Insufficient liquidity is one of the major reasons of bank failures (Ommeren, 2011).

According to Goodhart (2008), there are two basic facets of liquidity risk: maturity transformation (the maturity of a bank's liabilities and assets) and the inherent liquidity of a bank's asset (the extent to which an asset can be sold without incurring a significant loss of value under any market condition). As such, the two elements of a bank's liquidity are intertwined. Banks do not need to be worried about the maturity transformation if they have the assets that can be sold without bearing any loss. Whereas, banks having assets that are going to be matured in a shorter period may have a less need to keep the liquid assets. This increases the demand of depositors creating liquidity risk. This may cause the failure of a given bank or even the entire banking system due to contagion effect (Diamond and Rajan, 2005). High liquidity increases the leverage and a highly leveraged bank may turn into the consumer of liquidity from the provider.

2.3.3 Bank Liquidity Creation Theory

According to the theory of financial intermediation, the role of bank 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 as they hold illiquid assets and provide cash and demand deposits to the rest of the economy. Diamond and Dybvig (1983) emphasize the "preference for liquidity" under uncertainty of economic agents to justify the existence of bank: bank exists because it provides better liquidity insurance than financial markets.

However, as bank is liquidity insurers, it faces transformation risk and is 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 bank to face losses from having to dispose of illiquid assets to meet the liquidity demands of customers. A natural justification for the existence of deposit-taking institutions, thereby giving also an explanation for the economically important role of banks in providing

liquidity, was initially modelled by (Bryant 1980 and Diamond and Dybvig 1983). These authors showed that by investing in illiquid loans and financing them with demandable deposits, banks can be described as pools of liquidity in order to provide households with insurance against characteristic consumption shocks. However, this structure is also the source of a potential fragility of banks since in case of an unexpected high number of depositors deciding to withdraw their funds for other reasons than liquidity needs, a bank run will result. Both papers stand in the tradition of prior research on the liquidity of assets, for example by (Tobin 1965 or Niehans 1978) as well as on bank runs, by (Friedman and Schwartz 1963).

Kashyap et al. (2002) also conducted a related analysis justifying the existence of banks‟ liquidity creation. The author 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 withdrawal, these liquid assets as costly overheads. This overheads can be share by the two separate functions, hence the synergy. A detailed analysis of the link between liquidity shortages and systemic banking crises is given by (Diamond and Rajan, 2005). 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. However, as liquidity effects interact it is hard to determine the root of a crisis. Generally, liquidity risk arises from the fundamental role of banks in the maturity transformation of short-term deposits into long term loans.

According to Joint Forum of the Basel Committee (2006), bank liquidity risk includes two types of risk such as 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. Drehmann and Nikolau (2009) pointed to the fact that shock to funding liquidity can lead to asset sales and may lead to decrease of asset prices. Lower market liquidity leads to higher margin which increase funding liquidity risk.

Events in the second half of 2007 and early 2008 highlight the crucial importance of liquidity to the functioning of markets and the banking sector as well as links between funding and market liquidity risk, interrelationships of funding liquidity risk and credit risks, reputation effects on liquidity, and other links among liquidity and other typical banking features. Liquidity risk is not an „isolated risk‟ like credit or market risks (although credit risk often arise as a liquidity shortage

when the scheduled repayments fall due), but a „consequential risk", with its own intrinsic characteristics Chen et al. (2005).

2.3.4 Asset Liability Management Theory

Diamond & Rajan (2001) postulated that liability management theory focuses in bank issuing liabilities to meet liquidity needs. Liquidity and liability management are closely related. One aspect of liquidity risk control is the build-up of a prudential level of liquid assets. Asset and liability management is one of the most important risk management measures at a bank. It is one of the essential tools for decision making that sets out to maximize stakeholder value. It is important to track the external factors of the asset and liability management in the market to remain in the long term and to prepare for negative effects. Banking sector analysis could be the instrument to measure the sustainability of the country's financial sector (Goddard et al., 2009).

The primary objective of asset liability management is not to eliminate risk, but to manage it in such a way that the volatility of net interest income is minimized in the short run and economic value of the organization is protected in the loon run. The liability management theory function involves controlling the volatility of net income, net interest margin, capital adequacy, liquidity risk and ensuring an acceptable balance between profitability growth and risk (Diamond & Rajan, 2001).

2.3.5 Commercial Loan Theory of Liquidity

According to this theory, Mishkin, Stern & Feldman, (2006), short-term loans advanced to finance sale able goods on the way from producer to consumer are the most liquid loans the bank can make. These are self-liquidating loans because the goods being financed will soon be sold. The loan finances a transaction and the transaction itself provides the borrower with the funds to repay the bank. Adam Smith described these loans as liquid because their purpose and their collateral were liquid. The goods move quickly from the producers through the distributors to the retail outlet and then are purchased by the ultimate cash-paying consumer (Comptroller of the Currency, 2001). A commercial bank needs a higher degree of liquidity in its assets. The liquidity of assets refers to the ease and certainty with which it can be turned into cash. The liabilities of a bank are large in relation to its assets because it holds a small proportion of its assets in cash. But its liabilities are payable on demand at a short notice. Therefore, the bank must hold a sufficiently large proportion of its assets in the form of cash and liquid assets for the purpose of profitability. If the bank keeps liquidity the upper most, its profit will below. On the other hands, if it ignores liquidity and aims at earning more, it will be disastrous for it. It indicates that liquidity and profitability have a negative relationships

Thus, a bank must strike a balance between the objectives of liquidity and profitability. The balance must be achieved with a relatively high degree of safety. This is because bank is subject to a number of restrictions that limit the size of earning assets they can acquire (Brunnermeier & Yogo, 2009).

This theory argues that the most liquid of assets is money in cash at first case. The next most liquid assets are deposits with the central bank, treasury bills and other short-term bills issues by the central and state governments and large firms, and call loans to other banks, firms, dealers and brokers in government securities. The less liquid assets are the various types of loans to customers and investments in long term bonds and mortgages. Thus the principle sources of liquidity of a bank are its borrowings from the other bank and the central bank and from the sales of the assets. But the amount of liquidity which the bank can have depends on the availability and cost of borrowings. If it can borrow large amounts at any time without difficulty at a low cost (interest rate), it will hold very little liquid assets. But if it is uncertain to borrow funds or the cost of borrowing is high, the bank will keep more liquid assets in its portfolio (Crowe, 2009). A fully matched position is ideal a self-liquidating balance sheet but this is not observable in real life, because of the conflicting objectives of a bank and its borrowers, nor is it desirable due to its negative impact on profitability; a reasonable level of mismatch enhances profitability (Crowe, 2009).

2.3.6 Quantitative Framework for measuring liquidity risk

A financial institution can meet its liquidity needs having new deposits, maturing assets, borrowed funds and/or using the discount window (borrowing from the central bank). Liquidity measurement and management is an important activity in bank. There are three sources of Liquidity risks. These are (a) Liquidity risk on the liability side, (b) Liquidity risk on the asset side and Liquidity risk off-balance sheet operations Rochet (2008).

The important discussion of liquidity risk on the liability side 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 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. Each source of liquidity risks are resisted by its own mechanism or strategy which is discussed as below.

But, According to Aspach et al. (2005), there are some mechanisms, method or strategies that banks can use to insure against liquidity risks: firstly, banks hold buffer of liquid assets on the asset side of the balance sheet. A large enough buffer of assets such as cash, balances with central

banks and other banks, debt securities issued by governments and similar securities or reverse repo trades reduce the probability that liquidity demands threaten the viability of the bank. Second Mechanism, strategy is concerned with the liability side of the balance sheet. Banks can rely on the interbank market where they borrow from other banks in case of liquidity demand. However, this strategy is strongly linked with market liquidity risk. The last strategy concerns the liability side of the balance sheet, as well. The central bank typically acts as a Lender of Last Resort/LOLR to provide emergency liquidity assistance to particular illiquid institutions and to provide aggregate liquidity in case of a system-wide shortage.

Liquidity risk of banks can be measured by different method/approach such as 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. A positive gap between assets and liabilities is equivalent to a deficit that has to be filled because demand on liquidity liability excesses to liquidity supply on liquidity assets (Bessis, 2009).

Liquidity ratios on balance sheet 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.

Many authors such as Herzberg (2008), Rychtárik (2009) and Moore (2010) provide different liquidity ratios such as liquid assets to total assets, liquid assets to deposits and short term financing, loans to total assets and loans to deposits and short term borrowings those measures Liquidly risk.

The stock approach employs various balance sheet ratios to identify liquidity trends. The flow approach, in contrast, treats liquid reserves as a reservoir: the bank assesses its liquidity risk by comparing the variability in inflows and outflows to determine the amount of reserves that are needed during a period. Although both approaches are intuitively appealing, the flow approach is more data intensive and there is no standard technique to forecast inflows and outflows. As a result, the stock approaches are more popular in practice and in the academic literature (see Crosse and Hempel 1980; Yeager and Seitz 1989; Hempel et al. 1994; Vodova 2011).

According to Crosse and Hempel (1980), the two most popular stock ratios are the **loan-to-deposit ratio** and **the liquid asset to total assets ratio**, where the higher the loan-to-deposit ratio (or the lower the liquid asset to total assets ratio) the less able a bank to meet any additional loan demands. Both indicators have their short-comings: the loan-to deposit ratio does not show the

other assets available for conversion into cash to meet demands for withdrawals or loans, **while** the liquid assets ratio ignores the flow of funds from repayments, increases in liabilities and the demand for bank funds. The ratios tend to move together to measure Liquidity risk of bank (Crosse and Hempel 1980). Therefore, for the purpose of this research the researcher will be used Liquidity ratio and Stock approach to measure liquidity risks.

2.3.7 Effect of Liquidity on Financial Profitability

There are several theories which have been developed to study the effect of liquidity on financial profitability.

Various researchers investigated the relationship between bank liquidity risk and financial profitability by taking liquidity as an endogenous variable. For instance, we can find that the effect of liquidity risk on bank profitability is mixed (Negative and Positive). Some studies found out the positive effect (e.g. Molyneux and Thornton 1992; Barth et al.2003); others found out the negative effect (e.g. Bourke 1989; Demirgüç-Kunt and Huizinga 1999; Kosmidou et al. 2005; Kosmidou 2008). Besides this, other studies found that banks with high liquidity have lower net interest margins. (e.g. Demirgüç-Kunt and Huizinga 1999; Shen et al. 2001; Demirgüç-Kunt et al. 2003; Naceur and Kandil 2009). Hence, it should be emphasized that although a number of studies, the nature of liquidity effect on profitability is still not entirely recognized.

2.3.8 Financial Profitability

The financial performance is often measured using traditional accounting Key Profitability Indicators such as Return On Assets, Operating Profit margin, Earnings Before Interest and Tax, Revenue growth (Crabtree & DeBusk, 2008). The advantage of these measurements is their general availability, since every profit oriented organization produces these figures for the yearly financial reporting (Chenhall & Langfield-Smith, 2007). However, balance sheet manipulations and choices of accounting methods may also lead to values that allow only limited comparability of the financial strength of companies. Ratios are best used when compared or benchmarked against another reference, such as an industry standard or "best in class" within the industry. This type of comparison helps to establish financial goals and identify problem areas. Vertical and horizontal analysis can also be used for easy identification of changes within financial balances.

After risk and return theory created by Bowman (1980), more and more studies used different accounting ratios to measure risk and return within corporate finance, which is concentrated on risk and return relationship between accounting variables (Nickel & Rodriguez, 2002) from firm's financial report. For example, researchers by using return on

asset (ROA), return on equity (ROE) and Net profit margins (Miller & Bromiley, 1990; Nickel & Rodriguez, 2002) to measure their financial returns. However, (Nickel & Rodriguez, 2002) points out some limitations by using mean-variance relationships for measuring of risk and return. They criticized that somehow variance is measured historically when it should be measured as expectation. Thus, another market-based measure of risk and return, which based on the stock price of the firm, is used to measure financial performance since it reflects the expectation of firm's future performance (Dubofsky & Varadarajan, 1987).

2.4. Empirical studies

2.4.1 International Evidence

The study on the determinants of bank margins in the European banking by Val Verde & Fernandez (2007, p. 2055, 2058) reveals that higher loan to deposit ratios and loan to total assets seem to be positively and significantly related to performance. These conventional approaches to bank margin and indicators of liquidity risk enables banks to diversify its portfolio through investment in traditional and non-traditional business have revenues and increase market power. However, non-traditional businesses which include non-interest income may fill the gap that results from stronger competition in the traditional segment of loan and deposits.

Similarly, Dietrich et.al (2004, p.2, 18) supports that internal factors such as bank liquidity indicators, total expenditures and funds invested in securities are highly correlated with its profitability.

Moreover , the previous study of Bourke (1989, p.66, 76) points to that liquidity ratios, notably loan to assets, loan to deposits and cash ratios which contains data that are inherent in banks' financial statement can affect profitability positively. As opposed to capital based return, their finding reveals that liquidity ratios and interest margin are positively related to bank profitability. But Million Gizaw,Matewos Kebede and S.Selvaraj (2015) liquidity measured by loan to deposit ratio had no significant relationship with financial profitability particular ROA.

In contrast to the above of mentioned studies, Kosmidou et.al (2005, p.9, 15) argues that Net interest margin is one of the most important determinants of bank performance measurement showing profitability of bank's interest –earnings –business, but is negatively related to liquidity indicators. It can however be significant only in the presence of external factors such as inflations, macroeconomic policies and economic growth. In a similar study of determinants of bank profitability in Greece during the periods of financial integration, (Kosmidou; 2008, p.155)

it is found that when considering banks internal characteristics such as liquidity risk, there is a significantly negative relationship between liquidity and Return on Assets. This do however become positive and insignificant when macroeconomics and others financial structure are taken into consideration. And also Godfrey Marozva (2015) concluded that current ratio and loan to deposit ratio as proxies for market liquidity and funding liquidity respectively against the net interest income to total assets ratio, a proxy for net interest margin have a negative relationship. And also M.Njeri (2013) concluded that liquidity indicator such as liquid asset to total asset had positive significant relationship with financial performance while El Mehdi Ferrouhi (2014) argued that bank liquidity and financial profitability had positive and negative relation.

Finally, the recent financial collapse and the fear of possible future shock in the financial system particularly in the banking sector in Europe and US, it has necessitated the study of the relationship between liquidity risk and bank performance in Ethiopia. Although, some scholars find a positive relationship other find a negative effect. Based on these contradicting results, the hypotheses would be addressed upon completion of the study and the study would add contribution to current literature in this regard.

2.4.2 Local Evidence

According to Habtamu Nigussie (2012), study on indicators of bank liquidity, there is a negative correlation between private commercial banks profitability measure; return on asset, and liquidity. That means the more the ratio of loan to deposit ratio of banks, the less the ROA of private commercial banks in Ethiopia. Hence, as to his finding liquidity level of private commercial banks included in the study (loan to deposit ratio) has no significant relationship with ROA. Similarly, he found that there is negative correlation between return on equity and liquidity. Liquidity has similar implication like return on asset, which means although more liquid assets increase the ability to raise cash on short-notice; excess cash in the bank increases the level of non-earning asset. Thus, liquidity (as measure of loan to deposit ratio) has a negative relationship with return on equity. Although, there is negative relationship between return on equity and liquidity, it is significant, which means the more liquidity the bank, the lower the profitability. However, liquidity in terms of loan to deposit ratio) is highly correlated with NIM in his study but has negative and insignificant relationship with profitability.

Workineh and Bizuayehu (2015) concluded that the impact of liquidity on financial performance of private commercial banks in Ethiopia is inconsistent (both positive and negative) and the significant relationship varies from measure to measure. However, NIM has positive relation with LDR but inverse relationship with LAR and LADR. The other performance

measure, ROE has positive and insignificant relationship with LAR but it has positive and significant relationship LADR. Where as, LDR has negatively and insignificant relationship with ROE. And at last, ROA has positive and significant relationship with LDR at 5% significant level. The rest liquidity measure ratios LAR and LADR have negative and positive insignificant relation with ROA respectively.

According to NBE's liquidity risk management guideline (p.16-17, May 2010), measurement of liquidity is expressed as follows. Liquidity measurement involves assessing all of a bank's cash inflows against its outflows. This includes funding requirements for off-balance sheet commitments. A number of techniques can be used for measuring liquidity risk, ranging from simple calculations and static simulations based on current holdings to highly sophisticated modelling techniques. As all banks are affected by changes in the economic climate and market conditions, the monitoring of economic and market trends is key to liquidity risk management.

Cash inflows and outflows can be easily calculated or predicted; banks must also make assumptions about future liquidity needs, both in the very short-term and for longer time periods. Cash inflows arise from maturing assets, saleable non-maturing assets, access to deposit liabilities, established credit lines that can be tapped etc. These cash inflows must be matched against cash outflows stemming from decrease in liabilities due and settlement of contingent liabilities. Banks should also have some level of preparedness to meet cash outflows that arise from unexpected events.

Maturity transformation is an important tool to compare cash inflows and outflows both on a day-to- day basis and over a series of specified time periods. If cash out flow excesses to cash inflow the will be in deficit problem at selected maturity dates that need liquidity. A bank's net funding requirements are determined by analyzing its future cash flows based on assumptions of the future behaviour of **assets, liabilities and off-balance-sheet** items, and then calculating the cumulative net excess or shortfall over the time frame for the liquidity assessment.

As maturity ladder, cash inflows can be ranked by the date on which assets mature. Similarly, cash outflows can be ranked by the date on which liabilities fall due, the earliest date a liability holder could exercise an early repayment option, or the earliest date contingencies can be called. Significant interest and other cash flows should also be included.

The appropriate relevant time frame shall depend on the nature of the bank's business. Banks, which are reliant on short-term funding, shall concentrate primarily on managing their liquidity in

the very short term (say the period up to five days). Ideally, these banks should be able to calculate their liquidity position on a day-to-day basis for this period. Other banks (i.e., those that are less dependent on the short term funds might actively manage their net funding requirements over a slightly longer period, perhaps one to three months ahead.

Therefore, considering all the above facts with measures of liquidity risk, the three important ratios such as Loan to Deposit ratio, Liquid Assets to Total Assets ratio, and Liquid Assets to Current Liabilities ratios will be considered in this study as measures of liquidity risk ratio.

2.5 Methodology for Liquidity and Financial Profitability Ratio Analysis

According to Y.P. Singh (2007) Methodology for ratio analysis is as follows: First, selection of relevant data from the financial statements depending upon the objective of the analysis. Second, Calculation of appropriate ratios based on first step. Third, comparing calculated ratio of the institution in the different periods that have difference from time to time and, lastly interpretation of ratio. Therefore, this study should follow this method for giving meaning full results and discussion in the descriptive analysis of the selected private commercial banks in Ethiopia from 2007 to 2018 of the financial profitability and liquidity measures in the study periods.

2.6 Operational Variables Definition

2.6. 1 Dependent Variables

A. Return on Asset (ROA)

Many scholars and researchers also used ROA as a measure of bank financial performance in terms of profitability measures and also this study will be used it because ROA shows the ability of a bank's management to generate profits from the bank's assets. The higher ROA means better performance while the lower ROA is low performances. Mathematically ROA can be calculated as follow:

ROA = Net Income after Tax / Total Assets

This is probably the most important single ratio in comparing the efficiency and operating performance of banks as it indicates the returns generated from the assets that bank owns.

B. Return on Equity (ROE)

Even though, ROE provides useful information about bank profitability (performance). They are more concerned about how much the bank is earning on their equity investment. Mathematically it will be calculated as follow:

ROE = Net Income after Tax / Total Shareholders' Equity

C. Net Interest Margin (NIM)

The last but not the least to measure of bank profitability is called the Net Interest Margin (NIM), the difference between interest income and interest expenses as a percentage of total loans and advances, which includes also interest income from other interest bearing assets such as deposits with foreign banks, treasury bills and other investments. One of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. **NIM = Net Interest Income / Total Loans & Advances**

NIM measures how well a bank manages its assets and liabilities, which is affected by the spread between the interests earned on the bank's assets and interest costs on its liabilities. This spread is exactly what the net interest margin measures.

2.6.2 Independent variables

Liquidity is the independent variable and it is measured by liquidity ratios including Loan to Deposit ratio **(LDR**), Loan to Assets ratio (**LAR**), and Liquid Assets to Current Liabilities (Deposits) ratio (**LACR or LADR**) or Liquid Asset to total asset ratio (**LAR**). Liquidity ratio shows the ability of banks to match its financial obligations within period to avoid default risk or financial distress in the future (Ross, Westerfield & Jaffe, 2005). Ratios will be applied to measure banks' ability to meet its short term obligations, keep its cash position and collect interest receivables. With general perspective, the higher the liquidity position is, the greater its ability to cover periodical obligations and guarantee safety for both its customers and depositors. Approaches to liquidity ratio in this study which are considered as independent variables include:

A. *Loan to Deposits Ratio(LDR)*

Loan to deposit ratio is the most commonly used liquidity ratio by both bank and analysts. Basically, it measures the liquidity condition of the bank. For a listed bank, there are pressures from shareholders to see profit from bank's operation. Generally, with higher LD ratio, the more likely the bank is relying on borrowed funds. If receivables from loans are delayed or withdrawals from deposit side exceeds new deposit significantly over a short term of period, bank will take more financial stress by having excessive loans and more risky to meet depositors' obligations by selling an amount of loans at loss (Ross, Westerfield & Jaffe, 2005).

Loan to Deposits = Total Loans / Total Deposits

B. ***Total Customers' Deposit to Total Asset Ratio (TDAR)***

Total Customers' Deposit to Total Asset Ratio is also an important ratio which measures the liquidity of a bank. It measures liquidity of the bank in terms of bank's total assets. It shows the proportion of total assets of the bank has invested for loans. The higher LA ratio is the less liquidity of the bank and at the same time, higher potential profitability the bank can enjoy with exposure to liquidity risk (Ross, Westerfield & Jaffe, 2005).

Loan to Assets = Total Loans / Total Assets

C. ***Liquid Assets Position Ratio(LADR)***

It is the composition of the balance sheet relating liquid (short term) assets to volatile rate-sensitive liabilities where the difference between the two is the net liquidity position of the bank (deficit or surplus) and is a measure of its exposure to liquidity risk. As it is mentioned earlier in the literature part, this measure is being used as controlling mechanism or measure of liquidity for commercial bank by the central bank(NBE) enforcing them to maintain a certain level of liquid assets vis-à-vis their current liabilities revising from time to time. The current liabilities are here expressed in terms of customers' deposits.

Liquid Assets Position = Total Liquid Assets/Total Deposits

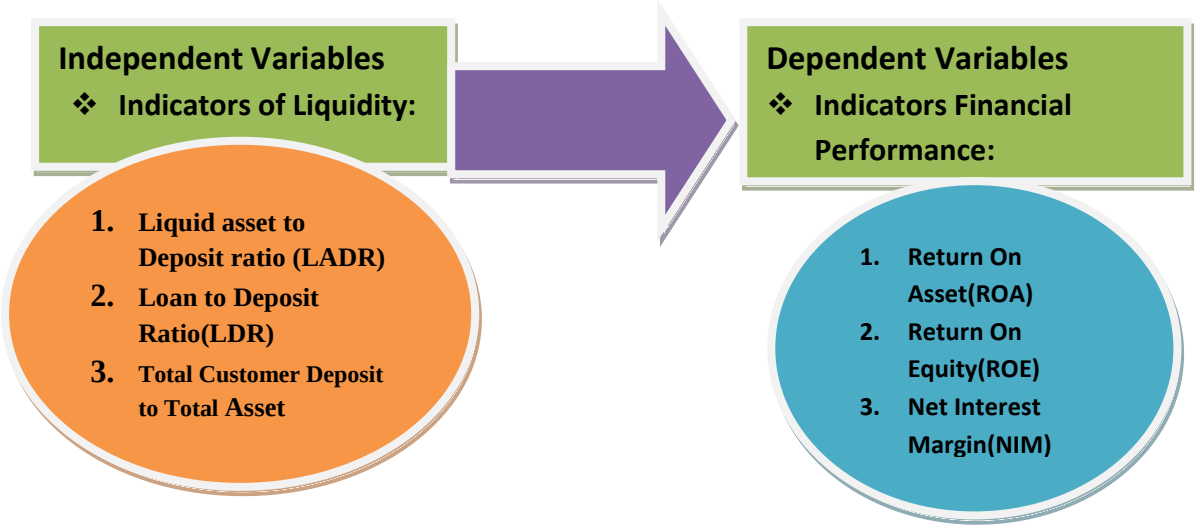
D. **Liquid Asset to Total Asset (LATAR)**

Liquid Asset to total asset ratio is a liquidity indicator which measures the ability of a bank to absorb liquidity shocks. A high ratio means a high ability to absorb shocks. Its formula is as follow:- **Liquid Assets to Total Asset = Total Liquid Assets/Total Asset**

Liquid asset to total asset ratio measures the ability of a bank to absorb liquidity shocks. A high Liquid asset to total asset ratio means a high ability to absorb shocks. If an asset is moderately (or very) liquid, it has moderate (or high) liquidity. In an alternative definition, liquidity can mean the amount of highly liquid assets. If a business has moderate liquidity, it has a moderate amount of very liquid assets. If a business has sufficient liquidity, it has a sufficient amount of very liquid assets and the ability to meet its payment obligations (Wikipedia).

2.7. Conceptual Framework

Since the objective of the study would be to identify the Indicators (measurements) of Independent (endogenous) variables on Financial Performance as dependent (exogenous) variables thus the conceptual framework of this study is given bellow:



Source:-The researcher develops this diagram by reading different literatures

2.8 Summary and Knowledge Gap

In line with the above theoretical, empirical review and Conceptual research framework of 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 and to manage liquidity risk. Banks liquidity can be affected by different factors such as bank specific such as loan, liquid asset, liabilities (deposit), macroeconomic and regulatory factors. This study focused only on some of the bank Liquidity indicators (measurement) affecting liquidity and their effect on financial profitability.

Unlike empirical studies, theories on bank liquidity and its risk are well organized. In this study the review of the empirical studies done on the bank liquidity and its effect on financial profitability were done following the U.S. subprime mortgage crisis. Although liquidity problems of some banks during financial risk, 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 because the problem of liquidity risk on financial institutions. Only few studies aimed to identify Liquidity indicators such as loan to deposit , causality of liquidity with profitability. Studies cited above suggest that banks' liquidity

is determined by bank Liquidity indicators (measures) such as loan to liabilities(deposit), liquid asset to Total Asset, liquid asset to deposit and short term financing, loan to deposit and short term financing), the central bank decisions and etc. There are also very limited number of studies come into view include liquidity as an explanatory(independent) variable for banks' profitability such as ROA & ROE , this relationship is not the focus of those researches and the empirical results were mixed. To the knowledge of the researcher there is a little empirical studies done regarding effect of liquidity on financial profitability in the case of the selected Private commercial banks. Even if the researches made by Tseganesh (2012) focused on some part of this research (i.e. the effect of bank liquidity on financial performance), the method used to see the effect of bank liquidity on financial profitability in this study is through the significant factors affecting profitability. It is important to notify the important indicators of banks liquidity and its effect on financial performance by making empirical investigation to already established banks. Therefore, the study investigated three of the selected private commercial banks' liquidity indicators and their effect on financial profitability.

Chapter Three

3. Methodology of the study

3.1. Research design

Research design is the '**blue** print' of the study. Research design is the framework that has been created to seek answers to research hypotheses/questions. Many research designs could be used to study business problems (Hair et al., 2011). The research design could be categorized or classified into three groups, namely exploratory, descriptive and explanatory studies (Saunders et al., 2009, p.138 and 139). According to Hair et al., 2011exporatory study is performed when the researcher has little information. This accord with Ghauri and Gronhaug (2005. p.58) who state : 'When the research problem is badly understood, a (more or less) exploratory research design is adequate''. It is particularly useful to clarify the understanding of a problem, such as if you are unsure of the precise nature of the problem (Saunders et al., 2009, p.139). Therefore, exploratory research must be flexible and adaptable to change. That is to say, researchers are willing to change their direction as result of new data that appear and new insight that occur to them (Saundres et al., 2009, p.140). A number of researchers have claimed that the exploratory approach leads to new and useful theories building. But there is also the danger that the research will produce false leads or useful theories (Armstrong, 1970, p.2). Bobbie (2004) states that the major shortcoming of this research designs is that it seldom provides satisfactory answers to the research question.

As to the descriptive studies researchers are designed to obtain data that describe the characteristics of the topic of interest in the research (Hair et., 2011, p. 148). The objective of descriptive study is to represent an accurate profile of persons, events or situations (Robson, 2002, cited in Saunders et al., p. 140). In descriptive research, the research problem is structured and well understood (Ghauri and Gronhaug, 2005, p.58). Saunders et al (2009) expanded the idea like it is necessary to have a clear picture of the phenomena on which you wish to collect data prior to the collection of data. Compared with the exploratory study, descriptive study would give the readers a comforter answer addressed to the research question. In other words, it is used for testing hypothesis (Hair et al., 2011, p.149).

The last category is explanatory study (Saunders et al.,2009, p.140) or in some book scaled 'causal research design'' (Hair et al., 2011, p.147). In this research, the problems are well structured as in descriptive studies. In contrast to descriptive studies, the researcher is facing with 'causes –and –effects'' problems. The main task is to separate such causes and to say to what extent they lead to such effects (Ghauri and Gronhaug, 2005, p.59). In other word, it is to explain the causal relationship between variables (Saunders et al., 2009,p.140).

Based on the study of three research designs and the purpose of this research, the explanatory study was the most suitable for the topic and also the study was used cross-sectional study in which data gathered just once over the period from 2007 to 2018. Even though this research starts with the description about liquidity indicators and financial performance (profitability) of the selected private commercial banks in Ethiopia in the study period, its ultimate goal was to test if the relationship exists and how the liquidity indicators can affect or effect on financial performance of the selected private commercial banks in Ethiopia. Therefore, this study as considered explanatory approach/study as this research design and the study was adopted an explanatory design by using descriptive (inferential statistics), Correlations, CLRM assumptions and Regressions to realize a stated objective of the study.

3.2 Population of the study

The total private commercial banks those are operating in banking industry in Ethiopia were sixteen (16). These private commercial banks in Ethiopia are the total population of this study for this study period from 2007 to 2018. The following are name of all private commercial banks in Ethiopia with their year of establishment in banking industry.

Table 3.2.1 Population of Private commercial banks in Ethiopia with their year of establishment

No.	Name of private commercial banks in Ethiopia	Year of Establishment
1	Awash International Bank(AIB)	1994
2	Dashen Bank (DB)	1995
3	Abysinian Bank (BOA)	1996
4	Wegagen Bank (WB)	1997
5	United Bank (UB)	1998
6	Nib International Bank (NIB)	1999
7	Cooperative Bank of Oromia (CBO)	2004
8	Lion International Bank (LIB)	2006
9	Oromia International Bank (OIB)	2008
10	Zemen Bank (ZB)	2008
11	Buna International Bank (BUIB)	2009
12	Berhan International Bank(BIB)	2009
13	Abay Bank (AB)	2010
14	Addis International Bank (ADIB)	2011
15	Debub Global Bank (DGB)	2012
16	Enat Bank (EB)	2012

Source: - National Bank of Ethiopia, 2018

3.3 Sample Size and Sampling Technique

This study was conducted in Ethiopia, in case of the selected private commercial banks to assess the effect of liquidity ratio indicators on financial profitability ratio indicators. In order to make analysis about effect of Liquidity on Financial Profitability of the commercial banks as the sources of data from National Bank of Ethiopia was used.

From the table above the first eight (8) selected private commercial banks of Ethiopia were taken based on their service experience and year of establishment for the study by using judgmental or purposively sampling techniques for assessing the effect of liquidity on financial profitability for 12 years from 2007 to 2018. So as it is necessary to analysis liquidity ratio with financial profitability ratio to satisfy liquidity risk management and financial profitability need.

In the this study, as the number of private commercial banks in the industry is small, but taking the sample size from the sample frame (population) as a result the sample size were 8 private commercial banks in Ethiopia. To this end, the accuracy and validity of the works would be never guaranteed by increasing the number of bank (sample). This is due to the fact that increasing the number of banks (sample size) for ones' study never add value to the accuracy of the study rather it made information unmanageable due to redundancy (Ayalew, 2011). Even all banks in Ethiopia are under the umbrella of National Bank of Ethiopia's regulative which makes them similar. That is why this study used 8 selected private commercial banks in Ethiopia for the consecutive twelve years (i.e 2007 to 2018) audited balance sheet and income statement reports have been used for the study. This time shows half life of the banks' financial performance after the banks were full fledged. Therefore, the matrix for the frame was including Ninety six (96) observations.

3.4 Sources of Data Collection

Regarding the sources of data the researcher used secondary sources of data. Secondary data obtained from National Bank of Ethiopia. The secondary data sources are the audited balance sheet and income statement of the selected private commercial banks in Ethiopia by collecting the data from National Bank of Ethiopia and their annual audited report bulletins.

3.5 Method of Data Collection

Data collection is an important aspect of any- type of research study. So, appropriate attention was given for it while inaccurate data collection can impact the result of a study an ultimately lead to invalid results. For this research study, the researcher used mainly quantitative methods for data collection. So, the researcher collected secondary data from audited financial statements mostly

the balance sheet, income statement, annual reports, audit and inspection results, published and unpublished documents, of the selected private commercial banks in Ethiopia for the consecutive twelve years (2007 up to 2018) for the purpose of this research study from National Bank of Ethiopia.

3.6. Method of Data analysis

The collected data is analyzed by using descriptive statistics, correlations, CLRM assumptions and multilevel linear regression analysis. The data analysing was supported by Excel for tables and SPSS for all statistical analyses. In order to assess to the level of importance of each variables, the research was used Ratios, mean, minimum, maximum and standard deviation values can be computed.

Both Microsoft offices excel and SPSS (Statistical Package for Social Science (version 20for windows)) was used for data analysis of liquidity and financial performance in terms of profitability ratio indicators of the selected private commercial banks in Ethiopia for the study period.

3.7 Model Specification

The research was made the computation of certain measures along with searching for patterns of relationships that was exist among variables were subject to statistical test of significance to determine with extent of validity of data for conclusions (Kothari, 2004).

Given the cross sectional nature of the data being made for commercial banks may make the assumption of independence attainable to use linear regression. To this end, the use of the method which accounts for the dependence of observation of the selected private commercial banks in the study period from 2007 to 2018 could result in improved estimation of model parameters.

Hence, this study was employed one of the model techniques called the multi-level model. More precisely, the study was used a three –level linear regression model. The following models represent the effect of liquidity on financial performance (profitability) measures. The model is represented mathematically as follows:-

$$\mathbf{Y_1=\beta_o+\beta_1(X_1)+\beta_2X_2+\beta_3X_3+ ë}\text{----------1}$$

$$\mathbf{Y_2=\beta_o+\beta_1(X_1)+\beta_2X_2+\beta_3X_3+ ë}\text{----------2}$$

$$\mathbf{Y_3=\beta_o+\beta_1(X_1)+\beta_2X_2+\beta_3X_3+ ë}\text{----------3}$$

Where Y_1, y_2 and y_3 represents selected private commercial bank's financial profitability measured by ROA, ROE and NIM respectively; and the rest of the terms in the model constitute the fixed part of the model where X_1, X_2 and X_3 represent the predictors (independent variables of Loan to Deposit ratio (LDR), Liquid Asset to Deposit ratio (LADR) and Total Customer deposit to Total Asset ratio (TDTAR) respectively, and $\beta 1$, $\beta 2$ and $\beta 3$ represent model parameters (coefficients values of the 3 independent variables), β_0 is a constant parameter /term where as **ë** used as error term.

CHAPTER FOUR

4. DATA ANALYSIS, RESULTS AND DISCUSSIONS

In this chapter the findings using the data collected and the analysis on them using various statistical tools are presented and discussed. The chapter has one six sections. Under the first two sections (section 4.1), descriptive analysis of both the dependent and independent variables (using tables) were presented and analyzed following by the descriptive analysis and also correlation analysis under section 4.1 and 4.2 respectively were discussed. Again Section 4.3 and 4.4 were testing CLRM assumptions and Fixed versus Random effect model respectively discussed. Under section 4.5, the results of the regression analysis are presented and discussed for the results of the regression analysis are made under this section. At the end of section 4.6 there was the summary of findings in this chapter..

4.1 Descriptive Statistics of Variables

In this section descriptive statistics for the dependent variables; Return on Asset (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) and also explanatory variables involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in the table below. These figures are gives overall description about data used in the regression models**.**

The table below shows descriptive statistics for all variables. Return on Asset, Return on Equity, and Net Interest Margin all have a positive mean value 2.78, 31.53, and 5.88 respectively. There is greater variation in the data set of Return on Equity, because the banks are employed more capital, which increases private commercial banks' ROE. Total customer Deposit to total asset ratio, Loan to Deposit and Liquid Asset to Deposit are show high mean value of 76.19, 64.59 and 43.45 respectively. Liquidity ratios which measured by total customer deposit to total asset ratio has been a highest mean value, that means there is no **liquidity problem** because the data shows its level of total deposits greater than the total assets.

Table 4.1: Descriptive statistics of variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Loan to Deposit Ratio	96	40	97	64.59	10.792	116.470	.693	.246	.344	.488
Liquid Asset to Deposit Ratio	96	17	138	43.45	20.947	438.761	1.246	.246	3.023	.488
Total Customer Deposit to Total Asset Ratio	96	45.90	86.40	76.1885	5.76328	33.215	-1.756	.246	6.738	.488
Return on Asset Ratio	96	-1	5	2.78	1.046	1.095	-1.137	.246	2.387	.488
Return on Equity Ratio	96	-3	40	21.53	8.480	71.906	-.587	.246	.938	.488
Net Interest Margin	96	3	14	5.88	2.351	5.529	1.598	.246	2.613	.488
Valid N (listwise)	96									

Source: SPSS version-20 output taking data from* selected private Commercial Banks' *financial statements

As shown in table 4.1 above, Return on Asset (ROA) has a mean value of 2.78, which means that during the study period the sample eight private banks on average earned a ROA of 2.78%, with the maximum and minimum being 5% and -1%, respectively. The standard deviation for ROA was 1.046% and its range was 6, which imply that was moderate variability in the data for the profitability measures in the study period for the selected private commercial banks in Ethiopia. And also Return on Equity (ROE) has a mean value of 21.53, which means that during the study period the sample eight private banks on average earned a ROE of 21.53%, with the maximum and minimum being 40% and -3%, respectively. The standard deviation for ROE was 8.480% and its range was 43%, which imply that was high variability in the data for the profitability measures in the study period for the selected private commercial banks in Ethiopia. Lastly, Net Interest Margin (NIM) has a mean value of 5.88, which means that during the study period the sample eight private banks on average earned a NIM of 5.88%, with the maximum and minimum being 14% and 3%, respectively. The standard deviation for NIM was 2.351% and its range was 11, which imply that was moderate variability as compared to in the data for the profitability measures in the study period for the selected private commercial banks in Ethiopia. It means that almost the selected private Commercial Banks in Ethiopia are applying relatively consistent interest rate on all kinds of finances and few variations were observed in net interest margin. As a result, its net interest income is almost similar because the National Bank of Ethiopia is set the interest rate per loans and advances for the selected private Commercial Banks in Ethiopia as well as for other banks.

With regard to independent variables which are expected to affect the profitability of the Selected private Commercial Banks in Ethiopia, the highest variability is observed on liquid asset to deposit ratio (LADR) where there is 20.947% deviations from its mean of 43.45 % and difference of 121% between the maximum and minimum of the LADR followed by Loan to deposit ratio (LDR) having standard deviation of 10.792% of the Selected private Commercial Banks in the study period. Similarly, there is a variation of Total customer deposit to total asset ratio of the selected private Commercial Banks with 5.76% standard deviation which is a less dispersion is observed in total customer deposit to total asset ratio of the Selected private Commercial Banks. The variations or the difference between the minimum and the maximum values of the variables of the Selected private Commercial Banks are also illustrated in the table 4.1 for a better understanding on each variable in this regard.

4.2 Correlation Analysis

In this section the correlation analysis between the dependent and independent variables are discussed. The correlation analysis between the dependent and independent variables (profitability measures) and explanatory variables (liquidity indicators) are presented based on the correlation matrix of table 4.2 from SPSS version 20 outputs. The dependent variables are ROA, ROE and NIM while independent (explanatory) variables are LDR, LADR and TDAR. Correlation is a degree to which two or more variables are associated with to each other that means the variables are related together. Correlations are useful because they can indicate a predictive relationship that can be exploited in practice. The most common and widely used bi-variant correlation statistics is the Pearson product movement coefficients for this study since the data of the variables are continuous type but other correlation products are used mainly for ranked data such as Spearman and Kendall's (Ajais Gaur,2009). Therefore, Pearson's Correlation coefficient is appropriate for this study.

The value of correlation coefficients ranges from -1 to +1. If the Pearson correlation coefficient is positive one (+1) in the case of a perfect direct (increasing) linear relationship (correlation) which is a strong correlation or if the Pearson correlation is negative one (-1) in the case of a perfect decreasing (inverse) linear relationship (anti-correlation) and some value between -1 and +1 in all other cases, indicating the degree of linear dependence between the variables. As it approaches to Zero, there is less of a relation (closer to uncorrelated). The closer coefficient is either to -1 or +1, indicates there is a stronger correlation between the variables (Quinn and Keough, 2002). The values in the parentheses are P-values and the coefficients are tested at 1% and 5% significant level for the degree of correlation.

Table 4.2: Pearson Correlation Coefficient Matrix of the Variables

Correlations

		Loan to Deposit Ratio	Liquid Asset to Deposit Ratio	Total Customer Deposit to Total Asset Ratio	Return on Asset Ratio	Return on Equity Ratio	Net Interest Margin
Loan to Deposit Ratio	Pearson Correlation	1	-.213*	-.119	-.162	-.138	.034
	Sig. (2-tailed)		.037	.248	.115	.180	.740
	N	96	96	96	96	96	96
Liquid Asset to Deposit Ratio	Pearson Correlation	-.213*	1	-.540**	-.106	-.126	-.319**
	Sig. (2-tailed)	.037		.000	.303	.223	.002
	N	96	96	96	96	96	96
Total Customer Deposit to Total Asset Ratio	Pearson Correlation	-.119	-.540**	1	.109	.378**	.053
	Sig. (2-tailed)	.248	.000		.290	.000	.607
	N	96	96	96	96	96	96
Return on Asset Ratio	Pearson Correlation	-.162	-.106	.109	1	.806**	-.141
	Sig. (2-tailed)	.115	.303	.290		.000	.170
	N	96	96	96	96	96	96
Return on Equity Ratio	Pearson Correlation	-.138	-.126	.378**	.806**	1	-.213*
	Sig. (2-tailed)	.180	.223	.000	.000		.038
	N	96	96	96	96	96	96
Net Interest Margin	Pearson Correlation	.034	-.319**	.053	-.141	-.213*	1
	Sig. (2-tailed)	.740	.002	.607	.170	.038	
	N	96	96	96	96	96	96

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

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

Source: SPSS version-20 output taking data from* selected private Commercial Banks' *financial statements

4.2.1 Correlation Analysis between Return on Asset and Explanatory Variables

From the above table 4.2, ROA is negatively correlated with liquidity measures such as loan to deposit ratio and liquid asset to deposit ratio with correlation coefficient of -0.162 and -0.106 respectively. ROA moves to the opposite direction with loan to deposit ratio and liquid asset to deposit ratio. This show as loan to deposit ratio and liquid asset to deposit ratio decrease while ROA increase or vice versa. That means the selected private commercial banks' loans to deposits and liquid asset to deposit ratio were utilized as investment which was no idle liquidity in banks in the study period. But total customers deposits to total assets ratios are the most positively correlated with ROA. This correlation clearly shows that, as the total customer deposits to total assets ratio is increases or decreases, the financial profitability of the selected private

Commercial Banks which is measured by the ROA moves to the same direction. That means when liquid asset to deposit ratio and total customers deposits to total assets ratios were decrease while commercial banks' ROA was increase or vice versa in the study period. Because, the total customer deposits to total assets ratio correlation coefficient is positive, this is 0.109. Over all, ROA, as a profitability measure of selected private Commercial Banks, is correlated with other independent variable positively or negatively.

4.2.2 Correlation Analysis between Return on Equity and Explanatory Variables

As it can be seen from the above table 4.2, it is similar to ROA, ROE is also correlated negatively with loan to deposit ratio (LDR) and also negatively correlated with Liquid asset to deposit ratio (LADR) but positively correlated with total customer deposits to total assets ratio (TCDTAR) with coefficients of +0.378 which is significant correlation ship with ROE. ROE is negatively and less correlated with liquid asset to deposit ratio (LADR) and loan to deposit ratio (LDR) with coefficients of -0.126 and -0.138 respectively. Hence, the higher the ratio on liquidity measures of the total customer deposits to total assets ratio (TCDTAR) in the selected private Commercial Banks, the more the profitability of the bank measured by ROE but with insignificant margin and vice versa. However, the lower liquidity ratio measured by liquid assets to deposit ratio and loan to deposit ratio (LDR) the high the profitability of the selected private Commercial Banks measured by ROE. Hence, as we say low liquid assets to deposit ratio and loan to deposit ratio (LDR), it means there are low fund in high of customers' deposits and other commitments for the bank and this might be due to contribution of capital by the shareholders and if this fund is invested in short-term income earning assets, it would generate income and then an increasing in ROE or vice versa.

4.2.3 Correlation Analysis between Net Interest Margin and Explanatory Variables

One of a Private commercial banks' primary intermediation functions is to issue loans and use the proceeds to sales income-earning assets, Loans to customers', and Net Interest Margin (NIM) can be measured as the difference between interest income and interest expenses as a percentage of loans and advances. The correlation analysis between profitability measures; net interest margin and explanatory variables; Loan to Deposit ratio (LDR) , liquid asset to deposit ratio (LADR) and total customer deposits to total assets ratio (TDAR) are done.

From the above table 4.2, we can describe that the net interest margin (NIM) is positively correlated with liquidity measures of total loans to deposits ratio (LDR) and total customer deposits to total assets ratio (TDAR) with correlation coefficients of 0.034 and 0.053 respectively. This shows that LDR and TDAR are also weak/less correlated with NIM. However,

NIM is negatively correlated with liquid assets to deposits ratio (LADR) with correlation coefficient of -0.319 which shows a significant relationship with NIM. This shows that the inverse relationship between liquid assets to deposits ratio with NIM, in that the higher the liquidity ratio in terms of liquid assets to deposits , the less the profit would be earned in terms of NIM as the idle fund (liquid asset) might not be lent out or invested to bear interest and hence less interest income. While concerning to the positive correlation between LDR and TDAR with NIM, the higher the ratio in these liquidity measures, the higher the profit could be earned by NIM measured but at higher margin due to LDR and TDAR. But the higher the ratios in these measures imply the higher liquidity risk as the fund from customer deposits and other own bank cash convertible assets are tied with loans granted to customers. Therefore, liquidity is positively correlated in terms of LDR and TDAR with profitability measured in terms of NIM but it is negatively correlated with profitability measured (NIM) in terms of LADR in this study period of selected private Commercial Banks in Ethiopia.

4.2.4 Correlation Analysis between Independent Variables

A situation when two or more independent or explanatory variables are highly (strongly) correlated with each other that exist a multicollinearity case and then its significance should be taken, it needs a researcher judgement to review different articles in commonly used journals in one stream to find out the acceptable correlation in multicollinearity problem (Ajais S,Gaur,2009). Quinn and Keough (2002) and Malhotra (2007) argued that the correlation coefficient between independent (explanatory) variables can be 0.7 which is not more than two variables.

Table 4.3:- Correlation between Explanatory Variables

Correlations

		Loan to Deposit Ratio	Liquid Asset to Deposit Ratio	Total Customer Deposit to Total Asset Ratio
Loan to Deposit Ratio	Pearson Correlation	1	-.213*	-.119
	Sig. (2-tailed)		.037	.248
	N	96	96	96
Liquid Asset to Deposit Ratio	Pearson Correlation	-.213*	1	-.540**
	Sig. (2-tailed)	.037		.000
	N	96	96	96
Total Customer Deposit to Total Asset Ratio	Pearson Correlation	-.119	-.540**	1
	Sig. (2-tailed)	.248	.000	
	N	96	96	96

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

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

Source: SPSS version-20 output taking data from Selected Private Commercial Banks' financial statements

Table 4.3 shows that the correlation between explanatory variables such as Loan to Deposit ratio (LDR), liquid asset to deposit ratio (LADR) and total customer deposits to total assets ratio (TDAR) included in this study are presented and analyzed.

A suggested rule of thumb is that if the pair wise correlation between independent variables is very high, in excess of 0.7 with significant, multi collinearity may pose serious problem Quinn and Keough (2002) and Malhotra (2007). According to table 4.3 show that no multicollinearity exists among selected independent variables since significant correlation coefficients are less than 0.7 that means no perfectly correlated to each others.

4.3 Testing Classical Linear Regression Model Assumptions

In this section, the researcher carried out relevant diagnostic testing to identify for any violation of the underlining assumption of the classical linear regression model (CLRM). Five assumptions were made which ensures that the estimation technique, ordinary least square (OLS), to have number of desirable properties, and that hypothesis test regarding the coefficient estimates could validity conducted. Specifically, it was assumed that average value of the error term is zero, the variances of the errors are constant (homoscedastic), the covariance between the error-terms are zero (no autocorrelation), the error –terms are normally distributed (normality) and explanatory variables are not perfectly correlated (absence of multicollinearity) Guajirat (2004) and Brooks (2008).

4.3.1 Testing for the Average Value of Error-term is Zero (E(u)=0)

The first CLRM assumption requires, the average value or mean of the errors term should be zero. As per Guajirat (2004) and Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term was included in the regression equation, this assumption is expected to be not violated. For more details we can see under section 4.3.5 and 4.5 and also appendix (V).

4.3.2 Multicollinearity Test

Multicollinearity means the existence of a perfect or exact linear relationship among some or all explanatory variables (Gujarati, 2004). As noted in Gujarati (2004) if multicollineartiy is perfect, the regression coefficients of explanatory variables are not determine and their standard errors are infinite or unlimited. If multicollinearity is less than a perfect correlation, the regression coefficients, although determinate, posses large standard errors (in relation to the coefficients themselves), which means the coefficients cannot be estimated with great precision or accuracy.

Furthermore, Variance inflation factor (VIF) and Tolerance are also used to test multicollinearity problem. As we observed from table 4.3 and appendix (V) the study has no multicollinearity problem, because the Tolerance and VIF of the study is not equal to zero and not greater than 2

respectively. In this case the assumption of the classical linear model assumption was fulfilled. Therefore, the study has no multicollinearity problem.

4.3.3 Heteroskedasticity Test

The homoskedasticity is one of the assumptions of the Classical Linear Relationship model (CLRM) which states that the variance of the errors must be constant. If the errors do not have a constant variance, they are said to be heteroskrdastic (Brooks,2008).

4.3.4 Autocorrelation Test

According to Brooks (2008), the variance between the error terms over time (or cross sectional, for that type of data) is zero. That means, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto-correlated or they are serially correlated. For more details we see the appendix (II) scatter plots.

In the model to test the presence of the autocorrelation, the Durbin –Watson test is used. As noted in Brooks (2008), Durbin Watson is a test for first order autocorrelation (it is a test for a relationship between an error and its immediate previous value). If Durbin Watson test approaches to two, it is an indication of the absence of autocorrelation. Therefore, in this study the Durbin Watson test of 2.038, 2.048 and 2.046 of ROA,ROE and NIM respectively are closer to two shows the absence of autocorrelation problem in this study.

4.3.5 Normality Test

In CLRM, Normality assumption is required in order to conduct single or joint hypothesis tests about the model parameters. In this study to check whether the normality test was adequately meet, the histogram graphic was used. If the residuals are normally distributed, the histogram should be bell-shaped picture or symbolic (Brooks, 2008). Figure 4.1, 4.2 and 4.3 shows that the shape of the histogram indicates that the residuals are normally distributed around its mean of zero and standard deviation of one. Therefore, the study has no normality problem. For more details we see the below histograms.

Figure 4.1 Normality Test of NIM Model

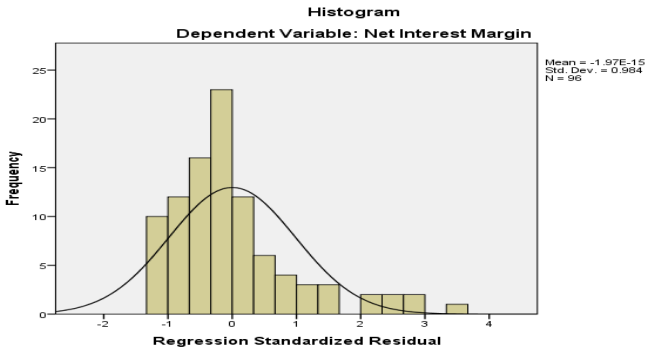


Figure 4.2 Normality Tests of ROA Model

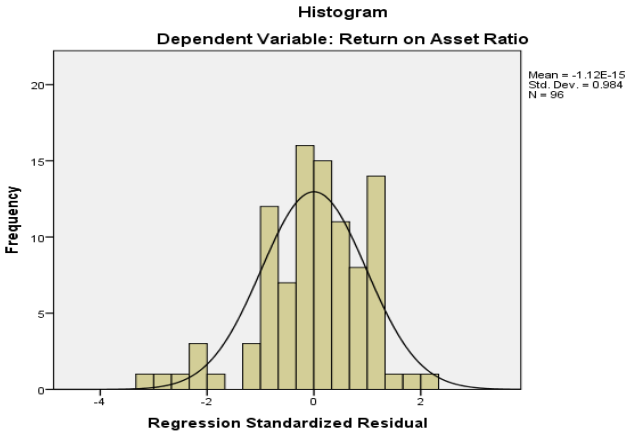
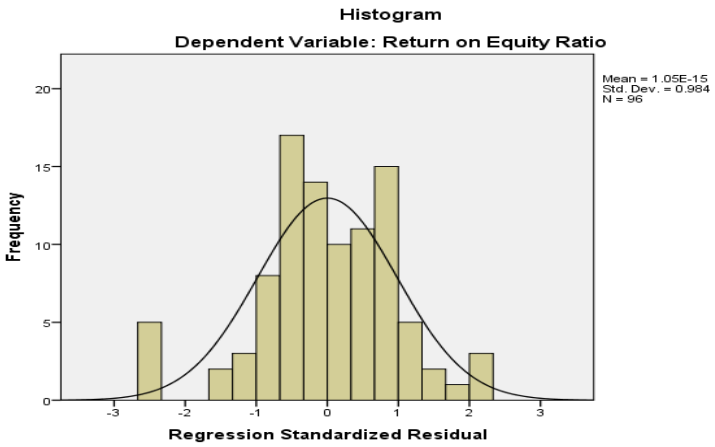


Figure 4.3 Normality Tests of ROE Model



4.4 Fixed Effects versus Random Effect Model Tests

The two classes of panel estimator approaches that can be employed in financial research are fixed effect and random effect models. The random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population of study while fixed effect model is more appropriate when the entities in the sample effectively constitutes the entire population (Brooks, 2008). Beside to this, as per Gujarati (2004), if the number of time series data is large and the number of cross –sectional units is small, there is likely to be little difference in the value of the parameters estimated by fixed effect model and random effect model.

Therefore, in this study the number of cross section units is 8 and the number of time series data is twelve (12) which is more than the cross section units and also since the sample of private commercial banks were not selected randomly, the fixed effect model is more appropriate to this study which is the effect of liquidity on financial profitability in the selected private commercial banks in Ethiopia.

4.5 Regression Analysis Results and Discussion

In this case the discussion concerns the regression results of fixed effect model that assess the effect of liquidity on financial profitability in selected private commercial banks in Ethiopia from a period of 2007 to 2018. In this study , liquidity ratio measured by loan to deposit ratio, liquid assets to deposit ratio and total customer deposit total assets ratio while financial profitability measured by ratio of ROA, ROE and NIM are the results of regression analysis as below. This section presents the overall empirical results of the regressions.

4.5.1 Regression Analysis between Return on Asset and Explanatory Variables

The regression that has been depending on the multilevel linear regression model for ROA along with the explanatory variables and the regression result is summarized and presented from the SPSS output under table 4.4 below and appendix III (2). This (table 4.4 and appendix III (2)) implies that R-squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variables. The value of R square ranges between zero to one i.e (zero to 1), by dividing the regression sum of square to total sum of square (Mengistu, 2013).

Table 4.4:- Regression analysis result between ROA and explanatory variables

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.146	2.228		1.861	.066		
	Loan to Deposit Ratio	-.019	.011	-.191	-1.758	.082	.877	1.140
	Liquid Asset to Deposit Ratio	-.007	.006	-.142	-1.105	.272	.630	1.586
	Total Customer Deposit to Total Asset Ratio	.002	.023	.010	.078	.938	.651	1.536

a. Dependent Variable: Return on Asset Ratio

Notes : R=0.217[a], R^2 = 0.47; Durbin-Watson =0.890 and ,ANOVA Regression sum of square=4.896, Residual sum of square= 99.112, Mean Square of Regression =1.632,Mean square of residual=1.077 ,Where ‘’a’’ is Predictors in model summary: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio. and ‘’ b’’ is Predictors in ANOVA: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio

Sources: Research Findings

The table 4.4 above shows the regression result of the selected private commercial banks' financial profitability which is measured by ROA as dependent variable and the explanatory variables of LDR,LADR and TDTAR. In table 4.4 the R value 21.7% implies the correlation between dependent variable and independent variables indicators of ROA and Liquidity ratio indicators respectively. Whereas the R^2 value of 47% indicates that the variables in this model such as Loan to deposit, liquid assets to deposit and total customer deposit to total assets are representing 47% which show how much the explanatory variables have a power to represent the model. The value of R^2 is 0.47, revealing 47% variability in profitability accounted by the liquidity variables in the model developed in this study as below. Since the value of R square is representing 47 % to develop the model and then there is variability in financial profitability of the selected private commercial banks are based on the regression result between ROA and its explanatory variables such as Loan to deposit, liquid assets to deposit and total customer deposit to total assets.

Table 4 describes that Loan to deposit, liquid assets to deposit and total customer deposit to total assets had a negative effect on ROA and having a coefficient of -0.019, -0.007 and 0.002 respectively, which implies that one unit change in Loan to deposit, liquid assets to deposit and total customer deposit to total assets have -0.019 and -0.007 change on profitability in terms of ROA with the opposite direction respectively. But total customer deposit to total assets ratio has positive coefficient with 0.002. Thus, opposing to the researcher's expectation:- Loan to deposit, and liquid assets to deposits are not show any positive effect on the level of ROA of the selected private commercial banks in the study period while total customer deposit to total assets ratio shows show any positive effect on the level of ROA of the selected private commercial banks in the study period. On the other side Loan to deposit ratio, liquid assets to deposit and total customer deposit to total assets ratios are not show any positive and negative **significant** effect on the level of ROA of the selected private commercial banks in the study period. This regression model equation as follow:-

ROA= 4.146-0.019LDR-0.007 LADR+0.002 TDTAR---------- (1) Equation

From this regression equation (1) it was revealed that holding Loan to deposit, liquid assets to deposit and total customer deposit to total assets ratio to /with a constant zero, the financial profitability of the selected private commercial banks would be at 40.180. A unit **increase** in **LDR** and **LADR** would lead to decrease the financial profitability, ROA, of the selected private commercial banks by a factor of -0.019 and -0.007 respectively and vice versa. But a unit increase in **TDTAR** would lead to increase the financial profitability, ROA, of the selected private commercial banks by a factor of 0.002.When

financial performance (profitability) measured by ROA, the hypothesis test shows the following results of findings:-

- There is a negative insignificant effect of loan to deposit ratio and liquid assets to deposit on financial profitability, ROA, of the selected private commercial banks in the study period.
- There is a positive insignificant effect of total customer deposit to total assets ratio on financial profitability, ROA, of the selected private commercial banks in the study period.
- Generally, Liquidity measures have insignificant effect on ROA of the selected private commercial banks in the study periods particularly loan to deposit ratio, liquid assets to deposit and total customer deposit to total assets ratio on ROA.

4.5.2 Regression Analysis between Return on Equity and Liquidity Ratios

The regression that has been depending on the multilevel linear regression model for ROE along with the explanatory variables and the regression result is summarized and presented from the SPSS output under table 4.5 below.

Table 4.5: **Regression analysis result between ROE and explanatory variables**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-22.793	16.992		-1.341	.183		
	Loan to Deposit Ratio	-.056	.080	-.071	-.692	.490	.877	1.140
	Liquid Asset to Deposit Ratio	.034	.049	.083	.690	.492	.630	1.586
	Total Customer Deposit to Total Asset Ratio	.610	.175	.414	3.491	.001	.651	1.536

a. Dependent Variable: Return on Equity Ratio

Notes : R=0.395[a], R^2 = 0.156; Durbin-Watson =0.910 and , ANOVA Regression sum of square=1065.263, Residual sum of square= 5765.823, Mean Square of Regression =355.088,Mean square of residual=62.672, ,Where ''a'' is Predictors in model summary: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio. and '' b'' is Predictors in ANOVA: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio

Sources: Research Findings

The table 4.5 above shows the regression result of the selected private commercial banks' financial profitability which is measured by ROE as dependent variable and the explanatory variables of LDR,LADR and TDTAR. In table 4.5 the R value 39.5% implies the correlation

between dependent variable and independent variables indicators of ROE and Liquidity ratio indicators respectively. Whereas the R^2 value of 0.156 indicates that the variables in this model such as Loan to deposit, liquid assets to deposit and total customer deposit to total assets are representing 15.6% which show how much the explanatory variables have a power to represent the model. The value of R^2 is 0.156, revealing 15.6% variability in profitability accounted by the liquidity variables in the model developed in this study as below. Since R square is representing 15.6 % to develop the model and then there is variability in financial profitability of the selected private commercial banks are based on the regression result between ROE and its explanatory variables such as Loan to deposit, liquid assets to deposit and total customer deposit to total assets. Table 4.5 describes that liquid assets to deposit and total customer deposit to total assets had a positive effect on ROE and having a coefficient of 0.034 and 0.610 respectively, which implies that one unit change in a liquid assets to deposit ratio and total customer deposit to total assets have 0.034 and 0.610 change on profitability in terms of ROE with the same direction respectively. But Loan to deposit ratio has a negative insignificant effect on ROE and having a coefficient of -0.056 and change profitability in terms of ROE with the opposite direction. Thus, opposing to the researcher‘s expectation:- Loan to deposit ratios are not show any positive significant effect on the level of ROE of the selected private commercial banks in the study period while total customer deposit to total assets ratios are show a positive significant effect on the level of ROE. That means liquidity indicators such as liquid assets to deposit and total customer deposit to total assets ratios show a positive insignificant and positive significant effect on the level of ROE of the selected private commercial banks in the study period respectively but loan to deposit ratio shows a negative insignificant effect on the level of ROE of the selected private commercial banks in the study period. This regression model equation as follow:-

ROE= -22.79-0. 056LDR+0.0341 LADR+0610TDTAR---------- (2) Equation

From this regression equation (2) it was revealed that holding Loan to deposit, liquid assets to deposit and total customer deposit to total assets ratio to /with a constant zero, the financial profitability of the selected private commercial banks would be at **-22.79**. A unit **increase** in **LDR**, **LADR** and **TDTAR** would lead to decrease the financial profitability, ROE, of the selected private commercial banks by a factor of -0.056, 0.034 and 0.610 respectively. When financial profitability measured by ROE, the hypothesis test shows the following results of findings:-

- There is a positive significant effect of total customer deposit to total assets ratio on financial profitability, ROE, of the selected private commercial banks in the study period.
- There is a positive insignificant effect of liquid assets to deposit ratio on financial profitability, ROE, of the selected private commercial banks in the study period.

- There is a negative insignificant effect of Loan to deposit on financial profitability, ROE of the selected private commercial banks in the study period.
- According to this study, partial Liquidity measures or indicators have a negative significant effect on ROE of the selected private commercial banks in the study period.

4.5.3 Regression Analysis between NIM and Liquidity Ratios

The last regression has been run relying on the multilevel linear regression model for NIM along with the explanatory variables and the regression result is summarized and presented from the SPSS output under table 4.6 below.

Table 4.6: **Regression analysis result between NIM and explanatory variables**

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	15.29	4.789		3.194	.002					
Loan to Deposit Ratio	-.018	.023	-.083	-.800	.426	.034	-.083	-.078	.877	1.140
Liquid Asset to Deposit Ratio	-.050	.014	-.443	-3.610	.000	-.319	-.352	-.351	.630	1.586
Total Customer Deposit to Total Asset Ratio	-.080	.049	-.196	-1.623	.018	.053	-.167	-.158	.651	1.536

a. Dependent Variable: Net Interest Margin

Notes : R=0.358[a], R^2 =0.128; Durbin-Watson =.461 and , ANOVA Regression sum of square=67.264, Residual sum of square= 458.016, Mean Square of Regression =22.421,Mean square of residual=4.978 ,Where ‘’a’’ is Predictors in model summary: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio. and ‘’ b’’ is Predictors in ANOVA: (Constant), Liquid Asset to Total Asset ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio, Loan to Asset Ratio

Sources: Research Findings

Table 4.6 implies that the value of R^2 is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. The value of R^2 ranges between zero and one (0 to1), by dividing the regression sum of square to total sum of square (Mangistu, 2013).

From the findings above table 4.6 the value R^2 of is 0.128 that indicates there was variation on financial profitability, NIM, of the selected private commercial banks in the study periods from

2007 to 2018 due to changes in LDR, LADR and TDTAR at 95 % confidence interval. This shows that 12.8% changes in financial profitability, NIM, of the selected private commercial banks from 2007 to 2018 could be accounted for LDR, LADR and TDTAR. R is the correlation coefficient which shows the relationship between study variables. From the findings the table 6 above shows there was a significant relationship between the study variables as shown by R is equal to 35.8% between NIM and explanatory variables such as LDR, LADR and TDTAR.

From the above table 4.6, liquidity indicator such as loan to asset ratio shows a negative insignificant relationship effect on financial profitability of NIM while **liquid asset to deposit ratio** and total customer deposit to total asset ratios have a negative **significant** relationship effect on financial performance (profitability) of NIM of the selected private commercial banks of Ethiopia from 2007 to 2018.

From the above table 4.6, liquidity indicators such as loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratios are show a negative relationship effect on the selected private commercial banks on NIM of financial profitability in the observation period.

Thus, decreasing liquidity indicators such as loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratios leads to higher financial profitability of NIM in the time span from 2007 to 2028 or vice versa. That means liquidity measures such as loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratios have inverse relationship with the financial profitability indicator or measure, NIM, and the higher these liquidity rations measures, the lesser the profitability of the selected private commercial banks of Ethiopia from the time span of 2007 to 2018 or vice versa. The regression model of NIM is as below equation 3.

NIM= 15.294-0.018LDR-0.050 LADR-0.08 TDTAR---------- (3) Equation

From this regression equation (3) it is revealing that holding loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio to a constant zero, financial profitability, NIM, of the selected private commercial banks of Ethiopia is at 15.294.

When financial profitability measured by, NIM, the hypothesis test shows the following results are found:-

i. There is a negative significant effect of liquid asset to deposit ratio and total customer deposits to total asset ratio on financial profitability, NIM, of the selected private commercial banks of Ethiopia from 2007 to 2018 years.
ii. There is a negative insignificant effect of holding loan to deposit ratio on financial profitability, NIM, of the selected private commercial banks of Ethiopia in the study period (2007 to 2018 years).

4.6 Findings

The research aims at assessing the effect of liquidity on financial profitability such as ROA, ROE and NIM of selected private commercial banks of Ethiopia through identifying the indicators of liquidity and financial profitability ratios during the study period from 2007-2018, in that it investigates the overall and subtotal effect of the liquidity indicators on the selected private commercial banks' financial return (profitability) using certain partial liquidity measures in the study period.

The empirical findings show that in this study the researcher/writer also find a negative effect of liquid asset to deposit ratio on the selected private commercial banks of Ethiopia's financial profitability of ROE in the study period that means there is a significant relationship, this conclusion consistence with findings of EL Mehdi Ferrouhi (2014) but his findings was only with ROA of financial profitability and is on contrary to the results of M.Kumbira and R. Webb (2010) Workineh (2015) who found that liquid asset to deposit ratio and other indicators have no significant relationship with ROA but with ROE and NIM. Again Total customers' deposit to total asset ratio (TDTAR) has positive and negative significant role on ROE and NIM respectively that consistent to MACN- Shafana (2013) but he found that only with ROA.

The Analysis also revealed that an effect of loan to deposit ratio on financial profitability is negative and insignificant relationship with the selected private commercial banks' of ROA, NIM and ROE. The result of loan to deposit on financial profitability had negative effects that agree with S.Selvaraj, M.Gizaw and M.Kebede (2015). But as to (Bizuayehu, 2015) and also as Tseganesh (2012) loan to deposit ratio has positive effect and significant relationship only with ROA.

4.7 Summary of Hypotheses Testing

The four null hypotheses formulated on financial performance (profitability) were tested at 5% significance level. The first null hypothesis of Ho1 is rejected that means there is a relationship between Liquid asset to Deposit ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia in the study period and again null hypothesis of Ho3 is similar to first null hypothesis except to ROA. But the second null hypothesis of Ho2 is accepted that indicates there no significant relationship between Loan to Deposit ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia. Lastly, based on the above hypothesis Ho1 and Ho3 are rejected except with ROA but Ho2 is accepted so that the reason over all Ho4 hypotheses is partially accepted that indicates there is a relationship between liquidity and profitability measures in the selected private commercial banks of Ethiopia in the study period from 2007 to 2018. We can see more details from table below.

Table 4.7: Hypotheses Testing

No. of Hypothesis	**Hypotheses**	**Status**		
		NIM	ROA	ROE
Ho1	There is no significant relationship between Liquid asset to Deposit ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.	Rejected	Accepted	Accepted
Ho2	There is no significant relationship between Loan to Deposit (liabilities) ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.	Accepted	Accepted	Accepted
Ho3	There is no significant relationship between Total Customer Deposit to total asset ratio and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.	Rejected	Accepted	Rejected
Ho4	There is no significant relationship between liquidity and financial profitability ratio indicators of Selected Private Commercial Banks in Ethiopia.	Partially Rejected		

Where as, **Ho** is a Null Hypothesis.

CHAPTER FIVE:

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The objective of this study was to assess the effect of liquidity measures on financial performance (profitability) of the selected private commercial banks of Ethiopia from the time span of 2007 to 2018. Secondary data was collected from the National Bank of Ethiopia and multi-level regression analysis used in the data analysis. From the findings of the regression analysis, the study found that there was a variation R square (R^2) on financial profitability of ROA, ROE and NIM of the selected private commercial banks of Ethiopia due to changes in loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio from 2007 to 2018 of the study period. This is an indication that a changes in financial profitability in terms of ROA, ROE and NIM of the selected private commercial banks of Ethiopia could be accounted for by loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio. The study further revealed that there was weak negative and positive relationship between liquidity measures' like:- loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio and financial profitability measures of the selected private commercial banks of Ethiopia in the study period as shown by the value of R and weak negative correlation coefficient and vice versa. From the findings on analysis of variance (ANOVA), the study found that the ANOVA of financial performance models had a significance value at 5% which shows that the data is ideal for making a conclusion on the parameter as the value of significance (p-value) is less than 5%. The study further revealed that liquid Asset to deposit ratio and total customer deposits to total asset ratio of liquidity indicators significantly affects the of financial performance (profitability) while loan to deposit ratio was insignificant to financial profitability of the selected private commercial banks of Ethiopia in the study period from 2007 to 2018.

The established regression equations were ROA= ROA= 4.146-0.019LDR-0.007 LADR+0.002 TDTAR, ROE =-22.79-0.056LDR+0.034 LADR+0.610TDTAR and NIM = 15.29-0.018LDR -0.05LADR- 0.08 TDTAR. From these regression equations it revealed that holding loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio to a constant zero, financial profitability of ROA, ROE and NIM of the selected private commercial banks of Ethiopia in the study period would be equal to 4.146, -22.79 and 15.29 respectively. The study revealed that there was a negative relationship between liquidity measures such as loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio and financial profitability of ROA, ROE and NIM of the selected private commercial banks of Ethiopia in the study period from 2007 to 2018.

5.2 Conclusions

The study established that liquid asset to deposit ratio and total customer deposits to total asset ratio of liquidity indicator was negatively and positively significant affect financial profitability of the selected private commercial banks of Ethiopia in the study period from 2007 to 2018 while loan to deposit ratio also negatively insignificant affect financial profitability, ROA, NIM and ROE, of the selected private commercial banks of Ethiopia in the study period.

Therefore the study concludes that liquidity indicators such as loan to deposit ratio, liquid assets to deposits ratio and total customer deposits to total asset ratio affects financial profitability ratios of the listed private commercial banks of Ethiopia in the study period.

5.3 Recommendations

In order to reduce the liquidity risky surprise and maintaining the financial profitability stable and growth, it is a vital role to identify the liquidity indicators (ratios) that mostly effect over financial profitability of the selected private commercial banks of Ethiopia in the study period from 2007 to 2018. Therefore, from the study findings and conclusion the following are recommendations of this study:-

The study recommends that the financial organization of Commercial banks to decrease liquid asset to deposit ratio and increase total customer deposits to total asset ratio so as to decrease and increase their liquidity indicator of liquid asset to deposit ratio and customer deposits to total asset ratio respectively as it was found that to increase the financial profitability (ROE and NIM) of private commercial banks in Ethiopia.

According to this study there is no significant relationship of liquidity measures (particularly loan to deposit ratio) and financial profitability like ROA, ROE and NIM. That means it does not affect financial profitability particular to ROA, ROE and NIM in the study period.

The capacity to quickly convert cash from asset and to meet obligations as they come due is critical to the on-going viability of the selected private commercial banks. Because commercial banks' future liquidity position will be affected by factors that cannot always be forecasted with accuracy, assumptions and measurements on assets, liabilities and off-balance sheet activities need to be reviewed frequently to determine their continuing validity. An important aspect of managing liquidity is making assumptions about funding need. Therefore, managing liquidity should be considered among important activities to be conducted by the commercial banks like loans, credits and market liquidity risks.

Additional Private Commercial Banks can/must be considered the other measures of liquidity indicators to increase the banks' financial performance (profitability). Such as:-motivating the depositors to help to achieve the high level of Banks' profitability. And also political changes are

very important measure/factor in the economic. Therefore, to increase banks' financial performance (profitability) political stability should possible to increase the financial performance of banks' industry.

5.4 Areas for Further Research

The study wanted to assess the effect of liquidity on financial profitability of the selected private commercial banks; the study recommends a further study to be done on the effects of liquidity on financial profitability of financial institutions and non-financial institutions, firms that are in commercial banks service industry. The study recommends that a further study could be done on the effects of Asset liability management, Cash management, working capital and others factors on the financial performance of the private commercial banks and others banks individually.

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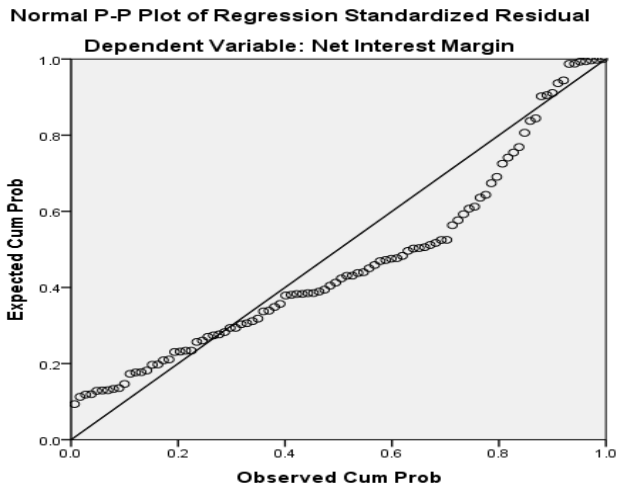
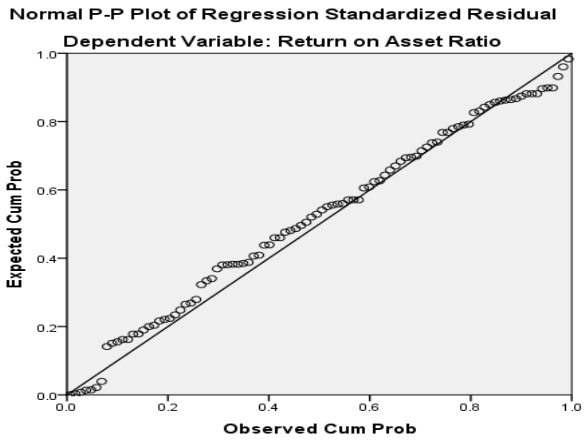
APPENDIXS

Appendix (I):- Normality Test

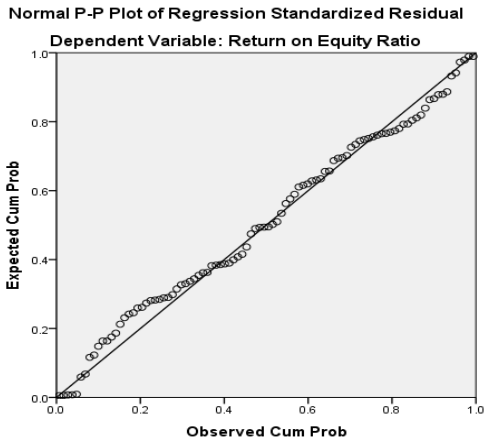
1. Normality test of Normal P-P Plot of **NIM Model**



2. Normality test of Normal P-P Plot of **ROA Model**

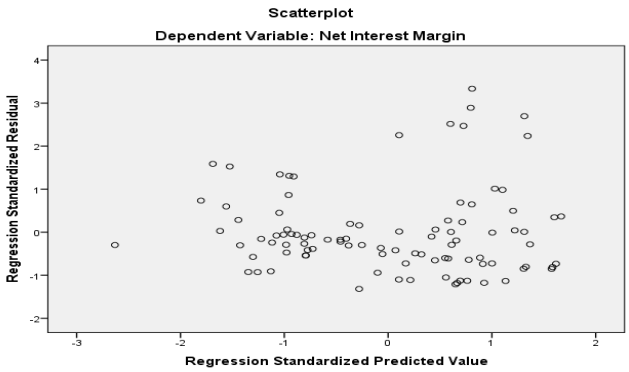


3. Normality test of Normal P-P Plot of **ROE Model**

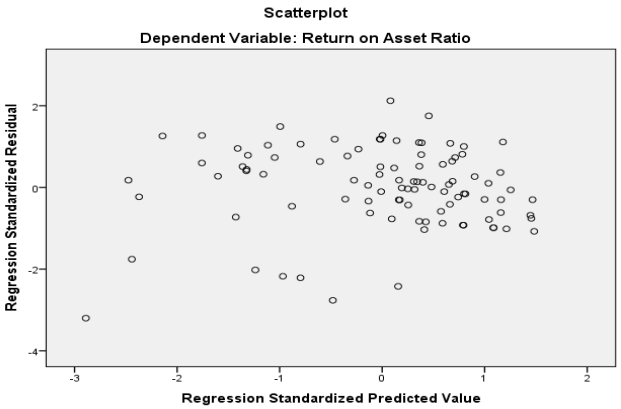


Appendix (II): Heteroskedasticity Test

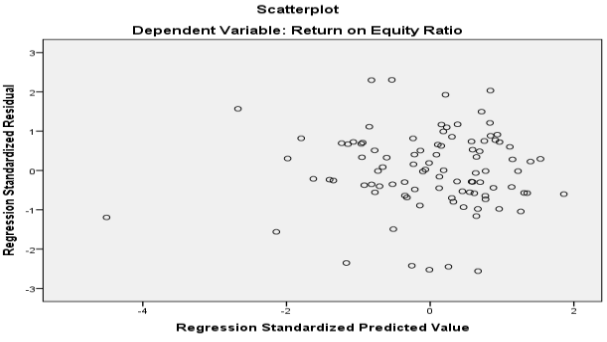
1. Heteroskedasticity Test of NIM Model



2. Heteroskedasticity Test of ROA Model



3. Heteroskedasticity Test of ROE Model



Appendix (III):- Model summery of the study

1. Model summery of NIM

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.358[a]	.128	.100	2.231	.461

a. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

b. Dependent Variable: Net Interest Margin

2. Model summery of ROA

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.217[a]	.047	.016	1.038	.890

a. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

b. Dependent Variable: Return on Asset Ratio

3. Model summery of ROE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.395[a]	.156	.128	7.917	.910

a. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

b. Dependent Variable: Return on Equity Ratio

Appendix (IV):- ANOVA Regression

1. ANOVA of NIM model

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67.264	3	22.421	4.504	.005[b]
	Residual	458.016	92	4.978		
	Total	525.281	95			

a. Dependent Variable: Net Interest Margin

b. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

2. ANOVA of ROA model

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.896	3	1.632	1.515	.216[b]
	Residual	99.112	92	1.077		
	Total	104.008	95			

a. Dependent Variable: Return on Asset Ratio

b. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

3. ANOVA of ROE Model

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1065.263	3	355.088	5.666	.001[b]
	Residual	5765.823	92	62.672		
	Total	6831.086	95			

a. Dependent Variable: Return on Equity Ratio

b. Predictors: (Constant), Total Customer Deposit to Total Asset Ratio, Loan to Deposit Ratio, Liquid Asset to Deposit Ratio

Appendix (V):- Regression Coefficients

1. Regression Analysis of NIM Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	15.294	4.789		3.194	.002		
	Loan to Deposit Ratio	-.018	.023	-.083	-.800	.426	.877	1.140
	Liquid Asset to Deposit Ratio	-.050	.014	-.443	-3.610	.000	.630	1.586
	Total Customer Deposit to Total Asset Ratio	-.080	.049	-.196	-1.623	.108	.651	1.536

a. Dependent Variable: Net Interest Margin

2. Regression Analysis of ROA Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.146	2.228		1.861	.066		
	Loan to Deposit Ratio	-.019	.011	-.191	-1.758	.082	.877	1.140
	Liquid Asset to Deposit Ratio	-.007	.006	-.142	-1.105	.272	.630	1.586
	Total Customer Deposit to Total Asset Ratio	.002	.023	.010	.078	.938	.651	1.536

b. Dependent Variable: Return on Asset Ratio

3. Regression Analysis of ROE Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-22.793	16.992		-1.341	.183		
	Loan to Deposit Ratio	-.056	.080	-.071	-.692	.490	.877	1.140
	Liquid Asset to Deposit Ratio	.034	.049	.083	.690	.492	.630	1.586
	Total Customer Deposit to Total Asset Ratio	.610	.175	.414	3.491	.001	.651	1.536

a. Dependent Variable: Return on Equity Ratio