



**Addis Ababa University**

**College of Business and Economics**

**“Monetary Policy and Loan Portfolio of Ethiopian  
Commercial Banks: An Assessment of the Role of Credit  
Creation”**

**By**

**Bereket Nigussie**

**A Research Project Submitted in Partial Fulfillment of the  
Requirements for the Award of Masters of Business  
Administration in Finance**

**June, 2017**

**Addis Ababa, Ethiopia**

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**ADDIS ABABA UNIVERSITY**  
**DEPARTMENT OF ACCOUNTING AND FINANCE**  
**COLLEGE OF BUSINESS AND ECONOMICS**

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I, **undersigned** declare that this work or any part thereof has not previously been presented in any form to the University or to any other body whether for the purpose of assessment, publication or for any other purpose. I confirm that the intellectual contents of the work are the result of my own efforts and no other person.

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This is to certify that Bereket Nigussie has carried out his research work on the topic entitled *“Monetary Policy and Loan Portfolio of Commercial Banks in Ethiopia: An Assessment of the Role of Credit Creation”*. The work is original in nature and is suitable for submission for the award of the Degree of Master of Business Administration in Finance at the Addis Ababa University.

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**DECLARATION**

This is to certify that the thesis prepared by Bereket Nigussie, entitled “*Monetary Policy and Loan Portfolio of Commercial Banks in Ethiopia: An Assessment of the Role of Credit Creation*” and submitted in partial fulfillment of the requirements for the degree in Master of Business Administration in Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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**Chair of Department or Graduate Program Co.**

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## *ABSTRACT*

*The study was carried out to empirically explore the monetary policy and macroeconomic determinants of Ethiopian commercial banks' performance proxied by total loans and advance using balanced 14 years (2003-2016) annual audited financial statements of 6 banks and macroeconomic data. It covers 100% of the population which are operated full years in the study period. The study used three monetary policy variables: Liquidity Requirement Ratio, Lending Interest Rate and Cash Reserve Requirement and two macroeconomic: Real gross domestic product growth rate and annual Inflation Rate. Fixed effect model was used for the total loans and advance. The empirical result revealed that all monetary policy and macroeconomic variables except cash reserve requirement ratio are statistically significant in determining performance of Ethiopian commercial banks. The study suggests the need for private commercial banks to consider the macro economic factors when developing their strategies to efficiently manage their loans and advances, as we found significant relationship between macro-economic factors and total loans and advances. The study also recommends the National Bank of Ethiopia moderate the minimum policy rate as instrument for regulating commercial banks operations and facilitating investment in the economy and the authority better re-evaluate the policies governing cash reserve requirement ratio in order to influence bank reserves considering its current insignificant effect on commercial banks credit creation role.*

**Keywords:** *Monetary policy, Monetary instruments, commercial banks loans and advances*

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## **List of Acronyms**

AIB:	Awash International Bank
BOA:	Bank of Abyssinia
UB:	United Bank
WB:	Wegagen Bank
NIB:	Nib international Bank
DB:	Dashen Bank
CLRM:	Classical Linear Regression Model
ARCH:	Autoregressive Conditional Heteroskedasticity
DW:	Durbin-Watson
FEM:	Fixed Effect Model
REM:	Random Effect Model
IMF:	International Monetary Fund
INF:	General Inflation Rate
MoFED:	Ministry of Finance and Economic Development
NBE:	National Bank of Ethiopia
OLS:	Ordinary Least Square
CRR:	Cash Reserve Requirement Ratio
LRR:	Liquidity Requirement Ratio
OMO:	Open Market Operations
MPC:	Monetary Policy Committee
FDI:	Foreign Direct Investment
MPR:	Monetary Policy Rate
TLA:	Total Loans and advanc

# **Chapter One**

## **Introduction**

### **1.1. Introduction**

This chapter being the precedent outlines defines and addresses the basic idea of the research. It gives a brief background of the study followed by statement of the problem and introduces the thrust of the research by identifying its main areas. The chapter also presents research question, objectives & hypothesis, significance & scope of the study and organization of the research report. In short it is the foundation upon which the rest of the research is lay on and guides the researcher through the research process.

### **1.2. Background of the study**

The role of credit is considered to be the key to economic growth and financial stability of the economy. Credit is the aggregate amount of funds provided by commercial banks to individuals, business organizations and government. Commercial banks are custodians of depositor's funds and operate by receiving cash deposits from the general public and loaning them out to the needy at statutorily allowed interest rates (Ngure, 2014). In a country, like Ethiopia, where the financial sector is dominated by commercial banks, any failure in the sector has an immense implication on the economic growth of the country. This is due to the fact that any bankruptcy that could happen in the sector has a contagion effect that can lead to bank runs, crises and bring overall financial crisis and economic tribulations (IMF, 2001).

Banks play a major role in the economy through their economic function of financial intermediation that performs both a brokerage and a risk transformation function (Hara, 1983). In performing the intermediation role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments (Olkoyo, 2011). This function is directly linked to banks performance which encourages economic growth. According to Wainaina (2013), profitability of banks has relationships with growth and development of the economy.

The existence of an effective banking sector is necessary for every economy because it creates the necessary environment of economic growth and development through its role in intermediating funds from surplus sector to deficit sector of the economic units. Banking sectors are financial intermediaries whose activities are for collection of savings and lending, thus standing in between the ultimate lender and the borrower and matching the investment requirement of the lender. This stimulates investment as well as international trade and balance of payments. In playing this important role of financial intermediation, the banking sector is seen as effective institution in the use of monetary policy, which relies on the control of money stock in order to influence financial and economic activities (Greg, Udude, and Hope, 2015).

A solid and stable financial sector is essential to make a well-functioning national economy and ensure balance liquidity within the economy. Appropriate liquidity management is essential to foster economic growth. Though, to achieve economic stability proper uses of fiscal and monetary policies are required. The National Bank of Ethiopia (NBE) over the years, has instituted various monetary policies to regulate and develop the financial system in order to achieve major macroeconomic objectives which often conflict with and result to distortion in the economy. Although, some monetary policy tools like cash reserve and capital requirements have been used to buffer the liquidity creation process of commercial banks through deposit base and credit facilities to the public.

Regarding Ethiopia's financial industry structure, the sector consists of 18 banks (2 public banks and 16 private banks), 16 private insurance companies, 1 public insurance company, 35 microfinance institutions in both rural and urban areas. In the financial sector of Ethiopia (NBE, 2015/2016)

In Ethiopia, bank lending has gone through different stages. During the pre- reform period; credit was highly regulated to be consistent with the government's plan and financial requirements. In the post-liberalization period different and successive liberalization policy and credit policy reforms emerged through the termination of discriminatory interest rate and preferential sector lending modalities and reduction of credit controls (Tsigab, 2014).

During the Post-liberalization period, supply of bank credit, starting from a low base had grown remarkably. According to total new loans disbursed by the banking sector reached 59.9billion in

2013/14, indicating above 500% increase to the level of loan disbursement in 2004/05. The average annual rate of growth of new loan disbursement by the banking sector over 2008/09 – 2013/14 period was 25%. However, compared to GDP, private sector credit to GDP declined from 15.4 percent in 2003/04 to 10.9 percent in 2013/14, and remained below the SSA averages for the period reviewed (worldbank, 2015). Total outstanding credit of the banking system expanded by 20.4 percent and reached Birr 280.3 billion at the end of June 2016. Specifically, outstanding claims on private sector rose by 23.8 percent, on public enterprises 21.2 percent and on the central government 6.2 percent (NBE, 2015/2016). Moreover, empirical studies done on the demand side of credit also point out the need to enhance access to credit as less than 10 percent of the households have access to formal credit (Getnet, 2014).

Monetary policy according to Anyanwu (1993) involves a deliberate effort by the monetary authorities (the National Bank of Ethiopia) to control the money supply and credit conditions for the purpose of achieving certain broad economic objectives. The extent to which monetary policy influences financial and economic activities has been widely argued over the years, it is equally accepted that monetary policy affects economic and financial performance of any economy. There are divergence views on the extent of the effects and the channels through which these effects are achieved. This is particularly relevant in the Ethiopia setting where the money and capital market are under-developed and Ethiopian government has over the years adopted various instruments of monetary policy to regulate and control the cost, volume, availability and direction of money credit and also the performance of commercial banks.

Monetary policy remains a critical tool in stimulating the growth and stability of financial institution in most developing economies. In Ethiopia, the principal objective of the monetary policy of the National Bank of Ethiopia is to maintain price & exchange rate stability and support sustainable economic growth (NBE's Monetary Policy Framework, 2009). Price stability is a proxy for macroeconomic stability which is vital in private sector economic decision on investment, consumption, international trade and saving. Finally, macroeconomic stability fosters employment and economic growth. Maintaining exchange rate stability on the other hand is considered as the principal policy objective of NBE so as to be competitive in the international trade and to use exchange rate intervention as policy tools for monetary policy to affect both foreign reserve position and domestic money supply.

National bank of Ethiopia also determines certain targets on monetary variables. Although, some objectives are consistent with each other's, others are not, for example, the objectives of price stability often conflict with the objectives of interest rate stability and high short run employment. The role of the banking industry in development process cannot be over-emphasized as they play so many functions. In order to make profit, commercial banks invest customer deposits in various short term and long term investment outlet, however core of such deposits are used for loans. Hence, the more loans and advances they extend to borrowers, the more the profit they make (Solomon, 2012).

When National Bank actions and regulation restrict the activities and operations of profit making financial institutions such as commercial banks, finance companies and non-financial institutions such as co- operatives, thrift institutions and pension funds, they immediately search on alternative ways of making profit. The policy constraints can also affect the level of development in the economy. The instruments of monetary policy do not affect economic activities directly; rather they work through their effects on financial markets. The policy instruments have their initial impact on the demand for and supply of reserves held by depository institutions and consequently on availability of credit (Ndugbu & Okere, 2015).

By manipulating these instruments, central banks affect the rate of growth of the money supply, the level of interest rate, security prices, credit availability and liquidity creation from the commercial bank. These factors, in turn can exert monetary imbalance or shocks on the economy by influencing the level of investment, consumption, imports, exports, government spending, total output, income and price level in the economy. In this regard, an appropriate analysis of monetary shock transmission mechanisms is of crucial for central banks. This is to determine the process through which monetary policy influence the entire economy within the financial system framework.

The ultimate question that calls to mind at this juncture is "How do monetary policies of the NBE affect the performance of commercial banks in Ethiopia? This study is therefore designed to analyze the impact of varying monetary policy instruments on commercial banks credit creation role as a measure of performance in Ethiopia between 2003 and 2016.

### **1.3. Statement of the problem**

Monetary policy is one of the principal economic management tools that governments use to shape economic performance. Measured against fiscal policy, monetary policy is said to be quicker at resolving economic shocks. Monetary policy objectives are concerned with the management of multiple monetary targets among them price stability, promotion of growth, achieving full employment, smoothing the business cycle, preventing financial crises, stabilizing long-term interest rates and the real exchange rate.

The National Bank of Ethiopia (NBE) is responsible for the recommendation and implementation of monetary policy tools in Ethiopia. NBE recommends the cash reserve requirement (CRR), National Bank Rate and Treasury bill rates. Those tools are implemented through commercial banks and they are aimed at stabilizing the price levels in the economy. The use of cash reserve ratio affects the level of liquidity in the commercial banks. When commercial banks are faced with limited liquidity, they turn to other commercial banks for inter-bank borrowing. Those funds affect the interest expense for the borrowing bank and the interest income for the lending bank. The other way to increase liquidity in the bank will be to borrow by floating a debt instrument. The rate offered for the debt instrument is also tied to the treasury bills or treasury bonds issued by the government through the National Bank. These effects of the monetary tools are expected to have an effect on the financial performance of commercial banks.

The financial intermediation function of the banking sector presupposes the needs to satisfy the ultimate goals of the sector. Like other private sectors or enterprises, banks have private goals (other than the necessity to effectively perfect the intermediation role) of profitability, liquidity and solvency. Profitability is perhaps more important for banks because it is an evidence of strengths and progress and it helps to generate and radiate confidence in the bank.

Banks do not operate in a vacuum; they operate within the framework of the monetary and banking policies provided by the economy. Ethiopia has over the years employed these policies at one time or the other to regulate and control the cost, volume, availability and direction of money credit in order to influence the broader objectives of the policy which include price stability, high level of employment, sustainable economic growth development and balance of payments.

In accordance with Article 55(1) of the constitution of the Federal Democratic Republic of Ethiopia, the NBE is established to control the financial system and monetary policy of the country. This monetary policy refers to a bundle of actions and regulatory stances taken by the central bank including; setting minimum interest rates on deposits or the rediscount rate charged to Commercial banks borrowing reserves, setting reserve requirements on various classes of deposits, increasing or decreasing commercial bank reserves through open market purchases or sales of government securities. Furthermore, regulatory actions to constrain commercial bank financial activity or to set minimum capital requirements, intervention in foreign exchange markets to buy and sell domestic currency for foreign exchange and decide on the level of required reserve of commercial banks total deposit.

In Ethiopia, National Bank exercises control over the banking sector through issuance of directives pertaining formation and operation of a banking business. Most of the directives on operation aim at reducing risk of liquidity and solvency in the banking system. Some 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 sector plays adequate role in channeling funds to priority sectors of the economy. Most notable action by 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 directive NO.SBB/42/2007), from 10% to 15% in 2008 (NBE directive NO.SBB/45/2008), from 15% to 10% in 2012, and from 10% to 5% in 2013 (NBE directive NO.SBB/55/2013). This was coupled with a credit cap aimed at calming down the seemingly overheating economy.

The long-standing credit ceilings imposed on Ethiopia's private banks were finally removed on April 1, 2011. This was done with several strings attached, however, including instructions that private banks henceforth offer involuntary bill purchases where banks are required to put 27% of loanable funds in government treasury bonds maturing in 5 years and do so at an interest rate of 3% (lower than the cost of funds at 5%). This action constrains the banks' liquidity and capacity to supply businesses with needed finance. There is a growing liquidity problem in Ethiopia that is impeding the private sector. It is not difficult to imagine the effect of all these requirements on banks' performance.

Several research studies have been done in relation to commercial banks in Ethiopia: Eden (2014) studied the The Impact of National Bank Regulation on Banks Performance; (Mitku, 2014; Birhanu, 2016; and Amano, 2014) did a survey of the Determinants of Lending Decision and Their Impact on Financial Performance of Commercial Banks in Ethiopia; Admassu and Asayehgn (2014) analyzed the effect of market-based policy initiatives on the efficiency of the banking sector in Ethiopia; Tadesse (2014) examined the composite impact of exchange rate on the profitability of commercial banks in Ethiopia; Nuru (2013) analyzed long-run equilibrium relationships, adjustment mechanisms and short- run influences between the output, price level and transmission channels: namely, the exchange rate; the interest rate; money supply; and credit channel; Sintayehu(2016) investigated credit drivers of Ethiopian commercial banking sector. (Gemechu, 2016; Kokobe & Birhanu, 2015; and Tesfaye, 2014) carried out a study on the determinants of the performance of commercial banks in Ethiopia.

This study has identified a gap in the current literature and research with respect to monetary policy and its effect on financial performance of commercial banks. The literature reveals that while there is much effort by the government to influence the money supply by instituting various policy tools, an analysis on the effects of those tools on Commercial Banks' financial performance, which are the most used channel of transmission of the policies, is inconclusive. This study will therefore be motivated to fill the knowledge gap on effects of the various monetary policy tools on financial performance of commercial banks in Ethiopia with real GDP growth and inflation rate as the control variables. The following research question will therefore be explored.

#### **1.4. Research Question**

1. What is the impact of monetary policy on the commercial banks' financial performance?
2. How does monetary policy influencethe commercial banks' financial performance?
3. What changes in performance resulted from changes in monetary policy?

## **1.5. Objectives and Hypotheses**

This study basically aims at examining the impact of monetary policy on the performance of commercial banks in Ethiopia. Therefore, it will:

1. Examine the effect of monetary policy on commercial banks performance in Ethiopia.
2. Identify the channel through which monetary policy influences the performance of commercial banks in Ethiopia.
3. Examine what changes in performance resulted from changes in monetary policy.

### **Research Hypothesis**

The following hypotheses are developed based on the research objectives and previous empirical studies. Therefore, this study attempted to test the following hypotheses in the case of private banks in Ethiopia.

H<sub>0</sub>: There is no significant and negative relationship between cash reserve requirement rate and total loans and advances of commercial banks in Ethiopia.

H<sub>0</sub>: There is no significant and negative relationship between lending rate and total loans and advances of commercial banks in Ethiopia.

H<sub>0</sub>: There is no significant and negative relationship between liquidity requirement rate and total loans and advances of commercial banks in Ethiopia.

H<sub>0</sub>: There is no significant and positive relationship between real GDP growth rate and banks total loans and advances in Ethiopia.

H<sub>0</sub>: There is no significant and negative relationship between inflation rate and total loans and advances of commercial banks in Ethiopia.

## **1.6. Significance of the study**

The study has the following significances for policy makers, commercial banks and other stakeholders:

- ✓ It will enable the NBE (policy makers) to take deep-considerations on the impact monetary policies have on banks performance during policy formulation and implementation
- ✓ The results of this study will create awareness for commercial banks about the effect of monetary policies on their performance.
- ✓ Lastly, the study will be of value to future researchers and scholars as the study will add on to the existing literature and may be used by future researchers and scholars who are interested in the study area. The study will also identify the existing knowledge gap and open more areas for further study.

### **1.7. Scope of the Study**

The study is limited to the evaluation of the impact of monetary policy on commercial banks performance, which are applied by the National Bank of Ethiopia, observed for fourteen consecutive years: 2003-2016.

### **1.8. Organization of the research report**

This study is organized in five chapters. The second chapter provides the literature review which constitutes theoretical and empirical research. The third chapter which is about methodology of the research presents the research design employed, the sampling method, data collection methods, and the data analysis technique. The fourth chapter presents analysis results and findings the study. Lastly, the fifth chapter presents summery of the study, concludes the investigation, forward recommendations and suggests areas for future research.

# Chapter Two

## Literature Review

### 2.1. Introduction

This chapter contains a review of literature as presented by various authors and scholars based on the objectives of the study. The literature review provides an explanation of theoretical rationale of the problem being studied as well as what research has already been done and how the findings relate to the problem at hand. The chapter discusses the theoretical review, literature review and empirical review on monetary policy.

### 2.2. Concept of Monetary Policy

Monetary policy refers to the combination of measures designed to regulate the value, supply and cost of money in an economy. It can be described as the art of controlling the direction and movement of credit facilities in pursuance of stable price and economy growth in an economy (Chowdhury, Hoffman and Schabert, 2003). The overall aim of the Monetary Policy is to set monetary policy targets that would ensure low and stable inflation, encourage growth, support long-term sustainability of public debt through stable interest rates and, by enhancing financial access within the economy, contribute to lowering the cost of doing business (MPS, 2014). Monetary policy refers to the actions of the Central Bank to regulate the money supply which could be through discretionary monetary policy instruments such as the open market operation(OMO), discount rate, reserve requirement, moral suasion, direct control of banking system credit, and direct regulation of interest rate (Loayza, and Schmidt- hebbel, 2002).

Monetary policy comprises the formulation and execution of policies by the central bank to achieve the desired objective or set of objectives; the policies and decisions are aimed at guiding bank lending rates to levels where credit demand and money growth are at a level consistent with aggregate supply elasticity (Loayza and Schmidt, 2002). The objectives and goals that the central bank seeks to achieve generally are low inflation (usually targeted), protection of value of currency, full employment and sustainable economic output (economic growth). Monetary policy covers the monetary aspect of the general economic policy which requires a high level of co-ordination between monetary policy and other instruments of economic policy of the country. The

effectiveness of monetary policy and its relative importance as a tool of economic stabilization varies from one economy to another, due to differences among economic structures, divergence in degrees of development in money and capital markets resulting in differing degree of economic progress, and differences in prevailing economic conditions (Faure, 2007). To achieve the desired stabilization in an economy, central banks use various monetary policy instruments which may differ from one country to another according to differences in political systems, economic structures, statutory and institutional procedures, development of money and capital markets and other considerations. Some of the commonly used monetary policies include: changes in the legal reserve ratio, changes in the discount rate or the official key bank rate (Central bank Rate), exchange rates and open market operations.

Monetary transmission mechanism is the mechanism through which changes in money supply affects the decisions of firms, households, financial intermediaries, investors and ultimately alters the level of economic activities and prices it can be thought of as encompassing the various ways in which monetary policy shocks propagate through the economy (Kuttner and Mosser 2002).

### **2.3. Theoretical Review**

The performance of commercial banks is influenced by a host of many factors some of which are macro-economic, institutional, regulatory and legal. The common features of the theories discussed in Uchendu (1995) indicated that in attempting to maximize profits, banks must comply with capital adequacy and liquidity considerations. Uchendu (1995) rightly stated that regulatory influences of monetary authorities include those on interest and exchange rates, bank reserves (indicating credit availability), labor cost or productivity.

A number of macroeconomic theories have been developed over the decades. They are often aimed at addressing pressing economic problems of the day. The pressing economic problems tend to be unemployment, inflation or stagnant economic growth; most macroeconomic theories make a concentrated effort to shed light on these issues.

### **2.3.1. Classical Economics**

In the classical theory, the main function of money is to act as a medium of exchange. It is to determine the general level of prices at which goods and services will be exchanged. This relationship between money and the price level is explained in terms of the quantity theory of money. The classical theory of money states that the price level is a function of the supply of money.

The classicists believed that there was always full employment in the economy. At the same time, they recognized the existence of unemployment in the event of downward rigidity of money wages; a situation which could be corrected by an expansionary monetary policy. Keynes did not agree with the classical view that the supply of money influenced the price level directly and that the economy always stayed at full employment level.

### **2.3.2. The Keynesian Theory**

In the Keynesians theory, monetary policy plays a crucial role in affecting economic activity. The Keynesian Economists think of monetary policy as working primarily through interest rate. In Keynesian transmission mechanism, an increase in the money supply leads to a fall in interest rate to induce the public to hold additional money balances. It contends that a change in the supply of money can permanently change such variables as the rate of interest, the aggregate demand, and the level of employment, output and income.

In a situation of unemployment, Keynes advocated a cheap monetary policy. So when the supply of money is increased, its first effect is on the rate of interest which tends to fall. The falling interest rates affects commercial bank performance and in turn stimulate investment given businessmen expected profit. The induced investment expenditure causes successive rounds of final demand spending by GNP to rise by a multiple of the initial change in investment. On the other hand, a fall in money supply causes the general level of interest rate to rise or increase thereby increasing the commercial banks profitability Jhingan (2005).

The increased investments also increase the level of income or output through the multiplier, which may stimulate economic activities. Thus, monetary policy affects economic activity indirectly through their impact on interest rates and investment. Therefore, the Keynesian

transmission mechanism is characterized by a highly detailed sector building up of aggregate demand and a detailed specification of portfolio adjustment process that attaches central role to interest as an indirect link between monetary policy and fiscal demand. Keynes analysis contends that what causes the rate of interest to change is that the rate of interest is determined by the demand for and supply of money.

### **2.3.3. The modern monetary theory**

The modern monetary theory holds a completely different view. The modern monetarists believe that when the central bank purchases securities in open market, it sets in motion substitution and wealth effects, as the public portfolio consists of a wide variety of assets such as bonds, equities, savings, mortgage, etc. These effects will ultimately increase aggregate money demand and expand output. This theory is related to monetary economics which is essentially concerned with the role of money in an economy. It specializes on the development of monetary theory and policy, and it is used in influencing the level of economic activities and money in circulation. Monetary policy affects almost every facet of the economy like inflation, interest rate and employment etc. Monetary economics also studies the behavior of financial institutions such as deposit money banks which are significant in determining the pace of growth and development in the economy.

### **2.3.4. Anticipated Income Theory**

This theory states that banks should involve themselves in a broad range of lending which may include long-term loans to business, consumer installment loans and amortized real estate mortgage loans considering the fact that the likelihood of loan repayment which generates a cash flow that supplement bank liquidity depends on the anticipated income of the borrower and not the use made of the funds per se. This implies that a high excess reserve increases profitability of banks by increasing the availability of loanable investment funds.

### **2.3.5. Liability Management Theory**

The theory holds that banks could satisfy any liquidity need and short-run profit opportunity by issuing money market liabilities such as certificate of deposit (CD). Another version of the theory states that money market bank liabilities should be used along with bank assets to meet liquidity

needs, which will lead to commercial banks profitability.

### **2.3.6. Shift-ability Theory**

The central thesis of this theory holds that the liquidity of a bank depends on its ability to shift its assets to someone else at a predictable price. Better still; the theory of shift-ability exposes the banks vulnerability to government security for liquidity. Whether or not a bank can quickly realize liquidity through this means depends on the marketability of the securities and their relative prices. The theory tries to broaden the list of assets demand legitimate for ownership and hence redirected the attention of bankers and the banking authorities from loan to investment as source of bank liquidity.

It is hypothesized that an increase in capital investment will lead to commercial banks profitability. However, increase in profits may also motivate further increase in capital investment, which in turn expands the scope of banking operations for increased profitability. Adequate capital investment provides for a bank to perform the intermediation function and provide related financial services. It also provides protection in conditions of near economic collapse against unanticipated adversity leading to loss in excess of normal expectations and permits banks to continue operations in periods of difficulty until a normal level of earning is restored.

## **2.4. Monetary Policy in Ethiopia**

Ethiopian economy had passed through different regimes and, hence economic policies. As a result, national economic policies were set in line with the respective regime's political ideology as policies are directed to achieve the stated goals of the general government. Monetary policy according to Anyanwu (1993) involves a deliberate effort by the monetary authorities to control the money supply and credit conditions for the purpose of achieving certain broad economic objectives. Despite the difference in the way they are applied, monetary policies are mainly targeted to reduce unemployment, enhance price and exchange rate stability, and attain maximum output.

During the era of command economy in Ethiopia, the financial sector was governed by the then socialistic ideology; and as a result, interest rates were set at levels to discourage private

ownership in the sector in particular and the economy in general. Limited Credits were channeled only at the will of the central government to the selected target sectors. Since the beginning of more of market-oriented economic policy in 1991, the Monetary Authority has been implementing a wide array of economic reforms in the context of political economy. Monetary and Banking Proclamation of 1994 established the Monetary Authority as a judicial entity, separated from the governments and allowed private banks and insurance companies to operate in the industry. Monetary and Banking Proclamation No 83/1994 and the Licensing and Supervision of Banking Business No. 84/1994 laid down the legal basis for investment in the banking sector. However, foreigners are prohibited from investing in the banking and insurance sectors (MOFED, 1998). An inter-bank-money market, lifting up restriction on the ceiling interest rate, devaluation of the exchange rate, and auction-based exchange rate system was introduced (NBE, 1995). Increasing the growth rate of monetary base along with the growth rate of nominal GDP is the immediate strategy to contain inflationary tendencies and maintaining external balances (NBE: 2004). The slipping away of direct control power on money supply and the growing up of the private sector paves a way to the indirect controlling mechanism of money supply.

Among the measures NBE taken are credit cap (ceiling) not to extend loans above targeted limit and increase of reserve and liquidity requirements. Reserve requirement increase from 5 (SBB/37/2004) to 10 percent starting July 2007 (NBE directive no SBB/42/2007) and as per Directive No's SBB/44/08 and SBB/45/08, the reserve and liquidity requirements are increased from 10 Percent to 15 Percent and from 15 Percent to 25 Percent (20 percent in the form of primary reserve and 5 percent secondary reserve), respectively effective April 2008. Currently, reserve requirement has decreased to 5% while liquidity requirement remained at 20%. Note that the commercial banks' assets in the Authority do not earn interest but their liability bears interest. The introduction of the treasury bills market was also in action in 1995 as a first stepping stone for full-fledged open market operation. This in intended to boost the Authority's controlling power on money stock and interest rate.

#### **A. Objectives of Monetary policy in Ethiopia**

Currently, the National Bank of Ethiopia (NBE) is the banker of the government responsible to set and regulate the overall monetary policy actions on behalf of the government. According to

Nuru (2013) and IMF (2013), Ethiopia's National Bank has the following basic objectives under its monetary policy framework;

- Nurturing issues related with money supply and demand, credit and other financial aspects conducive in realizing balanced and sustainable economic growth and development;
- Checking whether the periodic growth of money supply is consistent with the national macroeconomic dynamisms; especially with the growth rate of nominal GDP.
- Intervening in foreign exchange markets (forex) to ensure stability in these rates when demanded;
- Enhancing developments of financial and capital markets able to satisfy the dynamic needs of the general economy;
- Enhancing growth in domestic and international savings and reallocating them at productive activities, given market based interest rate mechanism.

#### **B. Monetary Policy Targets of NBE**

The operating strategies of NBE are guided by its major objectives. Accordingly, the monetary policy frame work in Ethiopia has three major operating targets; the ultimate or final, the intermediate and the operating targets. Ensuring price and exchange rate stabilities are the final targets in the monetary policy framework of NBE. In achieving its final target, the NBE uses money supply (M2) as the intermediate target. NBE defines money in two ways; the narrow (M1) and broad money (M2) supplies. The first definition encompasses; currency under circulation, traveler's check, demand deposits and other checkable deposits. On the other hand, the broad definition (M2) adds the Quasi-money component, overnight repurchase agreements and others quickly converted in to M1 (NBE, 2009). Currently, the M2 component is what comprises for the operational definition of money supply in Ethiopia.

On the other hand, controlling the growth of base (reserve) money is the existing operational target of NBE. It includes currency with the public and deposits of commercial banks at national bank. While targeting base (reserve) money, the monetary policy assumes stability in money demand function in the economy. But, when the money demand function continues to be unstable, the bank resorts to targeting of other indicators; like interest rate. Moreover, the bank shall use the international reserves adequate for international transactions (NBE, 2009)

### **C. Monetary Policy Instruments of NBE**

The policy instruments are meant to achieve the desired operating targets. Currently, NBE is employing various monetary policy instruments in combination. The policy instruments are similar in most cases to those in other economies elsewhere. Basically, these monetary policy instruments of NBE include; Open Market Operation (OMO), Standing central bank credit facility, reserve requirements, setting floor deposit rates, direct inter-bank borrowing or lending mechanism, credit control and moral suasion (NBE, 2001 and 2009). The bank uses these instruments either separately or in combination based on its policy target to be achieved. Within the framework of NBE, the Monetary Policy Committee (MPC) periodically reviews developments in key national economic variables and proposes appropriate policy stance to the Board of Director on a regular basis (NBE, 2009). The committee, being appointed by the General Governor of the Bank also performs the following major tasks among others;

- Assessing international economic performances; including prices of exports, external loans and grants, FDI flows and so on;
- Assessing and proposing circumstances of domestic macroeconomic policies of like; fiscal policy, monetary growth, exchange rate conditions and policies, inflation, unemployment and so on;
- Designing and proposing monetary policy; which includes assessing headline and core inflation (current and future), evaluating current growth rates of monetary targets, evaluating current and forecasted GDP growth rates and etc.

#### **2.5. Effect of Monetary Policy on Financial Performance**

The overall aim of the Monetary Policy is to set monetary policy targets that would ensure low and stable inflation, encourage growth, support long-term sustainability of public debt through stable interest rates and, by enhancing financial access within the economy, contribute to lowering the cost of doing business (MPS, 2014).

The National Bank of Ethiopia, through Open Market Operations, purchases and sales of eligible securities to regulate the money supply and the credit conditions in the economy. OMO can also be used to stabilize short-term interest rates. When the Central Bank buys securities on the open

market, it increases the reserves of Commercial banks, making it possible for them to expand their loans which increase the money supply. This, thus, means Commercial Banks can expand their loan book.

The National Bank Rate is the lowest rate of interest charged on loans to commercial banks by the National Bank of Ethiopia. The level of the NBR is reviewed and announced by the Monetary Policy Committee (MPC) (NBE, 2009). The effect of the interest rate might be positively or negatively effective on the volume of bank lending because the increase in the interest rate may encourage banks to provide more loans, but at the same time could lead to reduced demand for loan borrowers because of their high interest rates.

The cash reserve requirement ratio imposed by the NBE on banks (CRR): it represents the rate that banks should extract from their deposits in order to keep it at the NBE. These deposits are held in the CRR Account at no interest. Thus, the lower the CRR, the more deposits volume that can be exploited by the Bank in lending, which increases the size of the credit facilities granted by banks. Several studies (Olokoyo, 2011; Younus and Akhta, 2009; and Fatima & Samreen, 2015) have indicated that the CRR is considered an influential factor on the bank lending. It is expected that this variable has a negative effect on the proportion of credit facilities.

The Liquidity requirement ratio to the total deposits (LRR): The size of the liquid assets held by the bank is one of the factors affecting the size of bank lending because the high liquidity ratio reduces the proportion of loans granted. The liquidity ratio will be measured by the sum of the cash and balances of the National Bank, the balances and deposits of the banks and the banking institutions and the financial assets of the trade and dividing the result by the total deposits. It is expected to have a negative effect of this variable on the proportion of credit facilities.

## **2.6. Empirical Literature**

Several empirical studies have been conducted on monetary policy and commercial banks. Punita and Somaiya (2006) investigated the impact of monetary policy on the profitability of banks in India between 1995 and 2000. A multiple regression analysis has been done to find out the impact of the monetary variables on banks performance. The monetary variables included in the study were banks rate, lending rates, cash reserve ratio and statutory ratio, and each regressed on banks

profitability independently. Results of the study show that Lending rate has an exact positive and significant influence on banks' profitability, which indicates a fall in lending rates will reduce the profitability of the banks. The study also shows bank rate, cash reserve ratio and statutory ratio negatively and significantly affect profitability of banks. Their findings were the same when lending rate, bank rate, cash reserve ratio and statutory ratio were pooled to explain the relationship between bank profitability and monetary policy instruments in the private sector.

Uwazie and Aina (2015) examined the cause and effect of monetary policy variables on Commercial Banks Loans and Advances in Nigeria for the period 1980-2013. The explanatory variables included in the model are broad money supply (LM2), monetary policy rate (MPR), liquidity ratio (LR), inflation rate (IFR) and exchange rate (EXR). The study result shows that there is a causal relationship between monetary policy variables and commercial banks loans and advances in Nigeria within the period under study. Specifically, money supply proved to be a significant parameter which causes commercial bank loans and advances. On the other hand, commercial bank loans and advance was found to significantly influence exchange rate. However, any increase in liquidity ratio, inflation rate and exchange rate, will bring about decrease in the commercial bank loans and advances. In view of the findings, the study recommends that the relevant monetary authorities should apply with caution monetary policy variables to significantly influence the commercial banks loans and advances.

Amidu (2006) examined whether bank lending is constrained by monetary policy in Ghana. The study uses panel cross sectional data covering the period from 1998 to 2004. The study result reveals that Ghanaian banks' lending behaviors are affected significantly by the country's economic activities and changes in money supply. The central banks' prime rate and inflation rate negatively but statistically insignificantly affect banks' lending. With the firm level characteristics, the study shows that bank size and liquidity significantly influence banks' ability to extend credit when demanded.

Udeh (2015) examined the impact of monetary policy instruments on profitability of commercial banks in Nigeria using the Zenith Bank Plc experience. The paper used descriptive research design. It utilized time series data collected from published financial statements of Zenith Bank Plc as well as Central Bank of Nigeria Bulletin from 2005 to 2012. Pearson Product moment

correlation technique was used to analyze the data collected while t-test statistic was employed in testing the hypotheses. The study discovered that cash reserve ratio, liquidity ratio and interest rate did not have significant impact on the profit before tax of Zenith Bank Plc. However, minimum rediscount rate was found to have significant effect on the profit before tax of the bank. The paper concluded that a good number of monetary policy instruments do not impact significantly on profitability of commercial banks in Nigeria. The paper recommended that management of commercial banks in Nigeria should look beyond monetary policy instruments to enhance their profits.

In a study by Fatade (2004) on the impact of monetary policy on banks' performance in Nigeria, a number of observations are made. The main purpose of the study was to establish whether the various monetary policy measures instituted in the country over the years had directly and indirectly affected the performance or the bank sector in Nigeria. The results from the study indicate that various monetary policy measures instituted in the country over the years have directly and indirectly affected performance of the banking sector in a number of ways which includes Banks profitability, Deposit/Savings mobilization Loans & Advances and so on. It is also clear from the findings that the effectiveness of bank's performances depends on the instruments used in macroeconomic policies and the prevailing economic conditions and the deregulation of the sector has led to a number of improvements.

Philips, Mbanasor & Osuala (2012) examined the influence of monetary policy variables on banks' credit supply to small and medium scale enterprises (SMEs) in Nigeria. Time series data which were collected on quarterly basis were elicited from the Central Bank of Nigeria (CBN) Statistical bulletin and financial statements for five commercial banks. The data covered a period of 1995-2010 and were analyzed using Fully Modified Least Squares (FMOLS). The result of the study shows that policies on interest rate and liquidity ratio were negatively and positively significant at 1 percent probability level respectively. Based on the results, it was recommended that government through CBN should strengthen existing policies on the adjustment of interest rates and liquidity ratio so as to increase and stabilize credit supply to SMEs.

Kimani (2013) assessed the effects of monetary policies on lending behavior of commercial banks in Kenya. The study analyzed the response of commercial banks to monetary policies in context

of interest rates and reserves available for lending. The study employed descriptive research design and analyzed data using descriptive analysis. The study established that cash reserve ratio has effect on bank lending behavior. The rate of this influence was established to be high. It also established that reserve requirements cause immediate liquidity problems for banks with low excess reserves thereby influencing lending and payment systems in the commercial banks concerned, holding some funds in excess reserves provides enhanced liquidity and therefore more smooth operation of payment system and that the higher the reserve requirement is set, the less funds banks will have to loan out. Further, it shows that leading to lower money creation and perhaps ultimately to higher purchasing power of the money and that reserve ratio is used as a tool in monetary policy, influencing the banks' lending and interest rates by changing the amount of funds available for banks to make loans with.

Akomolafe et al., (2015) carried out a study to examine the impact of monetary policy on commercial banks' performance in Nigeria in a micro-panel analysis. Interest rate and money supply were used as proxies for monetary policy, while profit before tax (PBT) was used to represent commercial banks' performance. Pooled regression, fixed effect regression, and random effect regression were all carried out in the analysis. The results show that there is a positive relationship between banks' profits and monetary policies as proxied by money supply and interest rate. However, interest rate was not statistically significant at 1% and 5% levels. This study therefore recommends that interest rate policy should be looked into by the monetary authority in a way that is friendly to loan advancement in the country.

Ndugbu M.O. & Okere P. A. (2015) investigated the impact of monetary policy on the performance of deposit money banks in Nigerian Experience (1993-2013). Ordinary Least Square and co-integration were used to evaluate the impact of monetary policy on the performance of deposit money banks. The Augmented Dicker Fuller (ADF) unit root test and co-integration proved that the variables are stationary and a long-run relationship exist among the variables. The OLS revealed that amongst all the monetary policy variables (bank deposit rate, bank lending rate, cash reserve ratio and liquidity ration) considered in the model, only bank deposit rate has significant relationship though inverse relationship. On this premise, the study recommends among others, that the Central Bank of Nigeria (CBN) should moderate the deposit rate as a tool for regulating deposit money banks operation. Again there is need to modify the monetary policy

instruments to reflect and respond more rapidly and easily to local economic conditions.

Younus and Akhta (2009) examined the significance of Statutory Liquidity Requirement (SLR) as a monetary policy instrument in Bangladesh. Using descriptive analysis techniques like trend analysis and summary statistics, they found that statutory liquidity requirement has experienced infrequent changes and past evidence has shown that reduction in SLR produced positive impact on bank credit and investment especially prior to the 1990s. SLR and Cash Reserve Requirement (CRR) were found to be significant tools of reducing inflation and both for scheduled banks are used only in situation of drastic imbalance-resulting from major shocks. They observed that Bangladesh Bank has used open market operations (OMOs), more frequently rather than changes in the Bank rate and SLR as instruments of monetary policy in line with its market oriented approach.

Okoye and Eze (2013), examined the impact of bank lending rate on the performance of Nigerian Deposit Money Banks between 2000 and 2010. It specifically determined the effects of lending rate and monetary policy rate on the performance of Nigerian Deposit Money Banks and analyzed how bank lending rate policy affects the performance of Nigerian deposit money banks. The result confirmed that the lending rate and monetary policy rate have significant and positive effects on the performance of Nigerian deposit money banks. The implication of this is that lending rate and monetary policy rate are true parameter of measuring bank performance.

Cekrezi (2015) carried a study to explore the factors that mostly affect financial performance of commercial banks which operate in Albania. The study population consisted of 16 commercial banks with domestic and foreign capital, during the period 2010 to 2013 with a total of 48 data. The investigation used cross sectional time series data which were collected from the Balance Sheet Annual Reports. The study concluded that bank size and age have positive but not significant effect on banks profitability, capital adequacy and liquidity have negative and significant influence on profitability.

Fatima & Lodhi (2015) examined the relationship between Reserve Requirement Ratio and Banks Profitability in Pakistan. The study emphasizes on the effect of changes in CRR on commercial banking profitability and how it affects the ROE and ROA. The study used secondary and quantitative time series data for the period 2005 to 2014. Using correlation analysis followed

by Linear Regression carries the empirical analysis of the study. The finding of study reveals that CRR taken as measure for Reserve Requirement has significant inverse relationship on banks' financial performance, which is measured by ROA and ROE. Rashid et al. (2014) investigated the casual relationship between interest rate imposed by state bank of Pakistan and bank financial performance taken as ROA and ROE. the study focused in depth over monetary policy impact on performance of banking industry of Pakistan by studying monetary transmission for the period 2007 to 2011, using interest rate as its measure. To conduct the empirical analysis, the study used correlation analysis followed by ordinary Least Square regression. Firm size was considered as control variables for the study as firm size have significant impact on financial performance of banks. The finding of study reveals that interest rate taken as measure for monetary policy has significant inverse relationship on firm financial performance measured, which is measured by ROA and ROE.

Imran and Nishatm (2013) examined the factors that explain bank credit provided to the companies in Pakistan during the period 1971-2008. The study focused on the factors associated with the offer of money by the banks through using the rate of growth in the bank credit provided to the private sector as a dependent variable, while the independent study variables included the rate of growth in the foreign liabilities, growth in the domestic deposits, the interest rate of the market, the money supply as a percentage of the GDP, the rate of the economic growth, the inflation and the exchange rate. The study result shows that the foreign liabilities, local deposits, the economic growth, the exchange rate, and the monetary conditions have a significant impact on the size of the bank credit provided to the private sector in Pakistan. The results also show that the rate of inflation and the interest rate of the market do not affect the credit provided to the private sector. The results also reveal that the financial health and liquidity in banks play a vital role in determining the credit, and the good economic conditions induce banks to increase the volume of credit provided to the private sector.

Zarafat (2014) investigated the macroeconomics factors that stimulates banks' profitability. The study experimented the relationship and dynamic linkage between profitability of Malaysian commercial banks, expressed through return on assets (ROA) and macroeconomic variables which include real GDP growth, inflation (expressed through CPI) and real interest rates for the period 1995 to 2011. The study result shows that real GDP is significant and have positive

relationship. In this respect, the study suggested that for the banks' profitability the growth of GDP must be in place in order to stimulate lending and borrowing activities, also real interest rate has no direct relationship with banks' profitability. In addition, it also proposed that for the banking sector in order to preserve on profitability, the anticipation of inflation must be in place to shelter revenue and reduce cost of the banks.

Ajayi & Atanda (2012) examined the effect of monetary policy instruments on banks performance in Nigeria for the period 1978-2008. 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 show that bank rate, inflation rate and exchange rate are total credit enhancing, while liquidity ratio and cash reserves ratio exert negative effect on banks total credit.

Rabab'ah (2015) examined the determinants of commercial banks' lending in Jordan. The study sample consisted of ten Jordanian commercial banks during the period 2005-2013. The study used the ratio of credit facilities to total assets as a dependent variable, and eleven independent variables including the ratio of deposits, ratio of non-performing loans, capital ratio, liquidity ratio, asset size, lending rate, deposits rate, window rate, legal reserve ratio, inflation and economic growth rate. The results showed that the ratio of non-performing loans, liquidity ratio and window rate have a negative and significant impact on the ratio of credit facilities, while found that the bank size and the economic growth have a positive and significant impact on the ratio of credit facilities granted by commercial banks in Jordan. The study recommended Jordanian commercial banks to avoid excess liquidity, and to pay more attention to reduce the ratio of non-performing loans.

John MacCarthy (2016) examined the effect of cash reserve ratio on the financial performance of banks and their level of engagement in corporate social responsibility. Data on banks' cash reserve ratios from Bank of Ghana and data on corporate social responsibility engagement and return on investment from the 2013 annual reports of 20 commercial banks in Ghana are used. It is found that cash reserve ratio positively relates to the financial performance of commercial banks. Also, cash reserve ratio significantly and strongly predicts financial performance of commercial banks in terms of return on investment.

S. Fatima A. and Samreen L. (2015) carried out a study to determine the relationship between Reserve Requirement Ratio and Banks Profitability in Pakistan. It emphasizes on the effect of changes in CRR on commercial banking profitability and how it affects the ROE and ROA. The data collected for the research was secondary and quantitative time series data for the ten-year period 2005-2014. Using correlation analysis followed by Linear Regression carries the empirical analysis of the study. The finding of study reveals that CRR taken as measure for Reserve Requirement has significant inverse relationship on banks' financial performance, which is measured by ROA and ROE.

C.C. Udude & Hope I. U (2015) investigated the effect of monetary policy on Banking sector performance in Nigeria. This is to ascertain the factors that influence the banking sector performance using bank's deposit liabilities as proxy for bank performance. The study period covers 36 years from 1970 to 2006, using selected indicator and employing the OLS regression technique. Results showed that overall; monetary policy has a significant effect on the banks deposit liabilities. Meanwhile, on individual basis, the study discovered that Deposit Rate (DR) and Minimum Discount Rate (MDR) had a negative influence on the banks deposit liabilities in Nigeria, whereas Exchange Rate (EXR) had a positive and significant influence on the banks deposit liabilities in Nigeria. It is concluded, therefore, that monetary policy plays a vital role in determining the volume of bank's deposit liabilities in Nigeria. This study recommends that government and its monetary authorities should strive to create a conducive environment for banking sectors to grow in the country by packaging appropriate monetary policies that would guarantee and enhance growth and development of the banking sectors in Nigeria.

## **2.7. Related Empirical Studies in Ethiopia**

Empirical researches in Ethiopian context have been done to identify determinants of lending behavior of banks. Eden (2014) examined the impact of NBE regulations on private banks performance through the significant regulatory variables explaining the NBE directives, using bank-specific and macroeconomic variables as control variables. 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. Three regulatory factors affecting banks performance in terms of return on asset and net interest margin were selected and analyzed. The results of panel data regression

analysis showed that NBE Bill and Credit cap had negative and statistically significant impact on banks profitability but reserve requirement had negative and insignificant impact on profitability.

Amino (2014) using balanced fixed effect panel regression for the period 2001 -2013, identified and analyzed determinates of lending behavior of Ethiopian Banks. Factors of Deposit, liquidity ratio, interest rate, bank size, Cash reserve requirement, inflation and GDP were analyzed. The results showed that volume of deposit and bank size had positive and significant impact on loan and advance. Liquidity ratio and interest rate had negative and significant impact on loan and advance. Cash reserve requirement, and inflation rate had positive and significant impact on loan and advance. Real GDP growth rate had statistically insignificant impact on bank's loan and advance. The study then suggests that commercial banks should focus on mobilizing more deposits as this will enhance their lending performance and should formulate critical, realistic and comprehensive strategic and financial plans.

Again another study Mitiku (2014) was done on lending behavior of commercial banks in Ethiopia by using panel data of eight commercial banks using Ordinary least square (OLS) in the period from 2005 to 2011. Selected Variables were bank size, credit risk, gross domestic product, investment, deposit, interest rate, liquidity ratio and cash required reserve. The result suggests that, there is significant relationship between commercial bank lending and its size, credit risk, gross domestic product and liquidity ratio. But deposit, investment, cash required reserve and interest rate do not affect Ethiopian commercial bank lending for the study period. The study suggests that commercial bank have to give more emphasis to credit risk and liquidity ratio because it weakens banks' loan disbursement and leads a bank to be insolvent.

Sintayehu (2016) investigated credit drivers of Ethiopian commercial banking sector during the period from 2002 to 2014. Explanatory design, quantitative research approach and secondary data were used to examine the cause and effect relationships between dependent and independent variables. The results obtained indicated that bank lending is determined by banks and industry specific factors than macroeconomic specific factors. And specifically the estimation results show that deposit volume, capital of banks, liquidity position, investment portfolio, cost of financial intermediation and market concentration have significant effect on bank lending. However, economic growth proxied by real GDP and inflation are not significant. The study recommends

banks to increase deposit level, manage liquidity effectively, enhance their capital level and decrease the cost of financial intermediation and NBE to enhance competition with strengthened supervision.

## **2.8. Summary of the Literature Review**

The main purpose of any monetary policy is to ensure stability in prices, interest rates and enhancing economic growth and development. The monetary policy in place within any given economy largely determines the availability of credit to customers as well as the ability of households to save and make investments. Monetary policy also affects the operations of financial institutions more especially when there is volatility of interest rates. Commercial banks are the main channels of monetary policy implementation and are likely to be affected by frequent changes or variations in monetary policy.

From the studies reviewed, it is evident that most of the studies in Ethiopia focused to see the determinants of commercial banks performance by using bank specific, industry specific and some macroeconomic variables, they have not addressed the idea of Monetary Policy variables and their impact on commercial banks performance. This study will therefore seek to specifically establish the effect, if any, of monetary policy tools on the financial performance of commercial bank in Ethiopia using real GDP growth and inflation rate as the control variable.

## Chapter Three

### Research Methodology

#### 3. Introduction

In the preceding chapter both theoretical and empirical reviews were made and indicated the absence of empirical studies regarding monetary policy and its impact on bank's performance in Ethiopia.

The purpose of this chapter is to present model specification, hypotheses and research approach that will be used in the study. The chapter is arranged as follows. 3.1 presents the research approach that will be adopted, variable description and hypotheses for the study. This is followed by the population and sampling design for the study under section 3.2. Next, data collection, analysis and presentation techniques are explained in section 3.3. Finally, model specification, variable description and hypotheses for the study are explained under section 3.4.

#### 3.1. Research approach

According to (Creswell, 2009) quantitative approaches employ closed-ended instrument based questions, performance data, attitude data, observational data, and census data statistical analysis. Therefore, the study will use the quantitative approach to examine the impact of monetary policy on private commercial banks performance in Ethiopia.

#### 3.2. Population and sampling procedure

**Population of the study:** The study population/participants are all private banks in Ethiopia. According to NBE (2015/16) report, the number of banks declined to 18 from 19 due to the merger of Construction & Business Bank with Commercial Bank of Ethiopia. Of the 18 banks 16 were private such as; Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wogagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), Bank of Abyssinia S.C (BOA), Lion International Bank S.C (LIB), Cooperative Bank of Oromia S.C (CBO), Berehan International Bank S.C (BIB), Buna International Bank S.C (BUIB), Oromia International Bank S.C (OIB), Zemen Bank S.C (ZB), Addis International Bank S.C (AIB), Abay Bank S.C (AB), Enat Bank S.C (EB) and Debu Global Bank S.C (DGB).

**Sampling Frame:** The total population is sixteen but for the study purpose, the sample size is six. Among the non-probability sampling techniques purposive sampling was used to select samples from the total population. Non-probability sampling technique was selected because random sampling is not appropriate for the study. Since the study covered a period of 14 years (2003 - 2016), there are banks with the age of less than fourteen years that is why purposive sampling was used. The study includes all private banks, with 14 and above establishment year. The sample size is six, which includes, Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), and Bank of Abyssinia S.C (BOA). Therefore, the matrix for the frame is 14\*6 that includes 84 observations.

### **3.3. Data Collection, Presentation and Analysis Techniques**

#### **3.3.1. Data and Data Collection Instruments**

Only secondary data were used for the study. Applying appropriate data gathering instruments help researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increase the credibility and value of research findings (Koul 2006). Data will be collected from audited financial statements (balance sheet and income statement) of each private commercial banks included in the sample and various directives and publications of NBE from 2003 to 2016. All data are collected on annual base.

#### **3.3.2. Method of data Presentation and analysis**

To test the proposed hypotheses, statistical analyses have been carried out using the following methods: First, descriptive statistics of the variables (both dependent and independent) was calculated over the sample period and this was in line with Malhotra (2007), which states 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 was made. Finally, ordinary least square/OLS regression approach including all of its assumptions was employed. Data collected from different sources was analyzed by using Eviews 9 software package.

### 3.4. Model specification, variable description and hypotheses

#### 3.4.1. Model specification

The nature of data that will be used in this study will enable to use panel data model which is deemed to have advantages over cross sectional and time series data. Panel data involves the pooling of observations on the cross-sectional over several time periods.

As Brook (2008) stated the advantages of using panel data set; first and perhaps most importantly, it can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone. Second, it is often of interest to examine how variables, or the relationships between them, change dynamically (over time). To do this using pure time-series data would often require a long run of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis tests. But by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time. The additional variation introduced by combining the data in this way can also help to mitigate problems of multicollinearity that may arise if time series are modeled individually. Third, by structuring the model in an appropriate way, we can remove the impact of certain forms of omitted variables bias in regression results. In analyzing the impact of monetary policy on Commercial banks performance in Ethiopia between 2003 and 2016 using econometric method, this study will adopt the empirical model used by Ajayi et al (2012) and Uwazie et al. (2015) with modification by the researcher. These models were used to examine the impact of monetary policy on banks profitability in Nigeria and the cause and effect of monetary policy variables on Commercial Banks Loans and Advances in Nigeria respectively.

The model is therefore tailored to express the total credit created by commercial banks as a function of some monetary policy and macroeconomic variables.

$$Tla = f(Crr, Lrr, Intr, Inf, Gdp) \dots \dots \dots (1)$$

This can be expressed in regression equation thus:

$$TLA_{it} = \alpha + \beta_1 Crr_t + \beta_2 Lrr_{it} + \beta_3 Intr_t + \beta_4 Inf_t + \beta_5 Gdp_t + u_{it} \dots \dots \dots (2)$$

Where:

$TLA_{it}$ : total loans and advances for bank  $i^{th}$  in year  $t$

$\alpha$ : is the intercept

$\beta_{1-5}$ : is slope or co-efficient of the explanatory variables

$Crr_t$ : annual cash reserve requirement rate in year  $t$

$Lr_{it}$ : the liquidity ratio for for bank  $i^{th}$  in year  $t$

$Intr_t$ : lending interest rate on annual average loans and advances for year  $t$

$INF_t$ : annual inflation rate for year  $t$

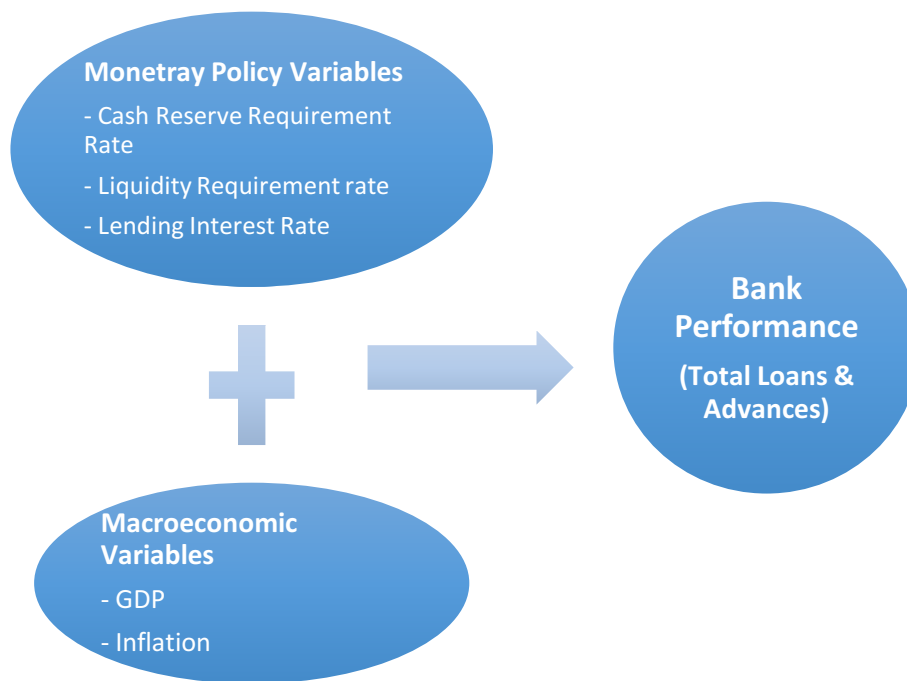
$GDP_t$ : annual real GDP growth for year  $t$

$u_{it}$ : denotes white noise error terms

### **3.4.2. Summary of the operational panel regression model**

The model guiding this research is shown in Figure 1. On the left hand side represents Banks total loans and advances. On the right hand side, two categories of antecedents are suggested as important influences on banks performance proxied by total loans and advances.

**Figure 3.1. The conceptual framework or model of the study adopted from Ajayi et al (2012) and Uwazie et al. (2015) with modification by the researcher.**



### **3.5. Variable description**

Initially nine explanatory variables; four monetary policy instruments (broad money supply, cash reserve requirement ratio, liquidity requirement ratio, and policy rate proxied by lending interest rate), two bank specific variables (bank size and total deposit), and three macroeconomic variables (GDP, inflation rate and exchange rate) were included in the model. However, as *table 3.1.* shows, there was high multicollinearity problem between *size & money supply (0.984446)*; *interest rate & size (0.791130)*; *exchange rate & size (0.971652)*; *GDP & size (-0.822008)*; *deposit & size (0.913903)*; *money supply & exchange rate (0.950539)*; *deposit & money supply (0.884117)*; *deposit & exchange rate (0.934092)*; *GDP & money supply (-0.795187)*.

If there is no relationship between the explanatory variables, they would be said to be *orthogonal* to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. If multicollinearity was suspected, the most likely culprit would be a high correlation between *the independent variables*. methods for dealing with the possible existence of multicollinearity include **drop one of the collinear variables**, so that the problem disappears

(Brooks, 2008). Thus, the independent variables namely bank size, money supply, total deposit and exchange rate were dropped as a remedy for the multicollinearity problem.

**Table 3.1.** correlation test among explanatory variables

	SIZE	MS	INTR	LRR	INF	EXR	GDP	DEPOSIT	CRR
SIZE	1.000000								
MS	0.984446	1.000000							
INTR	0.791130	0.699276	1.000000						
LRR	-0.535725	-0.646114	0.043919	1.000000					
INF	-0.059497	-0.152689	0.234712	0.347749	1.000000				
EXR	0.971652	0.950539	0.762449	-0.521881	-0.063092	1.000000			
GDP	-0.822008	-0.795187	-0.789231	0.361867	-0.215071	-0.770628	1.000000		
DEPOSIT	0.913903	0.884117	0.739199	-0.484785	0.165317	0.934092	-0.850850	1.000000	
CRR	-0.021203	-0.091145	0.267616	0.429966	0.317020	0.013166	0.093566	-0.007286	1.000000

### 3.5.1. Dependent variables

Banks performance means the operation of banks which is proxied by banks total loans and advances. According to Adepoju et al. (2007) the loans and advances refers to the amount borrowed by one person from another. Technically, loans and advances could simply be described as borrowed funds. It is that part of the money used for financing by an individual, a business or the government which does not belong 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. The money may be paid back in block, in regular installments or in partial installments (Adepoju et al., 2007). 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

were used.

### **3.5.2. Independent variables**

The independent variables are categorized into two groups as monetary policy variables and macroeconomic variables. The researcher will consider the macroeconomic variables as control variables, since the objective of this study is to examine the impact of monetary policy on banks performance in Ethiopian private banks.

#### **a. Monetary policy variables**

**Reserve Requirement ratio:** Reserve requirement ratio is the minimal percentage of deposits to be kept up with central bank by the banks. It is one of the tools of monetary policy used to control money supply in the economy. Any changes made in CRR affects the availability of money with the bank for credit in the system thereby influencing the money supply in the economy. Whenever CRR is increased, it acts as a tax on bank deposits. As financial intermediation becomes costlier, spreads between lending and deposit rates rises. If the central bank stabilizes the interbank rate, we expect lending rates to increase and deposit rates to fall, as the stable interbank rate typically lies between deposit and lending rates. Changes in the lending and deposit rate affect the bank's spreads and therefore its performance.

Reserve requirements are considered to be a powerful tool for government to control the activities of commercial banks'. The required reserve ratio is sometimes used as a tool in monetary policy for influencing the country's borrowing and interest rates by changing the amount of funds available for banks to make loans. Montoro and Moreno (2011) shows this by stating that, central bank raise reserve requirements to contain credit growth in the boom part of the business cycle in order to counteract financial imbalances in the economy or in an economic downturn, they can lower reserve requirements to utilize reserve buffers accumulated during the boom part, having the banking sector extend more credit to non-financial businesses. It is expected that this variable has a negative effect on the proportion of credit facilities.

**Lending rate:** The average interest rate on loans (LR): the interest rate on loans is considered the most important source of income for the bank, and the high interest rate is usually accompanied by the increase in the amount of the money offered for lending. If the value of interest rate is

increases/decreases then as result value of banks' profitability will also increases/decreases (Sattar, 2014). In this respect, there is strong and positive correlation between rate of interest and commercial banks' profitability. It means Gradually, interest spread of banking sector is rising. As a result, changes in the interest rate depress the savings and investment and on the other hand it increases the efficiency of banks' lending. Similarly, when interest rate is high, the rise in lending rate is higher than the deposit rates which as a result increases the bank operating income. But on the other side when interest rates are low then rise in deposit rate is higher than the lending rates.

Chodechai (2004) in his investigation titled as, factors that affect interest rates, degree of lending volume and collateral setting in loan decision of banks; state that, banks have to be careful with their loan pricing decisions. Because if banks charge too low loan rates the revenue from the interest income will not be enough to cover the cost of deposits, general expenses and the loss of revenue from some borrower. Hence, charging too high loan rates may also create an adverse selection situation and moral hazard problems for the borrowers. In their study, Abdkarim et al. (2011) reveal that, monetary policy tightening instruments like interest rate in Malaysia reduces bank lending to all the sectors. But it is severing in some sectors such as manufacturing and suggest that, interest rates are positively associated with Islamic financing and negatively associated with conventional loan.

This study will be based on the average annual interest rate on the loans and advances granted by commercial banks in Ethiopia. The effect of the interest rate might be positively or negatively effective on the volume of bank lending because the increase in the interest rate may encourage banks to provide more loans, but at the same time could lead to reduced demand for loan borrowers because of their high interest rates.

**Liquidity requirement ratio:** is the ratio of total specified liquid assets to total current liabilities. This specifies the required ratio of certain selection assets and securities to the deposit liabilities of commercial banks. The central Bank prescribes, whenever it so desire, the percentage of specified liquid assets that commercial banks can hold against their deposits. The liquid assets which are used include cash and short term government securities e.g. treasury bills and treasury certificates. The general idea behind the use of a variable liquidity ratio, the credit expansion

capacity of banks can also be controlled. Liquidity can be referred to as a state in which an asset can be readily converted into cash. A bank may be solvent by having enough assets to cover its liabilities but may remain illiquid. This may be due to a mismatch between its assets and liabilities (Kasman, 2010). Ituwe (1985) posited that on one side, banks transform customers deposit to loans and advances which is illiquid and on the other side, obliged to pay to the demands by customers in terms of withdrawals from their deposits which have to be met instantaneously. Commercial banks, therefore, have to stock reasonable quantity of cash to meet their customers' demands. Hence, a commercial bank cannot afford to grant loans and advances in excess of its cashing ability. Moreover, the issue of liquidity in banking operations also affects the lending behavior of commercial banks. In his study, Ojo (1978) also identified that liquidity ratio was seen as an important variable in determining the supply of loans and advances in Nigeria. In this study it was described by the liquidity requirement ratio.

### **Macroeconomic variables**

**GDP:**The economic growth is one of the important factors that affect the bank lending because the high growth rates reflect high pace of economic activity in the country and its accompanying rise in demand for funding. Economic growth impact both supply i.e. bank lending behavior and demand i.e. firms, households and public enterprises need for bank credit. In terms of credit supply i.e. bank side, increase in real GDP boost up the manufacturing sector's income as well as the general peoples earning, which leads to higher domestic deposits. Hence increase the liquidity of banks and they can lend more for investment needs, so the GDP has a positive association with private credit. From demand side, a strong economic condition creates more demand for goods and services which lead to more investment in different sectors hence increase the per capita income as well as the savings, collectively these factors convince firms to expand business resulting in increased bank credit.

Empirical evidence for instance, Sharma and Grounder (2012) indicated that stronger economic growth may increase demand for more credit and thus lead to higher credit growth. Imran and Nishatm (2013) found that the economic growth has a positive effect on the bank credit in Pakistan. In Malaysia, (Zarafat (2014) indicated that economic growth had a positive effect on credit growth. Others studies such as (Amidu, 2014; Mitiku (2014)) and also evidenced the

positive impact of real GDP on credit market. On the other hand, however, studies such as (Moussa & Chedia, 2016; and Amino, 2014) found out that real GDP growth rate had statistically insignificant impact on loans and advances.

The economic growth will be measured by the rate of the annual change in the GDP at constant prices. It is expected that this variable has a positive effect on the proportion of total loans and advances.

**Inflation:** is a measure of general price changes in the economy, which can exert volatility shocks pressure on banks operations through lending and savings. According to the recent theory of information asymmetry in the credit market, an increase in the rate of inflation drives down the real rate of return not just on money, but on assets in general. The implied reduction in real returns exacerbates credit market frictions. Since these market frictions lead to the rationing of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment. Several studies such as Sharma and Gounder (2012) have indicated that the inflation rate had a negative impact on the rate of growth in credit because the growth in the volume of credit may be due to the high rates of inflation and not because of the increase in the real value of the facilities granted. On the other hand, the high inflation rates usually lead to an increase in the nominal interest rates on loans, which cause the decline in the demand for loans. Imran and Nishatm (2013) used this percentage to explain the bank lending in Pakistan but the results of the study showed no impact for the inflation rate on the bank lending.

This study will use the annual rate of change in the consumer price index as a measure of the level of inflation in Ethiopia. It is expected that this variable has a negative effect on the proportion of the credit facilities granted by banks.

*Table 3.2. Summary of explanatory variables and their expected effect on the dependent variables*

<b>Classification</b>	<b>Variables</b>	<b>Description</b>	<b>Measurement</b>	<b>Expected effect</b>
<b>Dependent variable</b>	Total Loans & Advances	The total loan and advances to the private and public sector	Log of total loans and advances of the bank	NA
<b>Monetary policy variables</b>	Reserve requirement ratio	Annual cash reserve requirement rate	Percentage	Negative
	Liquidity ratio	Liquid asset/total deposit	Percentage	Negative
	Lending rate	Interest rate on annual average loans and advances	Percentage	Negative
<b>Control Variables</b>	Real GDP Growth Rate	Annual real GDP Growth rate	Percentage	Positive
	Inflation	The reported annual inflation rate	Percentage	Negative

## **Chapter Four**

### **4. Results and Discussion**

In the preceding chapters important literatures relating to the topic were reviewed that gives enough understanding about the topic and used to identify knowledge gap on the area. To meet the broad research objective and to answer research questions and to test research hypotheses under it the research design used for this study also discussed in the preceding chapter. In this chapter the data collected was presented and an important correlation and regression analysis finding was discussed.

The current chapter has five sections. Under the first section (section 4.1.) the descriptive statistics of the dependent and independent variables was presented followed by correlation analysis under section 4.2. Section 4.3 presents the test for the classical liner regression model/CLRM. Then, the results of the regression analysis were presented under section 4.4. Finally, discussions for the results of the regression analysis were made under section 4.5.

#### **4.1. Descriptive statistics of the data**

The descriptive statistics for the dependent and independent variables are presented below. The dependent variable is bank performance measured by Total Loans and Advances. The independent variables were classified into two, the macro economic factors (GDP and Inflation) which are considered as control variables and the monetary policy variables were liquidity requirement ratio, cash reserve requirement ratio and lending interest rate which were used to see the impact of monetary policy on banks performance. Table 4.1 bellow Present the descriptive statistics of the dependent and independent variables.

**Table 4.1 descriptive statistics of dependent and independent variables**

	TLA	LRR	INTR	GDP	INF	CRR
Mean	8.117078	53.51298	11.63708	10.32500	15.68541	10.00000
Median	8.025927	43.15714	11.88000	10.45000	12.03835	10.00000
Maximum	9.144837	153.7029	12.75000	11.80000	36.40000	20.00000
Minimum	6.975013	25.34143	10.50000	6.500000	2.800000	5.000000
Std. Dev.	0.635115	33.04928	0.721958	1.460803	10.51870	5.030030
Observations	84	84	84	84	84	84

**Source:** Financial statement of sampled commercial banks and own computation through Eviews 9

The loan and advance ranged from 6.975013 to 9.144837 and the standard deviation was 0.635115. It is noted here that the amount of the total loan and advances is considered comparable between commercial banks in general, as it enjoys a relative stability.

Table 4.1 also shows the descriptive statistics of monetary policy variables namely liquidity requirement ratio, cash reserve requirement ratio and prime bank rate proxied by average lending interest rate.

The mean value of liquidity ratio was 53.51 % that was above the NBE requirement (i.e. 15%) (NBE Directive No. SBB/57/2014)). The standard deviations of 33.05 % show higher dispersion of liquid assets to total deposits ratio from its mean for the commercial banks in Ethiopia. The maximum and minimum values of LRR were 153.70 % and 25.34 % respectively. It is noted here that the proportion of liquidity at the Ethiopian commercial banks is high, unstable and varied from one bank to another and from one year to another.

The other monetary policy instrument proxied by average lending interest rate were related with interest rate that is lending interest rate. The mean value of the lending interest rate over the period under study was 11.63 % with the maximum and minimum values of 12.75 % (in the years 2016) and 10.5 % (in the year 2005, 2006 and 2007) respectively. There was little variation of interest rate margin towards its mean value over the periods under study with the value of standard deviation 0.721 %.

The average cash reserve requirement ratio (CRR) was about 10.32 % during the study period, and the reserve requirement ratio ranged from 5% to 20% with a standard deviation of 5.03 %, reflecting the presence of fluctuation in the cash reserve requirement ratio during the study period.

The remaining independent variables were the macroeconomic indicators that can affect banks credit creation role over time. The mean value of real GDP growth rate was 10.32 % indicating the average real growth rate of the country's economy over the past 14 years. The maximum growth of the economy was recorded in the year 2007 (i.e. 11.8%) and the minimum was in the year 2016 (i.e. 6.5%). Since the year 2003 the country has been recording double digit growth rate with little dispersion towards the average over the period under study with the standard deviation of 1.46.

The general inflation rate (i.e. 15.68 %) of the country on average over the past fourteen years was more than the average GDP. The maximum inflation was recorded in the year 2009 (i.e. 36.4%) and the minimum was in the year 2010 (i.e. 2.8%). The rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 10.51 %, reflecting the presence of a fluctuation in the rate of inflation and its difference from one year to another. The inflation rate is relatively high during the study period.

Finally, it is noted that the dependent variable is normally distributed where the importance of the Jarque-Bera test was greater than 5%, which shows the normal distribution of the variable. The number of the views within the study sample was 84, which reflect the data of 6 banks in fourteen years.

#### **4.2. Correlation analysis**

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. Table 4.2 below shows the correlation coefficient between the dependent variables and independent variables.

**Table 4.2** *Correlation matrix among the dependent and independent variables*

	TLA	LRR	INTR	INF	GDP	CRR
TLA	1.000000	-0.276673	0.753257	-0.090781	0.116476	0.085901

**Source:** Financial statement of sampled private commercial banks and own computation through Eviews 9.

Output of correlation analysis (Table 4.2) represented in matrix of pair-wise correlation. This study has calculated correlation of dependent variables with independent macroeconomic and monetary policy variables. It was found that TLA is negatively correlated with liquidity requirement and inflation rate with a correlation coefficient of -0.276673 and -0.090781 respectively. Table 4.2 also shows that lending interest rate, GDP, and cash reserve requirement ratio are positively correlated with a correlation coefficient of 0.753257, 0.116476, and 0.085901 respectively. The linear relationship between LRR & TLA, GDP & TLA and INTR & TLA was statistically different from zero/statistically significant.

### **4.3. Testing assumptions of classical linear regression model (CLRM)**

#### **4.3.1. Test for average value of the error term is zero ( $E(u_t) = 0$ ) 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.  $\alpha$ ) was included in the regression equation, the average value of the error term in this study is expected to be zero.

#### **4.3.2. Test for homoscedasticity assumption ( $Var(u_t) = \sigma^2$ )**

This is the variation of the residuals across all the observations under study. It has been assumed thus far that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. To test this assumption, the ARCH test was used having the null hypothesis of heteroscedasticity. Both F-statistic and chi-square ( $\chi^2$ ) tests statistic were used.

**Table 4.3** Test for homoscedasticity

Heteroskedasticity Test: ARCH

F-statistic	2.304243	Prob. F(1,81)	0.1329
Obs*R-squared	2.295827	Prob. Chi-Square(1)	0.1297

**Source:** Financial statement of sampled private commercial banks and own computation through Eviews 9.

Both the F- and  $\chi^2$  -test statistic give the same conclusion that there is evidence for the absence of heteroscedasticity. In the case of TLA both the F- and  $\chi^2$  -test statistic give the same conclusion that there is evidence for the absence of heteroscedasticity. Since the p-values in all of the cases were above 0.05, the null hypothesis of heteroscedasticity should be rejected (appendix 2). The null hypothesis of heteroscedasticity should be rejected at 10% level for the F-statistics and  $\chi^2$  test statistic. Generally, in all of the regression models used in this study it was proved that the variance of the error term is constant or homoscedastic and we had sufficient evidence to reject the null hypothesis of heteroscedasticity.

#### **4.3.3. Test for absence of autocorrelation assumption ( $cov(u_i, u_j) = 0$ for $i \neq j$ )**

The test for autocorrelation was made by using Breusch- Godfrey Serial Correlation LM Test. Breusch-Godfrey Serial Correlation LM Test is more general than the DW test, and can be applied in a wider variety of circumstances since it does not impose the DW restrictions on the format of the first stage regression. The null hypothesis is no autocorrelation between the error term and its lag. Breusch-Godfrey Serial Correlation LM (appendix 3) proved that both the F- and  $\chi^2$  -test statistic give the same conclusion that there is evidence for the absence of autocorrelation since the p-values in all of the cases were above 0.05.

**Table 4.4** Test for autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	3.689531	Prob. F(1,77)	0.0585
Obs*R-squared	3.840903	Prob. Chi-Square(1)	0.0500

#### 4.3.4. Test for Normality assumption ( $u_t \sim N(0, \sigma^2)$ )

A normal distribution is not skewed and is defined to have a coefficient of kurtosis 3. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. The Bera-Jarque probability statistics/P-value is also expected not to be significant even at 10% significant level (Brooks 2008). According to Gujarati (2004), the JB is a large sample test and our sample of 84 was equal to the frame was large; we considered the JB test also. As shown in the histogram in the appendix (1) kurtosis closes to 3 (i.e. 2.933908), and the Jarque-Bera statistics was not significant even at 10% level of significance as per the P-values shown in the histogram in the appendix (i.e. 0.193184). Hence, the null hypothesis that is the error term is normally distributed should not be rejected and it seems that the error term in all of the cases follows the normal distribution.

#### 4.3.5. 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. As a result, many of the explanatory variables could be judged as not related to the dependent variables when in fact they are. This assumption does allow the independent variables to be correlated; they just cannot be

perfectly correlated. If we did not allow for any correlation among the independent variables, then multiple regressions would not be very useful for econometric analysis.

How much correlation causes multicollinearity however, is not clearly defined. While Hair et al (2006) argue that correlation coefficient below 0.9 may not cause serious multicollinearity problem. Malhotra (2007) stated that multicollinearity problem exists when the correlation coefficient among variables is greater than 0.75. Kennedy (2008) suggests that any correlation coefficient above 0.7 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results. This indicates that there is no consistent argument on the level of correlation that causes multicollinearity. 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 correlation matrix for five of the independent variables shown below in the table were estimated. The results in the following correlation matrix show that the highest correlation of 0.598378 which is between CRR and LRR. Since there is no correlation above 0.75 and 0.9 according to Malhotra (2007) and Hair et al (2006) respectively, we can conclude in this study that there is no problem of multicollinearity.

**Table 4.5. Correlation matrix of explanatory variables**

	LRR	INTR	INF	GDP	CRR
LRR	1.000000				
INTR	0.157058	1.000000			
INF	-0.184445	0.124896	1.000000		
GDP	-0.082824	0.101330	0.534795	1.000000	
CRR	0.598378	0.149849	0.317020	0.028228	1.000000

**Source:** Financial statement of sampled commercial banks and own computation through Eviews 9.

#### 4.3.6. Choosing Random effect (RE) versus fixed effect (FE) models

According to Gujarati (2004), if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model/FEM and random effect model/REM. Hence the choice here is based on computational convenience. On this score, FEM may be preferable. Since the number of time series (i.e. 14 year) is greater than the number of cross-sectional units (i.e. 6 commercial banks), FEM is preferable in this case. According to Brooks (2008); Verbeek (2004) and Wooldridge (2004), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. Hence, the sample for this study was not selected randomly and equals to the sample frame FEM is appropriate.

#### 4.4. Results of the regression analysis

Under the following regression outputs, the beta coefficient may be negative or positive; beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. R2 values indicate the explanatory power of the model and in this study adjusted R2 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.

#### Determinants of loan and advance - results

**Operational model:** the operational panel regression model used to find the statistically significant monetary policy factors of commercial banks' performance measured by Log of TLA was:

$$\ln TLA_{i,t} = \alpha + \beta_1(LRR, t) + \beta_2(INTR, t) + \beta_3(CRR, t) + \beta_4(GDP) + \beta_5(INF, t) + u_{i,t}$$

**Table 4.6** Regression results for determinants of commercial banks performance measured by Log of total loan and advances.

Method: Panel Least Squares

Date: 05/24/17 Time: 20:48

Sample: 2003 2016

Periods included: 14

Cross-sections included: 6

Total panel (balanced) observations: 84

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.127181	1.649300	-2.502384	0.0146
LRR	-0.037609	0.003899	-9.646546	0.0000
INF	-0.015428	0.002954	-5.222160	0.0000
INTR	0.069596	0.075169	3.586506	0.0006
GDP	0.086551	0.056465	2.595428	0.0114
CRR	0.000827	0.008868	0.093292	0.9259

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Effects Specification

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Cross-section fixed (dummy variables)

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R-squared	0.854716	Mean dependent var	8.117078
Adjusted R-squared	0.832520	S.D. dependent var	0.635115
S.E. of regression	0.259917	Akaike info criterion	0.274652
Sum squared resid	4.864079	Schwarz criterion	0.621911
Log likelihood	0.464619	Hannan-Quinn criter.	0.414247
F-statistic	38.50730	Durbin-Watson stat	2.059157
Prob(F-statistic)	0.000000		

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Notes: R2 =0.854716; Adj R2 = 0.832520; F-statistics = 38.50730 and Prob (F-statistics = 0.000000), and Durbin-Watson stat = 2.059157

**Source:** Financial statement of sampled commercial banks and own computation through Eviews 9

Table 4.6 presented results of total loans and advances (TLA) as dependent variable and monetary policy and macroeconomic explanatory variables for the sample of six commercial banks in Ethiopia. The explanatory power of this model is high (i.e. around 83.25 %). The regression F-statistic takes a value 38.50730. F-statistics tests the null hypothesis that all of the slope parameters ( $\beta$ 's) are jointly zero. In the above case p-value of zero attached to the test statistic shows that this null hypothesis should be rejected even at 1% level of significance.

As it is shown in the above table liquidity requirement ratio, lending interest rate, inflation rate and GDP were the statistically significant factors affecting credit creation role of commercial banks in Ethiopia. Liquidity requirement ratio and inflation rate had negative and statistically significant impact on total loans and advances at 1%, 5%, and 10%. GDP and lending interest rate had positive and statistically significant impact on total loans and advances at 5% and 1% respectively. Moreover, cash reserve requirement ratio had statistically insignificant (i.e. Prob = 0.9259) impact on commercial banks credit creation role in Ethiopia. The coefficient signs of cash reserve requirement ratio and lending interest rate were opposite to our expectation.

## **4.5. Discussion of the regression results**

### **4.5.1.Determinants of lending behavior - discussion**

Table 4.6 present regression out puts for total loans and advances on monetary policy and macroeconomic variables. The results were discussed as follows.

#### **Monetary policy variables**

As we have observed the model estimates there are three monetary policy variables that are used in this study namely liquidity requirement ratio, lending interest rate and cash reserve requirement ratio.

##### **4.5.1.1. Liquidity requirement ratio and total loans and advance**

The coefficient signs of liquidity requirement ratio proved negative impact of liquidity requirement ratio on banks performance measured by total loans and advance, which means that the high liquidity ratio reduces the proportion of the total loan and advances granted by the commercial banks in Ethiopia. The negative impact of liquidity requirement ratio on banks' loan

and advance was in line with the alternative hypothesis which is based on the argument of taking loans as illiquid assets of banks. According to this argument when the amount of loans provided by banks increase, the amount of illiquid assets in the total assets portfolio of banks increase and lead to the reduction in the level of liquid assets held by banks. Consistent with this evidence, this study also confirmed a negative relationship between liquidity ratio and loan and advance. This result is consistent with what is expected and is in line with the findings of (Uwazie & Aina, 2015; Amidu, 2006; Cekrezi, 2015; Rabab'ah, 2015; Imran & Mishatan, 2013; Mitku, 2014; Ajayi & Atanda, 2012; and Sintayehu, 2016), although some studies such as (Olokoyo, 2011 & Udeh, 2015) found that the proportion of liquidity does not affect bank lending. The coefficient value of the variable (i.e. -0.037609) indicated a percentage rise/decline in liquidity ratio of banks resulted in (i.e. -0.037609 %) decline/ rise in loan and advance position of commercial banks in Ethiopia. It is noted that the negative effect reflects the correlation between the liquidity ratio and the proportion of the total loan and advances as they represent the uses of the bank funds.

Generally, I fail to reject the alternative hypothesis (i.e. There is significant and negative relationship between liquidity requirement rate and total loans and advances of commercial banks in Ethiopia).

#### **4.5.1.2. Lending interest rate and Total loans and advance**

Theories argue that interest rate and loan and advance have negative relationship. Monetary contraction and interest rate increase reduce spending directly; both also reduce spending indirectly by shrinking bank loan supply (Bernanke and Blinder, 1988). If central bank reduces the rate, banks become reluctant to provide loan to firms and vice versa McKinnon (2009).

However, this research found that there is positive and significant relationship between lending interest rate and total loans and advance. This is consistent with findings of (Akomolafe et al., 2015 and Okoye & Eze, 2013). The coefficient sign was opposite to the researcher expectation. Therefore, this finding disclosed that lending interest rate has positive relationship with total loans and advance. This indicates that high lending rate of commercial banks may not necessarily translate into poor lending performance, which means that anytime the central bank tightens monetary policy, commercial banks credit creation role is not narrowed or reduced. The coefficient value of the variable (i.e. 0.269596) indicated a percentage rise/decline in inflation rate

of banks resulted in (i.e. 0.269596 %) rise/decline in loan and advance position of commercial banks in Ethiopia. Generally, I reject the alternative hypothesis (i.e. there is negative and significant relationship between lending interest rate and total loans and advances of commercial banks in Ethiopia).

#### **4.5.1.3. Reserve Requirement ratio with total loans and advances**

The results showed that the coefficient of the cash reserve requirement ratio (CRR) was positive but not statistically significant, which means that the cash reserve requirement ratio does not affect the total loan and advances granted by the commercial banks in Ethiopia. This result differs from what is expected and with what was found by the previous studies such as (Olokoyo, 2011; Fatima & Samreen, 2015; Ajayi& Atanda, 2012;and MacCarthy, 2016), though the finding is consistent with (Mitiku, 2014 and Ndugbu & Okere, 2015). The reason for this result might be that banks do not lend the full amount of deposits remaining after excluding the cash reserve requirement ratio, but retain a large part of the deposits in the form of liquid assets, making the change in the cash reserve requirement ratio not effective on the total loan and advances granted. The coefficient estimate and the p value was 0.000827 and 0.9259 respectively which was insignificant even at 10% confidence level. Reserve requirement in this equation was opposite to the alternative hypothesis. Since the coefficient was statistically insignificant I could not say it shows positive impact on banks performance.

#### **Control Variables**

The researcher used two macroeconomic control variables proxied with inflation and GDP in the regression model.

#### **4.5.1.4. Inflation rate and Total loans and advance**

Theories argue that inflation rate and loan and advance have negative relationship. Since market frictions lead to the rationing of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans, resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment. Hence, there is negative relationship between increase in inflation rate and total loans and advance.

The regression output in Table 4.6 reveals that there is negative and significant relationship between inflation rate and loans and advance. The coefficient sign was in line with the researcher expectation. Therefore, this finding disclosed that inflation rate has negative and significant relationship with loan and advance. The coefficient value of the variable (i.e. -0.015428) indicated a percentage rise/decline in inflation rate of banks resulted in (i.e. -0.015428 %) rise/decline in loan and advance position of commercial banks in Ethiopia. Generally, I fail to reject the alternative hypothesis (i.e. there is negative and significant relationship between lending interest rate and total loans and advances of commercial banks in Ethiopia). This result was consistent with Uwazie & Aina (2015).

#### **4.5.1.5. Real GDP growth rate and Total loans and advance**

The coefficient signs of real GDP growth rate show positive impact of real GDP growth rate on banks' total loans and advance. The positive impact of real GDP growth rate on banks' total loans and advance was in line with the alternative hypothesis which is based on the argument that a strong economic condition measured by GDP, as motivating factor to banks has statistically significant impact on issuance of more credit to businesses. A strong economic condition creates more demand for goods and services which lead to more investment in different sectors hence increase the per capita income as well as the savings, collectively these factors convince to banks to issue more loans and advances (kashif and mohammed 2008). The regression output in Table 4.6 reveals that there is positive and significant relationship between real GDP growth rate and total loans and advance, which means that the high rate of the economic growth increases the proportion of the total loan and advances granted by the commercial banks in Ethiopia. The coefficient value of the variable (i.e. 0.146551) indicated a percentage rise/decline in real GDP growth rate resulted in (i.e. 0.146551%) rise/decline in total loans and advance position of commercial banks in Ethiopia. So, we fail to reject the alternative research hypothesis (i.e. there is positive and significant relationship between GDP and bank loan and advance). This finding was consistent with what is expected and with what was found by several studies such as (Imran & Nishatm, 2013; Rabab'ah, 2015; Zarafat, 2014; Mitiku, 2014; and Sharma and Grounder, 2012), which reported that the economic growth has a positive impact on the bank credit. Generally, I fail to reject the alternative hypothesis (i.e. there is positive and significant relationship between GDP and total loans and advances of commercial banks in Ethiopia).

Finally, the adjusted explanatory power was 83.25%, which is considered high reflecting that the independent variables explain about three-fourth of the change in the dependent variable. Durbin-Watson statistics (2.059157) show that the dependent variable does not suffer from the problem of the serial link. However, the F-statistic (38.50730) shows that the study model is appropriate.

**Table 4.7** Summary of actual and expected signs of explanatory variables on the dependent variables

<b>Variables</b>	<b>Expected Signs</b>	<b>Actual Signs</b>
Liquidity Requirement Ratio	Negative & Significant	Negative & Significant
Lending Interest Rate	Negative & Significant	Positive & Significant
Cash Reserve Requirement Ratio	Negative & Significant	Positive & Insignificant
Real GDP Growth Rate	Positive & Significant	Positive & Significant
Inflation Rate	Negative & Significant	Negative & Significant

## **Chapter Five**

### **Conclusion and Policy Recommendation**

#### **5.1. Introduction**

This chapter is a synthesis of the entire thesis and contains a summary of findings, discussion of the findings, conclusions arrived at and policy recommendations. The conclusions and recommendations focused on addressing how monetary policy affects commercial bank's performance in Ethiopia measured as total loans and advances.

#### **5.2. Conclusions**

The study examined the impact of monetary policy on commercial banks' performance in Ethiopia from 2003- 2016. Monetary policy was proxied with lending interest rate, liquidity requirement ratio and cash reserve requirement ratio. Total loans and advance (TLA) was used to represent commercial banks' performance. Five variables affecting commercial bank's total loans and advances were chosen and analyzed. The panel data was used for the sample of six commercial banks in Ethiopia from 2003 to 2016. Data was presented by using descriptive statistics. The balanced correlation and regression analysis for total loans and advance was conducted. Before performing OLS regression the models were tested for the classical linear regression model assumptions. The models fulfill assumptions of the CLRM. Fixed effect model/FEM was used based on convenience.

The study findings showed that there was a highly significant relationship between commercial banks' total loans and advances and liquidity requirement ratio, lending interest rate, real GDP growth rate, and inflation rate. The results also indicated that an increase in inflation and liquidity requirement ratio cause total loans and advances to decrease while an increase in lending interest rate and GDP cause total loans and advances to increase. A statistically significant relationship was also established between lending rates, liquidity requirement ratio, inflation, and real GDP growth rate. The study also showed insignificant relationship between cash reserve requirement ratio and total loans and advances of commercial banks in Ethiopia.

The study also established that there is a correlation between the monetary policy and macroeconomic factors and commercial banks' total loans and advance with lending interest rate having the highest value and cash reserve requirement ratio having the lowest correlation value. From the regression analysis the following regression equation was formulated;  $TLA = - 4.127118 + LRR (-0.037609) + INTR (0.269596) + CRR (0.000827) + GDP (0.146551) + INF (-0.015428)$

Based on the results and findings, the study concludes that commercial banks' total loans and advance is indeed influenced by monetary policy instruments.

### **5.3. Recommendations**

Based on the findings of the study, the following suggestions were recommended:

- There is need for private commercial banks to consider the trends of the macro-economic factors when developing their strategies to efficiently manage their loans and advances, as it was found significant relationship between macro-economic factors (GDP & Inflation) and total loans and advances.
- Emanating from the empirical analysis, this study proffered that the NBE should set a moderate policy rate as instrument for regulating commercial banks operations and facilitating investment in the economy.
- It is recommended that National Bank of Ethiopia should re-evaluate the policies governing cash reserve requirement ratio (should be kept at an optimal level) in order to influence bank reserves considering its insignificant effect on commercial banks credit creation role. Also, policy makers should administer the monetary policy instruments to ensure they are effective in generating and invigorating the level of economic activity desired in the banking industry.

### **5.4. Further Research**

This study also recommends that another study should be done to augment the findings in this study; it therefore recommends a study be done on the effect of monetary policies on financial performance of commercial banks in Ethiopia by incorporating other monetary policy factors, bank specific and macroeconomic factors.

## References

- Abdulkarim, M., Mohdharif, A., & Adziz, A. (2007). Monetary Policy and Sectoral Bank Lending in Malaysia. *Global Economic Review*, 35(3), 303-326.
- Abdulkarim, Z., Azman-Saini, W., & Abdulkarim, B. (2011). Bank Lending Channel of Monetary Policy. *Journal of Asia-Pacific Business*, 12(3), 225-243.
- Adepoju, A., Salau, A., & Obayelu, A. (2007). The Effects of External Debt Managements on Sustainable Economic Growth and Developments: Lesson from Nigeria. Munich Personal Repec Archive (MPRA) Paper No. 2147 March Series.
- Admassu, B. & Asayehgn, D. (2014). Banking Sector Reform in Ethiopia. *International Journal of Business and Commerce* Vol. 3, No.8: Apr 2014[25-38]
- Ajayi, F.O and A.A Atanda (2012). Monetary Policy and Bank Performance in Nigeria: a two-step co-integration approach. *African journal of scientific research*, Vol 9. No 1
- Akomolafe et al., (2015). Monetary Policy and Commercial Banks' Performance in Nigeria. *Public Policy and Administration Research*, Vol.5, No.9, 2015
- Allen N. Berger & Gregory F. Udell. (2006). A more Complete Conceptual Framework for SME Finance. *Journal of Banking & Finance*, volume 30, issue 11, November 2006, pages 2945-2966.
- Alper K. (2012). An Empirical Study on Liquidity and Bank Lending. Central Bank of the Republic of Turkey Merkez Bank Working Paper No. 12/04.
- Amano, G. (2014). Determinates of lending Behavior of Banks: A Case study on Commercial Banks of Ethiopia. MSc Project Paper. Unpublished, Addis Ababa University.
- Amidu, M. T. (26). The link between monetary policy and banks' lending behavior: The Ghanaian case. *Banks and Bank Systems*, 1(4): 38-48.
- Anyanwu J.C(1993) *Monetary Policy Management in Nigeria*: Enugu, Ozone Publishers.

Berhanu, A. (2016). Determinants of Lending Decision and Their Impact on Financial Performance: Empirical Study on Private Commercial Banks in Ethiopia. MSc Project Paper. Unpublished, Addis Ababa University.

Bernanke, B., & Blinder, A. (1988). Credit, Money and Aggregate Demand. *American Economic Review*, 78, 435-439.

Brooks. C 2008, *Introductory Econometrics of Finance*, 2nd ed., the ICMA Center, University of Reading, CAMBRIDGE University press.

C.C. Udude & Hope I. U (2015). The Impact of Monetary Policy on the Banking Sector in Nigeria, *International Journal of Economics, Commerce and Management*, United Kingdom, Vol. III, Issue 5, May 2015

Cekrezi A. (2015). Factors affecting performance of Commercial Banks in Albania. *The European Proceedings of Social and Behavioral Science*.

Chodechai, S. (2004). Determinants of Bank Lending in Thailand. Unpublished Thesis.

Chowdhury, I., Hoffman, M., and Schabert, A., (2003). Inflation Dynamics and the Cost channel of Monetary Transmission. *European Economic Review* 50(2006) 995–1016.

Creswell, J W 2009. *Research design: Qualitative, quantitative, and mixed methods approaches*, 3rd ed., Sage Publications, New York.

Eden, K. (2014). The Impact of National Bank Regulation on Banks Performance: Evidence from the Private Banks of Ethiopia. MBA Project Paper. Unpublished, Addis Ababa University.

Faure, P. (2007), *Getting to grips with the equity market*. Cape Town: Quoin Institute (Pty) Limited.

Hara M. (1983). A dynamic Theory of the Banking Firm. *The Journal of Finance*. Vol 38, 127-140.

International Monetary Fund, (2001). Regional Economic Outlook: Sub-Saharan Africa. *World Economic and Financial Surveys*. IMF Working Papers, 0258-7440.60.

IMF (2013 and 2014) and NBE (2012/13), "Performance Report of Ethiopian Macro economy", Annual Bulletin, Report No. 13/308.

Imran, K., & Nishatm, M. (2013). Determinants of Bank Credit in Pakistan: A Supply Side Approach. *Economic Modeling*, 35(C), 384-390.  
<http://dx.doi.org/10.1016/j.econmod.2013.07.022>

Ituwe, C. (1985). *Elements of Practical Banking. Handbook*. Ibadan University Press.

Jhingan, M. L. (2005). *Macro-Economic Theory*. 11<sup>th</sup> Revised Edition Delhi: Vrinda Publications (p) Limited.

John MacCarthy (2016). The Effect of Cash Reserve Ratio (CRR) On The Financial Performance of Commercial Banks and Their Engagement in CSR in Ghana, *Research journal's Journal of Finance* Vol. 4 | No. 3 April | 2016 ISSN 2348-0963

Kasman , A. (2010). Consolidation and Commercial Bank Net Interest Margins: Evidence from the Old and New European Union members and Candidate Countries. *Economic Modeling*, 27, 648-655.

Kimani J. (2013). *Assessment of Effects of Monetary Policies on Lending Behavior of Commercial Banks in Kenya*. Kenyatta University.

Kokobe, S. & Birhanu, D. (2015). Determinants of Financial Performance of Commercial Banks in Ethiopia. *Journal of Business Management and Economics* 3:11 November.

Koutsoyiannis, A. (1997). *Theory of Econometrics*. Second Edition, New York: Palgrave Publishers Limited.

Koul, L 2006. *Method of educational research*, 5th edn., Vikas publishing House, New Delhi.

Kuttner. K. and Mosser. P. (2002) *The Monetary Transmission Mechanism: Some Answers and Further Questions*. U.S: FRBNY Economic Policy Review.

Loayza, N. and Schmidt-Hebbel K. (2002), Monetary Policy Functions and Transmission mechanisms: an overview. Central Bank of Chile

Malhotra, N 2007. *Marketing Research: An applied Orientation*, 5th ed., PHI, New Delhi.

Mitku, M. (2014). Determinants of Commercial Banks Lending: Evidence from Ethiopia Commercial Banks. *European Journal of Business and Management*, 6(20).

MOFED 1999. "Survey of the Ethiopian Economy, for the period 1992/93-197/98 related issues on Macroeconomic performance of Ethiopian Economy", Addis Ababa.

Montoro, C., & Moreno, R. (2011, March). The Use of Reserve Requirement as a Policy Instrument in Latin America. *BIS Quarterly Review*, 53-65.

Moussa, M.A.B. & Chedia, H. (2016). Determinants of Bank Lending: Case of Tunisia. *International journal of Finance and Accounting*, 2016; 5(1): 27-36

Mwafag Rabab'ah (2015). Factors Affecting the Bank Credit: An Empirical Study on the Jordanian Commercial Banks. *International Journal of Economics and Finance*; Vol. 7, No. 5; Published by Canadian Center of Science and Education

NBE. (n.d.). Reserve Requirement Directive No. SBB/37/2004, Directive No. SBB/42/2007, Directive No. SBB/45/2008, Directive No.

NBE 1995, 1998, 2004. "National Bank Annual and Quarterly Report various issues", Ethiopia.

NBE (2001/2009), "NBE's Monetary Policy Framework", Economic Research and Monetary Policy Process, NBE, Addis Ababa, Ethiopia

Ndugbu M.O. & Okere P. A. (2015). Monetary Policy and the Performance of Deposit Money Banks - the Nigerian Experience. *European Journal of Business and Management*, Vol.7, No.17, 2015

Ngure I.M. (2014). The Effect of Interest Rates on Financial Performance of Commercial Banks in Kenya. An MSc. Research Project Submitted to the Department of Business Administration, University of Nairobi.

NTO Philips O. O. Mbanasor Jude. A. & Osuala Alex E. (2012): Influence of Monetary Policy Variables on Loan Supply to Small and Medium Scale Enterprises in Nigeria; *International Journal of Economics and Finance* Vol. 4, No. 7; July 2012.

Nuru, H. (2013). An Empirical Investigation on Monetary Policy Transmission Mechanism in Ethiopia. MSc Project Paper. Unpublished, Addis Ababa University.

Ojo, M. (1978). The Demand and Supply of Commercial Banks in Nigeria. *Journal of Money, Finance and Economic Development*, 30(3), 341-354.

Okoye, V. and Eze, R.O. (2013), effect of bank lending rate on the performance of Nigerian deposit money banks, *International Journal of Business and Management Review*, Vol. 1, No. 1, March 2013, pp.34-43.

Olkoyo, F. O. (2011). Determinant of Commercial Banks' Lending Behavior in Nigeria, 2. No. 2, July 2011.

Punita, R. and Somaiya, K.J. (2006), Monetary Policy: Its Impact on the Profitability of Banks in India. *Intermediate Business and Economics Research Journal*; Volume 5, Number 3, Pg. 15-19.

Rashid et al. (2014). The Impact of Monetary Policy on Financial Performance: Evidence from Banking Sector of Pakistan. *Journal of Basic and Applied Scientific Research*, 4(8)119-124, 2014

SBB/46/2012 and Directive No. SBB/55/2013. Addis Ababa: National Bank of Ethiopia.

Sattar, W. A. (2014). Impact of Interest Rate Changes on the Profitability of four Major Commercial Banks in Pakistan. *International Journal of Accounting and Financial Reporting*, 142-154.

S. Fatima A. and Samreen L. (2015). Impact of Changes in Reserve Requirement on Banks Profitability: A Case of Commercial Banks in Pakistan, *European Journal of Business and Management*, Vol.7, No.31, 2015

Sharma, P., & Gounder, N. (2012). Determinants of Bank Credit in Small Open Economies: A case of Six Pacific Island Countries. Discussion Paper Finance. Griffith Business School, Griffith University.

Sintayehu, S. (2016). Credit Drivers: Empirical Study on Commercial Banks in Ethiopia. EMBA Project Paper. Unpublished, Addis Ababa University

Tadesse, G. (2014). The Impact of Exchange Rate on the Profitability of Commercial Banks in Ethiopia. MSc Project Paper. Unpublished, Addis Ababa University.

Tesfaye, B. (2014). The Determinants of Ethiopian Commercial Banks Performance. European Journal of Business and Management Vol 6, No. 14, 2014.

Uchendu, O. A. (1995). Monetary Policy and the Performance of Commercial Banks. Nigeria CBN Economic and Financial Review: 33(2).

Uwazie, I. U & Aina, Temitope, H. (2015). Monetary Policy Variables and Commercial Banks' Loans: A Causality Approach. Research Journal of Finance and Accounting, Vol.6, No.18, 2015

Wainaina (2013). Effect of macroeconomic factors on Commercial Banks Lending to Agricultural Sector in Kenya. MBA Project, University of Nairobi.

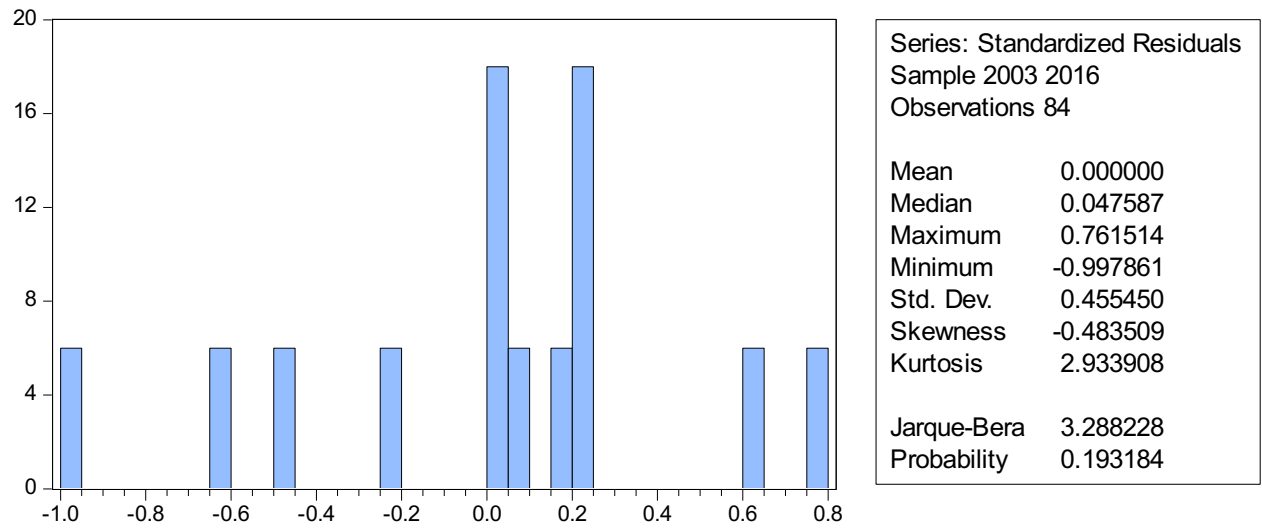
Wooldridge, JM 2006.*Introductory Econometric: A Modern Approach*. International Student edition, 3<sup>rd</sup> edn., Canada: Thomson South-Western.

Younus, S. and Akhtar, M. (2009), The SLR as a Monetary Policy Instrument in Bangladesh. IMFO occasional Paper No. 234, Washington, international Monetary Fund.

Zarafat, M. V. (2014). An Analysis of Macroeconomic Determinants of Commercial Banks Profitability in Malaysia for the period 1995-2011. Asian Economic and Financial Review, 41-57.

# Appendices

## Appendix -1- Normality test for TLA



## Appendix – 2 Heteroscedasticity Test: ARCH

Heteroskedasticity Test: ARCH

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F-statistic	2.304243	Prob. F(1,81)	0.1329
Obs*R-squared	2.295827	Prob. Chi-Square(1)	0.1297

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Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/24/17 Time: 20:54

Sample (adjusted): 2 84

Included observations: 83 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.063075	0.014612	4.316536	0.0000
RESID^2(-1)	0.159321	0.104957	1.517973	0.1329

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R-squared	0.027661	Mean dependent var	0.075847
Adjusted R-squared	0.015656	S.D. dependent var	0.109701
S.E. of regression	0.108839	Akaike info criterion	-1.574087
Sum squared resid	0.959526	Schwarz criterion	-1.515802
Log likelihood	67.32461	Hannan-Quinn criter.	-1.550671
F-statistic	2.304243	Durbin-Watson stat	1.975548
Prob(F-statistic)	0.132915		

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### Appendix -3 Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

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F-statistic	3.689531	Prob. F(1,77)	0.0585
Obs*R-squared	3.840903	Prob. Chi-Square(1)	0.0500

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Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/24/17 Time: 15:43

Sample: 1 84

Included observations: 84

Presample missing value lagged residuals set to zero.

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.829636	0.871906	0.951520	0.3443
LRR	-0.001152	0.000792	-1.454880	0.1498
INTR	-7.333770	7.663970	-0.956915	0.3416
INF	-2.646691	1.568520	-1.687382	0.0956
GDP	0.548566	0.424886	1.291089	0.2005
CRR	3.716183	2.521925	1.473550	0.1447
RESID(-1)	0.483899	0.251924	1.920815	0.0585

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R-squared	0.045725	Mean dependent var	-3.92E-15
Adjusted R-squared	-0.028634	S.D. dependent var	0.455450
S.E. of regression	0.461925	Akaike info criterion	1.372826
Sum squared resid	16.42984	Schwarz criterion	1.575394
Log likelihood	-50.65870	Hannan-Quinn criter.	1.454257
F-statistic	0.614922	Durbin-Watson stat	1.754537
Prob(F-statistic)	0.717694		

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#### Appendix - 4 Fixed effect regressions out put

Dependent Variable: TLA

Method: Panel Least Squares

Date: 05/24/17 Time: 20:48

Sample: 2003 2016

Periods included: 14

Cross-sections included: 6

Total panel (balanced) observations: 84

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.127181	1.649300	-2.502384	0.0146
LRR	-0.037609	0.003899	-9.646546	0.0000
INF	-0.015428	0.002954	-5.222160	0.0000
INTR	0.269596	0.075169	3.586506	0.0006
GDP	0.146551	0.056465	2.595428	0.0114
CRR	0.000827	0.008868	0.093292	0.9259

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#### Effects Specification

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Cross-section fixed (dummy variables)

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R-squared	0.854716	Mean dependent var	8.117078
Adjusted R-squared	0.832520	S.D. dependent var	0.635115

S.E. of regression	0.259917	Akaike info criterion	0.274652
Sum squared resid	4.864079	Schwarz criterion	0.621911
Log likelihood	0.464619	Hannan-Quinn criter.	0.414247
F-statistic	38.50730	Durbin-Watson stat	2.059157
Prob(F-statistic)	0.000000		

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### Appendix-5 Multicollinearity Test

	LRR	INTR	INF	GDP	CRR
LRR	1	0.157058	-0.184445	-0.082824	0.598378
INTR	0.157058	1	0.124896	0.101330	0.149849
INF	-0.184445	0.124896	1	0.534795	0.317020
GDP	-0.082824	0.101330	0.534795	1	0.028228
CRR	0.598378	0.149849	0.317020	0.028228	1

