ST.MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

THE EFFECT OF LIQUIDITY MANAGEMENT ON PROFITABLITY: IN THE CASE OF COMMERCIAL BANKS' IN ETHIOPIA

BY

DAWIT BADEG

DECEMBER, 2016,
ADDIS ABABA, ETHIOPIA

THE EFFECT OF LIQUIDITY MANAGEMENT ON PFOFITABLITY: IN THE CASE OF COMMERCIAL BANKS' IN ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION.

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of St.Mary's university school of graduate studies. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institute for the purpose of earning any degree.

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ABSTRACT

The purpose of this study is to investigate the effect of liquidity management on profitability of commercial banks in Ethiopia by using panel data of 15 commercial banks from year 2011 to 2015. The study used quantitative research approach and secondary financial data are analysed by using multiple linear regression models to measure the effect of liquidity management on profitability (ROA). The random effect regression model was applied to investigate the impact of liquidity measures; loan to deposit ratio (LDR),capital and reserve to asset ratio(CPAR), cash and cash equivalent to liability ratio(CAR) and deposit to asset ratio (DAR) on major bank performance measure on return on asset(ROA). The study used correlation and regression analysis for each of the variables in the study to observe the association between variables on profitability throughout the observation period. The empirical results shows that the bank specific factor; loan and advance, capital adequacy, deposit ratio ,and cash and cash equivalent ratio have weak influence on the profitability of commercial banks in Ethiopia. The impact of liquidity on profitability of commercial banks in Ethiopia is both positively & negatively related and the significant relationship varies from measure to measure. Finally, there has to be further research apart from bank specific measures considered in this study on the relationship between liquidity and performance of commercial banks in Ethiopia by incorporating regulatory factors and other bank specific and macroeconomic factors. Further research is recommended on how to achieve the optimal liquidity level in commercial banks.

Key words**: **Liquidity, Liquidity management, Performance, Private Banks

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List of Acronyms and Abbreviations

CBE	Commercial Bank of Ethiopia
AIB	Awash international Bank s.c
BOA	Bank of Abyssinia
WB	Wegagen Bank
AIB	Awash International Bank s.c
BIB	Lion International Bank
OIB	Buna international Bank s.c
ZB	Zemen Bank s.c
CBO	Bank of Abyssinia
WB	Wegagen Bank
UB	United Bank
CBO	Cooperative Bank of Oromia
OIB	Oromia international Bank s.c
NIB	Nib international Bank s.c
BIB	Berhan international Bank s.c
DB	Dashen Bank
AB	Abay Bank
ADIB	Addis International Bank
DAR	Deposit to Asset Ratio
LDR	Loan to Deposit Ratio
ROA	Return on asset
ROE	Return on equity
CAR	Cash to liability ratio
CPAR	Capital and reserve ratio

CHAPTER ONE
1. INTRODUCTION

1.1 Background of the study

Banks play an important function in the economy of any country. They are the main intermediaries between those with excess money (depositors) and those individuals and investors requiring money for their investment (creditors). Banks have at least the following functions: lending money, depositing others' money, transferring money locally or globally and working as paying agent (Simeneh Terefe, 2012).

The world economy becomes complex and affected by different internal and external factors. In 2008 the U.S. and recently Greek economy face financial crisis (Michael Spence, & David Brady 2016). This crisis also expanded and affected different countries in the world. Under financial crisis situation financial intermediaries encountered specific liquidity problems (withdrawal of funds) as well as "evaporation" of liquidity in the markets that created solvency problems. They were provided with liquidity by the Federal Reserve, bailed out by the government, or became insolvent and had to sell themselves or fail for bankruptcy. This demonstrated that liquidity is a major risk in banking and that liquidity management should be a top priority for bank management and regulators. As stated on Bordeleau (2010), the importance of liquidity management is to honor Cheque , maintain cash reserve ratio, meet loan demand, meet administrative expenses, pay bills of exchange and resolve economic fluctuation.

In 2010, Amengor stated that the liquidity in the commercial bank represents the ability to fund its obligations by the contract at the time of maturity, which includes lending and investment commitments, withdrawals, deposits, and accrued liabilities. Banks are often evaluated on their liquidity, or their ability to meet cash and collateral obligations without incurring substantial losses and with the capacity of its generating profit (Berger 2009). It further discussed that asset's liquidity can be used to describe how quickly, easily and costly it convert in to cash.

According to Diammond & Rajan (2005), Liquidity and profitability are very closely related. When one increases, the other one will decrease. Apparently liquidity and profitability goals

conflict in most of decisions which the finance manager makes. Optimum level of liquidity management is greatly linked with the efficient banking operations. If the liquidity not adequately managed it may lead to insolvency (in case of low liquidity) or low profitability (in case of high liquidity) and ultimately destroy the wealth of shareholder and breakdown of entire financial institutional framework due to strong integration, dependencies and contagion effect. There is no specific rule on the determining the optimal level of liquidity that a firm can maintain to ensure positive impact on its profitability (Molyneux and Thornton, 1992).

As stated by Holmstrom & Tirole (2000), keep high amount of cash or liquid asset against the deposit will affect the profits for the banks, in other side keep the liquid asset on investment increase profitability but it will have problem on liquidity position of banks. Hence it is very tough but indispensable for the banks to reconcile the twin objective of bringing the profitability factor and liquidity factor go hand in hand.

Therefore, Liquidity management is a concept that is receiving serious attention all over the world especially with the current financial situations and the state of the world economy. The concern of business owner and managers all over world is to devise a strategy of managing their day to day operations in order to meet their obligations as they fall due and increase profitability and share holders wealth (Don, 2009).

There are different researches done by Worku (2006), Habtamu (2012),Workneh (2015), Tseganesh (2012), Hoffmann (2011), Havrylchyk and Emilia (2011), and other research findings concludes that there is negative and positive relation between liquidity factors and profitability. Therefore this research tries to see the effect of liquidity management such as cash and cash equivalents to liability ratio, Capital ratio, Deposits to total assets ratio, loan to deposit ratio on the financial performance of commercial banks in Ethiopia.

Thus, this study identified the effect of liquidity management on profitability of commercial banks in Ethiopia by taking fifteen commercial banks and five years latest financial statement data of the selected commercial banks. Therefore, this research is expected to get up-to-date and

more representative analysis of the effect of liquidity management on profitability of commercial banks in Ethiopia.

1.2 Statement of the Problem

Liquidity is considered as the success of a bank, therefore any ineffectiveness in its management constituted a huge problem i.e. it encounter a huge problem that affect the affairs of the financial institution. This problems is therefore analyses here as the basis for this research study.

The ongoing financial need in Ethiopian economy required banks to have a significant amount of fund which enable them to respond to their borrower's needs which in turn necessitated banks to maintain and improve their liquidity position since banks earn profit by acquiring funds at cost and lend those funds to borrowers (Bordeleau, 2010).

As stated by Berger (2009), Liquidity management and profitability are very important in the development, survival, sustainability, growth and performance. Profitability does not translate to liquidity in all cases. A company may be profitable without necessarily being liquid. Therefore, liquidity should be managed in order to obtain an optimal level. Also liquidity level should not fall below minimum requirement as it will lead to the inability of the organization to meet short term obligation that are due.

For these reasons banks are developing various strategies to improve their liquidity position. In Ethiopia the current squeeze on cash and credit is threatening the survival of many commercial banks. The fact that commercial banks cannot exist without working capital is thus, undeniable. Eventually commercial banks should recognize the fact that the management of liquidity necessitates short term decisions in working capital and financing of all aspects of both commercial banks short-term assets and liabilities with the main objective of ascertaining that the banks has the ability to continue operating with sufficient cash flow for payment of both maturing short-term debt and impending operational expenses (Worku, 2006).

As cited by Berger (1995) holding large amount of cash in the bank decreases the bank profitability and the other side making huge investment generating high income but due this effect the bank exposed to high liquidity problem. When the client requests its deposit from bank and the bank unable to pay timely will affect its trust and lose their business.

To meet the financial requirement the bank should determine the optimal amount of cash that enable them in achieving balance between profitability and liquidity but the problem is what is the optimal amount of liquidity amount to generate high profit?. Banks generates different profit at different liquidity position. Therefore, this research seeks to answer the effect of liquidity management on the banks' profitability.

In general the liquidity management is a concept that is receiving serious attention all over the world especially with the current financial situation and the state world economy. The concept making liquidity management is difficult there is no specific rule on the determining the optimal level of liquidity that a firm can maintain to ensure positive impact on its profitability. Then the concern of business owner and manager all over the world is to devise a strategy of managing their day to day operation in order to meet their obligation (Lancaster, 1999).

In the study carried out by Berger (1995),Worku (2006), Semu (2010), Habtamu (2012) and Workneh (2015), the results show there is excess cash kept by Ethiopian commercial banks and it affects their profitability. In another study conducted by Tseganesh (2012) taking one bank as sample concluded that the impact of liquidity on financial performance of private commercial banks in Ethiopia is inconsistent both positive and negative . Therefore on this study tries to analyze the effect of liquidity on profitability to fifteen commercial banks in Ethiopia.

1.3 Research Question

This research focuses specifically on the effect of liquidity management on profitability of commercial banks in Ethiopia. The basic question this research attempts to answer includes:

RQ1: what is the effect of liquidity management on banks' profitability?
RQ2: How do the liquidity indicators affect the banks' profitability?

1.4 Objective of the Study

1.4.1 **General objective of the study**

The main objective of this study is to evaluate the effect of liquidity management on profitability of commercial banks in Ethiopia.

1.4.2 Specific objective of the study

- To determine the relationship between cash and cash equivalent ratio return on assets.
- To determine the impact of loan to deposit ratio on the profitability of commercial banks.
- To determine the impact of adequacy on the capital on the profitability of commercial banks.
- To examine the effect of holding deposit against total asset on profitability.

1.5 Hypotheses of the Study

The hypotheses are predictions about the outcome of the results, and they may be written as alternative hypotheses specifying the exact results to be expected (more or less, higher or lower of something). They also may be stated in the null form, indicating no expected difference or no relationship between groups on a dependent variable (Creswell, 2009). Therefore, the study developed the following hypotheses:

The research hypotheses have been formulated as follows:

If the firm does not invest sufficient fund in current assets, it may become illiquid Pandey (2010). Liquidity is current assets which should be managed efficiently to safeguard the firm against the risk of illiquid. To be liquid the bank should maximize its deposit and generates profit to the bank.

- H01: There is a significant positive relationship between deposits to total assets ratio (DAR) and profitability of commercial banks in Ethiopia

In the study carried by Berger (1995), *there is negative correlation between liquidity and profitability*. It reveals that the more liquid a bank is the less profitable. Holding large amount of excess cash is costly for the bank.

- H02: There is a significant negative relationship between cash and cash equivalent to total liability ratio (CALR) and profitability of commercial banks in Ethiopia.

Capital ratio also another indicator of liquidity. According to Bourke (1989) *capital ratio and liquidity have positive relationship with profitability.*

- H03: There is a significant positive relationship between Capital and reserve to total assets ratio (CPAR) and profitability of commercial banks in Ethiopia.

According to Zewdu et al. (2010), Loan to deposit ratio have positive effect to profitability. It also one indicator of liquidity position of company and if the higher loan to deposit ratio improves the profitability of the bank.

- H04: There is significant positive relationship between loan to deposit ratio (LDR) and profitability of private commercial Banks in Ethiopia.

1.6 Significance of the Study

The result of study will give an overview to the banking industry to what extent liquidity affect banks profitability so that the management of the banks manage their liquidity position, to undertake smoothly their primary and significant banking operation like lending and raising deposits which are related to liquidity of the bank and their profitability. Due these facts, this study will help the banks to;

- Without proper management of liquidity difficult to plan and generate consistent bank profitability. Unless efficiently managed cause financial crises.

- The study would give an overview to the banking industry to what extent liquidity affect banks profitability and how to manage the liquidity position of commercial banks.

- It gives the researcher the opportunity to gain deep knowledge on the effect of liquidity management on banks performance and the finding used as practical significance to the user.

1.7 Delimitation/ Scope of the study

This study is confined only to know the effect of liquidity management on the profitability of commercial banks by analyzing the financial statements of selected commercial banks from 2011 to 2015 fiscal years. The study incorporated fifteen commercial banks in Ethiopia and using secondary data. Beside to this the scope of study is delimited to identify effect of liquidity management on profitability of fifteen commercial banks in Ethiopia for period of five years.

Obtaining of data from the commercial banks was a great challenge as most of them did not publish their audited reports in their websites. Beside to this the economic factor creating liquidity factors have not been taken into account. The future researchers can also take in consideration while studying liquidity management..

1.8 Organization of the research report

The paper consists of five parts: the first part consists of introduction, statement of the problem, basic research questions, objectives of the study, significance of the study, delimitation/scope of the study be stated. Part two presents a literature review on the effect of the liquidity Management on profitability in the commercial banks and the empirical review. Part three determines the research methodologies. While part four represents the analysis part of the research. Finally, part five reviews the findings and the conclusion of the research analysis. .

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Introduction

The first section covers discussion of different literature studies about the effect of liquidity to profitability and the second section reviews deals with the empirical studies related to liquidity and profitability.

2.2 Literatures on the effect of liquidity to profitability

Liquidity refers to the ability to trade an asset, such as a stock or bond, at its current price Kesimli G.(2011). It also defined by the relative ease, cost, and speed with which an asset can be converted into cash. The other definition of liquidity applies to large organizations, such as financial institutions. Banks are often evaluated on their liquidity, or their ability to meet cash and collateral obligations without incurring substantial losses. In either case, liquidity management describes the effort of investors or managers to reduce liquidity risk exposure.

Bank liquidity is ability to meet customers demand and provide advances in the forms of loans and overdrafts. Liquidity is also banks' cash and cash equivalent such as commercial paper, treasury bills, etc. Bordeleau (2010), sees liquidity as assets readily convertible to cash without loss and ability to pay depositors on demand. He also defines liquidity as a company's ability to meet its maturing short-term obligations and if liquidity is insufficient serious financial difficulty may occur. Poor liquidity is comparable to a person having a fever; it is a symptom of a fundamental problem.

In 2001, Golin states that liquidity is a risk not having sufficient current assets (cash and quickly saleable securities) to satisfy current obligations of depositors especially during the time of economic stress. Therefore, without required liquidity and funding to meet obligations, a bank may fail. Pandey (2010) posits that liquidity is current assets which should be managed efficiently to safeguard the firm against the risk of illiquid. Lack of liquidity in extreme situations can lead to the firm's insolvency. He further state that conflict exists between liquidity and profitability. If the firm does not invest sufficient fund in current assets, it may become

illiquid which is risky. It may lose profitability if some idle current assets do not earn anything. Hence, insufficient liquidity is one of the major reasons of bank failure. Liquidity is necessary to enable banks providing funds on demand and credits needed by customers which are associated with the default risk.

Banks today are under great pressure to perform to meet the objectives of their stock holders, employees, depositors and borrowing customers, while somehow keeping government regulators satisfied that the banks policies, loans and investment are sound Rose (2004), commercial banks are profit seeking organizations.

The liquidity in the commercial bank represents the ability to fund its obligations by the contractor at the time of maturity, which includes lending and investment commitments, withdrawals, deposits, and accrued liabilities (Amengor, 2010). Banks are often evaluated on their liquidity, or their ability to meet cash and collateral obligations without incurring substantial losses and with the capacity of its generating profit. Liquidity and profitability are very closely related. When one increases, the other one will decrease. Apparently liquidity and profitability goals conflict in most of decisions which the finance manager makes.

Liquidity Management refers to all management decisions and actions that influence the size and effectiveness of liquidity. It emphasizes the management of current assets, current liabilities and the relationship that exist between them. The effect of liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of the inability to meet due short term obligations (Akhtar, 2007).

The firm‘s liquidity management is considered best if it is based on the principle of cash collecting from debtors early and holdup the payments of current debts and obligations/liabilities as much as possible (Muneeb & Kashif ,2012). When a business firm is not able to manage its liquidity position it will definitely face difficulty in paying its short term debts and therefore the business may be forced to resort to external financing to clear its short term debts.

The main objective of companies operating in capitalist economies is to achieve an appropriate return over the amount of risk accepted by the shareholders. After all, profit is the propulsive element of any investments in different projects. The assessment of profitability is usually done through the ROA (Return on Assets = Net Income / Total Assets), which is the ultimate measure of economic success (Damilola, 2007).

According to Assaf.Neto (2003), the greater the amount of funds invested in current assets, the lower the profitability, Merques and Braga (1995), confirmed the inverse relationship between liquidity and profitability for a sample of food companies. Blatt (2001) also confirmed a negative relationship between liquidity and profitability.

As discussed by Herald and Heiko (2009), the surplus a business is left with once a price has been achieved in a business transactions and the entire have been paid. Higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits. In order to determine the extent of the bank ability to make profits from its invested money, there are different financial ratios related to both the owners and depositors. Return on asset (ROA) is the key ratio for the evaluation of bank profitability and has become the most common measure of bank profitability. Most authors and researchers also used ROA as a measure of bank profitability (performance).

On the other hand, other researchers Molyneux and Thornton (1992), Eijelly (2004), and Goddard,et al (2004) are also argue that, holding liquid assets imposes a opportunity cost on the bank given their low return relative to other assets, thereby having a negative effect on profitability. In a competitive marketplace, a business owner must learn to achieve a satisfactory level of profitability. Increasing profitability involves determining which areas of a financial strategy are working and which ones need improvement. There are several theories which have been developed to study the effect of liquidity on financial performance. According to Mergue (1995), normally a high liquidity is considered to be a sign of financial strength. The significance of liquidity to company performance might lead to the conclusion that it determines the profitability level of company.

Liquidity ratios are a class of financial metrics used to determine a company's ability to pay off its short-terms debts obligations. Higher the value of the ratio mean the company possesses to cover short-term debts. Common liquidity ratios include the current ratio, the quick ratio and the operating cash flow ratio. Different analysts consider different assets to be relevant in calculating liquidity. Some analysts will calculate only the sum of cash and equivalents divided by current liabilities because they feel that they are the most liquid assets, and would be the most likely to be used to cover short-term debts in an emergency. According to Brigham & Houston (2001) Cash and cash equivalents are the most liquid assets found within the asset portion of a company's balance sheet. Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities and commercial paper.

Havrylchyk and Emilia (2011) found a positive and direct relationship between asset management and profitability of bank. Accordingly, a more effective bank should have more profits because it can maximize its net profit income.

Bank liquidity Management involves a tradeoff between the cost of attaining higher liquidity and the cost of inefficient allocation of such liquidity. Bourke (1989) finds some evidence of a positive relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972-1981.

Robert et al (2010) stated, liquidity represents one's ability to pay its current obligations or short-term debts within a period less than one year. Liquidity ratios, therefore, measures a company's liquidity position. The ratios are important from the viewpoint of its creditors as well as management. The liquidity position of the company can be measured mainly by using liquidity ratios such as follows.

Current ratio: is also known as short-term solvency ratio or working capital ratio. Current ratio is used to assess the short-term financial position of the business. In other words, it is an indicator of the firm's ability to meet its short-term obligations. Current ratio is calculated by using following formula:

Current ratio = Current assets/Current liabilities

Current assets are cash and those cash equivalent of a business which can be converted into cash within a short period of time not exceeding a year. Cash in hand, cash at bank, bills receivables, sundry debtors, accrued incomes, prepaid expenses, inventory, short term loans provided, advance given etc are the examples of current assets.

Current liabilities are those obligations of a business, which are to be paid within in a short period of time not exceeding a year. Bills payable ,sundry creditors, short term loan taken, income tax payable, dividend payable, advance incomes, accrued expenses are the examples of current liabilities.

Liquidity risk of banks can be measured by liquidity gap/flow approach or liquidity ratio/stock approach. The liquidity gap is the difference between assets and liabilities at both present and future dates. At any date, a positive gap between assets and liabilities is equivalent to a deficit that has to be filled Bessis (2009). Liquidity ratios are various balance sheet ratios which should identify main liquidity trends. These ratios reflect the fact that bank should be sure that appropriate, low-cost funding is available in a short time. This might involve holding a portfolio of assets than can be easily sold (cash reserves, minimum required reserves or government securities), holding significant volumes of stable liabilities (especially deposits from retail depositors) or maintaining credit lines with other financial institutions.

According to Devinaga Rasiah (2010) commercial banks are required by regulators to hold a certain level of liquidity assets. And the reason behind this regulation is to make sure that the commercial banks always possess enough liquidity in order to be able to deal with bank runs. He further argue that a bank assume the status of highly liquid only if it has been able to accumulate enough cash and have in possession other liquid assets as well as having the ability to raise funds quickly from other sources to be able to meet its payment obligation and other financial commitments on time.

He claims that for instance, in a situation where a commercial bank is faced with the problem of bank run, the bank may encounter liquidity problem. In such a situation the bank might be compelled to raise additional liquid funds by borrowings or selling off some of their liquid assets and it is well known that short-term borrowings are usually costive. In addition, the situation where by the bank rush to sell off the liquid assets creates an impression in the minds of investors that the bank is trying to dispose of bad assets and for this reason these liquid assets normally attracts lower prices from investors and as a result there could be loss of income from the sale of liquid assets.

A company's ability to turn short-term assets into cash to cover debts is of the utmost importance when creditors are seeking payment. Bankruptcy analysts and mortgage originators frequently use the liquidity ratios to determine whether a company will be able to continue as a going concern. Testing a company's liquidity is a necessary step in analyzing a company.

The loan-to-deposit ratio, describing the portion of total deposits extending to financing loan demand (CBE /2008/9). An important measure of liquidity is loan to deposit ratio. It is inversely related to liquidity and consequently the higher the loans to deposit ratio the lower the liquidity and vice versa Devinga, (2010). The banks' liquidity management involves acquiring sufficient liquid asset to meet the bank's obligation to depositors. Liquid banks as well as banks with a higher loan exposure are associated with higher deposit growth.

Hempel (1994), 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. Fortunately, the ratios tend to move together. A loan-to-deposit ratio is more relevant. However, a bank's liquidity and solvency are directly affected by portfolio quality. Consequently, financial analysts (investment officers) are carefully analyzing the bank's portfolio quality based on collectability and loan-loss Provisioning.

Berríos, M. (2013) included capital ratio as a variable in their study of determinants of banks profitability and performance because capital also serve as a source of funds along with deposits and borrowings. They argue that capital structure which includes shareholders' funds, reserves and retained profit affect the profitability of commercial banks because of its effect on leverage and risk.

Modern theories offer two alternative strategies of working capital management, that is, conservative working Capital management policy and aggressive working capital management policy. The literature contains an extensive debate on the risk/return trade-off among different working capital policies (Gitman, 2005; Moyer *et al*., 2005; Brigham & Ehrhardt, 2004). While more aggressive working capital policies are associated with higher returns and risk, conservative working capital policies offer both lower risk and returns (Gardner *et al*.,1998).

In another study, Vahid,Mohsen and Mohammadreza(2012) investigated the impact of working capital management policies (aggressive and conservative policies) on the firms' profitability and value of listed companies in the Tehran Stock Exchange. The study used panel data and operationalised working capital management policy as conservative/aggressive. The results of the study show that application of a conservative investment policy and aggressive financing policy has a negative impact on a firm's profitability and value.

On the other hand, studies of Hoffmann, (2011), showed a significant negative impact of capital on bank profitability. The contradicting empirical evidence suggests that higher capital ratio leads to lower profitability. The implication of the reviewed studies is that setting up high regulatory capital may have negative effects on profitability and ultimately bank performance.

2.2.1 Empirical Review

Bagheri (2007) estimated and analyzed the effective factors and determinants of profitability of Refah Bank using of a linear regression pattern for time period of 1983-2001. Findings of this research showed that the efficient management of costs is one of the significant explanatory variables for profitability of bank. In addition, the management of liabilities has also an effect on

the profitability. Among external factors, economic growth has positive effect on profitability of bank.

Bourke (1989) examined the performance of banks in twelve European, Northern American and Australian countries. Using of international data for 1972-1981, he found that both ratios of capital and liquidity have a positive relationship with the profitability. In comparison, Molyneux & Thornton (1992) for the time period of 1986-1989, found that profitability is negatively related to liquidity. Davidson & Dutia (1991) showed that the capital plays a very important role in profitability of small firms, but due they do not able to obtain the capital; it is forced heavily relay on loan and this may decrease their profitability. The results of their research showed that there is a positive relationship between the ratio of short-term debt to the asset and profitability of the company as well as between the ratio of total debt to the asset and profitability. But there is a negative relationship between the ratio of long-term debt to the asset and profitability.

Havrylchyk and Emilia (2011) found a positive and direct relationship between asset management and profitability of bank. Accordingly, a more effective bank should have more profits because it can maximize its net profit income.

Ehiedu (2014) conducted a study on The Impact of Liquidity on Profitability of Some Selected Companies in Nigeria and concluded that 75% of them indicated that current ratio has a significant positive correlation with profitability. The researcher believes that the reason for this positive relationship between current ratio and profitability is simply because idle funds, especially when they are borrowed, generate profit and less costs in the business.

Miller and Noulas (1997) found a negative relationship between credit risk and profitability which represents that when there is a negative relationship between them, loans will be encountered with more risk, and the greater is the value of loan loss; accordingly, the ability of maximizing the profit of a bank will be encountered with difficulty.

Chirwa (2003) studied the relationship between market structure and profitability of commercial banks in Malawi using of data of time series during the years 1970-1994. The results of research

show that there is a negative relationship between profitability and capital adequacy ratio and gearing ratio.

According to Chandra (2001), a high liquidity is considered to be a sign of financial strength, however according to some authors as Neto (2003), a high liquidity can be as undesirable as a low this would be a consequence of the fact that current assets are usually the less profitable than the fixed assets. It means that the money invested in current assets generates less returns then fixed assets, representing thus an opportunity cost. Besides that, the amounts employed in current assets generate additional costs for maintenance, reducing thus the profitability of the company.

Adebayo et al. (2011), examined liquidity management and commercial banks' profitability in Nigeria. Findings of this study indicate that there is significant relationship between liquidity and profitability. That means profitability in commercial banks is significantly influenced by liquidity and vice versa.

Saleem and Rehman (2011) sought to reveal the relationship between liquidity and profitability. The main results of the study demonstrate that each ratio (variable) has a significant effect on the financial positions of enterprises with differing amounts and that along with the liquidity ratios in the first place. Profitability ratios also play an important role in the financial positions of enterprises.

According Molyneux (1992) and Burger (1995), banks with high level of equity can reduce their cost of capital and that hold impact positively on profitability. When the capital amount and its quality are high enable them to absorb loss and withstand stress. Capital adequacy refers to the sufficient amount of banks equity to absorb any shock that a bank may experience (Ong and Teh, 2013). Empirical studies of; Havrylchyk et al., (2006); Iannotta et al., (2007); and Garcia-Herrero et al., (2009) showed a positive impact of capital on bank profitability.

Charity (2012) examined the impact of liquidity performance in commercial using First Bank of Nigeria Plc as case study. Findings indicate that there was a positive relationship between

liquidity management and the existence of any banks. Findings from the empirical analysis were quite robust and clearly indicate that there is significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhance the soundness of bank.

Sufian et al. (2008) argued that banks in developing countries needs a strong capital structure, because it provides them strength to withstand financial crises and offers depositors a better safety net in times of bankruptcy and distress macroeconomic conditions, Bourke (1989) examined the performance of banks in twelve European, Northern American and Australian countries. Using of international data for 1972-1981, he found that both ratios of capital and liquidity have a positive relationship with the profitability.

The significance of liquidity to company performance might lead to the conclusion that it determines the profitability level of company. This issue was the subject of many theoretical and empirical studies which were conducted, among others, by (Eljelly, 2004; Padachi, 2006; Berger 2009; Garcia et al. 2009). Hence, it should be emphasized that although a number of studies, the nature of liquidity impact on profitability is still not entirely recognized.

2.2.2 **Empirical studies in Ethiopia**

In the study carried by k.karama and Tekeste (2012), the negative correlation between liquidity and profitability revels that the more liquid a bank is the less profitable it will be and would mean the bank will face difficulty in meeting payments in the right time. The empirical result of study suggests that Ethiopian, commercial banks kept excess liquidity which negatively affected their profitability.

In an attempts to find out assets liability management and commercial banks profitability in study carried out by Tamirat (2013) the study examined the effect of asset liability management (which is one element of liquidity management). The research selected eight commercial banks in Ethiopia and studied the time between 2005-2010 from the data collected from the income statement and the balance sheet and the used ROA as profitability measure and result of the regression analysis revealed that all assets except fixed assets mainly loans and advances are

positively while all liabilities mainly saving and fixed deposits and other liabilities have significant and negative effect on commercial banks profitability.

The study conducted by Tseganesh (2012) the results of regression analysis revealed that the impact of bank liquidity on financial performance was both positive and negative. The result showed that ROA is the major performance measurement in Ethiopia banks and there is positive and no statistically significant between liquidity and profitability.
As cited by Zewdu (2010) there is a negative relationship between credit risk and profitability which represents that when there is a negative relationship between them, loans will be encountered with more risk, and the greater is the value of loan loss; accordingly, the ability of maximizing the profit of a bank will be encountered with difficulty.

Zewdu. (2010), using survey design studied impact of reducing loan by Ethiopian banks on their own performance and the study showed that ROA is the major performance measurement in Ethiopia banks and the result revealed that there is positive and no statically significant relationship between liquidity and profitability.

2.1.3 Summery

The liquidity management focussed on the ability of cash management and efficient utilization of resource to maximize its profitability. Liquidity and profitability are very closely related. When one increases, the other one will decrease. The greater the amount of funds invested in current asset, the lower the profitability. According to Bourke (1989), conclude there is positive relation between liquid asset and bank profitability to the study done for 90 banks in Europe, North America and Australia from 1972-1981. Cash and cash equivalent assets used to calculate the liquidity condition of the firm and showing the financial ability of the company.

Loan to deposit ratio have positive effect to profitability. It also one indicator of liquidity position of company and if the higher loan to deposit ratio the lower the liquidity.

Capital ratio also another indicator of liquidity. According to Bourke et al. (1989) capital ratio and liquidity have positive relationship with profitability. On the other hand studies of Hoffman showed there is a significant negative impact of capital on bank profitability.

The researches carried out in Ethiopia also argue that there is negative correlation between liquidity and profitability. In some research the finding revealed the impact of liquidity on financial performance was positive and negative.

The study tried to focus on studies conducted in developing countries banking sector, previous study directly related to this study i.e the effect of liquidity on banks performance in the case of specific private commercial banks in Ethiopia and other foreign banks. To the knowledge of researcher there are other related research done i.e by workneh (2015) who tried to show impact of liquidity performance on eight private commercial banks in Ethiopia and using financial data from 2010 up to 2014.

Thus, the researcher tries to include the government commercial bank beside to fourteen private commercial banks latest financial data to analyze the effect of liquidity management on profitability.

CHAPTER THREE
3. RESEARCH DESIGN AND METHODOLOGY

In the previous chapter effect of liquidity on banks profitability was discussed in respective of the literature. The purpose of this chapter is to emphasize on the research design and methodology approach that are used in the study. Thus this chapter is arranged in four sections. section 3.1 presents the research design of the study; section 3.2 discussion the research approach, population and sample techniques section 3.3 deals with data collection, presentation and analysis technique while section 3.4 addresses the regression model variable definitions.

3.1Research design

A research design is a programmed to guide the researcher in collecting, analyzing and interpreting observed facts Padachi, K. (2006). This study used explanatory and descriptive research design. It is a design used to describe a situation and its data characteristics. One of the main benefits of explanatory and descriptive research is that it uses both quantitative and qualitative data in order to find the solution to whatever is being studied. This in turn can help to describe and give an answer to certain life experiences.

The objectives of the study are to find out the effect of liquidity management on profitability of commercial banks, to identify there is functional relationship between liquidity and profitability of commercial banks. The variables studies on this research are liquidity ratio, capital ratio, loan to deposit ratio and deposit to total asset ratio. In order to achieve four hypotheses and two research questions were developed.

3.2Research Approach, Population and Sample procedure

3.2.1 Research approach

The study used explanatory and quantitative research approach. This research approach will allow examining the relationship among the dependent and independent variables and these variables in turn can be measured on instruments and analyzed using statistical procedure (

Creswell, 2009). Quantitative research involves a considerable amount of activity towards measuring concepts with scales that either directly or indirectly provides numeric values which can be used in statistical computations and hypothesis testing (Zikmund et al.,2011).

3.2.2 Population of the study:

In this research, the target population is commercial banks in Ethiopia. There are 17 commercial banks give commercial banking activity in the country NBE annual report (2015). Those banks are Commercial Bank of Ethiopia (CBE), Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wogagen Bank S.C (WB),United Bank S.C (UB), Nib International Bank S.C (NIB), Bank of Abyssinia S.C (BOA), Lion International Bank S.C (LIB), Cooperative Bank of Oromia S.C (CBO), Berehan International Bank S.C (BIB), Buna International Bank S.C (BUIB), Oromia International Bank S.C (OIB), Zemen Bank S.C (ZB), Abay Bank(AB),Addis International Bank(ADIB),Debub Global Bank(DGB) and Enat Bank (EB). Among the population commercial bank of Ethiopia is owned by government and the other banks in the population are private owned commercial banks in Ethiopia.

3.2.3 Sampling Frame

The study took fifteen commercial banks as sample frame. The research paper excludes Enat and Debub global bank financial data for reason their operational activity less than five year in the banking industry. The study focuses on five year financial data .Therefore; the matrix for the frame is 15*5 that includes 75 observations.

3.2.4 Sample Size:

Sampling size can be defined as the number of units in a population to be studied. Researchers need to have a large sample size in order to get more accurate results and have a high likelihood of detecting a true result. Since the number of banks in the country is small, the study assumed the data of all commercial banks having the last five year working experience in the banking industry without taking sample. Therefore, the sampling frame covers eighty eight percent of population size. According to the asymptotic theory, the sample size approaches to the

population, the results from the sample estimates are more appropriate for generalizing to the general population. Thus in this case the sample size was almost equal to the population which enabled to make appropriate generalization to the overall population.

3.3 Data Collection, Presentation and Analysis Techniques

3.3.1Data collection instrument

The sources of data for this research are secondary sources. Applying appropriate data gathering instruments help researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increase the credibility and value of research findings (Koul ,2006). Data was collected from audited financial statements (balance sheet and income statement) of each commercial banks included in the sample and various directives, journals and publications of and NBE. All data was collected on annual base. In this study time series data of five years from year 2011-2015 is used to examine the relationship between the dependent and independent variables.

3.3.2 Data Presentation and Analysis

As discussed in the previous chapters the objective of study is to find out the effect of liquidity to management to profitability of commercial banks in Ethiopia. Thus, the first step was performing descriptive statics to provide information about the variables. In this process mean, standard deviation and the maximum and minimum value of the variables are computed. Then causal analysis or regression analysis is used. This analysis is concerned with the study of how one or more variables affect changes in another variable. Before running the regression analysis all the assumptions of regression analysis were tested.

3.3.2.1 Descriptive Statistics

Mean, minimum, maximum and standard deviation values are used to analyze the general trends of the data from 2011 to 2015 for the variables which are included in the Study.

3.3.2.2 Inferential Statistics

Correlation matrix and regression model are used to examine the relationship between the dependent variable and explanatory variables in the study. According to Creswell (2009), variables need to be specified in quantitative researches; so that it is clear to readers what groups are receiving the experimental treatment and what outcomes are being measured. In order to investigate the effect of liquidity management on financial performance of banks in Ethiopia, It is begun by identifying the respective variables involved in the study. Though there are internal and external determinants of liquidity, this study employed only bank specific internal factors by taking and computing the data from published financial statements of the sample banks. As it is mentioned in the literature above, there are many different approaches or ratios to measure liquidity and financial performances banks. For liquidity, common variables such as loans, deposits, liquid assets, capital reserve are applied to calculate loan to deposit ratio, deposit to asset ratio, and liquid assets to current liabilities (customer deposits) ratio and capital to asset ratio. Return to Assets, are most used to measure the bank profitability.

- **Regression and correlation**

If a stochastic relationship between two or more variables can be expressed by a mathematical equation, so that on the basis of this equation we can estimate the average values of Y associated with the given Xs, the method of analysis is known as regression analysis (A. Eljelly, 2004).

In regression analysis the variable whose average value is being estimated is called the dependent variable. It is generally denoted by the symbol Y. The variable, or variable on which the estimate is to be based are referred to as the independent or explanatory variables (Ph Karmel,1986).

When more independent variables are being used to explain the behaviour of the dependent variable Y, the analysis is known as multiple regression, often the several explanatory variables are indicated by subscripts eg x_1, x_2 etc.

Regression analysis investigates the nature of the relationship between two variables x and y. Correlation analysis measures the strength of such relationship. The basic tools of correlation

analysis are the correlation coefficient. The correlation of coefficient measures the degree of linear association between two jointly distributed random variables (Brooks, 2008).

In general the regression and the correlation models are mathematically related, and the correlation coefficient also serves as useful tool for measuring the goodness of a regression relationship to the observed data (Habtamu ,2012).

The coefficient of determination, measuring the proportion of the total variation of Y that can be attributed to the relationship between x and y. the coefficient of determination r^2 cannot exceed unity, and hence $-1 \leq r \leq +1$. Perfect negative relationship is indicated by r = -1 and perfect positive relationship by r = 1 for no relationship, the term r = 0.

The discrepancies between sample statistics and population parameters are sample errors. Inaccuracies in collecting data arise both in full counts and sample surveys and they may, for reasons outlined above be reduced in sample surveys; but full counts do not by their natures contain sampling errors (Ph Karmel, 1986).

- **Model Specification**

The following is used to find out impact of liquidity on banks profitability which is the same general model used by Nuru et al. (2011).

The economic model used in the study was: $Y = \beta 0 + \beta 1_{X1} + \varepsilon$

Where, Y is dependent variable and refers to the return on assets (ROA) of a financial institution; the β0 is the intercept; X represents explanatory variable (liquidity attributes); β is co-efficient and ε represent the error term.

The regression model used in the study was presented as follows:

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where:

Y = Profitability as measured by Return on Assets (ROA).

X1 = Liquidity Management as measured by cash and cash equivalents (CAR).

X2 = Profitability determinant as a measure of Capital ratio (CPAR).

X3 = Profitability determinant as a measure of Deposits to total assets ratio (DAR).

X4 = Liquidity management as measured by Loan to Deposit Ratio (LDR).

Correlation analysis was used to determine whether the values of two variables are associated. The two variables should be random samples, and should have a Normal distribution (possibly after transformation). Pearson's Correlation analysis was used for data to see the relationship between variables such as those between liquidity and profitability.

Variables Definition

To find out the relationship between the dependent and independent variable and to answer the research questions the following hypotheses are designed based on liquidity and profitability measurements.

- **Dependent variable**

Profitability of commercial banks is the dependent variable. Profitability is measured by return on asset (ROA) and return on equity (ROE). For the purpose of this study ROA is used as the measure of profitability of commercial banks which will be extracted from the balance sheet and income statements.

Return on assets (ROA) as Habtamu (2004) points out, the ROA has emerged as key ratio for the evaluation of bank profitability and has become the most common measure of bank profitability. Most authors and researchers also used ROA as a measure of bank profitability.

The ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues, although it might be biased due to off-balance-sheet activities. Basically, the higher ROA means better performance and vice-versa. Technically ROA can be raised by bank from either profit margin or assets turnover but not at the same time due to their trade-off. ROA can be calculated as:

ROA = Net Income after Tax / Total Assets

Return on Equity (ROE) Although ROA provides useful information about bank profitability; we have already seen that it is not what the bank's owners (equity holders) care about most. They are more concerned about how much the bank is earning on their equity investment, an amount

that is measured by the return on equity (ROE), the net income per birr of equity capital. It is calculated as:

ROE = Net Income after Tax / Total Shareholders' Equity

- **Independent variables**

The independent variables are liquidity of commercial banks. Among the liquidity measurements the following liquidity ratios will be used based up on the availability of data on the financial statements.

I) Deposits to total assets ratio (DAR)

The effect of fund source on profitability is captured by the deposits/total assets ratio. It is believed to be the major and the cheapest source of funding for banks, empirical evidence provided by Husni Ali Khrawish (2011) prove that customer deposits impact banking performance positively as long as there is a sufficient demand for loans in the market.

II) Loan to total deposit ratio(LDR)

Loan to deposit and short term financing ratio (LDR) .It indicates what percentage of the volatile funding of the bank is tied up in illiquid loans. The volatile funding includes deposits, interbank borrowing, certificate of deposit and short term borrowing from the central bank. Therefore the higher this ratio the less liquid the bank is. Viewed overtime the ratio of credit to total deposit may give indications of the ability of the bank to mobilize deposit to meet credit demand. This indicates the degree to which a bank can support its core lending through its deposits. A high ratio may indicate stress in the banking system and a low level of liquidity to respond to shocks.

III) Capital and reserve to total assets ratio (CPAR)

This is defined as total equity over total asset. This is expected to uncover the capital adequacy of the banks and capture the general average safety and soundness of the banks. According to Molyneux (1993) banks with high level of equity can reduce their cost of capital and that could impact positively on profitability.

IV) Cash and cash equivalent ratio (CAR).

Imad Z. et al. (2011), defined cash management as minimizing the amount of cash the firm must hold for use in conducting its normal business activities but yet having sufficient cash to take trade discounts, maintain credit rating and to meet unexpected cash needs.

Cash and cash equivalents are the most liquid assets found within the asset portion of a company's balance sheet. Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities and commercial paper. Cash equivalents are distinguished from other investments through their short-term existence; they mature within three months whereas short-term investments are twelve months or less, and long-term investments are any investments that mature in excess of twelve months.

Uncover excessive maturity mismatches and highlight a need for more careful liquidity management. This ratio gives us information about the general liquidity shock absorption capacity of the bank. Even though the higher the ratio the higher the capacity to absorb liquidity shock, it may also be interpreted as inefficiency, since liquid assets yield lower income and it bears high opportunity cost for the bank.

CHAPTER FOUR
4. DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and findings of the study based on the research objectives. The results are presented in the form of summary tables. Regression and Correlation analysis are used to analyze the data to answer the research objective.

4.2 Descriptive Statistics

Table 1 below summarized the descriptive statistics of the variables included in the regression models as presented. It represents four liquidity management variables which are cash and cash equivalent, capital ratio, loan and deposit ratio of commercial banks in Ethiopia whose financial results were available for the years 2011-2015.

Normality: Descriptive statistics was undertaken to examine the distribution of data. Upon examination the Bera-Jarque (BJ) test uses to know the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance.

Table 1 **Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
capital & reserve ratio	75	.05	.40	.1621	.07277
cash and cash equivalent	75	.12	.81	.3600	.15101
deposit ratio	75	.50	.99	.7488	.08977
loan to deposit ratio	75	.00	.75	.5599	.11031
ROA return on asset	75	.05	.10	.0576	.00956
Valid N (list wise)	75				

Source: Research Findings

From table 1 the mean vale of deposit ratio is 0.7488 which higher than capital and reserve , cash and cash equivalent and loan to deposit ratio which are 0.1621, 0.3600 and 0.5599 respectively. This indicated that the central value data of deposit to asset ratio is the highest and capital and reserve ratio has the lowest from the stated variables.

Beside to this the standard deviation of cash and cash equivalent is 0.15101 which have the highest value of dispersed ratio. This indicated the ratio value of cash and cash equivalent input have different dispersed value from each other and its probability dispersion become 0.0596.

Return on Assets (ROA) had a mean value of 0.06 and a standard deviation of 0.01. The highest performance and the list performance were 0.10 and 0.05 respectively for the five year period. These findings indicated that commercial banks profitability have low standard deviation 0.01, the input of stated variables have uniform and similar dispersion through the period. Therefore the ROA standard deviations become very minimum which is 0.01. The probability found to be 0.0040.

Capital and reserve has a mean value of 0.16 and a standard deviation become 0.07 ;cash and cash equivalent had a mean of 0.36 and a standard deviation of 0.15; deposit ratio had a mean of 0.75 and a standard deviation of 0.09; loan and advance had a mean of 0.56 and a standard deviation of 0.11 .

4.3 Correlation analysis

To evaluate the association between the variables, the data collected was analyzed to generate the Pearson correlation coefficient which gives tests the presence of association between the variables. The significance level was set at 0.01 and 0.05 at level (2- tailed) test. The results are therefore as presented in table 2 below.

Table 2

Correlations

		CAPR	CAR	DAR	LDR	ROA
CAPR	Pearson Correlation	1	.382**	-.316**	.450**	-.278*
	Sig. (2-tailed)		.001	.006	.000	.016
	N	75	75	75	75	75
CAR	Pearson Correlation	.382**	1	.001	.108	-.383**
	Sig. (2-tailed)	.001		.992	.355	.001
	N	75	75	75	75	75
DAR	Pearson Correlation	-.316**	.001	1	-.563**	.112
	Sig. (2-tailed)	.006	.992		.000	.341
	N	75	75	75	75	75
LDR	Pearson Correlation	.450**	.108	-.563**	1	-.413**
	Sig. (2-tailed)	.000	.355	.000		.000
	N	75	75	75	75	75
ROA	Pearson Correlation	-.278*	-.383**	.112	-.413**	1
	Sig. (2-tailed)	.016	.001	.341	.000	
	N	75	75	75	75	75

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

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

From the above table, all the factors have a positive and negative correlation with the dependent variable. This indicates that, the liquidity management variable of commercial banks has association with their financial performance.

The strength of the association is measured based on the Pearson's correlation scale where a value in the interval 0.0-0.3 is an indication of no correlation, 0.3-0.5 is a weak correlation, 0.5-0.7 is a fair correlation and a correlation value in the interval 0.7 and 1 is an indication of a strong correlation. A correlation value of 1 indicates a presence of a perfect association between

the variables. The magnitude of the association (+ or -) indicates the nature of association (positive or negative association).

Based on these intervals, the table illustrates that, Cash & cash equivalent of the firms on financial performance has a correlation coefficient of 0.383. This is an indication of weak correlation between Cash & cash equivalent and bank profitability.

Deposit and capital reserve ratio have a correlation coefficient of 0.112 and 0.278 which indicated there is no correlation between deposit and capital and reserve and profitability. However, and the loan and advance ratio has 0.413 which indicated also there is weak correlation between the variables and financial performance of commercial banks according to (Ph Karmel, M Polasek,1986). Testing the significance of the association at 0.05level with a (2-tailed) test, loan and advance, capital and reserve and cash and cash equivalent ratio variable were found to have a statistically significant association as the given by the significance sign (**) in the correlation values.

4.4 Regression Analysis

The nature of relationship between liquidity and the financial performance of commercial banks was evaluated through a regression analysis. The results presents the regression model summary in table 3 which gives the coefficient of determination showing the extent to which the predictor variables influences the dependent variable, the analysis of variance in table 4 which determines the reliability of the model developed in explaining the relationship and the regression coefficients in table 3 which gives the coefficient explaining the level of degree at which the independent variables influence the dependent variable.

Table 3 Regression model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.548[a]	.301	.261	.00822

a. Predictors: (Constant), Loan & advance, Cash & cash equivalent, Capital & reserve, Deposit ratio

Source: Research Findings

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. It also measured the goodness of fit of the explanatory variables in explaining the variations in banks profitability measure ROA. From the findings in the above table the value of adjusted R squared is 0.261 indicate that there was variation 26.1 % profitability of commercial banks in Ethiopia due to changes in cash and cash equivalent, capital and reserve ratio, loan and deposit structure at 5% confidence interval and the other 73.9 % of profitability affected by the other variables.

R is the correlation coefficient which shows the relationship between the study variables. From the findings shown in the table above there was a positive relationship between the study variables as shown by 0.548[a].

R2 is the coefficient of determination which tells us how ROA varies with changes in Cash and cash equivalents, loan and advance, Capital ratio and Deposit ratio. From the table above the value of R2 is 0.301.

Table 4 Analysis of Variance

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.002	4	.001	7.528	.000[b]
	Residual	.005	70	.000		
	Total	.007	74			

a. Dependent Variable: ROA (return on asset)

b. Predictors: (Constant), Loan & advance, Cash & cash equivalent, Capital & reserve, Deposit ratio

Source : Research Findings

The above table presents the F statistic which is used to test the significance of the relationship between the dependent and the independent variables. The F value in the table is 7.528 with a distribution F (4, 70). As indicated on the table 4 the significance level is 0.00 % which is less than 0.05 testing level. Therefore, based on these, there is strong evidence that the regression model developed and variables are statistically significance.

Table 5 **Regression Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.099	.014		7.125	.000
	capital & reserve ratio	.002	.016	.014	.114	.910
	cash and cash equivalent	-.021	.007	-.338	-3.091	.003
	deposit ratio	-.015	.013	-.145	-1.188	.239
	loan to deposit ratio	-.040	.011	-.464	-3.600	.001

a. Dependent Variable: ROA return on asset

a. Dependent Variable: ROA (return on asset)

Source : Research Findings

a) Dependent Variable: ROA

The table gives the regression coefficients which are used to answer the regression model proposed;

$Y = Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3 + \beta_4X_4 +\varepsilon$ Where:

Based on the table results, the model becomes;

ROA = 0.099 + 0.002CPAR – 0.021CAR - 0.015DAR - 0.040LDR + 0.014

From the model, it is clear that, cash & cash equivalent, deposit and loan ratio are negatively related independent variables to the dependent variable. However, the regression coefficient indicated there is a positive relationship between capital and reserve and profitability of commercial banks in Ethiopia. The model also shows that holding the predictor variables and standard error are constant at zero (0), the financial performance (ROA) would be 0.099.

From the model, it is also clear that a unit increase in capital ratio would result to 0.002 times increase in financial performance of commercial bank. One unit increase in cash & cash equivalent ratio, deposit, and loan & advance ratio would result 0.021, 0.015 & 0.040 times decrease in the financial performance respectively. The significance of the coefficients at 5% level with a 2-tailed test was found to be significant as indicated by their p-values which are all less that 0.05(the critical value at 5% level).

4.5 Discussion of Research Findings

Return on Assets (ROA) had a mean value of 0.06 and a standard deviation of 0.01. The highest performance and the list performance were 0.10 and 0.05 respectively for the five year period. This indicated that commercial banks profitability have low standard deviation 0.01 mean that the ratio of variables are similar and have low dispersion from central value. The probability of significance of ROA is 0.0040.

From table 1 the mean vale of deposit ratio is 0.7488 which higher than capital and reserve ratio, cash and cash equivalent ratio and loan to deposit ratio which are 0.1621, 0.3600 and 0.5599 respectively. This indicated that the central value data of deposit to asset ratio is the highest and capital and reserve ratio has the lowest from the stated variables.

The standard deviation of cash and cash equivalent is 0.15101 which have the highest value of dispersed ratio. This indicated holding of liquid cash of commercial banks are different therefore the finding indicated that the cash and cash equivalent dispersion rate is higher than other variables of capital and reserve ratio, deposit ratio and loan and advance ratio. Its probability dispersion becomes 0.0596.

The regression model determines the variation in the dependent variable due to changes in the independent variables. The adjusted R squared from regression coefficients is 0.261 which indicated that there was variation 26.1 % profitability of commercial banks in Ethiopia due to liquidity management of cash and cash equivalent, capital and reserve ratio, loan and deposit at 5% confidence interval and the other 73.9 % of profitability affected by the other variables. Then from this finding understand that the effect of studied variables management have weak to profitability of commercial banks.

R is the correlation coefficient which shows the relationship between the study variables. From the findings shown in the table above there was a positive relationship between the study variables as shown by 0.548^{a}.

R2 is the coefficient of determination which tells us how ROA varies with changes in Cash and cash equivalents, loan and advance, Capital ratio and Deposit ratio. From the table above the value of R2 is 0.301.

The study findings on regression coefficients illustrated that there is a significant positive and negative relationship between the variable of capital & reserve ,cash and cash equivalent, deposit and loan & advance of commercial banks and profitability of commercial banks' in Ethiopia.

The regression coefficient test results indicated that 0.021of cash and cash equivalent of commercial banks has a negative relationship with the financial performance. One unit increase in holding cash and cash equivalent would result to 0.021 times decrease in profitability of the commercial banks. This illustrates that; a unit change in cash and cash equivalent deposit of the commercial banks would reduce financial profitability of commercial banks.

According to Bourke (1989), K.Karama and Tekeste (2012), and the hypothesis of this research paper indicated that there is negative relationship between cash and cash equivalent to liability ratio and profitability of commercial banks. Then the findings of this research indicated that holding excess cash have negative effect to profitability of commercial banks. Therefore the hypothesis of research also stated that there is negative relationship between cash and cash equivalent to total liability ratio and profitability of commercial banks in Ethiopia are accepted as per the findings.

Bagheri (2007), and the hypothesis of this research paper indicated that there is positive relationship between deposit to total asset ratio and profitability of commercial banks in Ethiopia. The findings also indicated that deposit to asset ratio and the profitability of commercial banks have negatively correlated. Then, a unit increase in the deposit to asset ratio would lead to decrease by 0.015 to the profitability of commercial banks beside to this the correlation coefficient indicated that the two variables have weak correlation, therefore the hypothesis stated that there is positive relationship between deposit to total asset ratio and profitability is not accepted as per the finding results.

Tamirat (2013), and the hypothesis of research paper stated there is positive relationship between loan to deposit ratio and profitability. However the finding of research indicated that the relationship between Loan to deposit ratio and profitability of commercial banks were found to negative.

The strength of correlation between loan to deposit and profitability of commercial banks are also 0.413 and it indicated there is weak correlation between them. According to regression coefficient model a unit change in cash and cash equivalent decreased profitability by 0.040. Therefore as per the findings of research the hypothesis developed that there is positive relationship between loan to deposit ratio and profitability are not accepted as per the finding results.

Bourke (1989),Davidson and ,Burger (1995),Sufian (2008), and the hypothesis developed and the finding result of research paper results revealed that, capital and reserve ratio and profitability of commercial banks are positively correlated. This indicates that, a unit increasing efficiency in commercial banks capital and reserve would result to increase in the efficiency of the financial performance of commercial banks. The regression coefficient indicated that a unit increase in capital and reserve increase the profitability of commercial bank's by 0.002. Therefore, according to the hypothesis developed that there is positive relation between capital and reserve and profitability of commercial banks is accepted.

Thus increasing capital adequacy of the commercial banks would result to effectiveness in financial performance. Berger (1995) also asserted that lower level of capital put the banks into risky position and impact negatively the bank's profitability. The argument presented above makes the decision of commercial bank of Ethiopia to continue increase regulatory capital requirement in the banking industry very appropriate because having the strong capital structure would enable them to reduce cost of capital and withstand financial crises hence continues experience in profitability.

The regression coefficients indicated that the significance of capital adequacy and deposit ratio are 0.910 and 0.239 respectively. It is above the P-value 0.05 therefore the two variables are stastically insignificant. But probability value of cash and cash equivalent and loan and advance ratio are 0.003 and 0.001 it is below the P-value 0.05 therefore the two variables are stastically significant.

CHAPTER FIVE
5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the key findings of the study as well as the conclusions and recommendations made based on the findings. The chapter also presents the areas that were pointed out during study for further research.

5.2 Summary

The study was undertaken with the aim of evaluating the effect of liquidity management on the profitability of the commercial banks in Ethiopia. Secondary data was used in the analysis to study the variables and 5 year data was collected from the balance sheet and income statement of each bank. To address the aim of the study, inferential statistics were conducted. The correlation analysis was used to study the degree of association between the variables and regression analysis undertaken to study the relationship between the variables. A regression analysis was conducted to develop the regression model relating the study variables. The significance of the results was tested at 5% level in a 2-tailed test. From the analysis, the study found out that cash and cash equivalent, deposit, loan and advance, capital and reserve ratios have a correlation relationship between each other.

Return on Assets (ROA) had a mean value of 0.06 and a standard deviation of 0.01. The highest performance and the list performance were 0.10 and 0.05 respectively for the five year period. This findings shows that commercial banks ROA have low standard deviation of 0.01.This indicated that the input of stated variables have uniform or similar dispersion, therefore the ROA standard deviation become very minimum which is 0.01. The probability found to be 0.0040.

Deposits to asset ratio of commercial banks have a negative association with their profitability. It has 0.015 negative regressions; a unit increase in deposit to asset ratio decreases the profitability of commercial banks by 0.015. The coefficient correlation result indicated that there correlation

between deposit to asset ratio and return on asset is 0.112. This indicated there is no correlation between with the variables.

The findings indicated that, the loan to deposit ratio and the financial performance of commercial banks have correlation coefficient of 0.413 which has weak correlation with the variables. The regression coefficient indicated there is negative relation with return on asset. Therefore a one unit increase in loan and advance to deposit ratio decrease return on asset by 0.040.

Capital and reserve ratio and financial performance were found to have a correlation coefficient of 0.278 which indicates no correlation with the variables. The regression coefficient also indicated that there is positive relation between capital and reserve and return on asset. Therefore a one unit increase in capital ratio caused to increase a return on asset by 0.002.

The cash and cash equivalent were to have a correlation coefficient of 0.383 which indicates there is weak correlation between the variables and the regression coefficient indicated there is negative relation between cash and cash equivalent and return on asset. Therefore a one unit increase in cash and cash equivalent decrease the return on asset by 0.021.

The regression analysis results indicated that the variability in the financial performance of commercial banks is 26.1% explained by the cash and cash equivalent, loan and advance, deposit, capital and reserve ratio. The study results were found to be 26.1% of these variables were affected the profitability of banks, 73.9 % of profitability affected by other variables.

The model ROA = 0.099 + 0.002CPAR – 0.021CAR - 0.015DAR - 0.040LDR + 0.014 developed indicated that, there is positive and negative relationship between liquidity and financial performance of commercial banks. The regression analysis indicated the stated variables cash and cash equivalent, capital and reserve, deposit ratio and loan and advance have weak contribution to the profitability of commercial banks in Ethiopia.

5.3 Conclusion

Conclusions are made from the study findings from the analyzed data. These are based on the variables studied and their influence on financial performance of commercial banks in Ethiopia.
It is imperative for the bank's management to be aware of its liquidity position in different buckets. This will help them in enhancing their investment portfolio and providing a competitive edge in the market. It is the utmost priority of a bank's management to pay the required attention to the liquidity problems. These problems should be promptly addressed, and immediate remedial measures should be taken to avoid the consequences of illiquidity.

As stated by K.Karama. (2012), Worku (2006), Habtamu (2012), Eijelly (2004), and Goddard, etal (2004) the study revealed that excess cash reserve have negative relationship with bank profitability. Further to this as stated by deposit to asset ratio, the study revealed loan to deposit ratio and capital and reserve ratio have positive relationship with bank profitability.

From the study, we can rightly conclude that both illiquidity and excess liquidity are financial Diseases that can easily erode the profit base of a bank as they affect bank's attempt to attain high profitability-level. The pursuit of high profit without consideration to the liquidity level can cause great illiquidity, which reduces the customers' patronage and loyalty. Then any bank that has the aim of maximizing its profit level must adopt effective liquidity management.

The finding of research indicated that excess deposit to asset ratio have negative effect to profitability, however the hypothesis developed was there is positive relation between deposit to asset ratio and profitability of commercial banks in Ethiopia is not accepted as per the findings.
The hypothesis developed that there is negative relation between cash and cash equivalent to total liability ratio and profitability of commercial banks. Then the finding of research indicated that excess cash reserve have negative effect to the bank profitability. Therefore the developed hypothesis is accepted.
The hypothesis developed regarding to capital and reserve to total asset ratio and profitability of commercial banks have positive relationship. The finding result of this paper also indicated that

increase capital reserve have positive effect to the bank profitability. Therefore the hypothesis developed is accepted.

There is also hypothesis developed is positive relationship between loan to deposit ratio and profitability of private commercial banks in Ethiopia. Therefore the finding of paper indicated loan and advance have negative effect to the profitability of commercial banks. Therefore the hypotheses developed are not accepted.

According to the regression coefficients the significance capital and reserve and deposit ratio p-value above 5% level the two variables are stastically insignificant and loan and cash and cash equivalent ratio p-value below 5% it is stastically significant and thus in position to made conclusion for these variables to the study.

The regression analysis results indicated that the variability in the financial performance of commercial banks is 26.1% explained by the cash and cash equivalent, loan and advance, deposit, capital and reserve ratio. The study results were found to be 26.1% of these variables were affected the profitability of banks, 73.9 % of profitability affected by other variables The regression analysis indicated the stated variables cash and cash equivalent, capital and reserve, deposit ratio and loan and advance have weak contribution to the profitability of commercial banks in Ethiopia.

Therefore, the financial performance of the commercial banks in Ethiopia is inconsistent (both positive and negative) and the significant relationship varies from measure to measure dependent on the level of the institutions' liquidity. This explains that, efforts to stimulate the commercial banks liquidity management would see the commercial banks realize increased financial performance.

5.4 Recommendations

As the findings illustrated, financial performance commercial banks in Ethiopia affected by cash and cash equivalent, capital and reserve ratio, loan and advance ratio and deposit ratio have weak effect to profitability of commercial banks in Ethiopia. To facilitate favourable financial

performance of these institutions, strategies to facilitate increased liquidity of commercial banks should be adopted and efficiently managed other variables in addition to the above variables.

- ☑ It has also been revealed from the study results that, increasing the loans offered by the bank would decrease the liquidity and it would affect the financial performance. Therefore commercial banks should emphasize on asset growth as a stimulator of their financial performance and competitiveness.

- ☑ Increasing excess deposit amount contributes to increased financial growth but it would reduce the profitability of banks performance. The findings revealed that market capitalization is directly related to the financial performance.

- ☑ Banks with higher capital ratio will be encountered with less risk and enjoy more time and flexibility to remove their problems. Therefore increase the capital of commercial banks developed the confidence and the bank maximizes its profit by re investing the deposited capital.

- ☑ The other findings also revealed that holding high amount of cash and cash equivalent decrease the financial profitability of the commercial banks, therefore the commercial banks should not hold excess cash reserve and they have to re invest the excess cash to the business generating income for the banks.

Further research should also be undertaken which would include firms in various sectors of the economy and compare the different experiences created to these institutions due to the influence of the studied factors. This would aid in making general recommendations that would be employed by relevant authorities to ensure efficiency in financial performance of firms.

Future studies should also consider employing primary sources of data to collect data for their studies. This would be time saving and would also facilitate detailed information collected from

original sources which would give reliable and accurate results that explain the details of the subject.

It is recommended that research should be launched on identifying better Quantitative measures of profitability, liquidity, risk and managerial efficiency, and relationship between different macroeconomic policies effect on the financial performance of the commercial banks.

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List of Commercial Banks in Ethiopia

No.	Name of Commercial Bank	Establishment Year
1	Awash International Bank(AIB)	1994
2	Dashen Bank(DB)	1995
3	Abyssinia 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)	2013
17	commercial bank of Ethiopia (CBE)	1964

Source: www.nbe.gov.et

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.548[a]	.301	.261	.00822

a. Predictors: (Constant), loan to deposit ratio, cash and cash equivalent, capital & reserve ratio, deposit ratio

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.002	4	.001	7.528	.000[b]
	Residual	.005	70	.000		
	Total	.007	74			

a. Dependent Variable: ROA return on asset

b. Predictors: (Constant), loan to deposit ratio, cash and cash equivalent, capital & reserve ratio, deposit ratio

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.099	.014		7.125	.000
	capital & reserve ratio	.002	.016	.014	.114	.910
	cash and cash equivalent	-.021	.007	-.338	-3.091	.003
	deposit ratio	-.015	.013	-.145	-1.188	.239
	loan to deposit ratio	-.040	.011	-.464	-3.600	.001

a. Dependent Variable: ROA return on asset

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
capital & reserve ratio	75	.05	.40	.1621	.07277
cash and cash equivalent	75	.12	.81	.3600	.15101
deposit ratio	75	.50	.99	.7488	.08977
loan to deposit ratio	75	.00	.75	.5599	.11031
ROA return on asset	75	.05	.10	.0576	.00956
Valid N (list wise)	75				

Correlations

		CAPR	CAR	DAR	LDR	ROA
CAPR	Pearson Correlation	1	.382**	-.316**	.450**	-.278*
	Sig. (2-tailed)		.001	.006	.000	.016
	N	75	75	75	75	75
CAR	Pearson Correlation	.382**	1	.001	.108	-.383**
	Sig. (2-tailed)	.001		.992	.355	.001
	N	75	75	75	75	75
DAR	Pearson Correlation	-.316**	.001	1	-.563**	.112
	Sig. (2-tailed)	.006	.992		.000	.341
	N	75	75	75	75	75
LDR	Pearson Correlation	.450**	.108	-.563**	1	-.413**
	Sig. (2-tailed)	.000	.355	.000		.000
	N	75	75	75	75	75
ROA	Pearson Correlation	-.278*	-.383**	.112	-.413**	1
	Sig. (2-tailed)	.016	.001	.341	.000	
	N	75	75	75	75	75

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

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

ENDORSEMENT

This thesis has been submitted to St. Mary's university college, school of graduate studies for examination with my approval as a university advisor.

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Advisor signature

St. Mary's university college, Addis Ababa