The Effect of Reserve Requirement on Ethiopian Commercial Banks' Performance: Profitability and Lending Capacity

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Addis Ababa, Ethiopia

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Declaration

I the undersigned, declare that this thesis is my original work which was prepared under the guidance of Gemoraw Adinew (PhD). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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ENDORSEMENT

This thesis has been submitted to St. Mary's University College, school of Graduate Studies for examination with my approval as a university advisor.

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ACRONYMS

BE	Bank Equity
BS	Bank Size
CLRM	Classical Linear Regression Model
CR	Credit Risk
DF	Deposit Fund
ER	Efficiency Ratio
LOA	Loan and Advance
LP	Loan Production
LR	Liquidity Ratio
LRisk	Liquidity Risk
NBE	National Bank of Ethiopia
ROA	Return on Asset
RR	Reserve Account
RRR	Reserve Requirement Ratio

ABSTRACT

The study has taken one of the top regulatory issues; the reserve requirement, and studied its effect on bank performance. The general objective of the study was to study the relationship between reserve requirement and the performance of commercial banks in Ethiopia, whereas the specific objectives of the study were to study the effect of reserve requirement on commercial banks' profitability and lending capacity. The study used time series data of thirteen commercial banks from year 2004 to 2016 which were established before 2010 G.C. Moreover, the study used quantitative research approach. The study only took into account bank specific variables to be explanatory variables. Secondary financial data were analyzed using linear regressions models. The empirical results from regression analysis showed that reserve requirement has a negative effect on both commercial banks' profitability and lending capacity, thereby, affecting performance. Based on the conclusions the study recommends the National Bank of Ethiopia to take thorough investigation regarding the far-reaching effect of reserve requirement. Moreover, this study recommends commercial banks to be aware about the effect of reserve requirement on their performance and be proactive towards amendments by the National Bank of Ethiopia.

Key words: **Reserve requirement, Bank performance, Bank Profitability and Bank lending capacity**

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Banks are a vital parts of a nation's economy. In their traditional role as financial intermediaries, banks ensure the transmission of funds from surplus to deficit units and serve to meet the demand of those who need funding. Banks facilitate spending and investment, which fuel growth in the economy. However, despite their important role in the economy, banks are nevertheless susceptible to failure. Banks, like any other business, can go bankrupt. However, unlike most other businesses, the failure of banks, especially very large ones, can have far-reaching implications. Consequently, given their importance in the economy it is imperative that banks operate in a safe and sound manner to avoid failure. One way to ensure this for governments is to provide diligent regulation of banks (Joe, 2011).

Regulation is defined as the public administrative policing of private activities based on a set of rules that are developed in the public interest. Thus the process consists of intentional restrictions over a subject's choice courses of operations by an entity not directly involved in that activity. When this definition is applied to the financial system, it is termed as financial regulation and refers to a process in which there is a monitoring of the financial institutions by a body that is directed by the government in an effort to achieve macroeconomic goals through monetary policies as well as other measures permissible by law. Thus regulations concerned, they must be extensively considered and skillfully administered because in appropriate or ineffective regulatory measures results in catastrophic economic problems (Kevin and Nicol, 2000).

To sum up, as the prime movers of economic life, banks occupy a significant place in the economy of every nation. It is therefore not surprising that their operations are perhaps the most heavily regulated and supervised of all businesses. In Ethiopia the National Bank of Ethiopia is the organ endorsed with the power and responsibility to regulate and overlook the banking sector and the financial sector at large. As to the NBE's monetary policy framework (2009) the principal objective of the National bank of Ethiopia is to maintain price and exchange rate stability and support sustainable economic growth of Ethiopia. The NBE uses different

regulations to meet these goals. Reserve requirement is among these government regulations. Consequently, considering the establishment of new private banks in the country in the 1990s, the NBE first introduced reserve requirement in 1996 G.C and amended it five times (NBE, 1996, 2004, 2007, 2008, 2012 & 2013).

Globally, reserve requirement ratio is applied as a liquidity and credit policy tool with a macro-prudential perspective. This is a long-held view that considered reserve requirement ratios on deposits and as a supplemental monetary policy tool for macroeconomic purposes. In several countries, the reserve requirement ratio with the implementation of inflation-targeting frameworks and short-term interest rates became the main monetary policy instrument and central banks' policy toolkit (Emmanuel and Olutoye, 2015).

Reserve requirement ratios are regulatory tool that requires banking institutions to hold a fraction of their deposits/liabilities as liquid reserves. These are normally held at the central bank in the form of cash or highly liquid sovereign paper. When applied to deposits, the regulation usually specifies the size of the requirement according to deposit type (demand or time deposit) and its currency denomination (domestic or foreign currency). The regulation also sets the holding period relative to the reserve statement period for which the reserve requirement ratio is computed, and whether they are remunerated or unremunerated. Reserve requirement ratios can also be applied on assets rather than on liabilities (Jembere, 2014)

The active management of banks' reserve requirement ratios can serve different macro prudential purposes. They can serve as a tool for credit allocation to ease liquidity pressures. Central Banks have relied more on this tool to withdraw domestic liquidity surpluses, as a cheaper substitute for open-market operation instruments. Reserve requirement system has also become more embracing and been used to address a range of other policy objectives apart from credit policy such as macroeconomic management and financial stability. Depending on the policy mix, higher reserve requirements tend to signal a tightening bias, to squeeze excess reserves of banks, to push market interest rates higher, and to help widen net interest spreads, thus tightening domestic monetary conditions (Emmanuel and Olutoye, 2015).

Reserve requirement serves a countercyclical role for managing the credit cycle in a broad context in banks. In the upswing, hikes in reserve requirement may increase lending rates,

slowdown credit and limit excess leverage of borrowers in the economy, thus acting as a speed limit. In the downswing, they can ease liquidity constraints in the financial system, thus operating as a liquidity buffer. In this regard, reserve requirement can serve as a flexible substitute for other macro-prudential tools aiming at reducing credit dynamics. They are an alternative to more distortive quantitative restrictions such as credit ceilings (Emmanuel and Olutoye, 2015).

Bank's performance is the ability to generate sustainable profitability. Profitability is essential for a bank to maintain ongoing activity and for its investors to obtain fair returns. Moreover, profitability is a bank's first line of defense against unexpected losses as it strengthens its capital position (The European bank, 2010).

Lending which may be on short, medium or long-term basis is one of the services that commercial banks render to their customers. In other words, banks do grant loans and advance to individuals; business organizations as well as government in order to enable them embark on investment and development activities as a mean of aiding their growth in particular or contributing toward the economic development of a country in general. Thus, banks lending activities generate economic growth through resources provision for real investment (Mckinnon, 2009). According to Adedoyin and Sobodun (1991), lending is undoubtedly the heart of banking business. Therefore, its administration requires considerable skill and dexterity on the part of the bank management.

1.2. Statement of the Problem

The introduction of a wide range of monetary instruments and regulations by central banks engenders competition, efficiency and transparency and broadens financial intermediation in the banking system. It also promotes liquidity management of commercial banks and gradually leads to the development of well functioning money and financial markets which could serve as catalysts for economic growth and development. However, the use of such instruments has been extremely limited in Ethiopia due to the underdevelopment of the money market and the virtual non-existence of a financial market. Thus, it is envisaged to use a mix of diversified monetary policy instruments and regulations so as to effectively carry out the monetary management function of the NBE (NBE, 2009).

As to the NBE's monetary policy framework (2009) these instruments and regulations include; open market operation (sale and purchase of bonds or securities issued by governments), a standing central bank credit facility, setting of floor deposit interest rate, direct borrowing/lending in the inter-bank money market and re-purchase agreement, bill purchase requirements and reserve requirements. Most of NBE's directives are issued as part of the central bank's conduct of monetary policy and some are issued to ensure that the banking sector plays adequate role in channeling funds to priority sectors of the economy and as a means of reducing risk of liquidity and solvency in the banking system.

Most notable action by the NBE is its revision of the reserve requirement to combat skyrocketing inflation in the country. The bank revised the reserve requirement from 5% to 10% in 2007 (NBE, 2007) and to 15% in 2008 (NBE, 2008). Furthermore, the NBE amended reserve requirement in 2012 and 2013 (NBE, 2012, 2013).

However, our understanding of the effects of all these changes in reserve requirements by the NBE on bank performance is limited due to lack of scientific study in the area. As to the knowledge of the researcher, even the very few studies conducted to study the effect of bank regulations on bank performance did not give much of emphasis on reserve requirement. Therefore, this study tried to fill this research gap.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of this study is to examine the effect of reserve requirement on commercial banks performance in Ethiopia.

1.3.2. Specific Objectives

The specific objectives are as follows:

- To study the effect of reserve requirement on commercial banks' profitability in Ethiopia.
- To study the effect of reserve requirement on commercial banks' lending capacity in Ethiopia.

1.4. Research Questions

RQ1. Does reserve requirement have an effect on banks' profitability in Ethiopia?

RQ2. Does reserve requirement have an effect on banks' lending capacity in Ethiopia?

1.5. Research Hypothesis

The following hypotheses are developed to break down the above research questions.

H1: Reserve requirement has an effect on commercial banks' profitability.

H2: Reserve requirement has an effect on commercial banks' lending capacity.

1.6. Significance of the Study

The study conducted on the effect of national bank regulation on reserve requirement on commercial bank's performance in Ethiopia is expected to be used by all stakeholders. Accordingly, the following are the significances that are expected to be attained from the study:

It will enable policy makers to take deep-considerations of the effect reserve requirement has on banks performance during policy formulation and implementation.

It will create awareness for banks on the effect reserve requirement has on their profitability and lending capacity, thereby providing the opportunity to influence NBE regarding reserve requirement regulations.

It serves as source of reference for further studies in the area of reserve requirement.

1.7. Scope of the Study

The study is limited to see banks' performance only from profitability and lending capacity perspectives. Moreover, the paper only considered banks specific variables as independent variables.

1.8. Limitation of the Study

A strong limitation faced by the researcher is lack of literature and prior study conducted in the area in our country.

1.9. Organization of the Paper

This research is organized in five chapters. Chapter one provides the general introduction about the whole research. Chapter two describes the review of related literatures. Chapter three provide detail description of the methodology employed by the research. Chapter four contains data presentation, analysis and interpretation. Finally, the last chapter provides conclusion and gives relevant recommendations based on the findings.

CHAPTER TWO

LITERATURE REVIEW

The Literature review is discussed in two parts which include the theoretical review and empirical review parts.

2.1. Theoretical Literature Review

2.1.1. Banks and their Role in the Economy

A bank is generally understood as an institution which provides fundamental banking services such as accepting deposits and providing loans. In other words, banks act as an intermediary between those who are in need for money and those who have excess of money (Santos 2001).

Commercial banks are profitable financial institutions that give financial service to those in need of the service. They accept money from the depositors and lend it to the borrowers (Desinga, 1975).

Katherine (2004) points out that banks have historically been viewed as playing role in the economy or in the financial markets for two reasons. One is that they perform a critical role in facilitating payments. In addition to that, commercial banks, as well as other intermediaries, provide services in screening and monitoring borrowers; and by developing expertise as well as diversifying across many borrowers, banks reduce the costs of supplying credit.

As to Roland (2008), the banking sector serves three important functions in an economy.

- First, it ensures the orderly flow of funds between economic agents through the provision of payment services.
- Second, it mobilizes resources in the form of savings by offering attractive investment opportunities.
- Third, it pools savings and allocates them in the form of loans to investment projects. The banking sector thus acts as an intermediary between savers and investors in an economy and as a result enables the decentralization of economic decisions in a market economy.

2.1.2. Overview of Banking History in Ethiopia

Modern banking in Ethiopia was introduced in 1905. At the time, an agreement was reached between Emperor Menelik II and a representative of the British owned National Bank of Egypt to open a new bank in Ethiopia. February 15, 1906 marked the beginning of banking in Ethiopia history when the first Bank of Abyssinia was inaugurated by Emperor Menelik II. It was a private bank whose shares were sold in Addis Ababa, New York, Paris, London, and Vienna (NBE 2010).

In 1931, Emperor Haile Selassie introduced reforms into the banking system and the Bank of Abyssinia was liquidated and became the Bank of Ethiopia, a fully government-owned bank providing central and commercial banking services until the Italian invasion of 1936. In 1943, after Ethiopia regains its independence from fascist Italy, the State Bank of Ethiopia was established, with two departments performing the separate functions of an issuing bank and a commercial bank. In 1963, these functions were formally separated and the National Bank of Ethiopia (the central and issuing bank) and the Commercial Bank of Ethiopia were formed. In the period up to 1974, several other financial institutions emerged including the state owned as well as private financial institution.

Further, as per the NBE (2010), following the declaration of command economy by the Dergue regime in 1974 the government extended its control and nationalized all of previously established private banks and merged into one bank. After nationalization the Dergue regime leave only three government banks; the National Bank of Ethiopia, the Commercial Bank of Ethiopia and agricultural and Industrial Development Bank (Mortgage Bank). This was reversed when the socialist regime was overthrown in 1991. Subsequently, the licensing and supervision of Banking Business Proclamation No. 84/1994 was issued in 1994 which led to the beginning of a new era for Ethiopia banking sector. Following the enactment of the banking legislations in the country in the 1990s, a fairly good number of private banks have been established. For example, in the 2010/11 fiscal year the total number of banks already operational in the country reached fifteen. Of these banks, twelve were private and the other three were government owned (NBE 2010). Currently, there are Seventeen commercial banks operating in the country.

The following table lists all commercial banks and their establishment year.

Table 2.1: Commercial banks' in Ethiopia establishment year (source: authors own compilation)

Sr no	Commercial banks	Establishment year
1	Abay Bank S.C	2010
2	Addis International Bank	2011
3	Awash International Bank	1994
4	Bank of Abyssinia	1996
5	Berhan International bank	2009
6	Bunna International Bank	2009
7	Commercial Bank of Ethiopia	1942
8	Cooperative Bank of Oromia S.C	2004
9	Dashen Bank	1995
10	Debub Global Bank	2012
11	Enat Bank	2012
12	Lion International Bank	2006
13	Nib International Bank	1999
14	Oromia International Bank	2008
15	United bank	1998
16	Wegagen Bank	1997
17	Zemen Bank	2008

2.1.3. Bank Regulation

Regulations refers to a process in which there is a monitoring of financial institutions by a body that is directed by a government in an effort to achieve macroeconomic goals through monetary policies as well as other measures permissible by law (Vittas, 1992).

Harvey (2012) defines bank regulation as the formulation and issuance by authorized agencies of specific rules or regulations, under governing law, for the conduct and structure of banking. Considering inter-connectedness of banking industry and the reliance that the national economy hold on banks, it is important for regulatory agencies to maintain control over the standardized practices of banking institutions.

2.1.4. Types of Financial Regulations

As to Williams (2008), financial regulation can be classified into groups according to their aims and functions. The three most common classifications are the following;

Structural Regulation- is a type of regulation that places boundary to commercial banks determining the activity in which they can participate from those they can debarred. For example, licensing of commercial banks and prohibition from engaging in other commercial activities restricts the areas they can participate in (NBE, 1996).

Prudential Regulation- is a type of regulation that emphasizes on the control of systematic risk, principally balance sheet constraints such as capital adequacy and permissible bank concentration ratios. For example NBE set single borrower limit to 25% of the bank paid up capital and reserve (NBE, 2002).

Monetary Regulation- is a type of regulation that is designed to bring the desired macroeconomic outcome by focusing on interest rate, credit control and reserve requirements. It impacts deposit taking, and lending activities of commercial banks. For example 5% NBE reserve requirement on all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits (NBE, 2004).

2.1.5. Why Regulate Banks

Spong (2000) stated that although banks operate for profit and they are free to make many decisions in their daily operations, banking is commonly treated as a matter of public interest.

The following are several of the more commonly accepted goals of bank regulation.

- **Protection of Depositors:** the most basic reason for regulation of banking is deposit or protection. Pressure for such regulation arose as the public began making financial transactions through banks, and as businesses and individuals began holding a significant portion of their funds in banks. Bank depositors may have more difficulty protecting their interests than customers of other types of businesses. While depositors could conceivably make general judgments about the condition of banks, the task would still be difficult, costly, and occasionally prone to error. These facts, especially when combined with the history of depositors' losses before federal deposit insurance, explain much of the public pressure for banking regulation to protect depositors (Spong 2000).

- **Monetary and Financial Stability:** apart from just being concerned about individual depositors, banking regulation must also seek to provide a stable frame work for making payments. With the vast volume of transactions conducted every day by individuals and businesses, a safe and acceptable means of payment is critical to the health of our economy. In fact, it is hard to envision how a complex economic system could function and avoid serious disruptions if the multitude of daily transactions could not be completed with a high degree of certainty and safety. Ideally, bank regulation should thus keep fluctuations in business activity and problems at individual banks from interrupting the flow of transactions across the economy and threatening public confidence in the banking system (Spong 2000).

- **Efficient and Competitive Financial System:** another aspect of a good banking system is that customers are provided quality services at competitive prices. One of the purposes of bank regulation, therefore, is to create a regulatory framework that encourages efficiency and competition and ensures an adequate level of banking services throughout the economy. The promotion of an efficient and competitive banking system carries a

number of implications for regulation. Competition and efficiency depend on the number of banks operating in a market, the freedom of other banks to enter and compete, and the ability of banks to achieve an appropriate size for serving their customers (Spong 2000).

- **Consumer Protection:** another goal of banking regulation is to protect consumer interests in various aspects of a banking relationship. The previous regulatory objectives serve to protect consumers in a number of ways, most notably through safeguarding their deposits and promoting competitive banking services. However, there are many other ways consumers are protected in their banking activities. Consumer protection objectives are generally consistent with good banking principles. In fact, credit and deposit disclosures and informed customers should be of most benefit to bankers offering competitive services. Likewise, equal and nondiscriminatory treatment of borrowers is necessary for any banker aiming to maximize profits (Spong 2000).

2.1.6. Reserve Requirement

As to Scott E. Hein and Jonathan D. Stewart (2002) reserve requirement is the minimum level of non-interest earning reserves (vault cash or deposit at the Fed) held in proportion to depository institutions' depository liabilities.

Historically, reserve requirements typically had fiscal motives (Espinosa 1995), and reserve requirements have long been viewed as a source of "financial repression" in developing economies (McKinnon 1973, Shaw 1973, Fry 1995).

In the United States, from early in the 19th century until 1863 when the National Bank Act was introduced (setting RRs for banks), many banks held reserves typically, gold or its equivalent informally with other commercial banks in return for an agreement by that bank to accept their bank notes (Simon, 2011).

Eliana Cardoso (undated) discussed that reserve requirements were seen as a way of taxing the profits that would accrue to the banks during periods of high inflation: restricted competition prevented interest competition for deposits, allowing banks to earn high profits on non-interest bearing demand deposits. Reserve requirements represented a tax on these profits.

2.1.7. Rations for Reserve Requirement

According to Simon Gray (2011), there are three main reasons for the imposition of reserve requirement. These are:-

- **Prudential**. In some cases stemming back to the gold standard, when commercial banks' ability to take deposits and issue their own banknotes was constrained by a requirement to hold proportionate reserve balances either directly, or at another bank (eventually the central bank), which in turn held gold reserves. These reserves provided some protection against both liquidity and solvency risks.

- **Monetary control**. This takes two forms: First, if reserve money cannot easily be increased, reserve requirement may restrict commercial banks' balance sheet growth. Second, the central bank could vary the level of (unremunerated) reserve requirement in a way intended to influence the spread between deposit and lending rates, in order to impact the growth of monetary aggregates and thus inflation.

- **Liquidity management**. This may be active or passive. Using reserve requirement actively, a central bank can immobilize surplus reserves by administrative fiat, so that the impact of a surplus on bank behavior (low interest rates, demand for foreign exchange) does not in turn lead to inflation or depreciation (both of which involve a loss of value for the currency). Similarly, if demand for reserves exceeds supply, the central bank could lower reserve requirement in response. A passive approach can be adopted, if reserve requirement can be met on average over a period: short–term liquidity management by the commercial banks is facilitated, with a consequent reduction in short–term interest rate volatility.

Scott E. Hein and Jonathan D. Stewart (2002), argue that central banks impose reserve requirements for a couple of reasons. For one, reserve requirements are a tool of monetary policy. Reductions in reserve requirements would allow the Fed to expand the money supply and lower interest rates. A second reason for the reserve requirements is to improve the safety and soundness of depository institutions. The higher the reserve requirement, the safer depository institutions are held to be.

2.1.8. Reserve Requirements in Ethiopia

In 1996, the national bank of Ethiopia set the reserve requirement at 10% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits by directive no sbb/14/96 (NBE, 1996).

The first reserve requirement was later on amended in 2004 by directive no sbb/37/04 to be reduced to 5% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits (NBE, 2004). This directive still remains as the first and only time that the reserve requirements have actually been reduce in Ethiopia.

In 2007, the national bank of Ethiopia reversed the reserve requirement back to 10% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits by directive no sbb/42/07 (NBE, 2007).

The fourth amendment, that is directive no sbb/45/08 of reserve requirements came in 2008 increasing reserve requirement to 15% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits (NBE, 2008).

The fifth amendment, that is directive no sbb/46/12 was introduced after four years in 2012 reducing reserve requirement back to 10% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits (NBE, 2012).

After only a year the NBE come up with directive no sbb/55/13 to decrease reserve requirement yet again to 5% of all Birr and foreign currency deposit liabilities held in the form of demand (current) deposits, saving deposits and time deposits (NBE, 2013). Directive no sbb/55/13 is the final reserve requirement set by the national bank of Ethiopia to this day.

The following table summarizes the above discussion.

Table 2.2: Summery of NBE directives on reserve requirement (source: authors own compilation)

Directive No	RRR (%)	Directive Year	Effective Date
sbb/14/96	10	1996	01-jan-97
sbb/37/04	5	2004	31-Jan-05
sbb/42/07	10	2007	20-Jul-07
sbb/45/08	15	2008	7-Apr-08
sbb/46/12	10	2012	2-Jan-12
sbb/55/13	5	2013	1-Mar-13

Note: dates are in Gregorian calendar

2.2. Empirical Literature Review

2.2.1. Reserve Requirement and Banks' Profitability

Eden Kebede conducted a study titled the impact of national bank regulation on banks performance: evidence from the private banks of Ethiopia in 2014. In her study balanced fixed effect panel regression was used for the data of six private commercial banks in the sample covered the period from 2004 to 2013. The results of panel data regression analysis showed that reserve requirement had negative and insignificant impact on profitability.

Similarly, Gemechu Abdissa studied the effect of bank-specific, industry-specific and macroeconomic determinants on banks' profitability in Ethiopia in 2016. The study applied

balanced panel data of eight Ethiopian commercial banks that covers the period from 2002 to 2012. The paper argues that there exists inverse relationship between reserve requirement and banks profitability.

In addition, S. Fatima Abid and Samareen Lodhi examined the relationship between reserve requirement ratio and banks profitability in Pakistan in 2015. Their study emphasized on the effect of changes in reserve requirement on commercial banks' profitability and how it affects the return on equity and return on asset. They used time series data for ten year period 2005-2014 and concluded that positive changes in reserve requirement have an inverse impact on banks profitability.

On the other hand, according to UREMADU (2012) there is a positive relationship between reserve requirement, and banks profitability. They studied the reserve requirement in Nigerian economy for the period 1980-2006 and found that reserve requirement has a positive effect on banking profits.

2.2.2. Reserve Requirement and Banks' Lending Capacity

Mitku Malede (2014) conducted a study on main determinants of commercial bank lending in Ethiopia by using panel data of eight commercial banks in the period from 2005 to 2011. The study used Seven years financial data of eight commercial banks and concluded that reserve requirement does not affect Ethiopian commercial bank lending for the study period.

In contrary, Amano Getahun (2014) conducted a study on the determinants of lending capacity of banks: taking Ethiopian commercial banks as a case study. He used balanced fixed effect panel regression for the data of eight commercial banks which covered the period from 2001 to 2013 and concluded that reserve requirement had positive and significant impact on loan and advance.

Similarly, a study conducted on reserve requirements and the bank lending channel in China by Zuzana Fungacova, Riikka Nuutilainen and Laurent Weill (2016) argue that changes in reserve requirements influence loan growth significantly. They found that a tightening in reserve requirements adversely influences loan growth.

Ajayi and Atanda (2012) also studied the effects of monetary policy instruments on banks' lending disposition in Nigeria. The Engle-granger two step co-integration approach was adopted based on the regression model that regress banks total loan and advances on minimum policy rate, cash reserves ratio, liquidity ratio, inflation and exchange rate. The empirical estimates indicated that cash reserves ratio exert negative effect on banks total credit.

In addition, Punita and Somaiya (2006) investigated the impact of cash reserve requirements on the lending of Banks to small and medium firms in India between 1995 and 2000. Cash reserve ratio was found to have significantly affect banks' lending capacity negatively.

Moreover, Younus and Akhta (2009) examined the significance of cash reserve requirement as a monetary policy instrument in Bangladesh. Using descriptive analysis techniques (trend analysis and summary statistics), they found reserve requirement has experienced frequent changes and past evidence has shown that reduction in cash reserve requirement produced positive impact on bank credit.

Conversely to the above literatures, Olukoyo (2011) investigated the determinants of Commercial Banks' Lending capacity in Nigeria employing multiple regression analysis and suggests that cash reserve ratio has positive functional relationship with commercial banks loans and advances. The regression coefficients show that every 1% increase in cash reserve requirement for commercial banks caused the loans and advances to change by 0.12%. This indicates that stipulated increase in cash reserve requirement ratio of commercial banks may not necessarily translate into poor lending performance or lower proportion of commercial banks' funds available for lending respectively.

On the other hand, a study conducted in Nigeria to examine the effect of reserve requirement on banks' lending trend by Olutoye, and Emmanuel (2015) concluded that there exists no significant relationship between reserve requirement and bank's lending trend.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

The purpose of this chapter is to present about the samples of the study, variable of the study, data collection method and research approach that is adopted for the study. The chapter is organized as follows: section 3.1 presents about the research approach, section 3.2 presents about the population, sample size and sampling technique that were considered while conducting this study. This is followed by data sources and method of data collection under section 3.3. Next, methods of analysis and model specification are discussed under section 3.4 and 3.5 respectively. Finally, variables are described in section 3.6.

3.1 Research Approach

The study used quantitative methods to study the relationship between reserve requirement and bank performance. As to Creswell (2009), quantitative research is a means for testing objective theories by examining the relationship among variables.

3.2 Population, Sample Size and Sampling Technique

The population of this study includes all Ethiopian commercial banks that operated under at least three different reserve requirements. Therefore, out of the seventeen commercial banks currently operating in the country thirteen has been included according to this criterion in this study.

The following table is the list of commercial banks in Ethiopia considered for this particular study.

Table 3.1: Commercial banks in Ethiopia established before 2010 G.C (source: authors own compilation)

Sr no	Commercial banks	Establishment year
1	Awash International Bank	1994
2	Bank of Abyssinia	1996
3	Berhan International bank	2009
4	Bunna International Bank	2009
5	Commercial Bank of Ethiopia	1942
6	Cooperative Bank of Oromia S.C	2004
7	Dashen Bank	1995
8	Lion International Bank	2006
9	Nib International Bank	1999
10	Oromia International Bank	2008
11	United bank	1998
12	Wegagen Bank	1997
13	Zemen Bank	2008

3.3 Data Sources and Method of Collection

The study used secondary data. The secondary data are collected from NBE consolidated data and selected banks annual reports. The study used annually collected time series data.

3.4 Method of Analysis

Statistical analyses had been carrying out using the following methods:

3.4.1 Statistical Analysis

Descriptive statistics of the variables (both dependent and independent) were calculated over the sample period. This is in line with Malhotra (2007), who states that using descriptive statistics methods helps the researcher in picturing the existing situation and allows relevant information. Then, a correlation analysis between dependent and independent variables were made.

3.4.2 Econometric Analysis

According to Brooks (2008), regression is a method to estimate the slope and intercept in a model. This study used regression to estimate the linear equation. The rational for choosing regression is that, if the Classical Linear Regression Model (CLRM) assumptions hold true, then the estimators determined by the model will have a number of desirable properties, and are known as Best Linear Unbiased Estimators (BLUE) (Brooks, 2008).

According to Brooks (2008), some the assumptions of regression are:

1. The errors have zero mean.
2. Independent variables are not correlated

The collected data were analyzed by using STATA software package.

3.4.3 Diagnostic Analysis (Diagnostic checks)

Diagnostic checking is done to test whether the sample is consistent with the following assumptions:

1. The model is correctly specified.
2. There is no relationship between independent variables (No multicollinearity).

3.5 Model Specification

To meet the objective of the study, the paper uses regression model. According to the hypothesis made earlier two separate models are developed.

Model one

Profitability

$$ROA = \alpha + \beta 1BS + \beta 2BE + \beta 3ER + \beta 4CR + \beta 5DF + \beta 6LR + \beta 7LRISK + \beta 8LP + \beta 9RR + \varepsilon$$

Model two

Lending capacity

$$LOA = \alpha + \beta 1BS + \beta 2BE + \beta 3ER + \beta 4CR + \beta 5DF + \beta 6LR + \beta 7LRISK + \beta 8LP + \beta 9RR + \varepsilon$$

Where: ROA: - Return on Asset

LOA: - Loan and advance

BS: - Bank size

BE: - Bank Equity

ER: - Efficiency ratio

CR: -Credit risk

DF: - Deposit fund

LR: - Liquidity ratio

LRisk: - Liquidity risk

LP: - Loan production

RR:-Reserve account held in the NBE

3.6 Variables

3.6.1 Dependent Variables

Bank profitability: is measured by the return on assets (ROA) and is calculated as the net income divided by total assets.

Loan and advance: The term loan refers to the amount borrowed by one person from another. The amount is in the nature of loan and refers to the sum paid to the borrower. Thus from the view point of borrower, it is borrowing and from the view point of bank, it is lending. Loan may

be regarded as credit granted where the money is disbursed and its recovery is made on a later date. It is a debt for the borrower. While granting loans, credit is given for a definite purpose and for a predetermined period. Interest is charged on the loan at agreed rate and intervals of payment. Advance on the other hand, is a credit facility granted by the bank. Banks grant advances largely for short-term purposes, such as purchase of goods traded in and meeting other short-term trading liabilities. There is a sense of debt in loan, whereas an advance is a facility being availed of by the borrower. However, like loans, advances are also to be repaid. Thus a credit facility- repayable in installments over a period is termed as loan while a credit facility repayable within one year may be known as advances. To proxy loan and advance, Log of loan and advance was used.

3.6.2 Independent Variables

Bank Size: this variable is set to be equal to the natural logarithm of total bank assets in millions of ETB. Size might be an important determinant of bank performance if there are increasing returns to scale in banking. However, size could have a negative impact when banks become extremely large due to bureaucratic and other reasons.

Bank equity: it refers to the book value of equity divided by total assets. Accordingly, higher bank equity ratios may influence bank performance positively when loan rates do not vary much with bank equity.

Efficiency ratio: this is a measure of how the bank is managing operating costs; it is calculated as the ratio of operating expenses or in other words noninterest expense to net interest income and noninterest income. A low efficiency ratio is desirable as it may mean that a bank is paying less to earn more.

Credit risk: this variable measure the risk banks face in providing loans or measures the probability of nonperforming loans. It is calculated by dividing loan loss provision to total loans and advances.

Deposit fund: this variable is calculated by dividing total deposit to total asset. A higher ratio is expected to affect banks' performance positively.

Liquidity ratio: this variables measure the ability of banks' to pay off their short term obligations. It is calculated by dividing liquid asset to total deposit since deposits are considered short term obligations of banks. A higher liquidity ratio is desirable.

Liquidity risk: This variable measures the liquidity of banks' asset**.** It is calculated as the ratio of liquid asset to total asset. A more liquid asset is expected to affect banks' performance positively.

Loan production: This variable measures the ability of banks' to generate or produce loan from their asset. It is calculated as the ratio of total loan and advance to total asset.

Reserve requirement: This is the amount kept in NBE as reserve account. It is measured in terms of Ethiopian birr (ETB).

The following table presents the summery of the dependent variables and independent variables.

Table 3.2: Description of dependent and independent variables

Dependent Variables	**Description**
ROA	net income/total asset
LOA	log of total loan and advances
Independent Variabls	Description
Bank Size	log of total asset
Bank Equity	owners equity/total asset
Efficiency Ratio	total non in expense/net interest income & non interest income
Credit Risk	loan loss provision/ total loan
Liquidity Ratio	liquid asset/total deposit
Liquidity Risk	liquid asset/total asset
Deposit Fund	total deposit/total asset
Loan Production	loan and advance/total asset

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

To meet the broad research objective and to answer research questions and to test research hypotheses the researcher used the methodologies discussed in the preceding chapter. In this chapter the collected data were presented and important findings of correlation and regression analysis are discussed. This chapter has five sections. Under the first section (section 4.1.) the descriptive statistics of the dependent and independent variables are presented followed by correlation analysis under section 4.2. Section 4.3 presents the test for the liner regression model. Then, the results of the regression analysis are presented under section 4.4. Finally, discussions for the results of the regression analysis are made under section 4.5.

4.1. Descriptive Statistics of the Data

The descriptive statistics for the dependent and independent variables are presented bellow. The dependent variable is bank performance considered from two perspectives profitability, which is measured by ROA and loan and advance, which is measured by LOA. As discussed above, the independent variables considered for this paper are all bank specific variables.

Table 4.1: Descriptive statistics of dependent and independent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	148	2.393621	1.222055	-1.976463	5.250452
Loan and advance	148	5229.68	11047.52	3	87261.79
Bank Size	148	12941.4	30611.93	129	240408.4
Bank Equity	148	14.80816	9.099624	4.200954	86.82171
Efficiency Ratio	148	55.13518	49.41915	16.01785	507.4074
Credit Risk	148	3.18373	4.117754	0	28.97229
Deposit Fund	148	.748181	0.0864329	.1162791	.8715184
Liquidity Ratio	148	53.50063	65.42925	16.20835	806.6667
Liquidity Risk	148	36.03839	13.30417	12.83436	93.79845
Loan Production	148	.4754626	.1121553	.0232558	.7276764
Reserve acct with NBE	148	1439.984	2683.525	29	14911.38

Source: Financial statement of sampled private commercial banks and own computation through STATA.

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables. The ROA indicates that the Ethiopian commercial banks had an average of positive profit for the past thirteen years.

From the total of 148 observations the mean of ROA equals 2.39% with a minimum of -1.98% and a maximum of 5.25%, that means the most profitable bank from the sample banks earned 5.25 cents of net income from a single birr of asset investment and ROA of -1.98% indicates the maximum loss incurred by a bank amidst the sampled banks.

Total loan and advances had a mean of 5229.68 which implies that on average a single bank of the sampled banks provided 5,229,680,000 ETB as loan and advance yearly for the past thirteen years. The minimum and the maximum loan and advance provided annually by a bank from the sampled banks are 3,000,000 ETB and 87,261,790,000 ETB, respectively.

Reserve account held with the NBE had a mean of 1439.98 implying a single bank from the sampled banks deposited on average 1,439,980,000 ETB as reserve account with the NBE annually for the last thirteen years. The maximum amount deposited by a single bank as reserve account in the NBE from the sampled banks for a year is 14,911,380,000 ETB, whereas, the minimum is 29,000,000 ETB.

Bank size had a mean of 12941.4 implying that the sampled banks had an asset of 12,941,400,000 ETB yearly on average. The maximum recorded asset for the last thirteen years of the sampled banks is 240,408,400,000 ETB, where as the minimum is 129,000,000 ETB.

Bank equity had a mean of 14.80816. This indicates that out of the sampled banks' asset on average 14% is owner's equity. This number reached a maximum of 86% and a minimum of 4%.

The mean of efficiency ratio is 55%, which is greater than the maximum desirable percentage which is 50%. Since efficiency ratio is the product of total noninterest expense to total net interest income and noninterest income it is desirable if it is very low. 55% efficiency ratio means the sampled banks pay a lot to earn an income. The efficiency ratio had a minimum of 16% and a maximum of 507%.

Credit risk had a mean of 3.18373, meaning on average the sampled banks faced a 3.18% risk of non-performing loans and advance for the last thirteen years. A minimum of 0% doesn't mean there was a time of no risk, though. It is due to that some of the banks omit provision for doubtful debts, since credit risk is computed by dividing provision for doubtful debts by total loans and advance. A maximum of 28.97% indicates a very high risk.

A mean of 0.748181 of deposit fund indicates that deposit contributed the lion share of the asset of the sampled banks for the last 14 years, 74.82%. The minimum percentage for deposit fund in the last thirteen years was 11.6%, whereas the maximum was 87.2%.

Liquidity ratio had a mean of 53.50063, which means that the sampled banks on average can only repay 53.5% their short term debts if forced to pay off all of their short term debts. Liquidity ratio had a minimum 16.2 % and a maximum of 806.7%.

Liquidity risk had a mean of 36.03839, which implies that 36.03 of the sampled bank's asset is liquid asset for the last thirteen years. Liquidity risk had a minimum and maximum of 12.83% 93.78% respectively.

A mean of 0.4754626 of loan production indicates that the sampled banks' generated 0.47 cents of loan and advances out of 1birr of asset in the last thirteen years. Loan production had a minimum and a maximum of 0.0232558 and 0.7276764.

4.2. Correlation Analysis

Table 4.2: Correlation matrix among the dependent and independent variables

	ROA	LOA	BS	BE	ER	CR	DF	LR	LRISK	LP	RR
ROA	1		0.4783	-0.4838	-0.6949	-0.0154	0.4116	-0.3214	-0.2950	0.0796	0.1298
LOA		1	0.9704	-0.7047	-0.6319	0.1533	0.5983	-0.5499	-0.5893	-0.0025	0.6292

Source: Financial statement of sampled private commercial banks and own computation through STATA

According to Brooks (2008), if *y* and *x* are correlated, it means that *y* and *x* are being treated in a completely symmetrical manner. Thus, it is not implied that changes in *x* cause changes in *y*, or indeed that changes in *y* cause changes in *x* rather, it is simply stated that there is evidence for a

linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient.

Output of correlation analysis (Table 4.2) represented in matrix of pair-wise correlation. It was found that ROA is negatively correlated with bank equity, efficiency ratio, credit risk, liquidity ratio and liquidity risk with a correlation coefficient of -0.7047, -0.6319, -0.0154, -0.3214 and -0.2950.

On the other hand, ROA has a positive relationship with bank size, deposit fund, loan production and reserve account held with the CBE with a correlation coefficient of 0.4783, 0.4116, 0.0796 and 0.1298.

The Output of correlation analysis (Table 4.2) also showed that loan and advance has a negative relationship between bank equity, efficiency ratio, liquidity ratio, liquidity risk and loan production with a correlation coefficient of -0.7047, -0.6319, -0.5499, -0.5893 and -0.0025.

To the contrary loan and advance had a positive relationship with bank size, credit risk deposit fund, and reserve account with a correlation coefficient of 0.9704, 0.1533, 0.5983 and 0.6292 respectively.

4.3. Testing Assumptions of Classical Linear Regression Model (CLRM)

Test for average value of the error term is zero (E (ut) = 0) assumption

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term (i.e. $\boldsymbol{\alpha}$) was included in the regression equation, the average value of the error term in this study is expected to be zero.

Test for absence of series multicollinearity assumption

This assumption is concerned with the relationship exist between explanatory variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect collinearity, and it cannot be estimated by OLS (Brooks, 2008). Multicollinearity condition exists where there is high, but not perfect, correlation between

two or more explanatory variables (Cameron and Trivedi 2009; Wooldridge 2006). According to Churchill and Iacobucci (2005), when there is multicollinearity, the amount of information about the effect of explanatory variables on dependent variables decreases.

According to Gujarati (2004), the standard statistical method for testing data for multicollinearity is analyzing the explanatory variables correlation coefficients (CC); condition index (CI) and variance inflation factor (VIF). Therefore, in this study VIF of all independent variables shows a maximum of 9.89, which makes it free from multicollinearity.

4.4. Results of the Regression Analysis

On the regression outputs the beta coefficient may be negative or positive; beta indicates that each variables' level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. R^2 values indicate the explanatory power of the model and in this study adjusted R^2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models.

This paper used two models to study the effect of reserve requirement on commercial banks performance. Both models were regressed and their results are discussed here under.

Model one: - the regression model used to find the statistically significant effect reserve requirement has on banks profitability measured by ROA was:

$$ROA = \alpha + \beta 1BS + \beta 2BE + \beta 3ER + \beta 4CR + \beta 5DF + \beta 6LR + \beta 7LRISK + \beta 8LP + \beta 9RR + \varepsilon$$

Table 4.3: Regression Analysis of ROA

Source	SS	df	MS
Model	168.010311	9	18.6678123
Residual	51.5220507	138	.373348193
Total	219.532361	147	1.49341742

Number of obs =	148
F(9, 138)	= 50.00
Prob > F	= 0.0000
R-squared	= 0.7653
Adj R-squared	= 0.7500
Root MSE	= .61102

ROA	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]
Bank Size	.7398268	.2153203	3.44	0.001***	.3140733 1.16558
Bank Equity	-.0001837	.0174127	-0.01	0.992	-.0346139 .0342466
Efficiency ratio	-.0320817	.00223	-14.39	0.000***	-.0364911 -.0276723
Credit Risk	-.0404736	.0165898	-2.44	0.016**	-.0732766 -.0076706
Deposit Fund	-1.083619	1.440599	-0.75	0.453	-3.93212 1.764881
Liquidity Ratio	.0161529	.0017403	9.28	0.000***	.0127117 .019594
Liquidity Risk	-.0115918	.0083289	-1.39	0.166	-.0280605 .0048768
Loan Production	.1249996	.7699315	0.16	0.871	-1.397389 1.647388
Reserve acct	-.000134	.0000329	-4.07	0.000***	-.0001991 -.000069
_cons	2.072753	1.677481	1.24	0.219	-1.244136 5.389642

Source: Financial statement of sampled commercial banks and own computation through STATA

Notes: The starred coefficient estimates are significant at the 1 % (***) and 5 % (**) level.

The regression result of the above table for ROA, which is a measure of profitability of commercial banks, reveals that the F-statistic and p-value of the model are 50.00 and zero, respectively.

The adjusted R-square value for the model is 75%, which means 75% of the total variability on ROA is caused by a change in explanatory variables taken together.

Among the statistically significant factors affecting the profitability of commercial banks in Ethiopia, efficiency ratio, credit risk and reserve account had a negative and statistically significant effect on banks ROA at 1%, 5% and 1% level of significant respectively. On the other hand, bank size and liquidity ratio had a positive and significant effect on ROA both at 1% level of significant.

Model two: - the regression model used to find the statistically significant effect reserve requirement has on banks' lending capacity measured by LOA was:

$$LOA = \alpha + \beta 1BS + \beta 2BE + \beta 3ER + \beta 4CR + \beta 5DF + \beta 6LR + \beta 7LRISK + \beta 8LP + \beta 9RR + \varepsilon$$

Table 4.4: Regression Analysis of LOA

Source	SS	df	MS
Model	52.9582811	9	5.88425345
Residual	.018451736	138	.000133708
Total	52.9767328	147	.360385938

Number of obs =	148
F(9, 138) =	44008.16
Prob > F =	0.0000
R-squared =	0.9997
Adj R-squared =	0.9996
Root MSE =	.01156

Loan and Advance	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
Bank Size	1.00957	.0040748	247.7	0.000***	1.001513	1.017627
Bank Equity	.0009366	.0003295	2.84	0.005**	.000285	.0015882
Efficiency ratio	4.41e-06	.0000422	0.10	0.917	-.000079	.0000879
Credit Risk	-.0013405	.000314	-4.27	0.000***	-.0019612	-.0007197
Deposit Fund	-.0617274	.0272625	-2.26	0.025**	-.1156335	-.0078212
Liquidity Ratio	-.0014622	.0000329	-44.40	0.000***	-.0015273	-.001397
Liquidity Risk	.0019544	.0001576	12.40	0.000***	.0016427	.002266
Loan Production	.8966029	.0145705	61.54	0.000***	.8677926	.9254132
Reserve acct	-2.13e-06	6.23e-07	-3.43	0.001***	-3.37e-06	-9.03e-07
_cons	-.7542017	.0317453	-23.76	0.000	-.8169718	-.6914316

Source: Financial statement of sampled commercial banks and own computation through STATA

Notes: The starred coefficient estimates are significant at the 1 % (***) and 5 % (**) level.

The regression result of the above table for LOA, which is a measure of lending capacity of commercial banks, reveals that the F-statistic and p-value of the model are 44008.16 and zero, respectively.

The adjusted R-square value for the model is 99%, which means 99% of the total variability on LOA is caused by a change in explanatory variables taken together. Moreover, adjusted R-square of 99% indicates a very strong model.

Among the statistically significant factors affecting the lending capacity of commercial banks in Ethiopia, credit risk, deposit fund, liquidity ratio and reserve account had a negative and statistically significant effect on commercial banks' lending capacity at 1%, 5%, 1% and 1% level of significant respectively. On the other hand, bank size, bank equity, liquidity risk and loan production had a positive and significant effect on LOA at 1%, 5%, 1%, 1% level of significant respectively.

4.5. Discussion of the Regression Results

Table 4.3 and 4.4 present regression outputs of profitability (ROA) and lending capacity (LOA) respectively. The results were discussed as follows.

Reserve requirement and commercial banks' profitability

According to Table 4.3 reserve requirement is negatively related with commercial banks' profitability measured by ROA with a coefficient estimate of -0.000134. The p value of reserve account is 0.000 revealing that it is statistically significant at 1% level of significant.

Holding other factors constant, a 1% increase in deposit held by NBE as reserve account will decrease ROA by 0.000134%. This means that a 1% increase in deposit held by NBE reserve account will probably decrease the return on 1 birr investment on asset by 0.0134%.

The finding of this paper on the effect of reserve requirement on commercial banks' profitability is in line with Gemechu Abdissa's (2016) who also concluded that reserve requirement has a negative and significant effect on banks' profitability. Similarly S. Fatima Abid et.al (2015) concluded that reserve requirement has an inverse effect on banks' profitability.

In contrary to the above studies, the findings of this paper are in opposite to that of UREMADU's (2012) conclusions. UREMADU (2012) concludes that there exists a positive relationship between reserve requirement and banks' profitability.

On the other hand, Eden Kebede (2014) argued that the effect of reserve requirement on banks' profitability is insignificant.

Reserve requirement and commercial banks' lending capacity

According to Table 4.4 reserve requirement is negatively related with commercial banks lending capacity with a coefficient estimate of -0.00000213. The p value of reserve account is 0.000 revealing that it is statistically significant at 1% level of significant.

Holding other factors constant, a 1% increase in deposit held by NBE as reserve account will decrease commercial bank's loan and advance by 0.000213%. This implies that if the average reserve account held by the NBE increases by 14,399,800 ETB, then the average loan and advance dispersed by banks will probably decrease by 11,139.22 ETB.

The finding of this study on the effect of reserve requirement on commercial banks' lending capacity is similar to Amano Getahun's (2014) conclusions. He concluded that reserve requirement has a negative and significant effect on banks' lending capacity.

Similarly Zuzana Fungacova et.al (2016), Ajayi et.al (2012), Punita et.al (2006) and Younus et.al (2009) also concluded that reserve requirement has a negative and significant effect on banks' lending capacity.

Conversely Olukoyo (2011) argued that reserve requirement has a positive relationship with banks lending capacity.

On the other hand, Mitiku Malede (2014) concluded that there is no relationship between reserve requirement and banks' lending capacity. His conclusions were also backed by Emmanuel and Olutoye (2015.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The purpose of this paper was to study the effect of reserve requirement on commercial banks' performance in Ethiopia, specifically profitability and lending capacity. Data of banks established before 2010 G.C was taken. Only bank specific variables were considered for the study. Moreover, Data was presented by using descriptive statistics, correlation and regression analysis. Two models were developed to study the effect of reserve requirement on commercial banks' performance, the first for profitability (ROA) and the second for lending capacity (LOA). Out of the independent variables four of them were found to be statically significant at 1% level of significant and one variable at 5% level of significant in the first model. For the second model six of the independent variables were found to be statically significant at 1% level of significant and two of them at 5% level of significant. Moreover the prime concern of this study, reserve requirement was found to be statistically significant in both models at 1% level of significance.

The results of the models enable us to conclude that reserve requirement has a negative effect on bank performance, measured by both banks' profitability and banks' lending capacity.

5.2 Recommendation and Further Research

In Ethiopia reserve requirement has been amended four times in the past nine years. The National bank of Ethiopia needs to consider the far reaching effect of these amendments and take a very deep and thorough care and investigation before amending reserve requirement time and time again.

On the side of the commercial banks they should be aware of the effect reserve requirement has on their performance and be reactive and critical as well to the amendments of the National Bank regarding reserve requirement.

Regarding this research area, researchers shall conduct researches regarding reserve requirement's effect on commercial banks' performance by considering non bank specific independent variables as well.

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APPENDIX

Appendix-1 Multicoliniarity Test using VIF

estat vif

Variable	VIF	1/VIF
Bank Equity	9.89	0.101161
Bank Size	6.33	0.158012
Deposit Fund	6.10	0.163814
Liquidity Ratio	5.11	0.195878
Liquidity Risk	4.83	0.206848
Efficiency Ratio	4.78	0.209118
Reserve Account	3.07	0.325633
Loan Production	2.94	0.340607
Credit Risk	1.84	0.544246
Mean VIF 4.99		