

**ASSESSMENT OF LIQUIDITY RISK MANAGEMENT  
PRACTICE OF COMMERCIAL BANKS IN ETHIOPIA**

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## ACRONYMS

CBB	Construction and Business Bank Share Company
CBE	Commercial Bank of Ethiopia
DB	Dashen Bank Share Company
MIS	Management Information System
NBE	National Bank of Ethiopia
ROA	Return on Asset
ROE	Return on Equity
UB	United Bank Share Company
WB	Wegagen Bank Share Company

## **ABSTRACT**

*The main purpose of the study was to assess the liquidity risk management practice of commercial banks in Ethiopia. To deal with the problem, three fundamental research questions were formulated that stress on the impact of liquidity on performance of banks, the existence of standardized liquidity risk management strategy(practice) and the impact of the directives of NBE on the performance of commercial banks in Ethiopia.*

*To conduct the study, descriptive method was employed. Purposive sampling was used in the selection of each bank and the respondents from the respective bank. Thus a total of 30 respondents participated to the sources of primary data for the study.*

*Data were collected through questionnaire, interview and annual reports of each commercial bank. The data collected from primary and secondary sources were organized using tables and graphs ad interpretation was made on the data using quantitative and qualitative methods.*

*The findings of the study revealed that there is no uniform (standardized) liquidity risk management policy and procedure in the banking industry which is for all commercial banks in Ethiopia. The directives issued by NBE have no significant impact that will affect the performance of commercial banks instead they are important for the normal operations of banks and the industry in general.*

*The over all liquidity position of commercial banks is excess which is caused by low economic development and existence of limited financial instruments in the country.*

*Liquidity position of a bank has an impact on the performance of the bank. Too much liquidity position of a bank decreases the performance of the respective bank unless the excess liquidity position is managed properly.*

*Among the factors that influence liquidity risk management by commercial banks in Ethiopia include: absence of secondary markets, lack of enough financial instruments and absence of strong management information system.*

*Finally, recommendations were forwarded based on the major findings so as to improve the liquidity risk management practice of commercial banks in Ethiopia.*

# **ASSESSMENT OF LIQUIDITY RISK MANAGEMENT PRACTICE OF COMMERCIAL BANKS IN ETHIOPIA**

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1. Background of the Study**

Liquidity and solvency are the heavenly twins of banking, frequently indistinguishable. There are various ways of looking at liquidity. For instance, from a macro economic perspective, liquidity relates to monetary supply, official interest rates and the price of credit; from a financial market's perspective, liquidity relates to the ability to sell securities without triggering significant price changes and from a banking perspective liquidity relates to the ability to meet obligations at a reasonable cost when they come due.

These three aspects are related in practice. For example, banks' liquidity is increasingly reliant on financial markets' liquidity since a growing share of their funding comes from such markets.

Santomero (1997) has argued that banks are in the risk business. In the process of providing financial services, they assume various kinds of financial risks of which

liquidity risk is one. Market participants seek the services of these financial institutions because of their ability to provide market knowledge, transaction efficiency and funding capability. The risks contained in the bank's principal activities i.e. those involving its own balance sheet and its basic business of lending and borrowing, are not all borne by the bank itself.

Santomero (1997) has also pointed out that liquidity risk is the risk of a funding crisis. While some would include the need to plan for growth and unexpected expansion of credit, the risk here is seen more correctly as the potential for a funding crisis. Such a situation would inevitably be associated with an unexpected event, such as a large charge off, loss of confidence, or a crisis of national proportion such as a currency crisis.

In a banking system, liquidity risk may arise from funding and asset liquidity problems in such a way that the market's perception of a bank's credit quality may not be favorable, leading to an increase in the bank's funding cost relative to other competitor banks (as banks analyze credit quality of their borrowers, their credit quality is also analyzed by their lenders), which is the funding dimension of liquidity risk. In such situations, costs which include higher borrowing interest rate and losses on forced asset sales/liquidation/ may be significant if the bank's overall financial condition and credit worthiness is not good to raise funds easily, or the bank may not be able to easily trade positions/sell assets/ in the market (for instance, unable to sell or discount financial instruments) which is the asset (market) dimension of liquidity risk. This may be due to lack of access to financial markets-either there may not be a developed market or if it exists, banks may

not access it (usually smaller banks tend to have less access to financial markets than do larger banks) and illiquidity of assets by themselves (since assets differ in terms of the risk they carry, the return they generate etc, all assets are not equally liquid).

Banks need liquidity to pay creditors, meet unforeseen withdrawals, pursue other investment opportunities and accommodate unexpected changes in loan demand and loan commitments. Moreover, banks (as credit institutions) typically transform short-term liquid liabilities into long-term illiquid assets. In doing so, banks provide away for consumers with liquidity needs to smooth consumption and investment but are exposed to liquidity risks too (Webb David C., 2000).

Diamond and Dybuig, (1983), in their article of bank runs, deposit insurance and liquidity gave explicit analysis of the demand for liquidity and the transformation service provided by banks. They argued that uninsured demand deposits are able to provide liquidity, but leave banks vulnerable to runs. This vulnerability occurs because there are multiple equilibrium with differing levels of confidence. Their model demonstrates three important points. First, banks issuing demand deposits can improve on a competitive market by providing better risk-sharing among people who need to consume at different random time. Second the demand deposit contract providing this improvement has an undesirable equilibrium (a bank run) in which all depositors panic and withdraw immediately, including even those who would prefer to leave their deposits in if they were not concerned about the bank failing. Third, bank runs cause real economic problems because even healthy banks can fail, causing recall of loans and the termination of productive investment.

Michael (2008) has also pointed out that liquidity black holes bear a strong resemblance to bank runs, where depositors seeking to take their money out of a solvent bank, which they perceive might fail, precipitate a crisis that attracts other depositors to withdraw their funds which leads to certain failure and when average opinion comes to believe that average opinion will decide to turn assets into cash, then liquidity may be confidently expected to go to zero.

A liquidity black hole is a region in finance where liquidity is falling so rapidly that nothing, not even a large financial institution, can escape after prices start to fall.

Carletti, Hartmann and Spagnolo (2003) have prepared a working paper on Bank mergers, competition and liquidity. These individuals have argued that sound banking system liquidity is important in several respects. First, large liquidity fluctuations may conflict with the objectives of central banks in money market operations. In particular, frequent large liquidity injections can be inconsistent with a lean, simple and transparent implementation of monetary policy; and they may strain banks' collateral pools, thus, complicating risk management. Second, from a macro-prudential perspective consolidation may increase banking system liquidity fluctuations. Hence, in the absence of timely and accurate central bank operations, large liquidity shortages may sometimes endanger the stability of the banking system.

Sound liquidity management can minimize the probability of adverse situations. Indeed, the importance of liquidity transcends the individual bank, since a liquidity short fall at a

single institution can have system wide repercussions. For this reason, the analysis of liquidity requires bank management not only to measure the liquidity position of the bank on an ongoing basis but also to examine how funding requirements are likely to evolve under various scenarios, including adverse conditions.

Liquidity risk is often an inevitable outcome of banking operations. Since a bank typically collects deposits which are short-term in nature and lends long-term, the gap between maturities leads to liquidity risk and a cost of liquidity. The bank's liquidity situation can be captured by the time profile of the projected sources and uses of funds, and banks should manage liquidity gaps within acceptable ranges.

The rationale for liquidity risk management is because of the uncertainty about the timing and/or the amount of the cash outlays, a financial institution must be prepared with sufficient cash to satisfy its obligations.

In addition to uncertainty about the timing and amount of the cash outlays, and the potential for the depositors or borrowers to withdraw cash early or borrow against a policy, a financial institution is concerned with possible reduction in cash inflows.

## **1.2. Statement of the Problem**

Accelerated and sustained economic growth is on the top of Ethiopian Government's policy agenda.

An efficient and well-functioning financial sector is essential for the development of any economy and the achievement of high and sustainable economic growth (Ali I. Abdi).

Ali I. Abdi has also pointed out that a developed and efficient financial system is necessary to mobilize domestic savings and foreign resources and to allocate them to high return investments. In addition, financial intermediaries provide savers a channel to diversify the risk of holding financial assets and permit investors to access financial resources that would otherwise be unavailable. In this process, a developed financial sector facilitates economic competition, integrates commodity markets and facilitates growth. Moreover, once financial services are extended to rural and poor producers, a developed financial system is a strong tool to reduce poverty.

Diamond and Rajan (2005) have argued that liquidity is one of the essential requirements for the effective functioning of the banking system. Without adequate liquidity, banks are not able to perform some of their core functions including settlement of their inter-bank obligations (transactions occurring between banks).

They also pointed out that too much liquidity in the banking system on a regular basis fosters an expectation of falling interest rates; too little liquidity increases the expectation of higher interest rates. Maintaining smooth cash flows and reducing short-term interest rate volatility produces a stable environment where businesses and individuals can make more informed decisions about savings, investment and other expenditures.

There are banks with excess liquidity that result from conservative credit rating policy and not willing to extend loans to the customers. But, there are many potential debtors who need to finance their feasible projects. For example commercial Bank of Ethiopia grants loan to finance short-term feasible projects.

Effective management of liquidity in the banking system is therefore an important element in maintaining a well-functioning banking system and in complementing monetary policy.

The National Bank of Ethiopia is vested with powers, duties and responsibilities of monetary management, regulation and supervision of banks. The bank, (NBE) issues directives on liquidity management of banks operating in Ethiopia. Commercial banks have strong incentive to enhance profitability through credit extension. But the extent to which commercial banks extend credits is restricted by the directives issued by the NBE on liquidity, and reserve requirement.

As part of its responsibilities, the National Bank of Ethiopia has active role in managing the liquidity of the banking system.

The directives on liquidity requirement are issued by the National Bank of Ethiopia pursuant to the authority vested in it by Article 41 of the Monetary and Banking Proclamation No 83/1994 and by Article 16 of the Licensing and supervision of Banking Business proclamation No. 84/1994.

Thus the liquidity requirement directive affects the performance of all commercial banks (both private and public ones) in Ethiopia. In addition to this, any bank operating in Ethiopia shall at all times maintain 25% (fifteen percent) of all birr and foreign currency deposit liabilities in the form of liquid asset.

Carletti, Hartmann and Spagnolo have argued that in the liquidity risk management activities, banks continually deal with either a liquidity deficit or a liquidity surplus situation both of which are not desirable for banks. Liquidity deficit can lead to unexpected cash shortages that must be covered at undue costs. On the other hand, excess liquidity results in low asset yields hence poor earnings. Excess liquidity build up may also entail a foregone income to a bank and a welfare loss to an economy.

Because of this and other factors, commercial banks in Ethiopia design liquidity risk management strategies (practices).

To examine the liquidity risk management practices of commercial banks in Ethiopia, I have chosen the following research questions:

1. Is a bank's performance directly correlated with its liquidity position?
2. Is there a uniform (standardized) liquidity risk management strategy (practice) for commercial banks in Ethiopia?

It is because of the above issues the researcher is initiated to examine the liquidity risk management practices of commercial banks in Ethiopia and to assess their liquidity position.

### **1.3. Objective of the Study**

The general objective of this study was to assess the liquidity risk management practices of commercial banks in Ethiopia.

To achieve the main purpose, the following specific objectives were set:

1. To assess the commercial banks' (both public and private) liquidity position and their performance.
2. To examine the strengths and weakness in liquidity management practice of commercial banks in Ethiopia.
3. To investigate the sources of liquidity risk in commercial banks in Ethiopia.
4. To give suggestions and recommendations based on the findings of the study

### **1.4. Significance of the Study**

These days the banking industry is an important and key sector to achieve economic development of the country. For banks to discharge their responsibility, they should always be liquid. Accordingly, the outcome of this study is believed to be useful in the following aspects:

1. It might help to provide relevant and valuable information to decision makers including managers, investors, depositors and creditors.
2. It might help the commercial banks in Ethiopia to know how effective they are in managing liquidity risk.
3. It will give an insight about the liquidity risk management practice of each of the commercial banks in Ethiopia.

## **1.5. Research Design and Methodology**

This section describes the research design, the sources of data and sampling technique, and discusses data collection instruments and procedures. It also deals with the methods of data analysis used in carrying out the research project.

### ***1.5.1. Research Design***

The study attempted to investigate the liquidity risk management practices of commercial banks in Ethiopia. Descriptive study is chosen as it enabled the researcher to describe the current liquidity risk management practice, liquidity position and performance of commercial banks considered in this study.

### ***1.5.2. Sources of Data and Sampling Technique the Source of Data***

The study was conducted at the head offices of commercial banks considered in this study namely: CBE, CBB, DB, WB and UB and the NBE at Addis Ababa. The head offices of the respective commercial banks and the NBE were convenient for the researcher to conduct the study, since the researcher can use the advantage of being near to the banks and get the relevant data for the study.

The sources of data were the finance /treasury/, international banking, risk and credit management departments of the commercial banks reviewed in this study and the banking supervision department of NBE. Moreover, annual reports of the commercial banks and directives issued by the NBE were used.

### ***Sampling Technique***

The sample population used in this study was 25 which were selected using purposive sampling technique. Respondents were selected from the departments considered as better sources of data for the topic under study with the assumption that they could have better information and experience.

### ***1.5.3. Instruments and Procedures of Data Collection***

#### ***1.5.3.1. Instruments***

To accomplish the objectives of this study, the researcher collected data from both primary and secondary sources. In order to collect data from primary sources through questionnaires, both close ended and open ended questions were prepared and used in English. The questionnaires for the respective respondents were administered by the researcher, assuming that they can get more assistance by the time they fill the questionnaire in case they needed.

The questionnaires distributed to commercial banks had three sections. The first part of the questionnaire is intended to gather background information of the respondents. The second part consists of questions that were designed to examine the liquidity risk management policy and procedure framework and in the third part of the questionnaire, respondents were asked about the liquidity risk management structure and process.

Personal interview was conducted on some issues (points) that need more clarification and which are difficult to be collected through questionnaires. In addition to the primary

data, secondary data was gathered from the annual reports of the commercial banks under review and directives of the NBE.

### ***1.5.3.2 Procedures of Data Collection***

The researcher adopted three main steps in collecting data for the study. First, relevant literature was reviewed to get adequate information and ideas on the topic. Second objectives and research questions were formulated to show the direction of the study. Third, on the basis of the objectives of the study, the researcher designed the instruments to collect the relevant data. The data gathered through the various instruments were organized, analyzed, interpreted and discussed.

## **1.6. Data Analysis**

After collecting the relevant data through the data gathering methods used in this study, the researcher categorized the data appropriately for interpretation. Both qualitative and quantitative data analysis techniques were employed in this study.

To analyze and interpret the data gained from questionnaires, a quantitative technique involving percentages was used. The data obtained from interview was analyzed descriptively.

Moreover, the data obtained from annual reports of the commercial banks considered in this study was analyzed using percentages, ratios, graphs and interpreted quantitatively. Finally, based on the findings of the study, conclusions and recommendations were made.

## **1.7. Limitations of the Study**

Some of the challenges that were encountered while conducting the study were:

- Lack of cooperation from some of the subjects of the study
- Shortage of time and lack of the necessary materials written with respect to the topic under study.

Despite these limitations, the researcher has attempted to make the study as complete as possible using unreserved effort.

## **1.8. Organization of the Paper**

This paper is organized and presented in four chapters. Chapter one is about the introduction of the paper. It contains the background of the study, the statement of the problem, objectives the study, methodology used to accomplish the objectives of the study, the significance of the study and its limitations. Chapter two contains reviews of related literature; chapter three presents the analysis and presentation of the data collected from primary and secondary sources and the last chapter contains summary, recommendations and recommendations forwarded based on the findings of the study.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1. International Liquidity Management: an Overview**

During the booms that inevitability precedes crises in emerging economies, policy makers often struggle to limit capital flows and their expansionary consequences. They primarily rely on tight monetary policy. In particular, they attempt to sterilize capital inflows through an open market sale of domestic bonds or increased reserve requirements (Caballero and Krishnamurthy (2000)).

While sterilization is a widely used tool, both policy makers and academics have warned that it comes along with a number of difficulties and risks. When capital markets are integrated and there is a simultaneous attempt to stabilize the exchange rate, the central bank has no control over the money supply because the private sector can undo an open market sale of bonds for money (Mundell (1962)).

Caballero and Krishnamurthy (2000) have argued that at the aggregate level, domestic investment-building construction is constrained by the supply of internationally liquid assets. They have pointed out that if the economy is currently in an investment boom in which many loans are being made, there is much real estate development, and the economy is trading away its international liquidity. Anticipating a shortage of international liquidity in the future, the central bank tries to increase the international liquidity provisions of the economy by offering public bonds in exchange for

internationally liquid assets during the boom. The sterilized intervention leaves the central bank with more international reserves while leaving the private sector with more public bonds. The direct effect of this transaction is just a reallocation of international liquidity from the private sector to the central bank.

They have developed a simple open economy model where two forms of liquidity, domestic and international, are required to fulfill investment plans.

International liquidity determines a firm's ability to borrow from international financiers. Domestic liquidity, on the other hand, determines a firm's ability to borrow from domestic financiers. Shortage of either form of liquidity may lead to difficulties. Caballero and Krishnamurthy (2000) have focused and described an external crisis as a situation where, primarily, there is an aggregate shortage of international liquidity. That is, the sum of the international liquidity is less than that required to full fill all investment plans. In this case, domestic liquidity serves to allocate international liquidity to the highest value of use. These researchers explained that these two forms of liquidity interact and arrived at: in a dynamic context, when domestic liquidity is low, agents will undervalue holding international liquidity relative to the constrained efficient outcome. Domestic liquidity is low when domestic financial markets are illiquid and underdeveloped. They showed that when the economy is in the crisis-region, it is international liquidity that presents the dominant bottleneck. Domestic liquidity, on the other hand, determines the allocation of surplus during these crises. They indicated that when there is insufficient domestic liquidity, the market surplus allocation will not

correspond to that of the central planner. In particular, the central planner will desire to allocate all the surplus to the liquidity suppliers. This will generally not happen when domestic liquidity is low as those in need have insufficient commitment to compensate the international liquidity providers adequately.

Chang and Velasco (1998) have argued that international illiquidity has a significant impact on the financial system of a country. International illiquidity refers to a maturity mismatch of a financial system's international assets and liabilities. More precisely, these scholars said that a country's financial system is internationally illiquid if its potential short term obligation in foreign currency exceed the amount of foreign currency it can have access to on short notice.

This concept is crucial. International illiquidity involves a fragile situation: it is a necessary and sufficient condition for financial crashes and/or balance of payments crises. Chang and Velasco (1998) have also pointed out that clearly lower reserve requirements allow the banking industry to maintain a lower degree of liquidity. While this may be desirable on efficiency grounds, it directly exacerbates international illiquidity and increases the possibility of financial runs. These authors have indicated that increased competition typically forces banks to offer more attractive terms (higher interest rates) to depositors. This improves social welfare in the absence of bank runs. But it also implies that the short-term liabilities of the banking system, in this case the face value of demand deposits, must increase, impairing international liquidity. In their argument, their perspective is that financial liberalization lowers international liquidity.

Evidence supporting this view has been provided by Demirguc-Kent and Detragiache (1998). Their analysis of banking industry data between 1998 and 1995 shows that financial liberalization (understood as the deregulation of interest rates) is strongly correlated with a fall in the bank's liquidity (measured by the ratio of liquid to total assets).

Financial systems that are internationally illiquid live at the mercy of exogenous economic conditions and of the moods of depositors and creditors. As shown by Chang and Velasco (1998), if initial liquidity liabilities are large relative to liquid assets, then an exogenous shock (such as an increase in the world interest rate) or a sudden loss of confidence may prompt holders of the system's liabilities to attempt to liquidate them. But they cannot all be successful, since international illiquidity means, precisely, that the foreign currency value of their holdings cannot be covered by the amount of international liquidity available to the system.

Chang and Velasco (1998) concluded that a financial crisis may occur even if things would have been normal and confidence stayed high. If a crisis does take place, financial institutions may be forced to call in loans, interrupting productive projects, and sell fixed assets such as land causing real estate and stock prices to plunge.

## **2.2. Liquidity Shortages and Banking Crisis**

Banks are often found at the center of systemic financial crises. A financial crisis can be initiated by the failure of one or several banks. The failure can result from a run on banks

and imply a failure of markets for liquidity, to which banks turn to meet their short-term liquidity needs (Diamond and Rajan, 2005).

Alexandra (2002) has argued that by themselves, bank failures do not necessarily mean that a financial crisis is underway. In an uncertain world, firms and banks are subject to failure even when the economy is functioning smoothly, and failure need not imply a deviation from social optimality. Propagation of a financial crisis takes place through contagion, or a spreading of failures from one financial institution to another. Propagation can lead to collapse of the financial system and result in significant real costs for the economy. Contagion within banking markets is a common feature of financial crisis. For instance, in the Swedish (1990) and Norwegian (1985) banking crisis, the problems first emerged in finance companies and then spread to banks, owing to the banks' involvement in the finance companies (Drees and Pazarbasioglu (1998). In Argentina (1995), depositor runs started at wholesale banks and spread to retail banks. Contagion in the banking sector was evident in Paraguay (1995) and Venezuela (1994) as well (Chang and Velasco, 1998). A financial crisis can be initiated by a run on a bank as a result of coordination failure among the bank's depositors. Banks are characterized by balance sheets that exhibit "maturity mismatch", which means that banks' liabilities (predominantly composed of deposits) tend to be short-term, while their assets tend to be long-term and illiquid.

Diamond and Dybvig (1983) showed that a run on a bank occurs when the bank's demand for liquidity, owing to withdrawals by depositors, exceeds the short term value of its assets.

Alexandra (2002) also pointed out that when a bank's need for short-term liquidity exceeds its reserve of liquid assets, it faces a potential liquidity crisis. This author argued that the bank can acquire liquidity by liquidating some of its long-term assets (usually at a loss), drawing on its deposits at other banks, or borrowing from other banks with excess liquidity. Hence, a necessary part of crisis initiation is that individual banks' liquidity needs are not met by markets for liquidity. If markets for liquidity are efficient, a solvent bank should never be illiquid, since it will be able to sell its long-term assets or borrow against its long-term assets to tide over its liquidity problems. Banks with liquidity needs in excess of their liquid assets turn to market for liquidity, and banks with excess liquidity have an incentive to lend to illiquid banks. Markets for liquidity, however, can be inefficient because of market power or information asymmetries (Holod and Peek (2006)). In this case, liquidity problems at healthy banks can turn into solvency problems when the banks are forced to sell their long-term assets below their fair value, or when they are unable to borrow enough funds on the inter bank lending market.

In a banking industry, a liquidity crunch can result from the liability side of banks' portfolios owing to runs on deposits, usually by wholesale depositors, or from the asset side owing to declines in banks' cash-asset ratios. Banking crises were generally

accompanied by declines in bank deposits and bank lending, and increases in the interest rates on loans and deposits.

Contagious bank failures can result from information externalities or explicit credit linkages between banks. Credit linkages between banks can arise from inter bank risk-sharing or from banks' participation in payment and settlement systems, and they cause banks' performances to be correlated even when "fundamentals" are independent across banks. Information contagion occurs when depositors perceive the performance (fundamentals) of banks to be correlated with each other. Liquidity problems at one bank may also be transmitted to other banks through the market for bank assets. When a run occurs on a bank, the bank generally must sell its assets quickly, possibly at fire-sale prices, and/or borrow funds, possibly at higher interest rates. This can turn a liquidity problem into a solvency problem. The reduction in bank asset prices can adversely affect the value of other banks' assets to an extent that it creates liquidity problems for them. When banks hold claims on other banks, a run on one bank is likely to affect other banks directly as the affected bank withdraws its inter bank funding (Aklexandra, 2002).

Diamond and Dybvig (1983) demonstrated that the characteristics of demand deposit contracts, combined with the maturity mismatch (in which a bank's potential repayment obligations exceed the value of its liquid assets) in banks' portfolios, create pay off externalities that are at the heart of the banking system's fragility.

Diamond and Rajan (2000, 2001) developed a theory of banking crisis based on non-commitment and liquidity creation that provides a useful role for the coordination failure that arises from deposit contracts. Their paper suggests that while deposit contracts can cause problems for the banking system in some states of the world, they exist to overcome another problem, that of limited commitment.

### **2.3. Measuring a Bank's Liquidity Needs**

A bank's liquidity needs consist of immediate obligations, such as deposit withdrawals or legitimate loan demands, that the bank must meet to continue its functions as a financial intermediary. Depositors and creditors must have confidence in the value of their bank's assets in order to trust the bank with their funds. Because it is difficult to know how much confidence quality-sensitive depositors and creditors have in a bank, it is difficult to measure bank's liquidity needs and ability to meet such needs. Liquidity needs and sources are dynamic in nature. A bank's liquidity needs are measured over time; then liquidity needs are matched with these changing needs (Hempel and Simonson, 1991).

Smith (1991) has also argued that bank management has an important task to measure and meet its liquidity needs dynamically. This author indicated that long-run profitability will suffer when banks hold too much in low-earning liquidity sources in relation to its needs for such liquidity. On the other hand, too little liquidity can lead to severe financial problems and even failure.

## **2.4. Determinants of Dynamic Liquidity Needs**

Banks are guided by their past experience and knowledge of events likely to affect liquidity needs. Hempel and Simonson (1999) have argued that the short term or seasonal liquidity needs of a bank may arise from several sources. For example, seasonal factors, often affect deposit flows and loan demand. Since loans are generally to deposit customers, seasonal increases in loans tend to occur when deposits are at seasonal lows, and vice versa.

Large depositors and large borrowers may influence the short-term liquidity needs of an individual bank disproportionately. The extent of these customers' influence is in direct relationship to the bank's size. The short term funding needs of important customers can strongly affect bank liquidity in the short-run.

These authors indicated that a bank should carefully evaluate its funding diversification, the probable loyalty of its major funding sources, and the risks the bank is taking in areas such as credit risk, interest rate risk and capital risk which might blemish the bank's name.

Banks also require trend liquidity needs. These are liquidity needs required by banks for liquidity demands that can be predicted over a long time span. Santomero (1997) and Alexandra (2002) have argued that these long-term (trend) liquidity needs are generally related to the secular trends of the community or markets that a bank serves. In rapidly

expanding areas, loans often grow faster than deposits. A bank in such a situation needs sources of liquidity to provide funds for loan expansion.

Hempel and Simonson (1999) have indicated that in stable communities, on the other hand, deposits may show a steady rise, while loans remain virtually unchanged. In such cases, the longer view of liquidity requirements may enable the bank to keep more fully invested than it otherwise would. In either case, to gauge the bank's needs for longer-term liquidity, a bank's management must attempt long-range economic forecasting as the basis on which it can reasonably estimate loan and deposit levels for the next year and perhaps five years ahead.

In addition to the short-term and long-term liquidity needs, banks may also have contingent liquidity needs. The contingent liquidity needs are caused by unusual events that are difficult, if not impossible to predict. Smith (1991) pointed out that these contingent liquidity needs include an unexpected outflow of deposits caused by a rumor about the bank, an unusual increase in loan demand, or closing of an extensively used funding source. By their very nature, contingency liquidity needs are impossible to forecast accurately. At the same time, every bank should have a plan to remain liquid in case some contingency does occur.

## **2.5. Sources of A bank's Liquidity Needs**

Providing for a bank's liquidity needs is often as complex as estimating those needs. Hempel and Simonson (1999) have indicated two possible sources that can be used to fill a bank's liquidity needs. These are:-

### ***2.5.1. Traditional Sources of Liquidity***

The primary traditional sources of liquidity fall into two basic categories. The first category consists of bank assets in which funds are temporarily invested with the assurance that they either will mature or be paid when liquidity is needed or will be readily saleable, without material loss, in advance of maturity. The second category includes the various methods by which banks can borrow or otherwise obtain funds.

### ***2.5.2. Emerging Sources of Liquidity***

In addition to the traditional sources, banks use numerous other emerging methods to meet liquidity needs. One method applies underwriting of highly standardized loans, particularly home mortgages, for resale in well organized secondary markets.

Another method is to purchase intermediate or long term securities that have the option of being sold at a set price in the future. The option feature removes the price fluctuation risk and makes the long-term securities liquid. The last method is for the bank to use capital market obligations (such as preferred stock or capital notes) to finance its liquidity needs.

## **2.6. Matching Liquidity Sources to Liquidity Needs**

Banks must choose among various assets, liabilities and the new emerging sources of liquidity to fill their liquidity needs. The choice among the variety of sources of liquidity should depend on several factors. Hempel and Simonson (1999) have also argued that for

banks to match liquidity sources to liquidity needs, they should consider different alternative constraints. Among these constraints proposed by these scholars are:

### ***2.6.1. Purpose of the Liquidity Needed***

The reason that liquidity is needed can affect the source of liquidity used to fill that need. Seasonal liquidity needs, increasing loans, and/or deposit outflows tend to be reasonably repetitive in extent, duration and timing. Smith (1991) has also argued that forecasts of seasonal needs can usually be based on past experience, and most banks should be reasonably confident in making such forecasts. Therefore, only moderate risk is apparently associated with the use of purchased forms of liquidity to cover seasonal liquidity needs unless the bank has low earning maturity assets, purchased fundings are often favored liquidity choices. Earnings should be higher from using purchased funds than from building up liquid assets during periods of low seasonal needs.

On the other hand, Hempel and Simonson (1999) have argued that the use of purchased funds to meet cyclical needs seems less appropriate. Cyclical needs are much more difficult to predict, and when and whether borrowings can be repaid may be a serious concern. Any bank should limit its use of purchased forms of liquidity to have a borrowing reserve if future unpredicted liquidity needs occur.

### ***2.6.2. Access to Money Market***

This factor is the second primary determinant of the sources of liquidity that banks use to fill their liquidity needs. Instruments used in the money market include negotiable

certificates of deposits, commercial paper and banker's acceptance. So, banks can use money market instruments to fill their liquidity needs.

### ***2.6.3. Managerial Philosophy***

A bank's management philosophy is the third primary determinant of a bank's sources of liquidity. This philosophy consists of a set of implicit or explicit liquidity guidelines established by top management. Hempel and Simonson (1999) argued that the primary liquidity guideline is the extent to which the bank is willing to rely on sources of funds that might disappear in difficult times. They indicated that a bank that makes little or no use of purchased funding sources of liquidity needs reflects a conservative management philosophy.

### ***2.6.4. Cost and Characteristics of Various Liquidity Sources***

The fourth primary determinant of the liquidity sources a bank should use is the cost and characteristics of various liquidity sources. Usually, the bank will choose the lowest cost available sources that achieves the given liquidity need.

### ***2.6.5. Interest Rate Forecast***

The bank's opinion on the future course of interest rates may also affect the choice among alternatives for meeting liquidity needs. In periods when the bank expects interest rates to rise, banks prefer to raise funds through long-term instruments. On the other hand when interest rates are expected to fall, the tendency of banks will be to utilize very short-term sources of funds.

## **2.7. Risks in Providing Banking Services**

In the process of providing financial services, commercial banks encounter various kinds of risks. The risks associated with the provision of banking services differ by the type of service rendered.

Santomero (1997) has pointed out that for the sector as a whole, the risks can be broken into six generic types: systematic or market risk, credit risk, counterparty risk, liquidity risk, operational risk and legal risks. Systematic risk (market risk) is the risk of asset value change associated with systematic factors. By its nature, this risk can be hedged, but cannot be diversified completely away. For the banking sector, systematic risk comes mainly from variations in the general level of interest rates and the relative value of currencies (Saxegaard, 2006).

Credit risk arises from non-performance by a borrower. It may arise from either an inability or an unwillingness to perform and in the pre-committed contracted manner. Credit risk is diversifiable, but difficult to eliminate completely. This is because a portion of the default risk may, in fact, result from the systematic risk outlined above.

Counterparty risk comes from non-performance of a trading partner. The non-performance may arise from a counterparty's refusal to perform due to an adverse price movement caused by systematic factors or legal constraint.

Liquidity risk can best be described as the risk of a funding crisis. Risk management in banks centers on liquidity facilities and portfolio structure. Recognizing liquidity risk leads the banks to recognize liquidity itself as an asset, and portfolio design in the face of illiquidity concerns as a challenge (Rochet, 2008).

Operational risk is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations.

Legal risks may arise from environmental regulations that could affect financial institution. Or legal risks may arise from the activities of an institution's management or employees. For instance, fraud, violations of regulations or laws, and other actions can lead to catastrophic loss.

## **2.8. Bank Liquidity Risk Management**

The importance of liquidity for sound banking practice is well established at both the theoretical and operational levels. Bank liquidity indicates the degree to which a financial institution is able to meet its obligations under normal business conditions.

Dziobek, Hobbs and Marston (2000) have argued that bank liquidity is closely interlinked with confidence because its most generic function is to provide the bank and its customers with the reassurance that the bank's liability obligations can be met as they become due without necessarily having to roll these over or postpone access to credit. For

this reason, an important objective of liquidity risk management operations is to engage in confidence enhancing practices (Bundesbank 1982).

Liquidity risk is mainly due to a faulty balance sheet structure of the bank's assets and liabilities to provide cash to handle unexpected events. Excessive liquidity problems are therefore an indication of deeper-lying problems and are usually preceded by excessive risks taken by the bank i.e. interest rate risks (mismatching asset and liability maturities or duration) and credit risks (non performing loans due to credit extended to risky borrowers).

Effective commercial bank liquidity management requires that sufficient liquid assets be held to meet normal business requirements (including reserve requirements) and that excess balance be minimized, (Dziobek, Hobbs and Marston, 2000).

These authors have also argued that asset liquidity and liability management are the core elements in liquidity risk management of commercial banks. They showed that asset liquidity can be obtained either by holding liquid paper, by managing the maturity distribution of non liquid assets with a view toward the bank's liquidity needs, and/or by selling outright (or lending) collateralized claims on a repurchase basis.

Liability management aims at controlling liquidity risk by limiting volatility gaps between asset and liabilities, and by assuring access to funding markets. In broad term, techniques of limiting liquidity mismatches aim at extending the maturity of liabilities

and increasing stable “core” deposits. A second group of techniques aims at assuring and improving funding market access. By diversifying funding sources by market segment, banks can reduce their vulnerability to market or counterparty disruptions and increase the probability that funding can be retained or replaced if there is a disruption. In managing funding relations, banks also establish contingency arrangements and often have bilateral and last-resort arrangements from which funds can be raised on a temporary basis (Dacey and Bazel-Horowitz, 1990).

The liquidity risk that does present a real challenge is the need for funding when and if a sudden crisis arises. Under this condition, what is required is an analysis of funding demands under a series of “worst case” scenarios. These include the liquidity needs associated with a bank specific shock, such as a sever loss, and a crisis that is system wide. For managing liquidity risk in each case, the bank examines the extent to which it can be self-supporting in the event of a crisis, and tries to estimate the speed with which the shock will result in a funding crisis (Santomero, 1997).

## **2.9. Determinants of Excess Liquidity in Commercial Banks**

Excess liquidity is typically equated to the quantity of reserves deposited with the central bank by deposit money banks plus cash in vaults in excess of the required or statutory level.

Going beyond acknowledging the threat of increasing inflation, several authors have observed that this abundance of liquidity is likely to have adverse consequences for the ability of monetary policy to influence demand conditions and thus, to stabilize the

economy. Agenor, Aizenman and Hoffmaister (2004), for example, have noted that if banks already hold liquidity in excess of requirements, attempts by the monetary authorities to increase liquidity to try to stimulate aggregate demand will prove largely ineffective. Similarly, Nissnake and Aryeetey (1998) have argued that in the presence of excess bank liquidity, it becomes difficult to regulate the money supply using the required reserve ratio and the money multiplier, so that the use of monetary policy for stabilization purpose is undermined. In other words, one would expect excess bank liquidity to weaken the monetary policy transmission mechanism.

Excess liquidity may simply reflect the holding of liquidity for precautionary purposes. In other words, the accumulation of non-remunerated (involuntary reserves that do not provide a convenience return which offsets the opportunity cost of holding them) reserves may be a result of commercial bank's optimizing behavior. Agenor, Aizenman, and Hoffmaister (2004), for example, pointed out that the accumulation of reserves in excess of requirements in Thailand during the Asian crisis was a result of a contraction in the supply of credit by banks, and not due to a reduction in the demand for credit.

Agenor, Aizenman, and Hoffmaister (2004) showed, in particular, the role of increased uncertainty or risk of default as a rationale for commercial banks' voluntary buildup of holdings of non-remunerated liquid assets during the East Asian crisis.

When free reserves are large, banks supposedly have surplus reserves and are eager to make loans and lower interest rates. When free reserves are small, banks are supposedly

under pressure to payoff their indebtedness and will consequently restrict credit and raise interest rates (Frost, 1971).

Mishkin (2001) explained that banks keep excess reserves as an insurance against the cost associated with deposit out flows. He argued that the higher the costs associated with deposits out flow, the more would be the excess reserves banks want to hold. Thus, literally, banks keep excess liquidity for a range of reasons. Among the widely cited reasons for accumulation of excess liquidity in banks are: susceptibility to required reserves deficiency penalty; market risks vulnerability; and liquidity deficiency costs, ranging from interest on borrowed funds to the possible bankruptcy ordinance action (Aikaeli, 2006).

Institutional factors may also encourage commercial banks to hold precautionary reserves. Poorly developed interbank markets, for example, make it difficult for banks to borrow in order to cover contingencies. It has also been suggested that difficulties encountered by banks in tracking their position at the central bank may require them to hold reserves above the statutory limits. Finally, banks may want to hold precautionary excess reserves due to problems with the payments system, for example, remote branches may need to hold excess reserves due to transportation problems (Saxegaard, 2006).

Implications of precautionary and involuntary excess liquidity can be seen in terms of potential inflationary effects. In this regard, involuntary excess liquidity is likely to be rapidly lent out if demand conditions in the economy improve. Hence, the amount of liquidity in the economy may rapidly increase without a loosening of monetary policy at

a time when liquidity conditions should be tightened. This in turn carries with it the risk of increased inflation. Precautionary excess liquidity, on the other hand, is likely to pose less of a risk in terms of inflation. Furthermore, if banks hold excess reserves only for precautionary purposes, then one would still expect monetary policy to be effective. A loosening of monetary policy, for example by lowering reserve the requirement would increase excess liquidity above the level demanded by commercial banks for precautionary purposes. Hence, one would expect banks to expand lending by lowering the cost of borrowing. Similarly, one would expect contractionary monetary policy would lead banks to contract lending to maintain their desired level of excess reserves (Saxegaard, 2006).

However, if the holdings of excess liquidity are involuntary in the sense that banks are unable to expand lending, then attempts by banks to boost credit demand by lowering the cost of borrowing be largely ineffective. An expansionary monetary policy in that case would simply inflate the level of unwanted excess reserves in commercial banks and lead to an expansion of lending. Similarly, contractionary monetary policy will simply cause banks to reduce their unwanted reserves, and will only affect monetary policy if it reduces reserves to a level below that demanded by banks for precautionary purposes (O'Connell, 2005).

## **2.10. Role of Commercial Banks in Creating Liquidity**

According to the modern theory of financial intermediation, an important role of banks in the economy is to create liquidity by funding illiquid loans with liquid demand deposits.

(Diamond, 1984, Ramakrishnan and Thakor, 1984). More generally, banks create liquidity on the balance sheet by transforming less liquid assets into more liquid liabilities.

Kashyap, Rajan and Stein (2002) have suggested that banks may also create significant liquidity off the balance sheet through loan commitments and similar claims to liquid funds.

Diamond and Rajan (1998) have argued that both investors and borrowers are typically concerned about liquidity. These authors pointed out that investors desired liquidity because they are uncertain about when they will want to eliminate their holdings of a financial asset. Borrowers are concerned about liquidity either because they are uncertain about their ability to raise funds when needed unexpectedly, or because they are uncertain about their ability to continue to retain funding in the future. These liquidity problems can be resolved through financial intermediation by commercial banks, which seem right at the center of meeting these needs for the customers.

Diamond and Rajan (1998) have also indicated that depositors get better access to their funds than they would if they invested directly and earned the same expected return: this is liquidity creation by banks. Borrowing firms too can find the bank to be a more reliable source of funding than another firm or individuals: banks insure borrowers against the liquidity risk that funding will be cut off prematurely.

The role of banks to create liquidity is also shown by Diamond and Dybvig (1983). In the models developed by these scholars, they argued that the timing of the cash flows from

physical assets makes them illiquid: they do not deliver adequate cash flows in the short run.

Moreover, investors obtain only a low re-sale price for the physical asset, because there is a short-term aggregate shortage of liquidity. The role of banks is then to offer liabilities that have higher short-run returns than would be obtained by direct investment in the asset.

The arguments by Diamond and Rajan (1998) are however, different; financial assets are illiquid because of the specific talents of the lender, rather than because of an aggregate shortage of liquidity. The role of banks here is that: the bank can make loans against illiquid real assets, develop specific talents, and yet avoid the costs of illiquidity of the financial assets (the loans) if it can raise cash through other means. Clearly, it obtains some cash from loan repayments, which can be used to meet some liquidity demands. It can also maintain sufficient liquid assets to fund the withdrawals. But most importantly, if it can commit to passing through all inflows on loans to depositors, it can attract new depositors who are willing to make a deposit that offsets the withdrawals. This allows the bank to maintain continuity and facilitates the need to transfer illiquid financial assets to others.

In summary, the bank creates liquidity. The bank's ability to pledge all of the value of loans, including the portion that requires bank-specific skills to collect, means that it can promise depositors more than the market value of the loans it has made (the value that an unskilled loan buyer would pay for the loans). At the same time, the bank buffers borrowing firms from the liquidity demand of investors without introducing an additional layer of agency costs.

## **CHAPTER THREE**

### **LIQUIDITY RISK MANAGEMENT PRACTICE AND LIQUIDITY POSITION**

Commercial Bank of Ethiopia and construction and Business Bank were operating over many years without any competition during the Derge Regime. As a result of reforms in the financial sector in 1994, the domestic private banks were permitted to enter the banking business sector.

Opening of the financial service industry for local private banks resulted in the establishment of ten private commercial banks namely Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, NIB International Bank, Cooperative Bank of Oromiya, Lion International Bank, United Bank, Zemen Bank and Oromiya International Bank.

All of the commercial Banks (both public and private) perform their financial services in accordance with the rules and directives of the National Bank of Ethiopia, which is the central (regulating) bank of Ethiopia. Liquidity is a financial institution's ability to meet its cash and collateral obligations without incurring unacceptable losses.

This chapter focuses on the evaluation of liquidity risk management practice and the liquidity position of commercial banks in Ethiopia. In this analysis, two public banks, Commercial Bank of Ethiopia (CBE) and Construction and Business Bank (CBB); and

three private banks namely Dashen Bank (DB), Wegagen Bank (WB) and United Bank (UB) have been taken into consideration.

### **3.1. Analysis and Presentation of Data Obtained Through Questionnaire**

In order to evaluate the liquidity risk management practices of commercial banks in Ethiopia, 25 questionnaires were prepared and distributed, to the finance, treasury, credit, risk management and international banking departments of the commercial banks under review. For each commercial bank, 5 questionnaires were distributed. The questionnaires distributed to commercial banks had three sections. Section one is about the respondents' profile, section two consists of questions related to the liquidity risk management policy and procedure framework and in section three questions that seek information about the liquidity risk management structure and liquidity risk management process were asked.

#### ***3.1.1. Respondents' Profile***

From the 25 respondents, 1(4%) is female and the rest 24 (96%) are males. Regarding their education, 17(68%) have first degree, 2(8%) are first degree holders and professional qualification in ACCA, and 6 (24%) have second degree in finance and related fields. The respondents were selected based on judgmental (purposive) sampling technique as respondents with better understanding are expected for providing relevant information for reliable analysis and recommendations.

### ***3.1.2. Structure and Organization of the Liquidity Risk Management***

#### ***Process***

Except for construction and Business bank, the banks under this study do have Asset and Liability Committee. In the case of Wegagen bank, the Asset and Liability Committee (ALCO) is established in the name of Resource Mobilization committee. In CBE, DB, WB and UB, the ALCO performs such functions as managing the overall liquidity risk of the bank and facilitating, coordinating communicating and controlling balance sheet planning regarding risks inherent in managing liquidity.

The risk management unit (department) also involves in managing liquidity risk of the banks under consideration with the exception of Construction and Business bank which has not yet established this department. In CBE, DB, WB and UB which have risk management department, this department performs such activities which includes developing liquidity risk management framework, giving training and creating awareness about how to manage liquidity risk in the bank. It also consolidates and reports the liquidity position of the bank to higher authorities. When it is appropriate, this department reviews the bank's liquidity risk management and recommends changes (if necessary) in the liquidity risk management processes of the bank.

In coordination with the finance and treasury departments, the risk management department implements the bank's liquidity risk management policies, procedures and strategies.

To this end the finance /treasury/ department measures and identifies the prevalence of liquidity risk in the bank and reports the liquidity position of the bank to the board.

The integrated activities performed by different bodies and departments in managing liquidity risk of each bank do have a great role in meeting the requirements of National Bank of Ethiopia and increasing market share by opening branches.

Sound liquidity risk management begins with appropriate policies, procedures, guidelines and limits and effective board and senior management oversight. To know the existence of liquidity risk management policy and procedure, respondents were asked.

**Table 3.1 Existence of Liquidity Risk Management Policy and Procedure**

<b>Bank</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
CBE	4	1	5
CBB	-	5	5
DB	5	-	5
WB	5	-	5
UB	4	1	5
Totals	18	7	25
<b>Percent</b>	<b>72</b>	<b>18</b>	<b>100</b>

*Source: Primary data (Questionnaire)*

As Shown in the above table, 72 percent of the respondents indicated that they have liquidity risk management policy and procedure. But from the five banks considered in

this study, CBB does not have liquidity risk management policy and procedure. This indicates that from the remaining four banks, CBE, DB WB and UB, 90 percent (18) of the respondents said that there is liquidity risk management policy and procedure which is approved by the board of directors of the respective bank.

The board of directors performs different activities. 76 percent (19) of the respondents stated that the board of directors is more significantly responsible for approving the liquidity risk management policies. In addition to this, 56 percent (14), 40 percent (10) and 36 percent (9) of the respondents indicated that the board of directors is responsible for maintaining general strategies to manage liquidity risk, understanding the nature of the bank's liquidity risk and assigning responsibility to different levels of authority for managing liquidity risk (See Annex 3A).

In order to execute the liquidity risk management policies and procedures, other bodies including senior (Top) management, Asset and liability committee, risk management committee (unit) and risk control department are involved.

According to the reply forwarded by the respondents, 60 percent (15) showed that senior (top) management of each bank is responsible for ensuring the appropriate execution of the liquidity risk management policies and procedures. 76 percent (19) and 48 percent (12) of the respondents stated that senior (top) management is also responsible for ensuring the adequacy of liquidity risk management policies, strategies and procedures and evaluates the liquidity risk management system and standards, reporting and

monitoring procedures respectively. With this regard, it also evaluates and reviews the bank's liquidity risk management policies, procedures and strategies and reports to the board when necessary (See Annex3B).

### ***3.1.3. Liquidity Risk Management Process***

In the process of providing financial services, commercial banks assume different kinds of risks. Regarding this issue, the respondents from CBE, CBB, DB, WB, and UB indicated that each bank encounters one or more of the risks that exist in the banking industry. This shows that no bank can give the financial services free of any risk. Five respondents in each bank were asked about the type of risk that exists in the respective bank and respondents answered that there exist more than one risk. That is why the total of the responses under each risk type is greater than 25. The type of risk faced by the banks under this study is shown in the following table.

**Table 3.2 Risks Encountered by Commercial Banks (in number)**

Bank	Type of Risk (Frequency)					
	Credit Risk	Liquidity Risk	Operational Risk	Interest Rate Risk	Forex exchange rate risk	Total
CBE	4	4	4	2	2	16
CBB	3	4	1	1	1	10
DB	3	3	3	1	1	11
WB	2	3	3	1	2	11
UB	2	2	3	0	2	9
<b>Total</b>	<b>14</b>	<b>16</b>	<b>14</b>	<b>5</b>	<b>8</b>	<b>57</b>
<b>Percent</b>	<b>56</b>	<b>64</b>	<b>56</b>	<b>20</b>	<b>32</b>	

*Source: Primary data (questionnaire)*

As can be seen in table 3:2, five types of risks were asked whether these risks exist in the respective bank or not. Accordingly, almost all the banks under review encountered one or more of the risks shown in the table above. From a total of 25 respondents, 64 percent (16) of them indicated that liquidity risk is the most widely encountered risk by the commercial banks followed by credit risk and operational risk and require more attention. This is because if there is credit risk (i.e. default by a borrower), the extent of liquidity risk will increase which will affect the overall existence of the bank.

When we see the interest rate risk, it is not as such serious because the changes in interest rate do not occur frequently. The forex exchange rate risk is also affecting the commercial banks which is the risk faced by commercial banks in translating foreign currency into Ethiopian birr which causes fluctuation on the balance sheet.

The liquidity risk faced by commercial banks is a type of mismatch of inflows and outflows of funds. The current status of the commercial banks in meeting NBE liquidity requirement is given below:

**Table 3.3 Current Liquidity Positions of Banks**

Liquidity position	Bank						
	CBE	CBB	DB	WB	UB	Total	Percent
As expected	1	4	1	1	1	8	32
Over liquid	4	1	4	4	4	17	68
Under liquid	-	-	-	-	-	-	-
<b>Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>25</b>	<b>100</b>

*Source: primary data (questionnaire)*

As shown in table 3:3 above, 68 percent (17) of the respondents indicated that the commercial banks have excess liquidity position. Except for Construction and Business Bank whose liquidity position is as expected, 80 percent of the respondents in each of the remaining banks (CBE, DB, WB, and UB) stated that there is excess liquidity in each bank. The excess liquidity in the commercial bank is caused by low level of economic development in the country and the existence of limited financial instruments.

Therefore, commercial banks open branches in order to use the excess fund and generate return. The excess fund held by commercial banks could have generated substantial return if there had been secondary markets and enough securities (financial instruments).

The commercial banks used to invest in treasury bills though the interest rate is low, and hence a commercial bank that charges the lowest interest rate can get the chance to invest in treasury bills. Regarding this, the Commercial Bank of Ethiopia, which is usually over liquid, acquires most of the treasury bills issued by the government because it charges lower interest rate.

Different methods were used by the commercial banks to manage the liquidity risk. For instance, CBE used to invest in treasury bills to reduce the excess liquidity. Despite the fact that CBB's liquidity position is as expected it uses continuous controlling effort towards collecting loans granted to debtors. DB used depositor incentive program through increasing interest rate and matching loan and deposit levels. WB used deposit mobilization and availing credits to customers in need of loan that are creditworthy. UB

used a mechanism of temporarily halting credit, increasing credit collection effort and deposit mobilization as a means of managing liquidity risk.

Generally, the current status of commercial banks with regard to liquidity position is over liquid for the reasons mentioned before.

### ***3.1.3.1 Measuring and Monitoring Liquidity Risk***

Liquidity need and liquidity supply are situation specific. Different circumstances that cause bank's liquidity need differ. Likewise, the supply of liquidity by creditors or depositors will change given differing situations. Too much liquidity can impact a financial institution's profitability; too little liquidity can bring negative impacts due to the inability to meet contractual obligations.

With this regard, commercial banks considered in this study used to identify liquidity risk (be it shortage or excess) using different methods. According to the response forwarded by respondents of each bank, 88 percent (22) of the respondents stated that the commercial banks used maturity mismatch analysis of assets and liabilities. In addition to this, 56 percent (14) of the respondents showed that the commercial banks used liquidity risk indicators. Similar response (56 percent) is given for the use of cash flow projection as one way of identifying liquidity risk by the banks (*See Annex 3C*).

The commercial banks apply different tools to measure their liquidity position, such as loan/deposit ratio, liquid asset /total asset ratio and liquid asset /deposit ratio. Using the

loan /deposit ratio, the commercial banks can forecast their liquidity position and the extent of outflows and inflows of funds.

The liquidity risk is monitored by different mechanisms. According to the response given by respondents of each bank for monitoring liquidity risk, 80 percent (20) of the respondents indicated that the commercial banks monitor liquidity risk in compliance with NBE requirement, which is an important concern for banks to operate in the sector. Moreover, they used to delegate liquidity risk management among operating units, and 48 percent (12) respondents supported this mechanism. Except CBB, the remaining banks established ALCO (*See Annex3D*).

This committee is responsible for monitoring appropriate utilization of resources including review of liquidity risk of the bank. In the case of WB, the resource mobilization committee undertakes this task. In addition to this, the commercial banks use internal control mechanisms including audit check.

The commercial banks in Ethiopia face different problems towards liquidity risk management. Based on personal interview made with some higher officials, there are general problems for the industry as whole and specific problems for a bank. For instance one interviewee from, CBE stated that “Absence of secondary markets, absence of well developed payment system and management information (MIS) are the basic problems for the industry as a whole and CBE in particular. From CBB one official also said that “CBB has no clearly defined policies and procedures for managing liquidity risk.

Moreover, there is no strong MIS. From WB and UB, two individuals have also said that in addition to the absence of strong MIS, there is shortage of short-term investment opportunities and weak inter-bank borrowing system in the banking industry in general.

Because of these problems, these four individuals indicate areas that need improvements in the banking industry including: information technology infrastructure of banks, establishing secondary markets and designing a centralized management system on liquidity.

The NBE intervenes in the operations of the banks operating in Ethiopia. Since it is a regulator, it intervenes through its directives, changing interest rate and by sending specific instructions related to deposit mobilization and credit granting.

Regarding the intervention of NBE, 60percent (15) of the respondents indicated that the extent of intervention by NBE is moderate and 24 percent (6) and 12percent (3) of the respondents showed that there is adequate and excessive intervention respectively (*See Annex 3E*).

### **3.2. Liquidity Position of Commercial Banks in Ethiopia**

Liquidity position of commercial banks is evaluated based on liquid assets which include cash on hand, deposits with local and foreign banks and treasury bills and other items compared with liquid assets. Net deposit is composed of demand deposits, saving deposits and time deposits which are liabilities for the bank. Net loan is an asset which

indicates any amount that is given to clients (debtors). The liquidity position of each bank is analyzed using Liquid Asset/Net deposit, Liquid Asset/Total asset, Net loan/ Net deposit and change in deposit and loan.

### **A. Analysis of Liquidity Position of Commercial Banks using Liquid Asset/Net deposit**

Liquid asset/net deposit ratio indicates the extent to which the bank's total liquid assets are composed of deposits from customers and other financial institutions.

**Table 3.4 Liquid Asset/Net Deposit (in percentages)**

<b>Bank</b>	<b>Year</b>					
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Average</b>
CBE	86	78	75	74	48	72.20
CBB	47	40	58	50	62	43.40
DB	40	36	31	34	47	37.60
WB	47	48	37	48	61	48.20
UB	54	56	47	45	57	51.80
<b>Average</b>	<b>54.80</b>	<b>51.60</b>	<b>49.60</b>	<b>50.20</b>	<b>55.00</b>	

*Source: Computed from annual reports of each bank. See Annex 1 A.*

As shown in table 3:4, the liquid asset/net deposit ratio of Commercial Bank of Ethiopia is decreasing from year to year since 2004 to 2008. The average ratio of CBE, which is 72.20 percent, is greater than the industry average for the years 2004 to 2008. The continuous decline in the liquid asset/net deposit ratio is attributed to the shift in investment from treasury bill (liquid asset) to bonds (illiquid assets). In all the years

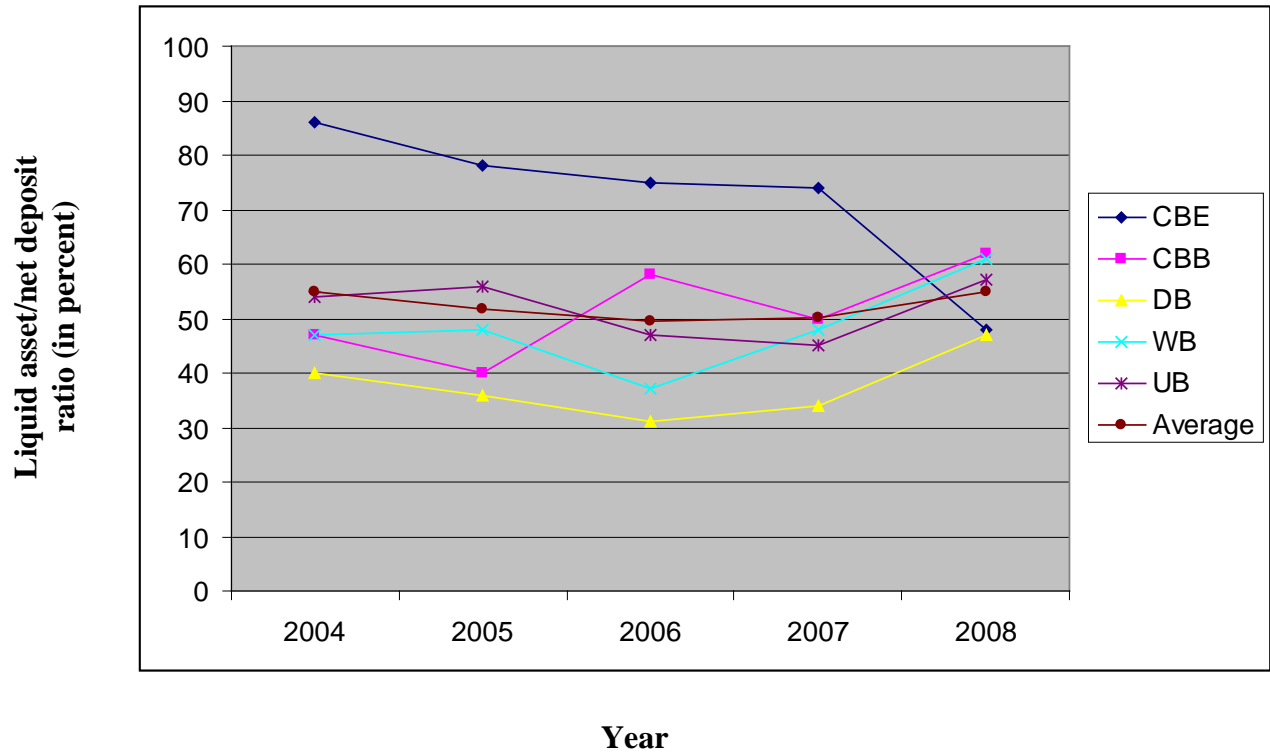
under this study except 2008 the liquid asset/net deposit ratio is more than the industry average. This indicates that the liquidity position of CBE with respect to this ratio is more than two times the requirements of NBE. This high liquid asset/deposit ratio of the CBE indicates that the bank is highly liquid in the industry.

When we see CBB, the liquid asset/net deposit ratio has a fluctuating pattern over the years and has an average of 43.40 percent. This average ratio is less than the industry average in each year. Although the liquid asset/net deposit ratio of CBB in all the years is less than the average of the five banks considered in this study, this ratio is more than the requirement of NBE. The lower average ratio of CBB than the industry average is attributed to the high amount loans provided to debtors which reduces the level of liquid assets.

When we look into the private banks, UB maintains the highest average of liquid asset/net deposit ratio followed by WB and DB. In comparison with the industry average, DB has liquid asset/net deposit ratio which is less than the industry average of each year. On average basis, WB and UB maintained more than the NBE requirement which affects the return on asset negatively because as more liquid assets are kept idle with respect to net deposits, no profit will be generated from these assets unless they are invested in alternative investment avenues.

Generally, the commercial banks considered in this study have excess liquidity when it is measured by liquid asset/net deposit ratio.

The change in the average liquid asset/net deposit ratio of the industry and each banks' yearly liquid asset/net deposit ratio during the five years under review is also depicted by the following graph.



***Graph 1 Liquid asset/Net deposit ratio***

As can be seen from the graph, the highest average is maintained in 2008 which indicates commercial banks maintain high level of liquid asset with respect to net deposit which is attributed to low economic development.

Graph 1 also depicts that CBE has a liquid asset/Net deposit ratio which above the industry average in each year except for 2008. On the other hand DB has a liquid asset/Net deposit ratio which is less than the industry average in all the years. The

remaining banks, CBB, WB and UB have a fluctuating ratio against the industry average in each year.

### **B. Analysis of Liquidity Position of Commercial Banks using Loan/deposit Ratio**

**Table 3.5 Loan/Deposit (in percentages)**

<b>Bank</b>	<b>Year</b>					
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Average</b>
CBE	28	30	27	25	44	30.80
CBB	94	70	108	104	81	91.40
DB	75	76	83	80	70	76.80
WB	79	74	85	76	75	77.80
UB	69	66	75	81	74	73
<b>Average</b>	<b>69.00</b>	<b>63.20</b>	<b>75.60</b>	<b>73.20</b>	<b>68.80</b>	

*Source: computed from annual reports of each bank: see Annex 1B*

Table 3.5 shows that the loan/net deposit ratio of CBE is fluctuating between 25 percent and 44 percent. In all the years considered in this study, the loan/net deposit ratio of CBE is less than the industry averages and the remaining banks' ratio in each year. This indicates that CBE maintained much deposit than loans granted to customers. CBE has more deposits because it is a bank that has the largest number of branches (205 branches up to June 30, 2008). (see Annex 4).

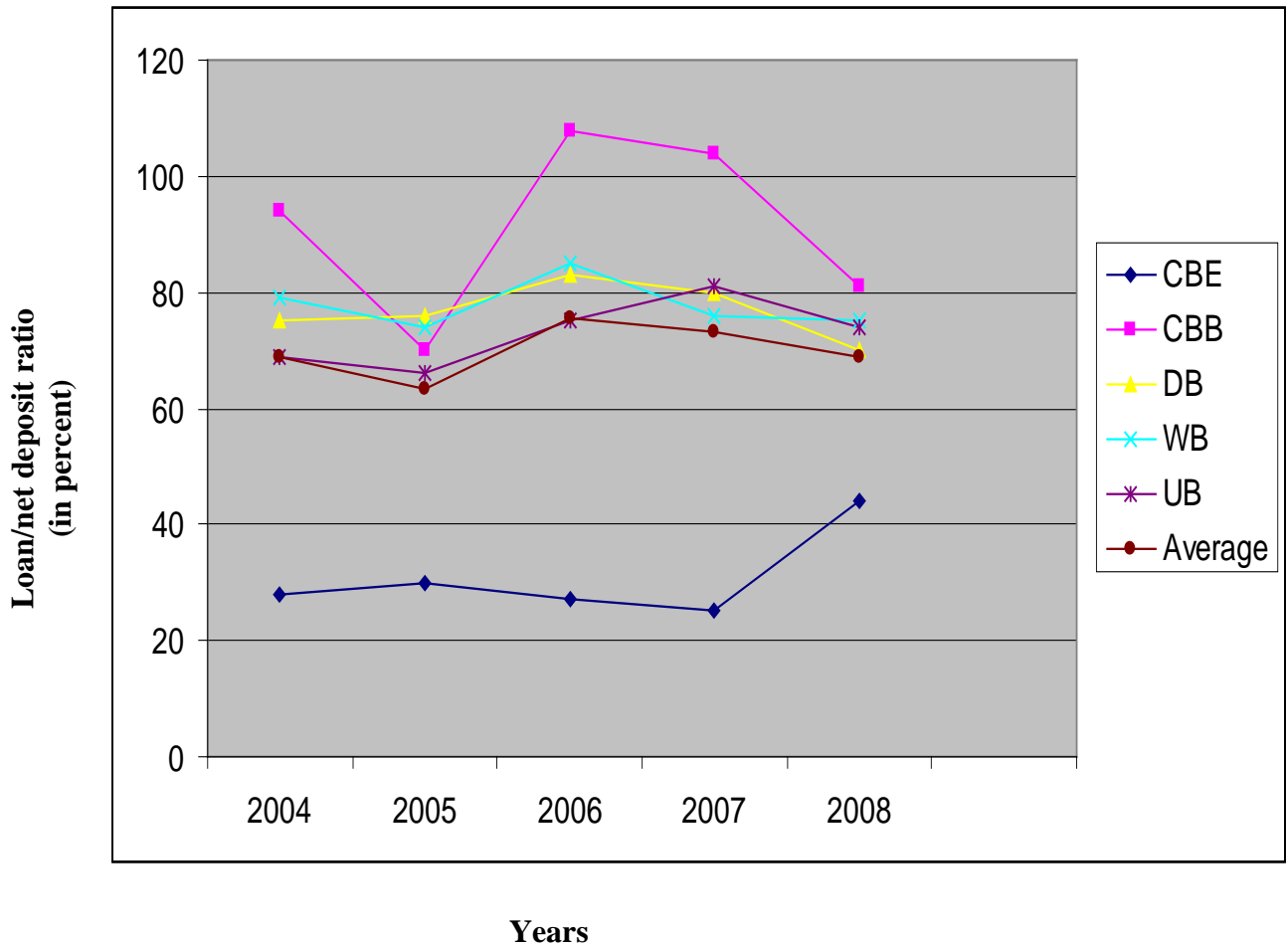
The average loan/net deposit ratio of CBB is 91.4 percent which is the highest average of all the banks and the industry average in each year. This ratio for CBB in each year is also greater than the average ratio of all the banks taken in to account in each year. The

higher loan/net deposit ratio of CBB is attributed to much amount of loan provided by the bank on a long-term basis. In addition to this, the bank has the smallest number of branches (27 branches until June 30, 2008, see Annex 4) relative to the remaining banks considered in this study which causes the bank to have lesser amount of deposits relative to loans.

Moreover, Construction and Business Bank has been a mortgage bank that grants loan for long-term until its reestablishment with proclamation No.203/1994, and currently it is providing commercial bank service. For this reason its liquidity position is often as expected by NBE.

When we see the private banks, the loan/net deposit ratio of the three private banks in each year is greater than the industry average of the respective years. If the banks follow effective collection efforts, the profitability will be high because the loan/net deposit ratio is directly related with return on asset.

The average loan/net deposit ratio of the industry in the five years is shown in the following figure:



**Graph 2. Loan/net deposit ratio**

The above graph indicates that CBE has a loan/net deposit ratio in each year which is less than the industry average whereas CBB has this ratio which is above the industry average in all the years. This shows that CBB grants more loan than CBE relative to its deposit.

When we see the private banks, the loan/net deposit ratio of DB, WB and UB it is fluctuating above and below the industry average from 2004-2008.

**C. Analysis of Liquidity Position of Commercial Banks using Change in Deposit and Loan**

**Table 3.6 Change in Deposit in Amount and Percentage**

Bank	Year			
	2005	2006	2007	2008
CBE- in amount	294,048,701	2,763,156,220	4,851,088,740	4,007,127,940
- in percentage	13	11	17	12
CBB- in amount	372,681,943	-83,854,277	163,373,245	352,207,093
- in percentage	54	-8	17	31
DB- in amount	655,273,053	858,595,940	1,168,971,451	1,290,947,039
- in percentage	30	30	32	27
WB- in amount	412,799,111	489,968,956	945,207,829	242,704,300
- in percentage	47	38	53	9
UB- in amount	329,071,518	427,591,576	388,009,772	762,582,331
- in percentage	61	49	30	45

*Source: computed from annual reports of each bank: see Annex 1B*

**Table 3.7 Change in Net Loan in Amount and Percentage**

Bank	Year			
	2005	2006	2007	2008
CBE- in amount	1,425,291,950	-75,057,416	717,285,722	7,900,037,171
- in percentage	23	-1	9	24
CBB- in amount	103,364,290	300,784,983	95,198,925	65,877,675
- in percentage	16	40	9	6
DB- in amount	533,263,202	919,630,812	808,740,363	402,700,865
- in percentage	33	43	26	10
WB- in amount	255,802,266	565,811,011	543,767,229	147,321,558
- in percentage	37	59	36	7
UB- in amount	201,363,251	404,924,359	392,933,665	442,019,754
- in percentage	55	71	40	32

*Source: Computed from annual reports of each bank see Annex 1B*

As shown in table 3.6 and 3.7, the relative change in net deposits of CBE is a positive figure with fluctuating pattern, while the change in net loan shows a negative figure in 2006 indicating that the bank was over liquid. In the year 2008, the change in net loan is by far more than the change in deposit which indicates that CBE has granted more loans relative to its deposit compared with the prior year. If the change in net loan increases relative to change in deposit, it will cause deterioration of the liquidity position of the bank.

When we see CBB, the change in deposit of CBB is greater than the change in net loan except in 2006 in which the change in deposit was negative where as the change in net loan was by far a greater amount. The bank can improve its liquidity position by differentiating its service and accept deposits from customers and therefore grant loans to legible customers (debtors) for credit.

The relative change in deposit with relative change in net loan of Dashen Bank shows that the bank is highly liquid. As shown in table 3.6 and 3.7, the percentage change in deposit increases from 2006 to 2007 and declines in 2008. On the other hand, the percentage change in net loan is high in 2006 and declines to 26 percent and 10 percent in 2007 and 2008 respectively. This indicates that the bank has still excess deposit which can grant to creditworthy debtors.

On the other hand, the absolute change in deposit of WB has an increasing trend except for the year 2008, where as the absolute change in net loan has a fluctuating pattern and in 2008 lowest change in net loan is indicated. But still the bank has excess deposit than outstanding loans.

Table 3.6 also shows that the absolute amount of change in deposit of UB is the least from all private banks considered in this analysis except for the year 2008 in which WB has the least change in deposit and table 3.7 shows that the absolute change in net loan of UB is also smallest among private banks considered in this study except for the year 2008.

#### **D. Analysis of Liquidity Position of Commercial Banks using Liquid Asset/Total Asset**

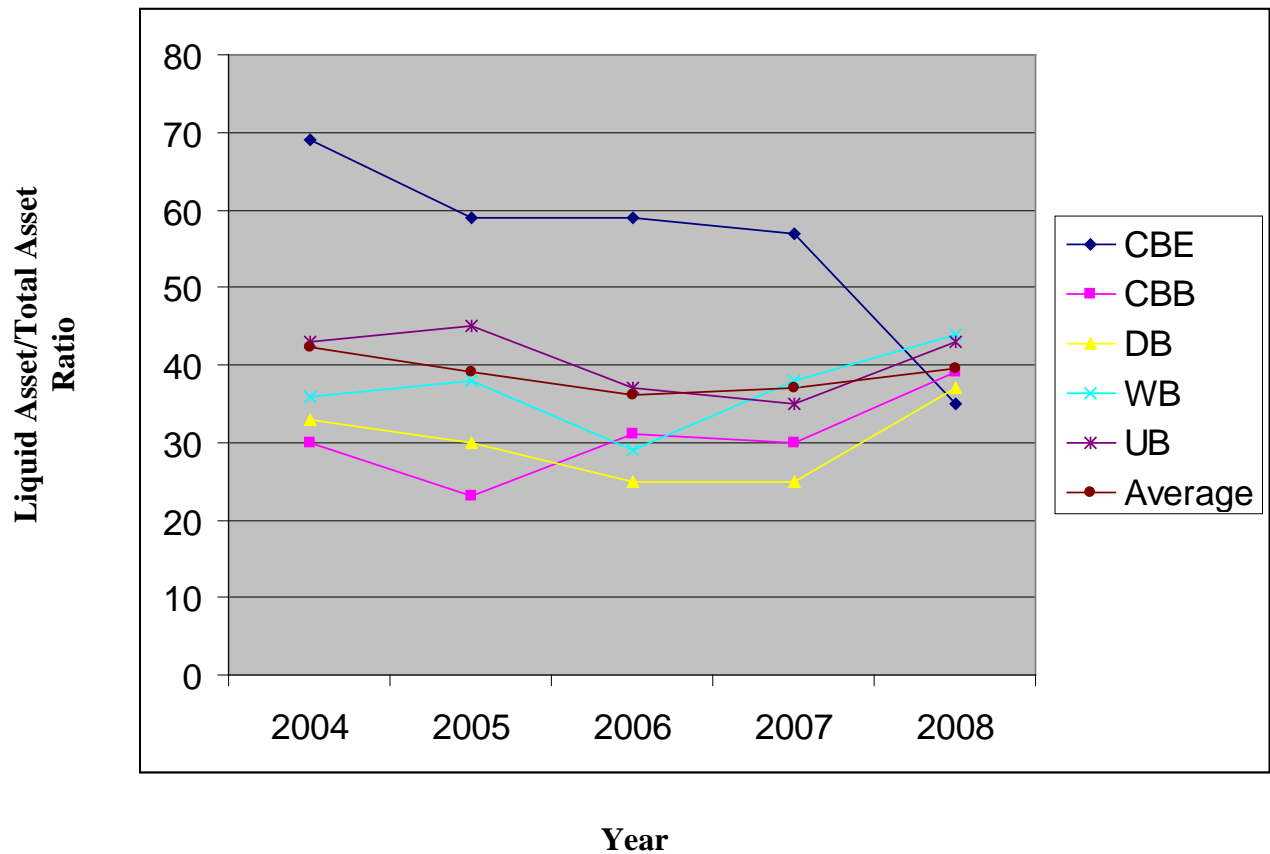
**Table 3.8 Liquid Asset/Total Asset (in percentages)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	69	59	59	57	35	55.80
CBB	30	23	31	30	39	30.60
DB	33	30	25	25	37	30.00
WB	36	38	29	38	44	37.00
UB	43	45	37	35	43	40.60
<b>Average</b>	<b>42.20</b>	<b>39</b>	<b>36.20</b>	<b>37</b>	<b>39.60</b>	

*Source: Computed from annual reports of each bank: see Annex 1C*

As shown in table 3.8, Commercial Bank of Ethiopia has average liquid assets which are more than 50 percent of its total assets. When it is compared with the industry, its liquid asset/total asset ratio in each year is by far greater than the industry average in each year except in 2008 in which case this ratio is less than the industry average of the year. Although the liquid asset/total asset ratio has a declining pattern across the trend, CBE has the highest average of this ratio showing that CBE has excess liquidity and this is because it has long age and has more branches than other banks.

The liquidity position of CBB measured by liquid asset/Total asset shown in table 3:8 is fluctuating between 23 percent and 39 percent. In all the years CBB has lower ratio when it is compared with the industry average of each year. Relative to CBE, CBB's liquidity position is lower and this is because CBB has small number of branches as compared to CBE. Moreover, CBB has been a mortgage bank that grants loan for long-term until its reestablishment with proclamation No. 203/1994. The trends in average liquid asset/ total asset ratio with respect to each banks ratio from 2004-2008 is depicted in the following graph:



*Graph 3. Liquid Asset/Total Asset Ratio*

Graph 3 indicates that the liquid asset/Total asset ratio of CBE is above the industry average in all the years except in 2008. This indicates that CBE maintains more liquid assets relative to its total asset as compared with other banks. But DB and CBB have liquid asset/total asset ratio which is less than the industry average in all the years.

### **3.3. Evaluation of Liquidity Position of Commercial Banks using Treasury Bills**

Treasury bills are short-term instruments that are issued by the government through the National Bank of Ethiopia to collect cash from institutions having excess cash to finance a budget deficit, and for managing monetary policy by the government. Moreover, treasury bills are acquired by banks to use excess cash in the sector. In Ethiopia, Treasury Bills are issued in an auction basis in three forms: 28 days, 91 days and 182 days. Banks take significant shares in purchasing treasury Bills. The amount of investment in Treasury Bills from 2004-2008 by each bank is shown in table 3.9. From the five banks considered in this study (CBE, CBB, DB, WB and UB), WB and UB never invested in treasury bills.

**Table 3.9 Treasury Bills Sold to Banks (in Percentages)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	98	98	100	100	100	99.20
CBB	0	2	0	0	0	0.40
DB	2	0	0	0	0	0.40
WB	0	0	0	0	0	0
UB	0	0	0	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Source: Computed from Annual Reports of Each Bank: see Annex 1 D*

As shown in table 3.9, in all the years 98 percent and more of the treasury bills were purchased by CBE. This is because relative to other commercial banks, CBE has excess liquidity and offers competitively low interest rate while bidding to purchase treasury bills. When we see CBB, it has acquired treasury bills in 2005 which was 2 percent of the total issue of treasury bills. This is due to low liquidity position of CBB relative to CBE. From the private banks considered in this study, DB has bought treasury bills in 2004 which was 2 percent of the total issue.

**Table 3.10 Treasury Bills/Liquid Asset Ratio (in Percentages)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	67	35	59.93	53	37.5	50.20
CBB	0	35	0	0	0	7.00
DB	34	0	0	0	0	6.80
WB	0	0	0	0	0	0
UB	0	0	0	0	0	0

*Source: Computed from Annual Reports of each Bank: See Annex 1E*

Table 3.10 shows the treasury bills outstanding relative to total liquid assets of each bank since 2004 to 2008. The treasury bill/liquid asset ratio of CBE indicates that more than 50 percent of its liquid asset is tied up with treasury bill in the years 2004, 2006 and 2007. Relative to other banks, CBE is better in using its liquid asset because investment in treasury bills is risk free with short term maturity that generates return. DB and CBB tied up 34 percent and 35 percent of their liquid assets in treasury bills in 2004 and 2005 respectively. This indicates that these banks maintain most of their liquid assets in the form of cash which will generate no return.

When we see WB and UB, they have never invested in treasury bills in the years considered in this study, which indicates that these banks maintain 100 of their liquid assets tied up with cash on hand, deposit in local and foreign banks. Cash on hand has no return at all unless it is invested in treasury bills or granted as loan to customers.

### 3.4. Analysis of Performance of Commercial Banks in Ethiopia

Commercial banks accept deposits from customers and grant loans to credit worthy customers in order to increase their profit, but without reducing their liquidity position to an undesirable level. The performance of commercial banks considered in this study is evaluated using return on asset and return on equity. In addition to these tools, comparison of interest income earned on loan granted to customers and interest expense paid to depositors is also important to analyze the profitability of each bank.

#### I. Return on Asset (ROA) and Return on Equity (ROE)

**Table 3.11 Return on Asset (ROA) (in percentages)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	1	2	2	2	3	2.00
CBB	1	1	3	3	4	2.40
DB	2	2	3	3	3	2.60
WB	3	3	3	3	3	3.00
UB	1	3	3	3	3	2.80
<b>Average</b>	<b>1.60</b>	<b>2.20</b>	<b>2.80</b>	<b>2.80</b>	<b>3.20</b>	

*Source: Computed from Annual Reports of each Bank. See Annex 2A*

As shown in table 3.11, the Return on Asset (ROA) of CBE is fluctuating between 1 percent and 3 percent having an average ROA of 2 percent which is the lowest average of ROA of all banks considered in this study. As it is seen in the analysis of liquidity using liquid asset/total asset ratio, CBE maintains more than 50 percent of its total assets in the

form of liquid asset except for the year 2008, in which it has 35 percent liquid asset/total asset ratio. This high amount of asset tied up with liquid asset reduces its ROA. This indicates that the bank can increase its profit by using its assets properly to generate return.

Relative to CBE the ROA of CBB has improved over the years considered, resulting an average ROA of 2.4 percent which is better than CBE. This is because, relatively low amount of liquid assets are maintained by CBB and it grants more loans to debtors.

When we see the ROA of Dashen Bank, it is better than CBE and CBB, having an average ROA of 2.6 percent which is the third bank next to WB and UB. This indicates that DB has tied up relatively lower level of assets in the form of liquid assets.

The average ROA of Wegagen bank is the highest of all the banks assessed in this study. As it is discussed in analyzing liquidity, WB is a bank having liquid asset/total asset ratio in all the years greater than 29 percent and can improve its profitability if the bank utilizes its idle liquid assets to generate profit. Moreover the bank has the second highest liquid asset/net deposit ratio of all the private banks discussed earlier. This affects its return on assets negatively.

The ROA of United Bank is uniform at 3 percent except for 2004 which is 1 percent. The average ROA of UB is 2.8 percent which is the highest average next to DB among the private banks. But the bank can improve its ROA if it efficiently utilizes its idle asset to generate income.

**Table 3.12 Return on Equity (ROE) (in percentages)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	28	41	52	20	30	34.20
CBB	8	16	32	26	32	22.80
DB	33	29	35	35	33	33.00
WB	25	26	28	28	23	26.00
UB	7	25	23	18	19	18.40
<b>Average</b>	<b>20.20</b>	<b>27.40</b>	<b>34</b>	<b>25.40</b>	<b>27.40</b>	

*Source: Computed from annual reports of each bank see Annex 2A*

ROE of commercial Bank of Ethiopia marginally improved from 28 percent in 2004 to 41 percent and 52 percent in 2005 and 2006 respectively. The average ROE of CBE is the highest showing that the bank has better performance than the other banks and it is greater than the industry averages in each year.

The ROE of Construction and Business Bank has been improved across the trend since 2004 except for 2007 which has decreased to 26 percent. The average ROE of CBB which is 22.50 percent makes the bank to have the fourth rank in overall performance in terms of ROE among the banks considered in this paper. Although the ROE improves from year to year, the performance of the bank is still lower than other banks except for UB, which has lowest average performance in terms of ROE. When it is compared with the industry average, except in 2004, CBB has an average ROE which is less than the industry average.

The ROE of Dashen Bank fluctuated for some years, but the average ROE is the second highest average next to CBE, which indicates that performance of DB is better than CBB and the private banks considered in this study.

As shown in table 3.12, in terms of average ROE, Wegagen Bank is found next to DB, but it can improve this ratio if it uses its excess fund for generating return through granting loans to creditworthy customers and increasing collection effort simultaneously.

In comparison with other banks considered in this study, United Bank has the lowest average for ROE. Unlike other private banks, UB has highest liquid asset/net deposit and liquid asset/total asset ratios, which affects its performance.

## II. Interest Income/Interest Expense

**Table 3.13 Interest Income/Interest Expense (in times)**

Bank	Year					
	2004	2005	2006	2007	2008	Average
CBE	2.54	2.22	2.51	2.95	2.89	2.62
CBB	2	2.14	3.77	4.46	3.09	3.09
DB	2.86	3.08	3.62	3.46	2.59	3.12
WB	3.61	3.71	3.49	3.35	2.66	3.36
UB	2.41	2.63	2.68	3.09	2.72	2.71

*Source: Computed from annual reports of each bank: see Annex 2B*

The interest income/interest expense ratio of CBE is fluctuating from year to year with an average of 2.62 times which indicates that the interest income is more than twice of the

interest expense. But the average interest income/interest expense is the lowest of the banks considered in this study. This is because CBE is a bank with excess liquidity and it maintains more than 50 percent of its total assets in the form of liquid assets. Moreover, loan given to debtors is not significant enough to generate interest income relative to interest expense paid to depositors. The bank can improve this ratio if it increases loans granted to creditworthy customers without decreasing its liquidity position to an undesirable level.

Table 3.13 shows that the interest income/interest expense ratio of CBB has an increasing pattern except for 2008 which has decreased by 31 percent from the prior year. The average interest income/interest expense ratio is better than CBE and UB because CBB grants more loans to customers. But the bank can improve this ratio by opening new branches and receiving more deposits to be granted to creditworthy customers. In addition to this, the bank has to improve collection efforts to increase interest income and thus improve its profitability.

When we see the average interest income/interest expense ratio of Dashen Bank it is more than three times which implies that the bank generates interest from loans and advances and surplus fund deposited in foreign and local banks which is three times the interest expense paid for depositors. As it is discussed in the analysis of liquidity using change in deposit, the absolute amount of deposit maintained by Dashen Bank has increased across the trend and this has contributed for the increase in interest income/interest expense ratio. Therefore, the bank can improve its profit generated from

interest by granting idle cash to debtors without lowering its liquidity position below the statutory requirement.

Table 3.13 also shows that Wegagen Bank has the highest average of interest income/interest expense ratio of all the banks considered in this study which indicates better performance. This is attributed to more loans granted to debtors than deposits. The bank can even improve this ratio by granting its idle cash as loan to customers.

The average interest income/interest expense ratio of United Bank is better than CBE but lower than CBB, DB and WB. As it is seen in the analysis of liquidity, the bank has maintained an average of 40.60 percent of its total assets in the form of liquid assets which increases its liquidity but affects its profitability. So, to improve its profitability in terms of interest income on loans with respect to interest expense paid to depositors, the bank can use its idle liquid assets.

### **3.5 The Impact of liquidity on Bank Performance**

To show whether liquidity position of a commercial banks affects the performance of the respective bank, the correlation between tools used to measure liquidity including liquid asset /net deposit, loan/ Net deposit and liquid asset /total asset and measuring tools of profitability such as ROA and ROE is evaluated.

To analyze the correlation between liquidity and profitability, liquidity measuring tools of the five banks considered in this study are taken as independent variables and

profitability measuring tools are considered as dependent variables. The correlation coefficients of the three tools of measuring liquidity against the tools of measuring profitability are given below:

**Table 3:14 Correlation coefficients of liquidity against ROA and ROE**

Measures of liquidity	Measures of profitability	
	ROA	ROE
Liquid Asset /Net deposit	-0.60704	0.289457
Loan /Net Deposit	0.649306	-0.59147
Liquid Asset /Total Asset	-0.55258	0.320694

*Source: Computed from annual reports of each bank*

The correlation coefficients are computed by taking the averages of the independent and dependent variables of each bank. As it is shown in

Table 3.14, the correlation coefficient for liquid asset/Net deposit ratio is negative against ROA which indicates that there is an inverse relationship between liquidity as measured by liquid asset /Net deposit ratio and profitability when it is measured by ROA. If the remaining independent variables are assumed to be constant, a one unit increase in liquid asset/Net deposit ratio will result in a decrease in ROA by 0.60704. Therefore, the higher the liquid asset /Net deposit ratio, the lower will be the ROA.

Loan /Net deposit ratio has a positive coefficient against ROA which implies that this ratio is directly related with ROA. If the other two independent variables are kept

constant, a one unit increase in the loan /Net deposit ratio will result in a 0.6493066 increase in ROA.

The coefficient of liquid asset /Total asset ratio is negative and it is inversely related with ROA. In this case if the other two independent variables are assumed to be constant, a one unit increase in the liquid asset /Total asset ratio will result in a 0.55258 decrease in ROA. Therefore, the higher the liquid asset /Total asset ratio, the lower will be the ROA and hence liquidity position of a bank has an impact on its performance.

The correlation of the three independent variables with ROE is also shown in Table 3:14. The coefficients of liquid asset/Net deposit ratio and liquid asset /Total asset ratio are positive which show that these variables are directly related with ROE. In this case assuming that the other two independent variables are kept constant, a one unit increase in liquid asset /Net deposit ratio will cause the ROE to increase by 0.289457. Similar interpretation is applicable for the correlation between liquid asset /total asset ratio and ROE.

The coefficient of loan /Net deposit ratio is negative which denotes the existence of inverse relationship between loan/Net deposit ratio and ROE. In this case, if the other two independent variables are kept constant, a one unit increase in loan /Net deposit ratio will result in a 0.59147 decrease in ROE. From the above analysis it is possible to say that liquidity position of a bank has an impact on the performance or profitability of the bank.

## **CHAPTER FOUR**

### **CONCLUSION AND RECOMMENDATION**

#### **4.1 Summary of Findings and Conclusions**

In this study attempt is made to assess the liquidity risk management practice of commercial banks in Ethiopia. In addition to this, the liquidity position of commercial banks and its impact on their performance is analyzed.

The findings of the study indicate that except CBB, the other commercial banks considered in this study: CBE, DB, WB and UB do have liquidity risk management policy and procedure which is approved by the Board of Directors of each bank. Other bodies (units) are also involved in executing the liquidity risk management policy and procedure which include senior (top) management, Asset and Liability committee (ALCO) or Resource Mobilization committee (incase of WB), risk management unit (department) and risk control department. These bodies do have their own responsibilities in the liquidity risk management process.

Overall, the study indicates that there is excess liquidity in the commercial banks considered and this is because of the mismatch of inflows and out lows of funds which is caused by low economic development and existence of limited financial instruments in the country.

The study also indicates that there is no standardized and centralized liquidity risk management in the banking industry instead each bank designs its own policy and procedure. The National Bank of Ethiopia which is the central bank of the country issues directives regarding liquidity and reserve requirements. The NBE controls commercial banks operating in Ethiopia using its directives and other special messages send to banks. To manage inflation and reduce the amount of money circulating in the economy, the NBE orders banks not to give credit which may affect the bank's performance. The interference of NBE through its directives and its messages is important for the smooth functioning of each bank and the industry at large. As a result all commercial banks operating in Ethiopia perform their activities in compliance with NBE requirements. From the banks evaluated in this study, there is no illiquid bank instead they are in a position of excess liquidity. From this it can be said that it is not the directives and other controls of NBE that affects the banks' performance but the low economic development of the county.

The commercial banks face different problems to manage liquidity risk. These are absence of secondary markets and well developed payment system and management information system (MIS), shortage of short term investment opportunities and weak inter-bank borrowing system in the banking industry.

Generally, all the commercial banks taken in this study have excess liquidity position as it is measured by liquid asset /Net deposit ratio, loan /Net deposit ratio and liquid asset /Total asset ratio.

NBE requires each bank to hold 25 percent of its deposits in the form of liquid assets and grant the remaining as loan to debtors. But the average liquid asset /Net deposit ratio of all banks considered in this study is more than the NBE requirement.

In the analysis of liquidity position of banks using loan to deposit ratio, the average ratio of all the banks except CBE is above 70 percent. So if this ratio is significantly high or low it will affect the liquidity and performance of banks. If this ratio is very low, it will increase the bank's liquidity because the bank will have idle cash but it will decrease the profitability of the bank because the decrease in loan will result in decreases in interest income and vice versa.

When we look into the liquid asset /Total asset ratio, the highest average is maintained by CBE because it has more branches and more depositors than other banks which cause the bank to have excess liquidity and CBB has lowest average because CBB has small number of branches and it usually grants more loans to debtors.

Generally, it is found that all the commercial banks considered in this study have excess liquidity. From the five banks evaluated in this study, CBB has relatively low liquidity position although it is not less than the requirement of NBE. This is because CBB has been engaged in giving mortgage loans on a long term basis and has small number of branches than other banks to collect cash from depositors.

When we see treasury bills sold for banks, commercial Bank of Ethiopia acquires more than 98 percent of the treasury bills issued by the government since 2004. This is because CBE is said to have excess liquid asset using which it purchases treasury bills even though the return is small. But CBE invests a large amount of money in treasury bills because it has excess liquid asset and no other investment alternatives in the country.

Regarding the performance of the commercial banks considered in this study, the performance of WB is the highest in terms of average ROA followed by United Bank whereas CBE has the lowest average ROA. When we see the ROE, CBE has the highest average followed by DB however UB has the smallest average of this ratio.

From the analysis of liquidity and performance of the five commercial banks, it is found that liquidity has an impact on performance of the respective bank. This effect is evidenced by the correlation between liquidity measuring tools and performance measuring tools. In this case liquid asset /Net deposit ratio and liquid asset /Total asset ratio have negative coefficients and are inversely related with ROA. This indicates that as these ratios increase, the ROA will decrease on the other hand these ratios have positive coefficients against ROE which shows the existence of direct relation ship with ROE. The loan /Net deposit ratio is directly related with ROA but inversely related with ROE. Overall liquidity of a bank affects its performance

## **4.2 Recommendations**

The liquidity risk management practice of commercial banks in Ethiopia is some what traditional. There is no standardized and centralized liquidity risk management policy and

procedure. Each bank follows its own mechanism to run its operations and manage liquidity risk.

Based on the findings of the study, Construction and Business Bank has not yet established any policy and procedure regarding liquidity risk management. Although the other four banks: CBE, DB, WB and UB have liquidity risk management policy and procedure, it does not help to know their liquidity position continuously. Therefore banks should improve or upgrade their liquidity risk management system including proper liquidity risk management structure, set their own standards and /or limits, develop liquidity contingency plan, strengthen staff capacity and conduct stress testing. The NBE should also revise its liquidity risk management parameters, strengthen its staff capacity and introduce modern day supervisory tools such as risk-based supervisory approach.

Concepts of financial management and familiarity of best practices do not exist. So bank officials should open their mind and give due consideration towards the understanding of banking business as the business is vulnerable to liquidity risk. Diversification of the uses and sources of funds is also an important issue in the banking industry. Banks have limited types of fund sources, mainly deposits and there is no market for raising fund. Therefore the NBE has to facilitate the establishment of secondary markets.

Absence of management information system is the other problem in the commercial banks using which appropriate personnel can be provided with timely information on the liquidity position of the bank. Thus appropriate management information system should be designed by each bank to determine the day-to-day liquidity position of the bank and

to check the compliance with the bank's established policies, procedures and limits and the requirements of NBE.

The commercial banks considered in this study have excess liquidity and to use the excess liquidity they should revise their credit policy. CBE is the bank with the highest average liquid asset /Net deposit ratio but the lowest average loan /Net deposit ratio. So, the bank has to use its idle liquid asset for granting loan to customers and improve its performance. Whereas CBB has the highest average in terms of loan/ net deposit which may increase uncollectible amounts. Hence, the bank should revise its credit policy and increase collection efforts, other wise it will affect its liquidity and performance. From the private banks considered in this study, UB has the largest average liquid asset /Total asset ratio. But the bank can improve its profitability if it uses the liquid assets properly.

## Bibliography

- Aikaeli Johovaness (2006), *Excess Liquidity and Effectiveness of Monetary Policy: Evidence from Sub-Saharan Africa*, IMF Working Paper.
- Alexandra Lai (2002). *Modeling Financial Instability: A Survey of the Literature*, Working Paper.
- Ali I. Abid, *Towards a Developed and Efficient Financial Sector in Ethiopia*.
- Angenor, Pierr- Richard, Aizenman Joshua and Hoffmaister Alexander W. (2004), *The Credit Crunch in East Asia: What can Bank Excess Liquid Assets Tell us?*, the Journal of International Money and Finance, Vol. 23, pp. 27-49.
- Annual Reports of CBE, CBB, DB, WB and UB (2004-2008).
- Berger Allen N. and Bouman Christa H.S. (2006), *The Measurement of Bank Liquidity Creation and the Effect of Capital*.
- Bundesbank (1982), *Central Bank Money requirements of Banks and Liquidity Policy*. Measure of the Bundesbank Monthly Bulletin.
- Caballero Richardo J. and Krishnamurthy Arvind (2000), *International Liquidity Management: Sterilization Policy in Illiquid Financial Markets*, Working Paper 7740.
- Carletti Elena, Hartmann Philipp and Spagnolo G. (2007), *Bank Mergers, Competition and Liquidity*, Journal of Money, Credit and Banking, Vol. 39, No. 5.
- Chang R. and Velasco A. (1998), *The Asian Liquidity Crisis*.
- Dacey John, and Basel-Horowitz Jackie (1990), *Liquidity Management: Recent Changes in Liquidity Management Practices at Commercial Banks* (Federal Reserve Bank of New York).

- Demirguc-Kent A. and Detragiache E. (1998), *Financial Liberalization and Financial Fragility*, Working paper. IMF and World Bank.
- Diamond Douglas and Rajan Raghuram (2000), *A Theory of Bank Capital*, Journal of Finance, Vol. 55 (6), pp 2431-2465.
- Diamond Douglas and Rajan Raghuram (2001), Liquidity Risk, Liquidity Creation and Financial Fragility: *A Theory of Banking* Journal of Political Economy Vol. 109.
- Diamond Douglas W. (1984), *Financial Intermediation and Delegated Monitoring*, Review of Economic Studies Vol. 51, pp 393-414.
- Diamond Douglas W. and Rajan Raghuram G. (2005), *Liquidity Shortages and Banking Crises*. The Journal of Finance, Vol. 60 No. 2.
- Diamond Douglas W. Dybvig P.H. (1983), *Bank Runs, Deposit Insurance and Liquidity*. The Journal of Political Economy, Vol 91 No. 3.
- Diamond Duouglas W. and Rajan Raghuram G. (1998), *Liquidity Risk, Liquidity Creation and Financial Fragility: A Theory of Banking*.
- Directives of the National Bank of Ethiopia.
- Dziobek Claudia, Hobbs J.K. and Marston D. (2000), *Towards a Framework for Systemic Liquidity Policy*, Working Paper.
- Frost P.A. (1971). *Bank's Demand for Excess Reserves*, The Journal of Political Economy, Vol. 79 pp. 805-825.
- Hempel George H. and Simonson Donald G. (1999), *Bank Management*, 5<sup>th</sup> ed.
- Hold D. and Peek J. (2006), *Asymmetric Information and Liquidity Constraints: A New Test*.

- Kashyap Anil K., Raghuram G. Rajan, and Jeremy C. Stein (2002), *Banks as Liquidity Providers: An Explanation for the Coexistence of Lending and Deposit-Taking*, Journal of Finance, Vol. 57, pp 33-37.
- Michael Mainelli (2008), *Liquidity= Diversity*, Journal of Finance Vol. 9, No. 2.
- Mishkin F.S. (2001), *The Economies of Money, Banking and Financial Markets*, 6<sup>th</sup> ed,
- Mundell, R.A. (1962), *Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates*, Canadian Journal of Economics and Political Science.
- Nissanke Machiko and Aryeetey Ernest (1998), *Financial Integration and Development: Liberalization and Reform in Sub-Saharan Africa*.
- O'Connell Stephen (2005), *Note on Excess Liquidity*, (Unpublished, Washington: IMF).
- Ramakrishnan Ram T.S., and Anjan V. Thakor (1984), *Information Reliability and a Theory of Financial Intermediation*, Review of Economics Studies Vol. 51, pp. 451-432.
- Rochet Jean-Charles (2008), *Liquidity Regulation and the Lender of Last Resort*, Financial Stability Review No. 11.
- Santomero Anthony M. (1997), *Commercial Bank Risk Management: An Analysis of the Process*, Working Paper.
- Saxegaard Magnus (2006), *Excess Liquidity and Effectiveness of Monetary Policy: Evidence from Sub-Sharan Africa*, IMF Working Paper.
- Smith Gary (1991), *Money, Banking and Financial Intermediation*,
- Webb David C. (2000), *The Impact of Liquidity Constraints on Bank Lending Policy*, The Economic Journal Vol. 110.

# Annex

**Annex 1. Liquidity Position of Commercial Banks in Ethiopia**  
**Annex 1A: Liquid Asset/Net deposit (in percentages)**  
**Commercial Bank of Ethiopia**

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	19,217,049,890	1,9,684,34,8,150	21,213,696,090	24,525,670,550	17,844,632,070
Net deposit	22,439,132,708	25,379,691,717	28,142,775,934	32,993,864,674	37,000,992,619
Liquid Asset/Net deposit(%)	86	78	75	74	48

**Construction and Business Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	322,568.691	423,357,403	560,331,466	572,614,633	927,997,549
Net Deposit	684.114.659	1,056,796,602	972,942,325	1,136,315,570	1,488,522,663
Liquid Asset/Net deposit(%)	47	40	58	50	62

**Dashen Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Net Deposit	871,379,873	1,020,251,117	1,148,973,836	1,670,891,886	2,915,507,984
Liquid Asset	2,177,734,062	2,833,007,115	3,691,603,055	4,860,574,506	6,151,521,545
Liquid Asset/Net deposit(%)	40	36	31	34	47

**Wegagen Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	408,327,676	619,515,948	661,353,873	1,319,806,130	1,803,396,676
Net Deposit	875,649,961	1,288,449,072	1,778,418,028	2,723,625,857	2,966,330,157
Liquid Asset/Net deposit(%)	47	48	37	48	61

**United Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	290,690,781	484,382,029	592,675,420	757,713,731	1,385,712,083
Net Deposit	536,096,713	865,168,231	1,292,759,807	1,680,769,579	2,443,351,910
Liquid Asset/Net deposit(%)	54	56	47	45	57

## Annex 1B Loan/Net deposit (in percentages)

### Construction and Business Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Deposit	684,114,659	1,056,796,602	972,942,325	1,136,315,570	1,488,522,663
Net loans	642,541,740	745,906,030	1,046,781,013	1,141,979,938	1,207,857,613
Loan/deposit (%)	94	70	108	104	81
Change in deposit (amount)	-	372,681,943	-83,854,277	163,373,245	352,207,093
Change in deposit (%)	-	54	-8	17	31
Change in Net loan (amount)	-	103,364,290	300,874,983	951,98,925	65,877,675
Change in net loan (%)	-	16	40	9	6

### United Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Deposit	536,096,713	865,168,231	1,292,759,807	1,680,769,579	2,443,351,910
Net loans	368,661,808	570,025,059	974,949,418	1,367,883,083	1,809,902,837
Loan/deposit	69	66	75	81	74
Change in deposit (amount)	-	329,071,518	427,591,576	388,009,772	762,582,331
Change in deposit (%)	-	61	49	30	45
Change in Net loan (amount)	-	201,363,251	404,924,359	392,933,665	442,019,754
Change in net loan (%)	-	55	71	40	32

### Wegagen Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Deposit	875,649,961	1,288,449,072	1,778,418,028	2,723,625,857	2,966,330,157
Net loans	695,226,066	951,028,332	1,516,839,343	2,060,606,572	2,207,928,130
Loan/deposit	79	74	85	76	75
Change in deposit (amount)	-	412,799,111	489,968,956	945,207,829	242,704,300
Change in deposit (%)	-	47	38	53	09
Change in Net loan (amount)	-	255,802,266	565,811,011	543,767,229	147,321,558
Change in net loan (%)	-	37	59	36	07

## Dashen Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Deposit	2,177,734,062	2,833,007,115	3,691,603,055	4,860,574,506	6,151,521,540
Net loans	1,627,369,234	2,160,632,436	3,889,003,611	3,889,003,611	4,291,704,476
Loan/deposit	75	76	83	80	70
Change in deposit (amount)	-	655,273,053	858,595,940	1,168,971,451	1,290,947,039
Change in deposit (%)	-	30	30	32	27
Change in Net loan (amount)	-	533,263,202	919,630,812	808,740,363	402700865
Change in net loan (%)	-	33	43	26	10

## Commercial Bank of Ethiopia

Particulars	Year				
	2004	2005	2006	2007	2008
Deposit	22,439,132,708	25,379,619,717	28,142,775,934	32,993,864,674	37,000,992,619
Net loans	6,307,555,863	7,732,847,763	7,657,790,347	8,375,076,069	16,275,113,242
Loan/deposit	28	30	27	25	44
Change in deposit (amount)	-	294,048,701	27,631,56220	4851088740	4007127940
Change in deposit (%)	-	13	11	17	12
Change in Net loan (amount)	-	1,425,291,900	-75,057,416	717,285,722	7,900,037,171
Change in net loan (%)	-	23	-1	9	24

## Annex 1C Liquid Asset/Total Asset (In percentages)

### Commercial Bank of Ethiopia

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	19,217,049,890	19,684,348,150	21,213,696,096	24,525,670,550	17,853,632,070
Total Asset	27,873,804,757	33,173,014,909	35,829,015,698	43,392,602,532	50,367,688,180
Liquid Asset/Total asset (%)	69	59	59	57	35

### Construction and Business Bank

Particular	Year				
	2004	2005	2006	2007	2008
Liquidity Asset	322,568,691	423,357,403	560,331,446	572,614,633	927,997,549
Total Asset	1,092,910,945	1,832,533,722	1,797,234,873	1,888,880,128	2,393,899,519
Liquid Asset/Total asset (%)	3	23	31	30	39

### Dashen Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	871,379,873	1,020,251,117	1,148,973,836	1,670,891,886	2,915,507,984
Total Asset	2,676,644,049	3,419,808,716	4,546,012,178	6,039,408,979	7,839,844,530
Liquid Asset/Total asset (%)	33	30	25	25	37

### Wegagen Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	408,327,676	619,515,948	661,353,873	1,319,806,130	1,803,396,676
Total Asset	1,140,136,535	1,615,652,586	2,259,544,521	3,480,280,390	4,124,891,893
Liquid Asset/Total asset (%)	36	38	29	38	44

### United Bank

Particulars	Year				
	2004	2005	2006	2007	2008
Liquid Asset	290,690,781	484,382,029	592,675,420	757,713,731	1,385,712,083
Total Asset	674,415,525	1,072,932,254	1,599,568,803	2,182,743,809	3,250,281,316
Liquid Asset/Total asset (%)	43	45	37	35	43

### Annex 1D: Treasury Bills (in Millions)

Bank	Year				
	2004	2005	2006	2007	2008
CBE	12,787,263,686	6,867,813,541	12,588,996,938	13,031,380,234	6,518,502,714
CBB	-	149,993,000	-	-	-
DB	299,039,000	-	-	-	-
WB	-	-	-	-	-
UB	-	-	-	-	-
<b>Total</b>	<b>13,086,302,686</b>	<b>7,017,806,541</b>	<b>12,588,996,938</b>	<b>13,013,380,234</b>	<b>6,518,502,714</b>

### Treasury Bills (in percentages)

Bank	Year				
	2004	2005	2006	2007	2008
CBE	98	98	100	100	100
CBB	0	2	0	0	0
DB	2	0	0	0	0
WB	0	0	0	0	0
UB	0	-0	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

### Annex 1 E: Treasury Bills/Liquid Asset (in Percentages)

#### Commercial Bank of Ethiopia

Particulars	Year				
	2004	2005	2006	2007	2008
Treasury Bills	12,787,263,686	6,867,813,541	12,888,996,938	13,013,380,234	6,518,502,714
Liquid Asset	192,17,049,890	19,684,348,150	12,13,696,090	24,525,670,550	17,853,632,070
Treasury Bills/Liquid Asset (times)	67	35	59	53	37

#### Construction and Business Bank S.C

Particulars	Year				
	2004	2005	2006	2007	2008
Treasury Bills	-	149,993,000	-	-	-
Liquid Asset	332,568,691	423,357,403	560,331,466	572,614,633	927,997,549
Treasury Bills/Liquid Asset (%)	-	35	-	-	-

**Dashen Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Treasury Bills	299,039,000	-	-	-	-
Liquid Asset	871,379,873	1,020,251,117	1,148,973,836	1,670,891,886	2,915,507,984
Treasury Bills/Liquid Asset (%)	34	-	-	-	-

**Wegagen Bank**

Particulars	Year				
	2004	2005	2006	2007	2008
Treasury Bills	-	-	-	-	-
Liquid Asset	408,327,676	619,515,948	661,353,873	1,319,806,130	1,803,396,676
Treasury Bills/Liquid Asset (%)	-	-	-	-	-

**United Bank**

Particular	Year				
	2004	2005	2006	2007	2008
Treasury Bills	-	-	-	-	-
Liquid Asset	290,690,781	484,382,029	592,675,420	757,713,731	1,385,712,083
Treasury Bills/Liquid Asset (%)	-	-	-	-	-

## Annex 2. Profitability of Commercial Banks in Ethiopia

### Annex 2A. Return on Asset (ROA) and Return on Equity (ROE) (in Percentages)

#### Commercial Bank of Ethiopia

Descriptions	Year				
	2004	2005	2006	2007	2008
Net income	411,584,566	579,258,308	792,604,432	866,565,301	1,362,564,554
Total Asset	27,873,804,757	33,173,014,909	35,829,015,689	43,392,602,532	50,367,688,180
Equity	1,447,433,785	1,429,774,125	1,510,161,669	4,228,176,884	4,570,223,659
ROA	1.00	2.00	2.00	2.00	3.00
ROE	28	41	52	20	30

#### Construction and Business Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Net income	7,212,000	17,270,169	49,875,856	55,870,539	84,176,029
Total Asset	1,092,910,945	1,832,533,722	1,797,234,873	1,888,880,128	2,393,899,519
Equity	89,214,834	106,485,003	156,360,058	212,231,399	259,007,428
ROA	1.00	1.00	3.00	3.00	4.00
ROE	8	16	32	26	32

#### Dashen Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Net income	56,262,396	71,155,956	133,589,788	187,988,216	239,055,070
Total Asset	2,676,644,049	3,419,808,716	4,546,012,978	6,040,914,220	7,839,844,530
Equity	172,149,359	242,883,014	385,872,802	544,472,122	730,609,657
ROA	2.00	2.00	3.00	3.00	3.00
ROE	33.00	29.00	35.00	35.00	33.00

#### Wegagen Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Net income	31,624,196	47,709,622	70,863,014	110,975,052	138,837,507
Total Asset	1,140,136,535	1,615,652,586	2,259,544,521	3,480,280,390	4,124,891,893
Equity	128,740,563	180,179,760	254,668,268	403,205,966	605,448,788
ROA	3.00	3.00	3.00	3.00	3.00
ROE	25	26	28	28	23

## United Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Net income	7,212,000	17,270,169	49,875,856	55,870,539	84,176,029
Total Asset	1,092,910,945	1,832,533m722	1,797,234,873	1,888,880,128	2,393,899,519
Equity	89,214,834	106,485,003	1,91,359,638	359,734,335	259,007,428
ROA	1.00	1.00	3.00	3.00	4.00
ROE	8	16	32	26	32

## Annex 2B: Analysis of Profitability Using Interest Income and Interest Expense

### Commercial Bank of Ethiopia

Descriptions	Year				
	2004	2005	2006	2007	2008
Interest income	680,341,494	645,754,976	826,764,128	1,036,505,089	1,541,154,077
Interest expense	267,836,746	291,303,402	329,781,744	350,965,733	533,886,462
Interest income/interest expense (in times)	2.54	2.22	2.51	2.95	2.89

### Construction and Business Bank'

Descriptions	Year				
	2004	2005	2006	2007	2008
Interest income	39,984,043	47,559,239	90,439,784	120,791,676	137,252,906
Interest expense	19,961,073	22,272,198	24,007,717	27,110,146	44,367,136
Interest income/interest expense (in times)	2	2.14	3.77	4.46	3.09

### Dashen Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Interest income	116,637,552	161,886,146	241,893,298	319,927,692	420,074,747
Interest expense	40,763,454	52,530,315	66,887,818	92,511,233	162,148,506
Interest income/interest expense (in times)	2.86	3.08	3.62	3.46	2.59

## Wegagen Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Interest income	66,353,902	79,913,317	120,457,213	185,021,035	238,242,127
Interest expense	18,386,974	21,515,429	34,553,832	55,291,901	89,677,115
Interest income/interest expense (in times)	3.61	3.71	3.49	3.35	2.66

## United Bank

Descriptions	Year				
	2004	2005	2006	2007	2008
Interest income	26,614,076	45,955,806	71,269,924	122,146,169	171,133,541
Interest expense	10,975,580	17,447,956	26,553,034	39,576,527	62,829,571
Interest income/interest expense (in times)	2.42	2.63	2.68	3.09	2.72

## Annex 3A. Responsibilities of board of directors in liquidity risk management

Particulars	Frequency						
	CBE	CBB	DBS	WB	UB	Total	percent
Maintain general strategy for managing liquidity risk	3	1	3	5	2	14	56
Understanding the nature of bank's liquidity risk	2	1	1	5	1	10	40
Approving liquidity risk management policies	4	1	5	5	4	19	76
Assigning responsibility to different levels of authority for managing liquidity risk	1	1	2	4	1	9	36
<b>Total</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>19</b>	<b>8</b>	<b>42</b>	

Source: Primary data (questionnaire)

**Annex 3B: Responsibilities of senior management in liquidity risk management**

Particulars	Frequency						
	CBE	CBB	DB	WB	UB	Total	percent
Ensures adequacy of liquidity risk management policies, strategies and procedures	4	3	4	5	3	19	76
Ensures appropriate execution of liquidity risk management policies, strategies and procedures	3	2	4	3	3	15	60
Evaluates liquidity risk management system, and standards , reporting and monitoring process	2	1	3	3	3	12	48
Reviewing bank's liquidity risk management policies, strategies and procedures.	2	1	4	4	1	12	48
<b>Total</b>	<b>11</b>	<b>7</b>	<b>15</b>	<b>15</b>	<b>10</b>	<b>58</b>	

*Source: Primary data (questionnaire)*

**Annex 3C.Ways to identify liquidity risk in the bank**

Particulars	Frequency						
	CBE	CBB	DB	WB	UB	Total	percent
Maturity mismatch analysis of assets & liabilities	4	4	4	5	5	22	88
Use of liquidity risk indicators	3	2	3	5	1	14	56

*Source: Primary data (questionnaire)*

### Annex 3D. Risk Monitoring mechanisms liquidity

Mechanism	Frequency						
	CBE	CBB	DB	WB	UB	Total	percent
Establishing ALCO	3	-	3	1	5	12	48
Delegating liquidity risk management among operating units	2	2	3	4	1	12	48
Having adequate internal control	2	1	2	2	1	8	16
Compliance with NBE requirements	-	-	-	-	1	4	
	3	5	4	4	4	20	80

Source: Primary data (questionnaire)

### Annex 3E. Intervention of NBE

Extent of intervention	Frequency						
	CBE	CBB	DB	WB	UB	Total	percent
Adequate	-1	2	1	1	-	6	24
Moderate	3	3	2	4	3	15	60
Excessive	-	-	2	-	1	3	12

Source: Primary data (questionnaire)

### Annex 4. Number of Branches

Bank	Number of Branches At the end of 2008
CBE	205
CBB	27
DB	48
WB	40
UB	36

## **Dear Respondent:**

This is an endeavor to collect information about the liquidity risk management practice of commercial banks (both state owned and private) in Ethiopia. I intend to look into the liquidity risk management in general and our own case in particular. Such exercise is believed to have positive contribution to both academic delivery and the practical world. Hence, I kindly request you to share with me part of your valuable time by completing this questionnaire.

I would like to thank you in advance for your cooperation to fill in and complete the questionnaire.

Tirualem Melak, Msc Candidate (FBE, AAU)

## **Section I: Respondent's Profile**

### **Please specify your profile**

**Please use a thick mark (✓) to show your choice (response)**

1. Sex

Male  Female

2. Marital status

Married  Single

3. Education/professional qualification

- First degree
- First degree and professional qualification such as ACCA
- Second degree in finance or related field
- Second degree in Non-finance field
- Other advanced education or professional qualification-please specify\_\_\_\_\_

4. Name of the bank in which you are working \_\_\_\_\_

5. Present career in the bank:

Owner/General Manager

Finance manager/chief accountant

Consultant/auditor

Academician

Other, please specify \_\_\_\_\_

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**Section II: Information about liquidity risk management policy and procedure framework and liquidity risk management structure.**

**Put thick mark (✓) to indicate your answer (put more than once if necessary)**

1. When is the bank established? \_\_\_\_\_

2. Is there any risk that the bank has encountered since its establishment?

Yes

No

3. If your answer for question No 2 is yes, what type(s) of risk(s) is (are) faced by the bank?

Credit risk

Liquidity risk

Operational risk

Interest rate risk

Forex exchange rate risk

Others, please specify \_\_\_\_\_

**A. Role of Board of Directors and senior management in liquidity risk management**

1. Does the bank have liquidity risk management policy and procedure?

Yes

No

2. If your answer for question No.1 is yes, is the liquidity risk management policy and procedure approved by the board of directors?

Yes

No

3. If your answer for question No.2 is yes, what are the responsibilities of the board of directors in the liquidity risk management?

Maintaining a general strategy for managing liquidity risk

Understanding the nature of the bank's liquidity risk

Approving liquidity risk management policies

Assigning responsibility to different levels of authority for  
Managing liquidity risk

Others, please specify \_\_\_\_\_

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4. What are the responsibilities of senior management in the liquidity risk management of the bank?

Ensuring that liquidity risk management strategies, policies and procedures are adequate

Ensuring that liquidity risk management policies and procedures are appropriately executed

Evaluating the design and implementation of an appropriate liquidity risk management system and standards, liquidity risk reporting and monitoring process

Periodically reviewing the banks liquidity risk management strategies, policies and procedures

Others, please specify \_\_\_\_\_

**Section III: Information about the liquidity risk management process**

**A. Organization of the liquidity risk management**

1. Which bodies are involved in the liquidity risk management of the bank?

- Board of directors
  - Senior management
  - Asset and liabilities committee (ALCO)
  - Risk management committee
  - Risk control department
  - Others, please specify \_\_\_\_\_
- 
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2. What is the role of Asset and Liabilities committee (ALCO)?

- Managing the overall liquidity risk of the bank
  - Ensuring that the bank's operations lies within the standards set by the board of directors
  - Facilitating, coordinating, communicating and controlling balance sheet planning regarding risks inherent in managing liquidity
  - Others, please specify \_\_\_\_\_
- 
- 

3. Which department (unit) is responsible for implementing the liquidity risk management policy and procedure?

- Finance /Treasury
  - Domestic banking
  - Risk management
  - Others, please specify \_\_\_\_\_
-

**B. Measuring and monitoring liquidity risk**

1. How is liquidity risk identified in the bank?

- By maturity mismatch analysis of assets and liabilities
  - Use of liquidity risk indicators
  - Cash flow projections
  - Others, please specify \_\_\_\_\_
- 
- 

2. What are the tools used by the bank to measure liquidity position?

- Loan/deposit ratio
  - Liquid asset/deposit ratio
  - Liquid asset/total asset ratio
  - Deposit/net loan ratio
  - Depositor concentration ratios
  - Others, please specify \_\_\_\_\_
- 

3. How is liquidity risk monitored in the bank?

- Establishing Asset Liability Committee (ALCO)
- Delegating liquidity risk management among operating units (i.e. Intra-group liquidity risk management)
- Having adequate internal control
- Use of adequate management information system (MIS)
- Compliance with NBE requirements
- Other, please specify \_\_\_\_\_

4. Is there a controlling mechanism for liquidity risk in the bank?

- Yes
- No

5. If your response for question NO.4 is yes, how is the liquidity risk controlled?

- Through audit check
  - Through internal control mechanism
  - Decreasing depositor concentration rations
  - Others, please specify \_\_\_\_\_
- 

6. What are the responsibilities of the finance/treasury department in managing liquidity risk?

- Identify the prevalence of liquidity risk in the bank
  - Measuring the liquidity risk
  - Reporting the liquidity position of the bank to the board
  - Others, pleas specify \_\_\_\_\_
- 
- 

7. What are the responsibilities of the risk management department (unit) in the liquidity risk management process in the bank?

- Developing liquidity risk management framework
  - Giving training and creating awareness about liquidity risk management
  - Recommending changes in liquidity management process
  - Reviewing the bank's liquidity risk management
  - Consolidating and reporting to higher authorities
  - Others, please specify \_\_\_\_\_
- 
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**C. General issues in liquidity risk management**

1. Did the bank face liquidity problem (excess liquidity or shortage) since 2004?

Yes  No

2. If your answer for question No 1 is yes, was it excess liquidity or shortage of liquidity? \_\_\_\_\_  
\_\_\_\_\_

3. What were the causes for the liquidity problem you mentioned in question No 2?

- Lack of professionals
- Weak inter bank system
- Absence of school as a training center
- Inadequate assistance from NBE
- Low level of economic development in the country
- Limited financial instruments
- Weak payment system
- Others, please specify \_\_\_\_\_  
\_\_\_\_\_

4. How did the bank manage the liquidity problem mentioned in question No. 2? \_\_\_\_\_  
\_\_\_\_\_

5. As a regulator how does the NBE intervene in the operation of the banks?

- Changing interest rate
- Changing of its requirements through its directives
- Sending instructions related to deposit mobilization and credit granting
- Others, please specify \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. How do you perceive the intervention of NBE?

- Adequate
- Moderate
- Excessive
- Others, please specify \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. What is the current status of the bank in meeting the requirements of NBE regarding liquidity?

- As expected
- Over liquid
- Deficient
- Others, please specify \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **STATEMENT OF DECLARATION**

I, the under signed, declare that this project is my original work and has not been presented for a degree in any University, and that all source of materials used for the project have been duly acknowledged.

**Declared by:**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Confirmed by Advisor:**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Place and Date of Submission: \_\_\_\_\_