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DETERMINANTS OF LENDING DECISION AND THEIR IMPACT ON FINANCIAL PERFORMANCE: EMPIRICAL STUDY ON PRIVATE COMMERCIAL BANKS IN ETHIOPIA

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Declaration

I, Berhanu Abebie, hereby declare that the thesis work entitled "**Determinants of Lending Decision and their Impact on the Financial Performance: Empirical Study on Private commercial Banks in Ethiopia**" submitted by me for the award of the Degree of Master of Science in Accounting and Finance of Addis Ababa University at Addis Ababa Ethiopia, is original work and it hasn‟t been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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Abstract

The objective of the study is to investigate the determinants of lending decision of private commercial banks in Ethiopia and the impact of those factors that significantly affects the lending decision on the financial performance of the banks. Panel data was collected from audited annual financial report of each bank, publications of National Bank of Ethiopia (NBE) and Ministry of Finance and Economic Development (MoFED) and used to analyse the bank-specific determinants as well as the macroeconomic determinants. The collected panel data was analyzed using descriptive statistics, and multiple linear regression analysis. Random effect panel regression was used for the data of six private commercial banks in Ethiopia for the sample covered the period from 2001 to 2015. Eight variables that affect banks' lending decision were selected and analyzed with E-view 9 econometrics software. The results of panel data regression analysis showed that Liquidity ratio(LIQ), Capital adequacy ratio (CAR), Inflation rate (INF) and gross domestic product (GDP) had positive and statistically significant effect on banks' lending .Nonperforming loans (NPLs) Cash reserve requirement (CRR) and lending interest rate (INT) had negative and statistically significant effect on banks' lending. Volume of deposit (VoD) had positive but insignificant effect on banks' lending. Among factors that statistically significantly affecting banks' lending; liquidity (LIQ), Lending interest rate (INT) and GDP had positive and significant impact on financial performance whereas, non-performing loans and Cash reserve requirement had negative impact on financial performance. Capital adequacy ratio had positive and inflation rate had negative but, insignificant impact on financial performance. Therefore, banks' lending had an impact on the financial performance of private commercial banks in Ethiopia. The study suggests that Ethiopian commercial banks should/need to work more to improve their liquidity and capitalization, to reduce their nonperforming loans and consider macroeconomic environment when extend loans. Moreover, banks should exert additional effort to properly manage their loan portfolio in order to enhance their profitability.

Key Words: Banks, Bank Lending, Loans and Advances, Financial Performance

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Table of Content

Declaration i

Certification ii

Acknowledgements iv

CHAPTER ONE 1

INTRODUCTION 1

1.1. Background of the Study 1

1.2. Statement of the Problem 3

1.3. Objective of the study 6

1.3.1. General Objective 6

1.3.2. Specific Objectives 6

1.4. Research questions 7

1.5. Hypothesis of the Study 7

1.6. Significance of the Study 8

1.7. Scope of the Study 8

1.8. Structure of the Study 8

CHAPTER TWO 10

LITERATURES REVIEW 10

2.1. Origin and Development of Banking Industry in Ethiopia 10

2.2. Theoretical and Conceptual literature review 12

2.2.1. Bank Lending 13

2.2.2. Lending Objectives of Commercial Banks 13

2.2.3. Sources of Commercial Banks‟ Lending 14

2.2.4. Principles (Canons) of Good Lending 14

2.2.5. Definition of Loans and Advances 17

2.2.6. The difference between Term Loans and Advances 18

2.2.7. Types of Loans and Advances 18

2.2.8. Determinants of Bank Lending Decision 20

2.2.9. Lending and Financial Performance 26

2.2.10. Theoretical Framework 27

2.3. Empirical Literatures 28
2.3.1. Empirical Studies on Bank Lending 28
2.3.2. Bank Lending and Financial Performance 33
2.4. Empirical Studies in Ethiopia 36
2.5. Conclusion and Knowledge Gap 37
CHAPTER THREE 40
METHODOLOGY 40
3.1. Research Design 40
3.2. Research Approach adopted 41
3.3. Sampling Design 42
3.3.1. Study Population 42
3.3.2. Sampling Technique 42
3.3.3. Sample Size 43
3.4. Nature of Data, Instrument of Data Collection, Data Analysis and Presentation 43
3.4.1. Nature of Data and Instrument of Data Collection 43
3.4.2. Data Analysis and Presentation 44
3.5. Study Variables 45
3.5.1. Dependent Variable 45
3.5.2. Independent Variables 47
3.6. Model Specification 53
CHAPTER FOUR 56
RESULTS AND DICUSSIONS 56
4.1. Descriptive statistics 56
4.2. Correlation Analysis 59
4.3. Regression model tests 62
4.3.1. Classical Linear Regression Model (CLRM) assumptions 62
4.3.1.1. Test for average value of the error term is zero (E (ut) = 0) assumption 62
4.3.1.2. Test for heteroskedasticity assumption (var(ut) = σ2 <∞) 63
4.3.1.3. Test for absence of autocorrelation assumption (cov(ui , uj) = 0 for i _= j) 64
4.3.1.4. Test of normality (*ut*~N(0, *σ*2)) 65
4.3.1.5. Test for multicollinearity 66

4.4. Choosing Random effect (RE) Vs fixed effect (FE) models 67
4.5. Regression analysis results-Lending Decision 68
4.5.1. Operational model 69
4.5.2. Interpretation of Regression Results 70
4.5.2.1. Volume of Deposit (VoD) and Loans and Advances (TLA) 71
4.5.2.2. Nonperforming Loans (NPLs) and Total Loans and Advance (TLA) 72
4.5.2.3. Liquidity (LIQ) and Total Loans and Advances (TLA) 73
4.5.2.4. Cash Reserve Requirement (CRR) and Total Loans and Advances (TLA) 73
4.5.2.5. Capital Adequacy Ratio (CAR) and Loans and advances (TLA) 75
4.5.2.6. Lending Interest Rate (INT) and Loans and advances (TLA) 76
4.5.2.7. Inflation Rate (INF) and Loans and advance (TLA) 77
4.5.2.8. Gross Domestic Product (GDP) and Loans and advances 78
4.6.2. Interpretation of Regression Results 80
4.6.2.1. Impact of Bank Lending on Financial Performance 81
CHAPTER FIVE 84
CONCLUSION AND RECOMMENDATIONS 84
5.1. Conclusion 84
5.2. Recommendations 87
5.3. Future Research Recommendations 88
Reference 89
Appendices 100
Appendix-1: Heteroskedasticity Test: White 101
Appendix-2: Breusch-Godfrey Serial Correlation LM Test 102
Appendix-3: Normality Test 103
Appendix-4: Correlated Random Effects - Hausman Test 103
Appendix-5: Random effects model regression results (Lending) 105
Appendix-6: Random effects model regression results (Return on Assets) 106

List of Tables

Table 3.1: Description of the variables used in the regression model……55

Table 4.1: Descriptive statistics of the dependent and independent variables……56

Table 4.2: Correlation Matrix of Dependent and Independent Variables……....60

Table 4.3: Heteroskedasticity Test……...63

Table 4.4: Breusch-Godfrey Serial Correlation LM Test……..64

Table 4.5: Correlations matrix of explanatory variables…….……..67

Table 4.6: Hausman test…….68

Table 4.7: Random effects model regression results (Lending).....70

Table 4.8: Random effects model regression results (Return on Assets)……..80

Table 4.9: Comparison of test result with expectation……..83

List of Figures

Figure 2.1 the conceptual framework or model of the study…….39

Figure 4.1 Normality test for residuals……..66

List of acronyms

AIB	Awash International Bank S.C
BOA	Bank of Abyssinia S.C
CAP	Capital Adequacy Ratio
CRR	Cash Reserve Requirement
DB	Dashen Bank S.C
GDP	Gross Domestic Product
INF	Inflation
INT	Lending Interest Rate
LIQ	Liquidity Ratio
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
NIB	Nib International Bank S.C
NPLs	Nonperforming Loans
OLS	Ordinary Least Square
ROA	Return on Assets
TLA	Total Loans and Advances
UB	United Bank S.C
VoD	Volume of Deposit
WB	Wogagen Bank S.C

CHAPTER ONE

INTRODUCTION

1.1.Background of the Study

Financial institutions are performing a key role in economic growth as they are mobilizing savings for productive investments through facilitating role in capital flows towards various sectors of the economy (Shanmugan & Bourke, 1990) and (Sufian & Paraman, 2009). It is also worth to note that commercial banks in most of the world economies are dominant type of financial institution that provides installment, facilitates the internal and external trade and the movement of money and capital when compared to any other financial institution (Greuning & Bratanovic, 2003) and (Saini & Sindhu, 2014). As indicated by Lartey et al. (2013) the business of banking involves the mobilization of funds from excess or surplus units of the economy and giving out to deficit unit as loans and advances.

Similarly, Banga (2013) states that banks are considered as one of the largest and most important types of financial institutions, and the most efficient in practicing the role of financial intermediation. This makes commercial banks to be considered as the lifeblood of economy. Because, the financial system based on banks provides information regarding the investment opportunities and it directs resources to productivity channels resulting in facilitating the process of the economic growth (Beck et al., 2001). Effective process of economic development and the health of the economy are closely related to the soundness of banking system. Hence, the countries that possess an advanced banking system grew faster than those whose banking system was weak (Levine, 1997).

Lending practices in the world could be traced to the period of industrial revolution which increase the pace of commercial and production activities thereby bringing about the need for large capital outlays for projects. Many captains of industry at this period were unable to meet up with the sudden upturn in the financial requirements and therefore turn to the banks for assistance (Ezirim, 2005). Similarly, in the contemporary period it is a widely accepted fact that lending is a main service of commercial banks

which contributing to economic growth and development, since the capital outlays needed for most developmental projects comes mainly from banks. Indeed, this lead to the fact that the importance of banks is more pronounced in developing countries because financial markets are usually underdeveloped, and banks are typically the only major source of finance for the majority of investments and are usually the main depository of economic savings (Arun & Turner, 2004).

In order to functions this maturity transformation, banks accept deposit from its customers in the form of saving and in turn it pays interest to depositors on their deposits. Banks then convert these deposits into loans and lend them to its clients at a higher rate and usually longer duration. Thus, through transforming short-term deposits into long-term investments, the banking system as a whole creates credit which extended to individuals, companies and government (Kapoor, 2011).

The fact that lending is the principal business activity for most commercial banks, makes the loan portfolio is typically the largest asset and the predominate source of revenue for commercial banks. Thus, the major portion of gross profit of the banking industry is earned from loans in the form of interest income and contributes about 80% of commercial banks earnings (Vong et al., 2009). But, on the other hand, it is also one of the greatest sources of risk to a financial institution‟s safety and soundness. Whether due to lax credit standards, poor portfolio risk management, or weakness in the economy, historically loan portfolio problems have been the major cause of losses and failures for commercial banks (Vong et al., 2009).

Supply of bank loans is usually expressed as a function of internal and external determinants. The internal determinants are termed as micro or bank-specific determinants of bank lending, while the external determinants are macroeconomic variables that are not related to bank management but reflects the monetary, economic and legal environment that affect the operation and performance of financial institutions (Kishan & Opiela, 2000).

To sum up the aforementioned discussion, one of the major roles of banks is to offer loans to borrowers and loan portfolio serve as one of the ultimate source of earnings for

commercial banks. It is obvious that the more banks offer loans the more it does generate revenue and more profit (Abreu & Mendes, 2002). But, banks have to be courteous in offering more loans because as they offer more loans to customers they expose themselves to liquidity and default risks which negatively affect banks‟ profits and survival (Rasiah, 2010). Thus, the banks have to balance their goals between generating a certain amount of profit and managing the risk from their lending activities. Accordingly, banks have to evaluate the risk, which it face daily while lending. Banks involves continuously incorporate governance to monitor, screen and recovery of loan for better performance of loan (Mohammed, 2014). Indeed, it is logical for banks to have some basic lending principles or consideration to act as a check in their lending activities to reduce their risk and efficiently utilize their resources. This means that, in order to assess and manage risks, banks must have effective ways and procedures that enable them to identify the factors that influence their lending decision.

1.2.Statement of the Problem

Banks play very important roles in the economic development and growth of any nation. As an important component of the financial system, they channel scarce resources from the surplus economic units to the deficit economic units in the form of credit as such this activities form part of their existence (Iwedi & Onuegbu, 2014). In order to functions their intermediary role, banks collect funds from savers in the form of deposit and then supply it to borrowers as loans, implying that deposit is a primary source for banks to make loans and advances.

The supply of bank loans is usually expressed as a function of internal and external determinants. The internal determinants are termed as micro or bank-specific determinants of bank lending, while the external determinants are macroeconomic variables that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation and performance of financial institutions.

Studies on bank lending behaviour have noted that, bank-specific variables have a capacity to explain the behaviour of credit delivery (Kishan & Opiela, 2000), (Kashyap and Stein, 2000) and (Gaiotti & Secchi, 2006). It includes factors like the size of the

bank, the efficiency of the management, deposit volume, bank liquidity, bank capitalization level, bank growth etc. The macroeconomic factors include Gross Domestic Product (GDP), inflation rate, employment level, money supply and exchange rate etc.

In addition to the above factors, bank lending decision is also affected by the ownership structure of banks. Noth (2011) and Behr et al. (2013) shows that the bank lending behavior is not uniform and it is various in terms of ownership structure of banks. Privately owned commercial banks typically aim at profit maximization, while state-owned banks tend to follow social welfare oriented objectives and deviate from strict profit maximization. For instance, in Ethiopia according to the International Monetary Fund (IMF) report, 79 percent of lending was allocated to the public sector in fiscal year 2012/13 via Commercial Bank of Ethiopia (CBE) (IMF, 2013).

According to Comptroller (1998) lending is the principal business for most commercial banks and consequently, loan portfolio is the largest asset and source of revenue for banks. It contributes about 80% of commercial banks earnings interest income (Vong et al., 2009). In view of the significant contribution of loans to the financial health of banks through interest income earnings, these assets are considered the most valuable assets of banks.

On the other hand, the credit creation process exposes banks to high credit risk and liquidity risk which leads to loss. From this can realize that banks have to balance their goals between generating a certain amount of profit and managing the risk from their lending activities. In the business world, as a principle any successful business must meet its customer needs and make a profit. Likewise, successful financial institutions must meet the desperate needs of depositors and borrowers. Depositors look for high rates, short terms and no risk, while borrowers seek low rates and long terms. Financial institutions are therefore, in the risk intermediation business. To be successful, financial institutions, banks in particular, must properly underwrite risk, manage and monitor the risk assumed (Barrickman, 1990).

From the forgoing it is grasping that, as financial intermediaries, banks play an important role in the operation of an economy. This is particularly true in the case of Ethiopia where no financial market exists. Hence, banks are the dominant providers of funds, and their stability is more important to the stability of financial system as a whole. Since 1905 banks in Ethiopia perform several banking business like attracting all types of deposit and granting loan and advance to borrowers for the sake of increasing their investment capacity (Mitku, 2014). Through time, the type of service provided by commercial banks as well as their fund mobilization ability is increasing. For example, at the end of June 2015, according to the NBE annual report, the total outstanding credit of the banking System in Ethiopia (excluding credit to government and interbank lending) reach Birr 217.3 billion of which Birr 75.6 billion shared by private commercial banks (NBE, 2015).

But as indicated above, there are salient factors that influence the lending decision of commercial banks all over the world which is true in the case of Ethiopian banking industry. Hence, without understanding these factors good bank performance or profit would be unthinkable. While there are many empirical studies on the determinants of lending decision of commercial banks in advanced economies, there have been only a few studies on the lending decision of commercial banks in developing economies like Ethiopia. In Ethiopia, to the best of the researcher knowledge, the only empirical studies on the lending decision of commercial banks are the research under taken by (Mitku, 2014) and (Amano, 2014) on determinants of lending behavior of commercial banks in the country (i.e. Public as well as Private owned commercial banks). In their study both are emphasized only on determinants of lending behavior of commercial banks in Ethiopia. But, none of them investigates the impact of lending on financial performance through the significant factors that affects the lending decision. Furthermore, there is inconsistent results between these two previous researches which need a detailed investigation on this area. Hence, the existences of inconsistent result between the two previous studies initiate this study for detail investigation in the area.

In addition, even though some studies undertaken on the profitability of commercial banks in Ethiopia by using different methods, none of them examined the impact of lending on profitability through the significant factors that affect lending decision.

Consequently, this study tries to fill this gap and find evidence of the determinants of the lending decision of privately owned commercial banks in Ethiopia and their impact on the banks‟ financial performance.

1.3.Objective of the study

1.3.1. General Objective

The main objective of the study is twofold. First, examine the effect of bank specific and macroeconomic determinants of lending on the lending decision of private commercial banks in Ethiopia. Second, investigate the impact of those factors that significantly affects the banks‟ lending decision on the banks financial performance.

1.3.2. Specific Objectives

The specific objectives of study are:

- To examine the effect of volume of deposit (VoD) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of nonperforming loans (NPLs) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of Liquidity (LIQ) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of cash reserve requirement (CRR) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of capital adequacy ratio (CAR) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of lending interest rate (INT) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of inflation rate (INF) on lending decision of private commercial banks in Ethiopian.
- To examine the effect of Gross Domestic Product (GDP) on lending decision of private commercial banks in Ethiopian.

- To find out if any relationship exists between the determinants of bank lending decision and financial performance of private commercial banks in Ethiopia.

1.4.Research questions

- What is the effect of bank-specific determinants of lending on the lending decision of private commercial banks in Ethiopia?
- What is the effect of macroeconomic determinants of lending on the lending decision of private commercial banks in Ethiopia?
- What is the impact of the factors that statistically significantly affects the lending decision on the financial performance of private commercial banks in Ethiopia?

1.5.Hypothesis of the Study

In line with the broad purpose statement the following hypotheses was also formulated for investigation. Hypotheses of the study stands on the theories related to a banks‟ lending decision as well as banks‟ financial performance that has been developed over the years by banking area researcher‟s and past empirical studies related to banks‟ lending decision. The results from the literature review to be established in the next chapter were used to establish expectations for factors determine banks‟ lending decision using bank-specific and macroeconomic variables. Hence, based on the objective, the present study seeks to test the following nine hypotheses:

H1: Volume of deposit has positive effect on banks‟ loan and advance

H2: Asset quality has negative effect on banks‟ loan and advance

H3: Liquidity ratio has positive effect on banks‟ loan and advance

H4: Cash reserve requirement has negative effect on banks‟ loan and advance

H5: Capital Adequacy Ratio has positive effect on banks‟ loan and advance

H6: Interest rate has negative effect on banks loans and advances

H7: Inflation rate has negative effect on banks‟ loan and advance

H8: Gross Domestic Product growth has positive effect on banks‟ loan and advance

H9: Bank lending has positive effect on banks‟ financial performance

1.6.Significance of the Study

First and foremost, the findings of the study identify the relevant factors affecting the lending activities of private commercial banks in Ethiopia. By implication, this helps the relevant regulatory authorities and policy makers in formulating appropriate policies that could enhance effective administration and management of loans, advances and other forms of lending by private commercial banks in the economy.

The result of the study benefits to other researchers who wants to conduct further research work in the area of lending decision of commercial banks in the country.

It also contributes to available store of knowledge to the already existing data in the area of lending decision of commercial banks.

Furthermore, the findings of the study will be of immense benefit to private as well as public commercial banks in terms of using them as inputs in formulating guidelines with which to effectively manage their lending activities in the economy

1.7.Scope of the Study

The scope of the study is restricted to investigate the bank-specific and macroeconomic determinants of lending decision of private commercial banks and their impact on banks‟ financial performance. The study is limited to banks that have at least fifteen years data i.e., 2001-2015. As a result, it includes the six leading private commercial banks in the country in terms of their establishment and market share namely: Awash International Bank (AIB), Bank of Abyssinia (BOA), Dashen Bank (DB), Nib International Bank (NIB), United Bank (UB) and Wegagen Bank (WB).

1.8.Structure of the Study

This research report is organized in five chapters. Chapter one provides the general introduction about the whole study. Chapter two describes the review of related

literatures. Chapter three provide detail description of the methodology employed by the study. Chapter four contains data presentation, analysis and interpretation. Finally, the last chapter concludes the total work of the study and gives conclusion and relevant recommendations based on the findings.

CHAPTER TWO

LITERATURES REVIEW

The focus of this chapter is review of the development of commercial banks in Ethiopia, the theoretical and conceptual literatures related to commercial banks' lending decision. It also incorporates the empirical studies on commercial banks' lending decision and reviews of related studies that have been carried out on the determinants of lending behavior of Ethiopian commercial banks. Finally, the last section provides the conclusion and shows the knowledge gap in Ethiopia context and present the conceptual framework for the study.

2.1.Origin and Development of Banking Industry in Ethiopia

The history of modern banking in the Ethiopia traced back to 1905, when the Bank of Abyssinia established based on a fifty year franchise given to the British-owned National Bank of Egypt (Alemayehu, 2006). A significant feature of the commercial banking in the country then was innovative nature rather than its contribution to growth and its competitive nature. As the society was new for the banking services, banks had faced difficulty in familiarizing the public and they faced considerable cost of installation (Zarayehu et al., 2013).

Within a century operation, the banking sector has passed four distinct phases. The first phase is the period of introduction of modern banking, started with the establishment of Bank of Abyssinia in 1905. In 1908 a new development bank (Societe Nationale d'Ethiope Pour le Development del' Agriculture et du Commerce) and two other foreign banks (Banque del'Indochine and the Compagnie del'Afrique Orientale) were also established (Degefe, 1995 cited in Alemayehu, 2006). As noted in Alemayehu (2006) these banks were criticized for being wholly foreign owned. In 1931 the Ethiopian government purchased the Abyssinian Bank, which was the dominant bank, and renamed it the Bank of Ethiopia i.e., the first nationally owned bank on the African continent (Gedey, 1990 cited in Alemayehu, 2006).

During the five-years of Italian occupation (1936-1941) banking activity of the country was relatively expanded. In that time, the Italian banks were particularly active. As a result, most of the banks that were in operation during this period were Italian banks namely, Banco di Italy, Banco di Roma, Banco di Napoli, Banco Nacionale, Casa de Creito and Society Nacionale di Ethiopia. After independence from Italy‟s brief occupation, where the role of Britain was paramount owing to its strategic planning during the Second World War, Barclays Bank was established and it remained in business in Ethiopia between 1941 and 1943 (Degefe, 1995 cited in Alemayehu, 2006). This era lasted up to 1963 when the functions of Central Bank and Commercial Banks separated and private banks and insurance companies started to emerge.

The second phase of development is (1964-1974) referred as a takeoff stage which accelerated growth until it was hampered by the nationalization measure of the socialist government. The establishment of privately owned Addis Ababa Bank in 1964 and its growing branch network created relatively better banking service among commercial banks, with concentration of their branch offices in big towns and trade routes in the country. The then monetary and banking system gave at most emphasis to stability and balanced growth of the economy.

Following this, like the rest of economic sector, the banking sector too entered its third phase (1975-1991) which was referred as the stagnation period. During this period all the banks emerge in the second phase was merged and the government left with only three banks namely: the National Bank of Ethiopia (NBE), the Commercial Bank of Ethiopia, and Agricultural and Industrial Development Bank.

The fourth phase is after the fall of the Derg regime in1991 when the liberalization policy introduced by the Federal Democratic Republic of Ethiopia (FDRE) in 1992 was new era for banking sector in the country (EEA, 2011). Currently, there are nineteen banks in the country comprising one state owned Development Bank and two state owned commercial banks. The remaining sixteen banks are privately owned commercial banks.

2.2.Theoretical and Conceptual literature review

Financial institutions, which are composed of banks, micro-finances, and insurances, have comprehensive roles in serving the needs of the society within the economy. The service is rendered through providing three major financial functions namely: intermediation or allocation, operational and payment systems. Operational and allocation functions are the provisions of financial resources to meet borrowing needs of individuals and other economic agents. The main microeconomic function of banks is the provision of facilities to collect deposits and invest these deposits as credits. Provision of a sound payment mechanism is also the other expected service from banks. Hence, the performance of banks is measured in terms of the above major roles of the banking business and relies on the provision of these functions (Olokoyo, 2011). Among these three major financial functions of the bank, this study tends to focus on a single aspect of banking function i.e. the intermediation or allocation function.

Commercial banks are the most important savings mobilization and financial resource allocation institutions. Consequently, these roles make them an important phenomenon in economic growth and development. Lending practices in the world could be traced to the period of industrial revolution which increases the pace of commercial and production activities thereby bringing about the need for large capital outlays for projects. Many captains of industry at this period were unable to meet up with the sudden upturn in the financial requirements and therefore turn to the banks for assistance. Similarly, in the contemporary period this function constitutes the major share among the functions of commercial banks. Thus, lending which may be on short, medium or long-term basis is one of the services that commercial banks do render to their customers. In other words, banks do grant loans and advances to individuals, business organizations as well as government in order to enable the embark on investment and development activities as a mean of aiding their growth in particular or contributing toward the economic development of a country in general (Iwedi & Onuegbu, 2014) and (Kishan & Opiela, 2000).

The supply of bank loans is usually expressed as a function of internal and external determinants. The internal determinants are termed as micro or bank-specific

determinants of bank lending, while the external determinants are macroeconomic determinates that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation and performance of financial institutions (Peek and Rosengreen, 1995).

2.2.1. Bank Lending

Investment on a productive sector is the precondition for achieving the economic growth from a country perspective. Capital formation positively supports this investment function. Once a satisfactory level of capital is formed, the option of sound investment comes, that ultimately leads to flow of capital in the future. Financial institutions, mainly banks do these functions through different mechanisms such as loans (Islam, 2009). Provision of resources (granting loan) by one party to another is termed as lending. Lending presumes the fact that the second party doesn‟t reimburse the first party immediately rather arranges either to repay or return those resources at a later date, making it a debt. Lending in its most general sense can be described as the temporary giving of money or property to another person with the expectation that it will be repaid (Murray, 2014). In a business and financial context, lending includes many different types of commercial loans and advances.

Bank credit/loan is the amount of money (fund) available to a company or individual from the banking system. It is the aggregate of the amount of funds financial institutions are willing to provide to an individual or organization. A company or individual‟s bank credit depends on both the borrower's capacity to repay and the overall amount of credit available in the banking system (Murray, 2014).

2.2.2. Lending Objectives of Commercial Banks

The principal profit making activity of commercial banks is making loans to its customers. In allocating funds, the primary objective of bank management is to earn income while serving the credit needs of its community (Reed and Gill, 1989). Lending represents the heart of the industry. Loans are the dominant asset and represent 50-75 percent to total amount of assets at most banks, generate the largest share of operating income and represent the banks greater risk exposure (MacDonald & Koch, 2006)

As the major source of banks revenue the interest income contributes about 80% of commercial banks earnings (Vong et al., 2009). Therefore, the main objective of commercial banks‟ lending is to maximize profit, although other social and economic functions tend to deflect banks from profit maximization as their primary objective (Noth, 2011) and (Behr et al., 2013). Because of banks are acknowledged agents of social, economic and political development, they have a social responsibility. The extent of this expanded responsibility varies from country to country and the social situation is a major determining factor, hence the role of commercial banks as agents of development appears greater in developing countries of which Ethiopia is one. Nevertheless, the principal lending objectives of a bank are to provide growth, liquidity and finally making profit.

2.2.3. Sources of Commercial Banks' Lending

The most important sources of funds for commercial banks include: paid up capital, reserve funds, accumulated profits and deposits. The word deposit represents the money in the funds of the bank‟s various deposit schemes. They include: savings deposit, fixed time deposit and demand deposit. The deposit funds of commercial banks are collectively described as deposit liabilities. As indicated by McCarthy et al. (2010) banks accept customer deposits and use those funds to give loans to other customers or invest in other assets that will yield a return higher than the amount bank pays the depositor. It follows that customers‟ deposit is the primary source of bank loan and hence, increasing or guaranteeing deposits directly has a positive effect on lending.

2.2.4. Principles (Canons) of Good Lending

"Canons of Lending" refers to a general standard or a set of principles which any bank would normally follow when processing credit facilities for their clients. Hence, a bank which aimed to be successful in the administration of its lending and credit facilities and the implementation of its policies as well as remaining in business, should take into consideration the following factors before lending (Olokoyo, 2011).

- **Purpose of the Credit**

The borrowing customers have to disclose to his banker the object of the borrowing. The bank must consider carefully whether the loan is to be used in any illegal activity or for speculative purposes. Most banks tend to decline loan proposals which are highly speculative; for what the bank is concerned with is that the loan should generate sufficient profit and cash-flow desired by both the borrower and the banker. If the loan proposal cannot generate sufficient profit or cash flow to meet the repayment schedule, the loan should not be approved.

- **Repayment Schedule**

The borrower must be able to service the debt, i.e. s/he must be able to pay interest and principal when due. The banker will examine, in general, the possible sources of income of the borrower and, in particular, determine whether there will be sufficient cash flow over the term of the loan to service the debt. To support a loan application, a customer is normally required to submit detailed financial statements that would substantiate his capacity to generate adequate funds to repay the loan. The papers submitted by the customer include income statement, balance sheets and projected growth of the business. The banker will then reviews and analyze the real financial position of the borrower.

- **Amount of the Loan Granted**

Based on the information and financial statements provided by the customer, the banker should have some idea on the customers‟ financial position. The bank will then examine the information before deciding the maximum amount of loan to be made available to the customer. Some customers may estimate inaccurately the amount of loan required. In practice, a banker should never lend a customer more than a quarter of his own resources or financial assets.

- **Term of the Loan**

The term of the loan is an important factor in assessing credit risk. The longer the term of the loan, the higher the risk exposure will be, because there are chances of unfavorable

downturn of the economy and also changes in the political environment. If a bank decides to provide long-term loans to customers in the international market, it should conduct a thorough "country risk" assessment before lending decisions are formulated.

- **Credit Risk Assessment**

Depending on the size of the loan, a banker should employ the credit risk assessment in order to determine the credit worthiness of the potential customers.

- **Market Analysis**

For commercial loans, whether the customer is able to make repayments according to the schedule depends largely on the profitability of the products produced by the business. If market conditions are favourable to the customers output; s/he is likely to be able to make repayment of the loan according to the repayment schedule. The general belief is that if the customers‟ product is well received in the market, the product is likely to generate sufficient income, resulting in cash profit which in turn will support the loan repayment.

- **Pricing of Loans**

The bank has to calculate its own costs of providing loans to customers; the interest rates quoted for a loan depend on various factors: the size of the loan, the financial strength of the borrower and also the nature of security offered by the customer. Therefore, the higher the possible risk involved, the higher the interest will be charged.

- **Collateral**

"Collateral" refers to security provided by a borrower to offset the apparent weaknesses of a loan. Collateral should be considered as a protection rather than as a source of repayment. As mentioned earlier, when a lending customer run into difficulties, a banker should not try to seek its collateral in the first place but instead should try to help the customer through a restructuring.

- **Character of the Borrower**

"Character" refers to the borrowers‟ determination to repay the loan. It can be assessed by looking as his/her/its track records. A bank can also obtain information from the customer himself/herself/itself, from other banks or from central bank through credit information.

- **Capital**

"Capital" refers to the cushion of assets for repayment of the banks‟ loans and advances in the event of the borrower experiencing financial difficulties. A strong capital base will demonstrate the customers‟ ability to repay his loans.

2.2.5. Definition of Loans and Advances

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. Loans and advances could also be described as a debt, entailing the redistribution of financial asset over time, between the lender and the borrower. In loans and advances, the borrower initially receives or borrows money from the lender and is obligated to pay back to the lender at a later and appropriate time. The loans and advances are given at a cost usually referred to as the interest. In a legal loans and advances the obligations are enforced by agreements or contracts. The money may be paid back in block, in regular installments or in partial installments (Adepoju et al., 2007).

Loans and advances are defined in the respective laws of different countries. In Ethiopia, under Article 4(6) of Directive № SBB/043/2008 loans and advances are defined as:

> "*Any financial asset of a bank arising from direct or indirect advances (i.e. unplanned overdrafts, participations in loan syndication, the purchase of loans from another lender, etc.) or commitment to advance funds by a bank to a person that are conditioned on the obligation of the person to repay the funds, either on a specified date or dates or on demand, usually with interest.*"

2.2.6. The difference between Term Loans and Advances

- **Term Loans**

Term loans are credit facilities with structured repayments to be effected within a certain period of time. Repayments of a term loan shall be in line with the cash flow program of the customer and nature of business. A term loan‟s repayment can accordingly be monthly, quarterly, semiannually, annually or at lump sum payment. Term loans can be short term, medium term or long term.

- **Advances**

Advances are the source of finance, which are provided by the banks to their customers to meet short term financial requirement. It is a credit facility which should be repaid within one year as per the terms, conditions and norms issued by the regulatory organ and bank‟s lending policy. It includes overdraft facilities, advances against import bills, advances against export bills etc.

2.2.7. Types of Loans and Advances

Commercial banks collect money from different sources and allocate the money in different ways such as reserve, securities and lending. Borrowers request banks for granting of loan for different purposes. According to Read and Gill (1989) bank loans can be classified in a variety of ways, including: security offered, purpose, maturity and method of repayment.

- **Based in Security offered**

Secured loans: A secured loan is a loan in which the borrower pledges some asset (e.g., a building or a car or other property) as collateral for the loan, which then becomes a secured debt owed to the creditor who gives the loan. The debt is thus secured against the collateral in the event that the borrower defaults, the creditor takes possession of the asset used as collateral and may sell it to regain some or the entire amount originally lent to the borrower, for example, foreclosed a portion of the bundle of rights to specified property. The creditor satisfies the debt against collateral and the borrower.

Unsecured loan: In finance, unsecured debt refers to any type of debt or general obligation that is not collateralized by a lien on specific assets of the borrower in the case of a bankruptcy or liquidation or failure to meet the terms for repayment. Here the creditor may only satisfy the debt against the borrower rather than the borrower's collateral.

- **Based on the purpose of the loans**

Some authors who wrote in banking such as Mac Donald and Koch (2006), Campbell et al. (1988) and Black and Daniel (1981) grouped loans into the following categories based on the use of proceeds. Few of them listed below.

Real estate loans: are loans secured by the real estate sector and generally consist either of property loans secured by first mortgages or interim construction loans.

Commercial loans: consist of commercial and industrial loans, loans to financial institutions, and obligations (other than securities) to states and political sub-divisions. Commercial loans appear in many forms but typically finance firms‟ working capital needs, equipment purchases and plant expansions.

Individual loans/Personal: include those negotiated directly with individuals for household, family and other personal expenditures.

Agricultural loans: appears in many forms but typically finance agricultural production and include other loans to farmers.

Manufacturing loans: loans extend to customers engaged in manufacturing sectors

Project loans: a type of loans used to finance the specific project before or after commencement of production of goods and services.

Other loans in domestic offices: include all other loans and all lease – financing receivables in domestic offices.

International loans: are essentially business loans and lease receivables made to foreign enterprises or loans guaranteed by foreign governments.

State and political subdivisions: loans given to state and political divisions for budget deficit and projects.

Foreign banks: include individuals and business firms located abroad and borrowed just like in local borrowers.

- **Based on maturity**

Based on the period within which the loan is repaid (i.e. principal plus interest) loans classified as short, medium and long periods.

- **Based on methods of payment**

Depending on the methods of repayment loans classified as loans paid in lump (i.e. at one time) or on installment basis (i.e. monthly, quarterly, semi-annually, annually etc.)

2.2.8. Determinants of Bank Lending Decision

The banking industry is one critical component of the financial system in developing countries capable of facilitating capital accumulation and economic processes. This is possible through efficient financial intermediation. The banks mobilize funds from the surplus spending units in order to bring financial costs down. Banks mostly transform liquid assets like deposits into illiquid assets like loans (Diamond & Rajan, 1998). This transformational process of banks‟ activity is at best influenced by a host of factors. Most literatures divide these factors in to two major categories that are: internal (microeconomic or bank-specific) and external (macroeconomic) factors (Peek & Rosengren, 1995). The internal factors (determinants) are within the control of the bank management whereas external factors (determinants) are variables that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation and performance of financial institutions. But the effect and the number of these factors differ from country to country as well as from studies to studies due to different reasons.

The number of explanatory variables that have been proposed for both categories depends on the nature and purpose of each study (Athanasoglou et al., 2008). Accordingly, the common determinates of lending decision that are used in this study are discussed in detail hereunder.

- **Liquidity Ratio**

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). This occurred due to the fact that banks transform the customers deposit to long term loans and advances. Thus, the transformation function and the demands by customers in terms of withdrawals from their deposits have to be met instantaneously. Commercial banks, therefore, have to stock reasonable quantity of cash to meet their customers‟ demands. Because, bank‟s ability to grant loans and advances is checked by the available cash in its vault (Ituwe, 1985). Indeed, a commercial bank cannot afford to grant loans and advances in excess of its cashing ability. Therefore, the issue of liquidity in banking operations also affects the lending behavior of commercial banks. Consequently, liquidity ratio is seen as an important variable in determining the supply of loans and advances (Ojo, 1978).

- **Volume of Deposit**

To enable them function as financial intermediaries, banks collect funds from savers in the form of deposit and then supply it to borrowers as loans. Thus, banks accept customer deposits and use those funds to give loans to other customers or invest in other assets that will yield a return higher than the amount bank pays the depositor (McCarthy et al., 2010). It follows that customers‟ deposit is the primary source of bank loan and hence, increasing or guaranteeing deposits directly has a positive effect on lending. As a result, deposits play a pivotal role in bank funding, as a major portion of commercial banks‟ assets is usually financed through customer deposits (Bologna, 2011).

Most business organizations, especially in developing countries are highly dependent on bank loans as a source of capital and the ability of banks in giving loans depends much on their ability to attract deposits (Haron and Azmi, 2006). This is because an increasing trends in deposit mobilization implies more liquidity for the banks and more funds will be available for lending, thereby increasing the ability of the banks to make more profits.

Cash Reserve Requirement

In the banking business, reserve requirements are imposed on banks by the central bank of a given country, like the National Bank of Ethiopia. Reserve requirements were a prudential requirement meant to ensure that banks maintained the resources to meet their obligations. This goal is quite broad and has aspects of both solvency and liquidity. Indeed, proponents of reserve requirements often blended the two or spoke of the benefits both in terms of the safety of the banks and the promptness with which banks could meet withdrawals, though there was perhaps a bit more frequent mention of the liquidity benefits.

Central banks use reserve requirements to achieve financial stability in the following manner. They can 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. Therefore, reserve requirements can be used as a cyclical policy instrument to ease credit fluctuations in the financial sector, and hence to stabilize the real economy (Montoro and Moreno, 2011). This implies that in a liquidity crisis, the reserve requirements offer an avenue for maintaining bank solvency. In non-crisis situations, they can be used to ease or tighten financial market. If the federal government reduces reserve requirements, almost all of the freed reserves are invested by banks, easing credit conditions and stimulations the economy.

All aforementioned discussion shows that the required reserve become an alternative way to maintain banks‟ solvency and liquidity. But these policies or requirements are at the center of an intense national debate. There is a world-wide contention on the issue- some researchers believe such requirements promote disintermediation of commercial bank credit while others stand at the opposite. Christian & Pascal (2012), Cargill and Mayer (2006), and Montoro and Moreno (2011) contended that, an increase in reserve requirement case to decrease bank credit. On the other hand, some researchers claim that, a raise in Commercial Bank cash required reserves sources to increase its credit creation ability. Because, an increment in reserve requirements does not encourage banks to hold

back their lending or sell securities or cause interest rates to rise (Chandler, 1971), (Friedman and Schwartz, 1963) and (Olusanya et al., 2012). The other researchers‟ argument lay down between these two extreme arguments. They sustains that changes in reserve requirements would have little or no impact on credit supply (Meltzer, 2003) and (Wilcox, 2012). Thus, the evidence is not uniform and consistent in indicating that whether cash reserve affects commercial banks‟ credits or not.

In Ethiopia, with respect to the reserve requirements, currently the National Bank of Ethiopia (NBE) has laid down the directive that enforces any bank operating in Ethiopia to maintain at least 5% of all Birr and foreign currency deposit liabilities held in the form of demand (current), saving and time deposits Article 3 of Directive № SBB/55/2013.

- **Lending Interest Rate**

Changes in the bank‟s capital or balance sheet liquidity might affect cost of funds to borrowers. In order to lend money to businesses, banks need to attract funds (e.g. bank capital or deposit liabilities) by paying a return or interest on them. According to the loanable funds theory, banks need to aim to hold deposits for similar lengths of time as the term of loans financed. In order to survive, banks have to cover the interest rates they pay on deposits from interest rates they charge on loans (interest margin). Higher loan prices in turn affect the quantity of funds intermediated by banks. This means that increase of interest rates determines a reduction of credit growth. This result derives from the fact that when banks increase credit interest rates the individuals or businesses tend to lower their demand for credit.

Lending Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation (Ngugi, 2001). Monetary contraction and interest rate increase reduce spending directly; both also reduce spending indirectly by shrinking bank loan supply (Bernanke and Blinder 1988).

- **Capital Adequacy Ratio**

Capital adequacy is the level of capital that banks are required to hold to enable them withstand credit, market and operational risks they are exposed to. Generally, banks are

expected to absorb the losses from the normal earnings. But there may be some unanticipated losses which cannot be absorbed by normal earnings. Capital comes in handy on such abnormal loss situations to cushion off the losses. In this way, capital plays an insurance function. Adequate capital in banking is a confidence booster. It provides the customer, the public and the regulatory authority with confidence in the continued financial viability of the bank. Confidence to the depositor that his money is safe; to the public that the bank will be, or is, in a position to give genuine consideration to their credit and other banking needs in good as in bad times and to the regulatory authority that the bank is, or will remain, in continuous existence (Bouvatier & Lepetit, 2007)

Adequate capital will provide the ultimate protection against insolvency and liquidation arising from the risk in banking business. Since capital is a cushion against which to charge off losses, the riskier the asset composition, the more capital is required to maintain a given level of soundness. Similarly, the concentrated and volatile the liabilities, the greater the risk, the greater the amount of capital adequacy required to maintain solvency. The risk in high volatility is derived from the fact that massive withdrawals may force asset liquidation at an inopportune time, and liability maturity mismatch may force refinancing or liquidation at a loss. Any company or bank with inadequate capital faces hidden constraints (Djiogap and Ngomsi, 2012).

Bank capitalization can affect bank willingness and ability to extend long term loans in several different ways. Banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore increasing bank equity enhances the bank‟s capacity to increase lending. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for long term loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans. But, some researchers argued that there is no relationship between capitalization level and supply of loans (Ehrmann et al., 2003).

In addition to the finding inconsistency among the researcher, opinion differs among experts in banking and finance as to what constitutes adequate capital but they all agree

that it is an age long issue for which there do not seem to be any consensus in sight. Nwankwo (1991) states adequate capital is that quantum of funds which a bank should have or plan to maintain in order to conduct its business in a prudent manner. In other words, functionally, adequate capital was regarded as the amount of capital that can effectively discharge the primary capital function of preventing bank failure by absorbing losses.

In Ethiopia, as per Article 4(4.4) of Directive № SBB/050/2011, all licensed commercial banks in Ethiopia shall at a minimum maintain capital to risk weighted assets ratio of 8% at all times.

- **Assets Quality**

Asset quality simply refers to the banks‟ asset which includes among others current asset, credit portfolio, fixed asset, and other investments. Poor asset quality is a major cause of banks failures. The loan issued by banks is the major asset that generates the major share of the banks income and thus the quality of loan portfolio determines the profitability of banks. In this regard, the downside is the risk of losses resulting from felonious loans.

Almost in all literatures Nonperforming loans (NPLs) used as a measure of the quality of banks loans portfolio. NPLs is a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days. A nonperforming loan is either in default or close to being in default. Once a loan is nonperforming, the odds that it will be repaid in full are considered to be substantially lower. If the debtor starts making payments again on a nonperforming loan, it becomes a re-performing loan, even if the debtor has not caught up on all the missed payments. In general, the riskier the banking lending practices are, the higher their NPLs ratio should be. Therefore, nonperforming loan ratios are ought to be kept at minimum so as to reflect a state of good health on the portfolio of the banks. In addition level of non-performing loans in banks‟ loan is an indication of the profitability of the bank lending activities. Credit risk in the form of NPLs is one of the crucial factors that have an impact on the financial health of a bank and growing NPLs is a challenge to banks, which will adversely affect the performance of banks (Baral , 2005) and (Rajender, 2009).

- **Inflation**

Many studies have focused attention on impact of inflation concerning lending, and conclude that inflation has a negative impact on interest margins (Afanasieff et al., 2002). Macroeconomic stability is having greater influence on bank lending policy. Because, the increase in uncertainty and inflation leads to reduction in the spread of bank loans (Banm et al., 2005). The study of Naceur (2009) offers the following explanation: the main activity of banks (mostly commercial) is lending and the market is therefore based on an offer of credit (provided by banks) and demand (the individuals and companies). Inflation reduces the demand for credit because it increases uncertainty about the future. However, it has been proven that for individuals and businesses, if their level of risk aversion vary widely it increases uncertainty (ambiguity-aversion). This drop in demand would lead to a decline in lending and therefore a decrease in performance.

- **Gross Domestic Product**

Real GDP growth is a good proxy for the business cycle because its up and downswings influence the demand for borrowing (Dietrich & Wanzenried, 2011), (Athanasoglou et al., 2008), and (Demirguc-kunt & Huizinga, 1999). Gross domestic product affect bank loans positively, since an increase in GDP causes raises in both supply and demand for loans. An increase in GDP means more funds are available for banks to make loans since deposits are more likely to increase (Mansor, 2006).

2.2.9. Lending and Financial Performance

Commercial banks accept deposits and also lend money to the people who require it for various purposes. Lending of funds to traders, businessmen and industrial enterprises is one of the important activities of commercial banks. The major part of the deposits received by banks is lent out, and a large part of their income is earned from interest on such lending. Hence, the deposit and lending activities of banks determine to a large extent, the profitability of banks. This is because banks generate their income from the interest differentials from what they pay for deposit and what they charge for their loans and advances. This expressed by Comptroller (1998) that lending is the principal business

for most commercial banks and consequently, loan portfolio is the largest asset and source of revenue for banks. Similarly, Vong et al. (2009) states that the major source of banks revenue is interest income and it contributes about 80% of commercial banks earnings. Therefore, it is obvious that the more banks offer loans the more it does generate revenue and more profit (Abreu & Mendes, 2002)

2.2.10. Theoretical Framework

- **Loan Pricing Theory**

Banks cannot always set high interest rates, e.g. trying to earn maximum interest income. Banks should consider the problems of adverse selection and moral hazard since it is very difficult to forecast the borrower type at the start of the banking relationship (Stiglize & Andrew, 1981). If banks set interest rates too high, they may induce adverse selection problems because high-risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behavior or so called borrower moral hazard since they are likely to take on highly risky projects or investments (Chodechai, 2004). According to loan pricing theory setting too high interest rate increase the chance of loan default, consequently it boosts the rate of nonperforming loan. According to loan pricing theory interest rate have a positive and significant impact on the rate of NPLs.

- **Hold-up and Soft-Budget-Constraint Theories**

Banks choice of multiple-bank lending is in terms of two inefficiencies affecting exclusive bank firm relationships, namely the hold-up and the soft-budget-constraint problems. According to the hold-up literature, sharing lending avoids the expropriation of informational rents. This improves firms‟ incentives to make proper investment choices and in turn it increases banks‟ profits (Von-Thadden, 2004) and (Padilla and Pagano, 1997). As for the soft-budget-constraint problem, multiple bank lending enables banks not to extend further inefficient credit, thus reducing firms‟ strategic defaults. Both of these theories consider multiple-bank lending as a way for banks to commit towards entrepreneurs and improve their incentives. Signaling argument states that banks only

require collateral and or covenants for relatively risky firms that also pay higher interest rates (Chodechai, 2004) and (Ewert and Schenk, 1998).

- **Credit Market Theory**

The theory postulates that if collateral and other pertinent restrictions remain given, then it is only the lending rate that determines the amount of credit that is dispensed by the banking sector. Therefore, with an increasing demand for credit and a fixed supply of the same, interest rates will have to rise. Any additional risk to a project being funded by the bank should be reflected through a risk premium that is added to lending rate to match the increasing risk of default. Subsequently, there exist positive relationships between the default probabilities of a borrower and the interest rate charged on the advance. It is thus believed that the higher the failure risks of the borrower, the higher the interest premium (Ewert et al., 2000). Credit market theory is directly support the idea of loan pricing theory.

2.3.Empirical Literatures

A lot has been reviewed in terms of lending activities of various commercial banks. Some opinions deliberated on the factor responsible for banks willingness to extend much credit to some sector of the economy, while some discussed effect of such extension of credits on productivity and output. Most of these earlier studies agreed on the fact that it is logical for banks to have some basic lending principles or consideration to act as a check in their lending activities. Since there are many studies in respect of banks‟ lending behaviour, it is therefore imperative to highlight and consider some factors affect the lending decision that researchers and professionals have proposed as virtually significant in explaining the loan portfolio performance.

2.3.1.Empirical Studies on Bank Lending

A number of studies have examined the determinants of banks‟ lending decision in many countries around the world. Most of the studies consider internal factors (i.e., banks‟ specific) and external factors (i.e., macroeconomic and legal environment) by focusing on the supply side or demand side and examine either a particular country or a number of

countries. This section discusses the empirical studies which related to the objective of the study.

Benjamen and Onyeuchi (2015) conducted an investigation on the determinants of deposit money banks‟ loans and advances in Nigeria by using Ordinary Least Square Regression Technique over the period 1994-2013. They use Loans and Advances as dependent variable and liquidity ratio, Interest rate, rate of inflation, loan deposit ratio and cash reserve ratio as independent variables. Their findings revealed that Liquidity ratio, rate of inflation, Loan deposit ratio and Cash reserve ratio had negative effect and statistically significant effect on loans and advances while Interest rate had negative effect but statistically insignificant effect on loans and advances.

Similarly, Rabab‟ah (2015) examined the determinants of commercial banks' lending in Jordan with a sample 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 bank size and the economic growth have a positive and significant impact on the ratio of credit facilities granted by commercial banks in Jordan. Lending interest rate and inflation have negative whereas, deposit rate and legal reserve rate have positive but statistically insignificant impact on credit facilities granted by commercial banks in Jordan.

Using panel data, Sharma and Gounder (2012) examined the change in the bank credit provided to the private sector in six economies in the South Pacific during the period 1982-2009. The study used the credit granted to the private sector as a dependent variable, while the independent variables included the average interest rate on the loans, the rate of inflation, the ratio of deposits to the GDP, the size of the banks‟ assets of output, a dummy variable reflecting the existence of a financial market, and the GDP. The results showed that the higher average interest rates on loans and the higher inflation

rate may have negative effects on the rate of growth in credits, while the size of the deposits and assets had a positive impact on the growth of credit. The results also indicated that the strong economic growth leads to higher growth in credit. Guo and Stepanyan (2011) have looked at the change in the bank credit across a broad range of emerging economies over the past decade. The study used the credit granted to the private sector as the dependent variable while the independent variables included the foreign liabilities of banks, the volume of domestic deposits, the rate of inflation, the real GDP, the interest rate on deposits, the exchange rate, non-performing debt, and the money supply. The results indicated that the domestic and foreign financing contributes positively to the growth of credit provided by banks. It also found that the strong economic growth leads to an increase in credit growth and inflation rates, and that the expansionary monetary policies locally and globally lead to an increase in the volume of credit and thus strengthening the banking sector.

Djiogap and Ngomsi (2012) also analyzed the determinants of bank long-term lending behavior in the Central African Economic and Monetary Community using data from 35 commercial banks of six African countries of the CEMAC over the period 2001-2010 using a regression analysis. They use two dependent variables: the first is the ratio of bank long-term business loans to total assets and the second is the ratio of bank business loans to total assets. As independent variables the authors use: bank size, capital to asset ratio, long term liabilities, NPLs, ownership type, inflation and GDP growth. Accordingly, the regression results show that bank size, GDP growth and capital to assets ratio are positive and statistically significant in both analysis. This means that larger and well capitalized banks are more willing to grant business loans. The relationship between NPLs and the long-term loans to assets ratio is negative while there is no relationship between inflation rate and long-term loans ratio.

Additionally, Imran and Nishat (2012) investigated the determinants of the bank credit by using time series data from 1971 to 2010 in Pakistan. With the major focus on supply side this study uses the ARDL econometric approach and identifies the factors which explain the bank credit to the businesses in varying financial environments and emerging global challenges. The results indicate that the foreign liabilities, domestic deposits,

economic growth, exchange rate, and the monetary conditions are significantly associated with bank credit to the private sector in Pakistan, particularly in the long run. Whereas, the inflation and money market rate does not affect the private credit. Moreover, in the short run the domestic deposit does not influence private credit. The results also infer that the financial health and liquidity of the banks play a significant and vital role in the determination of loan.

In a recent study on determinants of commercial banks‟ lending behavior in Nigeria, Olokoyo (2011) utilized explanatory variables such as volume of deposits, investment portfolio, interest rate, cash reserve requirement, liquidity ratio, foreign exchange and gross domestic product to determine their influence on commercial banks‟ lending. The findings of the study revealed that all these explanatory variables do affect, in varying degree, the lending behaviour of deposit money banks in the country. The study reveals that explanatory variables such as volume of deposit, investment portfolio, foreign exchange and gross domestic product in particular play significant role in influencing the lending behavour of deposit money banks in the country while cash reserve ratio was insignificant.

In their study, Jonas et al. (2013) investigated the determinants of bank lending behavior in Ghana. Using the GMM-System estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998), found that bank size and capital structures have a statistically significant and positive relationship with bank lending behavior. Their finding also shows a negative and significant impact of some macroeconomic indicators (central bank lending rate and exchange rate) on bank lending behavior. Again, competition in the industry was found to have a positive and significant impact on bank lending behavior. Finally, relationship banking was found to have a positive correlation with bank lending behavior in Ghana. Thus, policies aimed at maintaining stable macroeconomic fundamentals would greatly accelerate bank lending decision.

Tomak (2013) in his study on the determinants of bank lending behavior on a sample of Turkish banks finds a significant relationship between NPLs and bank lending behavior in State owned banks and NPLs show a negative impact on the growth of total loans. Pruteanu-Podpiera (2007) investigated the impact of monetary policy, gross domestic

product growth rate and inflation on growth rate of total loans in Czech banks from 1996 to 2001. The result suggests a strong positive effect of GDP growth on the growth rate of loans, but the impact of interest rates was negative. Similarly, Rehana and Rizwana (1998) found, the level of economic activity is expected to make a positive impact on bank advances as it does not increases the demand for advances only but the supply of loanable funds as well.

Usman (1999), in a treatise on bank regulation and supervision in Nigeria, posited that the factors that affect commercial banks‟ lending behaviour depend on the choice of certain policy instruments in their banking operations. Such policy instruments as opined by Usman, (1999) include a rigidly administered interest rate structure, directed credit, cash reserve ratio requirements and stabilizing liquidity control measures like the stabilization securities. Micco and Panizza (2004) tested how bank ownership affects bank lending behavior over the business cycle in developed and developing countries and measured lending behaviour as the growth rate of loans by banks in each country. They found that loan growth is indeed correlated with macroeconomic shocks as measured by GDP growth. Specifically, increase (drop) in GDP is associated with increase (drop) in lending by private domestic banks with a similar pattern exhibited by public banks. Ajayi (2007) also investigated some major determinants of loans and advances in the Nigerian financial system. He used explanatory variables such as liquidity ratio, capital base, bank deposit and lending rates to determine their effect on loans and advances. The study discovered that a relationship exists between dependent variable (loans and advances) and independent variables of total deposit, capital base, liquidity ratio, and lending rate.

On their part, Alhassan et al. (2013) examined the persistence of bank asset quality on bank lending behaviour in Ghana using a data from the Bank of Ghana for 25 Ghanaian banks from 2005 to 2010, the study employed a random effects (RE) model to test the relationship between bank lending behavior proxied as the ratio loans and advances to total asset and bank asset quality (ratio of nonperforming loans to gross loans and advances) while controlling for deposit mobilization, equity, management efficiency, intermediation spread and income diversification. They found that the deterioration of bank asset quality (high levels of non-performing loans) had effect on bank lending

behavior and is persistence and not contemporaneous. Additionally, bank deposit mobilization, intermediation spread and equity were also found to influence bank lending behaviour.

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. Borio (1995) investigated the structure of credit to nongovernment sector and channel of monetary policy in fourteen industrialized countries and reveals that, the structure of credit was largely determined by interest rate. Irina (2003) asses bank liquidity and exchange rate in European perspective; and claim that, higher lending rates do not encourage banks to lend more. Abdulkarim et al. (2011) also investigate the impact of interest rate on bank lending in Malaysia context: and contented that, interest rate affect bank lending negatively, while controlling for other macroeconomic variables such as GDP and Inflation.

Abdkarim et al. (2007) reveal that, monetary policy tightening instruments like interest rate in Malaysia reduces bank lending to all the sectors. But it is sever in some sectors such as manufacturing and suggest that, interest rates are positively associated with Islamic financing and negatively associated with conventional loan**.** Usman (1999) by investigating a major regulation affecting commercial banks‟ lending in Nigeria; reveal that, while central bank reduces the rate what the bank charges from borrower, banks become reluctant to provide loan to firms. Bank charge high interest premium for the borrowers who have higher credit default risks repaying the loan (Ewert et al., 2000).

2.3.2. Bank Lending and Financial Performance

Alper and Anbar (2011) examined bank-specific and macroeconomic determinants of the bank‟s profitability in Turkey over the time period from 2002 to 2010. The bank profitability was measured by return on assets (ROA) and return on equity (ROE) as a

function of bank-specific and macroeconomic determinants. Using a balanced panel data set, the results show that asset size and non-interest income have a positive and significant effect on bank profitability. However, size of credit portfolio and loans under follow-up have a negative and significant impact on bank profitability.

Javaid et al. (2011) analyzed the determinants of top10 banks‟ profitability in Pakistan over the period 2004 to 2008. They focused on the internal factors only. They used the Pooled Ordinary Least Square (POLS) method to investigate the impact of assets, loans, equity, and deposits on one of the major profitability indicator of banks which is return on asset (ROA). The empirical results found strong evidence that these variables have a strong influence on profitability. However, the results show that higher total assets may not necessarily lead to higher profits due to diseconomies of scales. Also, higher loans contribute towards profitability but their impact is not significant. Equity and deposits have significant impact on profitability.

Gambacorta and Iannoti (2005) investigated the velocity and asymmetry in response of bank interest rates (lending, deposit, and inter-bank) to monetary policy shocks (changes) in Italy from 1985-2002 using an Asymmetric Vector Correction Model (AVECM) that allows for different behaviours in both the short-run and long-run .The study shows that the speed of adjustment of bank interest rate to monetary policy changes increased significantly after the introduction of the 1993 Banking Law, interest rate adjustment in response to positive and negative shocks are asymmetric in the short run , with the idea that in the long- run the equilibrium is unique. They also found that banks adjust their loan (deposit) prices at a faster rate during period of monetary tightening (easing).

De Young et al. (2005) examined factors influencing debt overhang in the US small banks (banks with assets less than $1billion) and found a support for the loan supply motivations for the pro-cyclic nature of bank lending. During an economic expansion demand for lending is high and business profitability is good, resulting in more profitable loans, more bank capital, and an expanding credit environment in which banks lend more at lower rates as they compete for business. As the economy slows, some businesses will suffer lower income or even losses, leading to delinquent loan payments or outright

default, reductions in bank capital, and a tighter credit environment as banks make fewer loans at higher rates. Their findings also indicate that risk overhang effects from outstanding loans work to decrease loan supply during a recession even more than would be implied by the reduction in bank capital alone.

In his study Obamuyi (2013) examined the extent to which banks in Nigeria have performed their intermediation functions of deposit mobilization and granting of loans and advances and the effects on their performance. The study employs secondary data obtained from the annual reports and accounts from 2006 to 2011 of seven purposively selected banks out of the 24 existing banks. The study uses descriptive statistics of trend analysis, percentage growth and averages. The banks perform impressively in deposit mobilisation, as well as in granting loans and advances, despite various socio-cultural and institutional problems inhibiting financial sector development in Nigeria. The results of the study reaffirm that banks with high deposits and loans perform better in terms of profitability than banks with low deposits and loans.

A study made by Semu (2010) assessed the impact of reducing or restricting loan disbursement on the performance of banks in Ethiopia. It also attempted to examine the possible factors that compel the banks to reduce or restrict lending, covering the period of 2005-2009. Quantitative method particularly survey design approach was adopted for the study. The findings of the study showed that net deposit and paid up capital have statistically significant relationship with banks‟ performance measured in terms of return on equity. New loan disbursement and liquidity had relationship with banks‟ performance measured in terms of both return on asset (ROA) and Return on Equity (ROE). However, the relationship was found to be statistically insignificant.

Imad et al. (2011) studied a balanced panel dataset of Jordanian banks for the purpose of investigating the nature of the relationship between the profitability of banks and the characteristics of internal and external factors for 10 banks over the period 2001 to 2010. They use two measures of bank‟s profitability: the rate of return on assets (ROA) and the rate of return on equity (ROE). The results show that the Jordanian bank‟s characteristics explain a significant part of the variation in bank profitability. High Jordanian bank profitability tends to be associated with well-capitalized banks, high lending activities,

low credit risk, and the efficiency of cost management. Results also show that the estimated effect of size did not support the significant scale economies for Jordanian banks. Due to the fact that some of the differential slope coefficients are statistically significant, they conclude that the estimation results indicate that individual effects on the profitability are present.

Based on the aforementioned literature on the bank specific as well as macroeconomic determinants of lending decision, one can safely say the following: there are mixed findings due to the variation of the environment, data included (i.e. frequency and data type) in studies and difference in methodological approaches used in each study whether it is cross-country or individual country‟s studies. Accordingly, the following section discusses the empirical studies undertaken by different researchers on the lending behavior of Ethiopian commercial banks.

2.4.Empirical Studies in Ethiopia

In the context of Ethiopia, to the knowledge of the researcher, there appears to be very limited work on the determinants of commercial banks‟ lending decision and a few works on the impact of reducing or restricting loan disbursement on the performance of commercial banks. Thus, this particular section provides a detailed review of the related studies conducted in the context of Ethiopia.

Mitku (2014) examined the main determinants of commercial banks lending in Ethiopia by using panel data of eight commercial banks in the period from 2005 to 2011. He tested the relationship between commercial banks lending and its some determinants (bank size, credit risk, gross domestic product, investment, deposit, interest rate, liquidity ratio and cash reserve required). Seven years financial data of eight purposively chosen commercial banks were used for analysis purpose. Ordinary least square (OLS) was applied to determine the impact of those predictor variables on commercial banks lending. The result suggests that, there is positive and statistically significant relationship between commercial bank lending and its size, liquidity ratio, credit risk, and gross domestic product. But, there is a positive but insignificant relationship between

commercial bank lending and deposit, investment, cash reserve required and interest rate for the study period.

Similarly, Amano (2014) in his study examined the determinants of commercial banks‟ lending behaviour in Ethiopian. The study applied the balanced fixed effect panel data of eight commercial banks in Ethiopian that covers the period 2001- 2013. The study used Ordinary Least Square (OLS) technique to investigate some internal as well as external variables that determine the lending decision of commercial banks‟ in Ethiopia and use loans and advances as dependent variable. The estimation 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 but the coefficient sign was not as expected. Finally, real GDP growth rate had statistically insignificant impact on bank‟s loan and advance.

2.5.Conclusion and Knowledge Gap

As per the above theoretical and empirical review, a strong banking system is the backbone for economic growth as well as financial stability and development process of any country. Because, as an important component of the financial system, banks channel scarce resources from the surplus economic units to the deficit economic units in the form of credit as such this activities form part of their existence. That is why many researchers revealed that lending is the principal business activity for most commercial banks, the loan portfolio is typically the largest asset and the predominate source of revenue. As such, it is one of the greatest sources of risk to a financial institution‟s safety and soundness. Therefore, without understanding determinants of lending decision good bank performance or profit would be unthinkable.

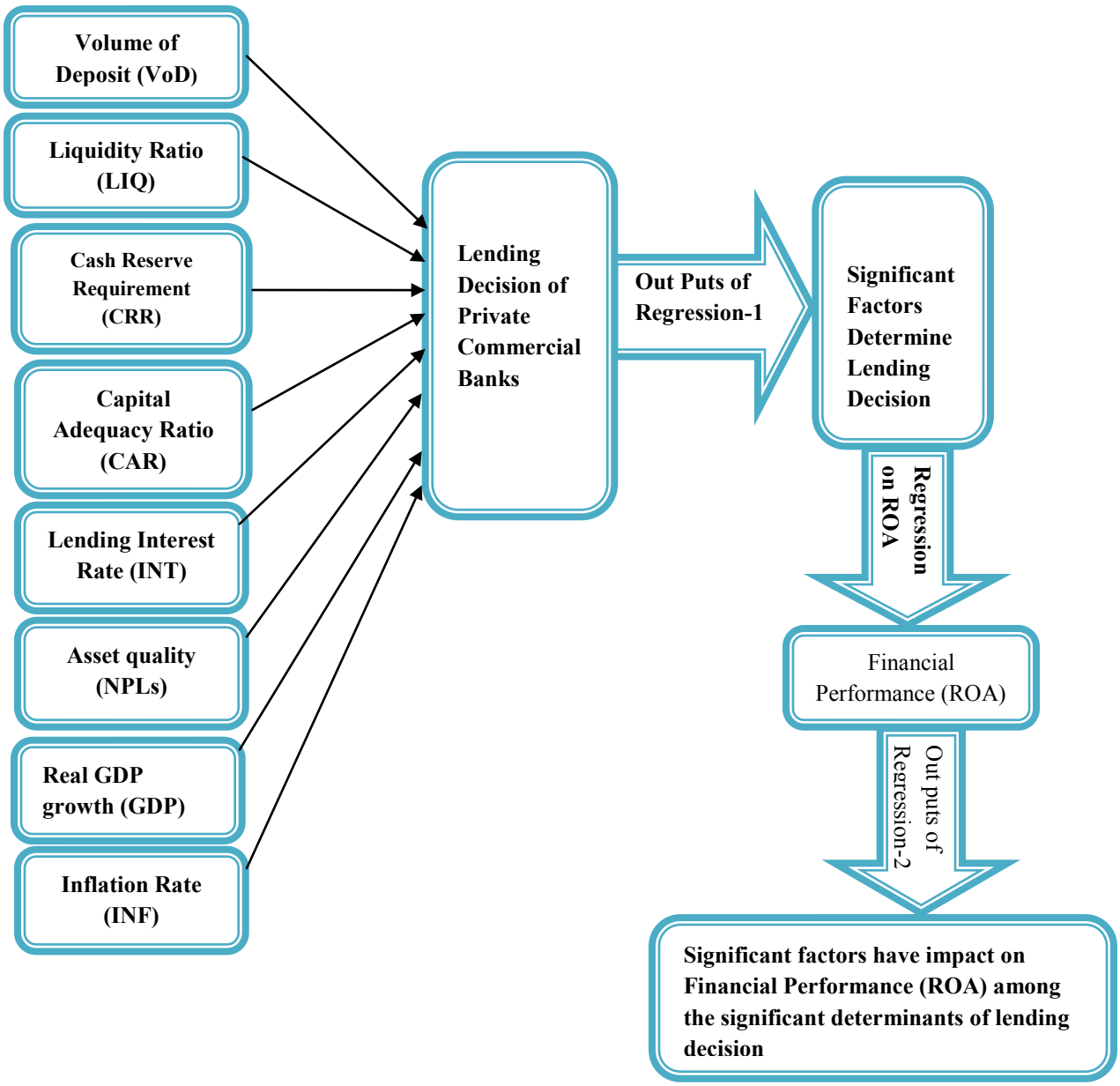
Most of the related empirical studies show that the supply of bank loans is usually expressed as a function of internal and external determinants. The internal factors are termed as micro or bank-specific determinants of bank lending, whereas the external factors are macroeconomic variables that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation and performance

of financial institutions. While there are many empirical studies on the determinants of lending decision of commercial banks in advanced economies, there have been only a few studies on the lending decision of commercial banks in developing economies like Ethiopia. In Ethiopia, the only empirical studies on this area are the research under taken by Mitku (2014) and Amano (2014) which focuses only on the determinants of lending behavior of commercial banks in the country.

In Ethiopia, since the banking industry is in the growth stage with opening of new banks and the absence of active secondary stock exchange in the country, banks are the dominant providers of funds, and their stability is of paramount important to the financial system. As stated by Adedoyin and Sobodun (1991) lending is undoubtedly the heart of banking business. Therefore, its administration requires considerable skill and dexterity on the part of the bank management. While a bank is irrevocably committed to pay interest on deposits it mobilized from different sources, the ability to articulate loanable avenues where deposit funds could be placed to generate reasonable income, maintain liquidity and ensure safety requires a high degree of pragmatic policy formulation and application. Consequently, for banks to achieve the objectives of liquidity, profitability and solvency simultaneously, lending must be handled effectively and managed properly. Indeed, this can be realized through understanding of determinants of bank lending decision and their impacts on the banks profitability, which is essential and crucial to the profitability of the banks as well as the stability of the economy

However, to the knowledge of the researcher except the research undertaken by Mitku (2014) and Amano (2014), there is no other empirical study on this area. In their study both are emphasized only on determinants of lending behavior of commercial banks in Ethiopia. But, none of them investigates the impact of lending on financial performance through the significant factors that affects the lending decision. Furthermore, there is inconsistent results between these two previous researches which need a detailed investigation on this area. Therefore, the lack of sufficient research on the issue in the context of Ethiopia and the existence of inconsistent results between the two previous studies initiate this study. Hence the objective of this study is the fill the knowledge.

Figure 2.1. The conceptual framework or model of the study adopted from Tseganesh (2012) with modification by the researcher



CHAPTER THREE

METHODOLOGY

The preceding chapter of the study has attempted to discuss the theories as well as empirical studies related to determinants of lending decision and their impact on financial performance and finally the existing knowledge gap.

The purpose of this chapter is to present the underlying principles of research methodology and the choice of the appropriate research method for the study. The chapter is arranged as follows: Section 3.1 deals with research design. Section 3.2 presents research approach adopted by the study. This is followed by sample design under section 3.3. Next, the nature of the data, instrument of data collection, data analysis and presentation techniques are explained in section 3.4. Section 3.5 describes study variables. Finally, section 3.6 deals with model specification.

3.1.Research Design

Research design provides the framework for the collection and analysis of data (Bryman & Bell, 2011). Or it is the plan and structure of investigation so conceived as to obtain answers to research questions (Cooper & Emory, 1995). This means it gives the procedure necessary for obtaining the information needed to solve the research problems. Many research designs could be used to study business problems (Hair et al., 2011). Depending on the way in which researchers ask their research questions and present their purpose, the research design could be classified into three groups, namely exploratory, descriptive and explanatory studies (Saunders et al., 2009).

Exploratory study is performed when the researcher has little information or when the research problem is badly understood (Hair et al., 2011) and (Ghuari & Gronhaug, 2005). It is particularly useful to clarify the understanding of a problem, such as if you are unsure of the precise nature of the problem (Saunders et al., 2009).

As to the descriptive studies, they are designed to obtain data that describe the characteristics of the topic of interest in the research (Hair et al., 2011). In descriptive research, the research problem is structured and well understood (Ghuari & Gronhaug,

2005). Compared with exploratory study, descriptive study would give the readers reasonable answer addressed to the research question. In other words, it is used for testing hypothesis (Hair et al., 2011).

The last category is explanatory study or in some book scaled "causal research design" (Saunders et al., 2009) and (Hair et al., 2011). In this type of research, the problems are well structured as in descriptive studies. In contrast to descriptive studies, the researcher is facing with "causes-and-effects" problems. The main task is to separate such causes and to say to what extent they lead to such effects (Ghuari & Gronhaug, 2005). In other words, it is to explain the causal relationship between variables (Saunders et al., 2009). Based on the above discussion, to achieve the intended objective this study was employed explanatory research design.

3.2.Research Approach adopted

As noted in Creswell (2003) in terms of investigative study there are three common approaches to business and social research namely qualitative, quantitative and mixed methods approach. Qualitative research approach is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem with intent of developing a theory or pattern inductively (Creswell, 2009).

On the other hand, Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). Quantitative methods are frequently described as deductive in nature, in the sense that inferences from tests of statistical hypotheses lead to general inferences about characteristics of a population and also this method is frequently characterized as assuming that there is a single "truth" that exists, independent of human perception (Guba & Lincoln, 1994). As of Morse (1991) if the problem is identifying factors that influence an outcome, the utility of an intervention or understanding the best predictors of outcomes` then a deductive (quantitative) approach is best; it is also the best approach to test a theory or explanation. Also Creswell (2003) indicated that the researcher tests a theory by specifying narrow hypotheses and the collection of data to support or refute the hypotheses.

Finally, mixed methods approach is an approach in which the researchers emphasize the research problem and use all approaches available to understand the problem (Creswell, 2003). Hence, based on the above discussions of the three research approaches and by considering the research problem and objective, in this study, the quantitative method was used.

3.3.Sampling Design

3.3.1. Study Population

According to Sekaran (2003), Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate. The study population or participants of this research are all private commercial banks in Ethiopia. As per NBE report, currently there are sixteen private commercial banks in Ethiopia (NBE, 2015). These includes: Abay Bank S.C (AB), Addis International Bank S.C (AdIB), Awash International Bank S.C (AIB), Bank of Abyssinia S.C (BOA), Berehan International Bank S.C (BIB), Buna International Bank S.C (BUIB), Cooperative Bank of Oromia S.C (CoBO), Dashen Bank S.C (DB), Debub Global Bank S.C (DGB), Enat Bank S.C (EB), Lion International Bank S.C (LIB), Nib International Bank S.C (NIB), Oromia International Bank S.C (OIB), United Bank S.C (UB), Wogagen Bank S.C (WB) and Zemen Bank S.C (ZB).

3.3.2. Sampling Technique

Sampling involves the various procedure uses to select a part to represent a population. According to Zikmund (2000) there are two main alternative procedures which could be used in the selection of an appropriate sample and these include probabilistic/random sampling and non-probabilistic/non-random sampling. The probabilistic sampling is a sample procedure which gives each one in the population non-zero probability of selection. In other words it is about giving every element in the population the same opportunity to be selected. On the other hand, non-probabilistic sample involves the selection of a sample on the basis of personal judgment or purposive sampling. Purposive sampling offers the researcher to deliberately select items for the sample concerning the

choice of items as supreme based on the selection criteria set by the researcher. In order to obtain representative data, non-probabilistic or purposive sampling technique was employed in this study.

3.3.3. Sample Size

Sampling size can be defined as the number of units in a population to be studied. The study includes all private commercial banks that have at least fifteen years data i.e., 2001-2015. Thus, the sample size is six Private commercial banks in Ethiopia which includes, Awash International Bank S.C (AIB), Bank of Abyssinia S.C (BoA), Dashen Bank S.C (DB), Nib International Bank S.C (NIB), United Bank S.C (UB) and Wogagen Bank S.C (WB). Therefore, the matrix for the frame is 6*15 that includes 90 observations. A justification for this choice sample period is to capture significant economic downturns and upturns. In addition, at the end of June 30, 2015 from 155.2 billion total assets and 75.1 billion total outstanding loans and advances of private commercial banks in Ethiopia, these six banks shared 68% and 66% respectively (NBE, 2015). Moreover, since the sources as well as the types of loans and ways of loan supply are homogenous across private commercial banks in Ethiopia, the selected samples are sufficiently represent the population.

3.4.Nature of Data, Instrument of Data Collection, Data Analysis and Presentation

3.4.1. Nature of Data and Instrument of Data Collection

As noted in Baltagi (2005), the advantage of using panel data is that it controls for individual heterogeneity, less collinearity among variables and tracks trends in the data which simple time-series and cross-sectional data cannot provide. Besides, by combining time series and cross-section observations, it gives more informative data. Furthermore, panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data (Gujarati, 2004). Therefore, data used for this study was panel data.

Data collection method is a phrase used to describe the way or manner in which a researcher gathers relevant information which he or she is going to use to answer the

research questions. There are basically two main sources by which the researcher can collect data; the primary and secondary source. Primary data source is when the researcher collects new information either through observations, interviews, questionnaires and then uses this data for analysis (Saunders et al., 2009). Secondary data is data that exists somewhere having been collected and used for some other purposes (Gupta, 2012). After evaluating all possible data collection methods, the researcher found that the most appropriate method that provides practical answers to the research questions and the stated objectives of the study is the use of secondary data. Hence, the data used for this study is secondary in a nature which was obtained from audited annual financial reports of each purposively selected private commercial bank for bank-specific factors and publications of the National Bank of Ethiopia (NBE) and Ministry of Finance and Economic Development (MoFED) for macroeconomic factors.

3.4.2. Data Analysis and Presentation

The collected panel data were analyzed using descriptive statistics, correlations and multiple linear regression analysis. Descriptive statistics used to analyze the general trends of the data from 2001-2015 based on the sample of six private commercial banks. Correlation matrix was used to examine the relationship between the dependent variables and explanatory variables. A multiple linear regression model was used to determine the relative importance of each independent variable in influencing lending decision and its impact on the financial performance of the banks. Finally, Ordinary Least Square (OLS) regression approach including all of its assumptions were conducted using E-views 9 econometric software package, to test the casual relationship between the commercial banks‟ lending and financial performance and their potential determinants. The assumptions were tested to see the applicability of the regression models developed first to test the relationship between banks loans and advances and independent variables and then to see the impact of lending on financial performance through the significant factors explaining lending of commercial banks in Ethiopia.

Since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM)

(Brooks, 2008). To examine whether individual effects are fixed or random, a Hausman specification test was conducted

3.5.Study Variables

3.5.1. Dependent Variable

- **Loans and Advances**

According to Adepoju et al. (2007) the loans and advances refers to the amount borrowed by one person from another. The amount is also refers to the sum paid to the borrower. Thus, from the view point of borrower, it is „borrowing" and from the view point of bank, it is „lending". Loan may be regarded as „credit" granted where the money is disbursed and its recovery is made on a later date. It is a debt for the borrower. While granting loans, credit is given for a definite purpose and for a predetermined period. Interest is charged on the loan at agreed rate and intervals of payment. „Advance" on the other hand, is a „credit facility" granted by the bank. Banks grant advances largely for short-term purposes, such as purchase of goods traded in and meeting other short-term trading liabilities. There is a sense of debt in loan, whereas, an advance is a facility being availed of by the borrower. However, like loans, advances are also to be repaid. Thus, a credit facility- repayable in installments over a period is termed as loan while a credit facility repayable within one year may be known as advances. To proxy loan and advance, log of loan and advance were used.

- **Profitability**

According to Alper and Anbar (2011), in measuring the profitability of commercial banks there are variety of ratios used of which Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) are the major ones as described below.

Return on Assets (ROA): following Golin"s (2001) study, ROA has become the key ratio for measuring bank profitability in recent literature. It gives an idea as to how efficient management is using its assets to generate earnings and reflects the ability of a bank"s management to generate profits from the bank"s assets. It presents the return on each Birr of invested assets and can be measured simply by net profit after tax over total assets.

One major drawback however is that it may have an upward bias. This is because total assets fail to take into account off-balance sheet activity, but those activities are reflected in the numerator through income. But many scholars believe ROA is the best measure of bank profitability (Hassen & Bashir, 2003). Rivard and Thomas (1997) suggest that bank profitability is best measured by ROA in that ROA is not distorted by high equity multipliers and it represents a better measure of the ability of the firm to generate returns on its portfolio of assets. According to Wen (2010) a higher ROA shows that the company is more efficient in using its resources and calculated as:

$$\textbf{Return on Assets} = \frac{\textbf{Net Profit After Tax}}{\textbf{Total Assets}}$$

***Return on Equity (ROE)*:** is the rate of return to shareholders or the percentage return on each Birr of equity invested in the bank. It measures a firm‟s efficiency at generating profits from every unit of shareholders‟ equity (also known as net assets or assets minus liabilities). The ROE tells common shareholders how effectively their money is being employed.

Using this measure gets rid of the off-balance sheet activity bias in the denominator because those activities are reflected in shareholder equity. Where this ratio runs into problems however, is that it fails to take into account financial leveraging. More specifically, profits generated with debt financing distort ROE because debt-financing profits are incorporated in net income, the numerator, but not shareholder equity, or the denominator. Therefore, a resultant high ROE can reflect either high profitability or low capital adequacy. It calculated as:

$$\textbf{\textit{Return on Equity}} = \frac{\textbf{Net Profit After tax}}{\textbf{Average Equity Capital}}$$

Net Interest Margin (NIM): another commonly watched measure of bank profitability is Net Interest Margin. It is described as a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders (for example, depositors), relative to the amount of their (interest earning) assets (Ongore & Kussa, 2013). If a bank manager has done a good job of asset and liability management

such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. It is usually expressed as a percentage of what the financial institution earns on loans in a specific time period minus the interest paid on borrowed funds divided by the amount of total loans and advances.

$$\textbf{Net Interest Margin} = \frac{\textbf{Net Interest Income}}{\textbf{Total Loans and Advance}}$$

However, there are divergent views among scholars on the superiority of one indicator over the others as a good measure of profitability. Depending on the aforementioned facts Return on Assets (ROA) was used in this study.

3.5.2. Independent Variables

- **Volume of Deposit**

Deposits forms majority of banks liabilities and plays an important role in the intermediation activities of banks. The decisions of banks management to lend are greatly influenced by the volume and cost of deposits to the banks. The interest paid on deposits ensures that banks should earn return over and above their cost of funds, hence the transformation of these liabilities to loan assets to generate interest income. The larger the volume of bank deposits, the more loanable funds available to the banks, hence the higher likelihood of given out more loans and advances. Olokoyo (2011) asserts that commercial banks deposits have the greatest impacts on their lending behaviour. Accordingly, positive relationship is thus expected between volume of deposits and bank lending decision. The deposits ratio is measured as the ratio of customer deposits to banks‟ total liabilities.

$$\textbf{Volume of Deposit Ratio} = \frac{\textbf{Total Deposit}}{\textbf{Total banks}' \textbf{ Liabilities}}$$

H1: Volume of deposit has positive effect on banks‟ loan and advance

Asset Quality

A deterioration in a banks‟ asset quality serve as indicator of the risk levels being assumed by banks, hence tighten credit standards leading to a reduction in future banks‟ lending to reduce its risk levels. The impact of bank asset quality on lending decision is both direct and indirect. With the direct effect, deterioration in bank loan assets indicates that banks are taking on high risks and hence banks cannot build up its risk at minimum levels, they tighten credit standards which will reduce the number of the whole loan applicants as well as successful loan applicants. With the indirect effect, incurring losses from nonperforming loans demands loan write-offs which depletes the equity capital of banks. This would in-turn affect the bank's ability to write more loan and advances, hence reduction in lending, called the capital crunch by Richard Syron former president of the Boston Federal Reserve (Bernanke et al., 1991).

This study use the Nonperforming loans (NPLs), as a measure of the quality of bank loans portfolio. NPLs is a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days. A nonperforming loan is either in default or close to being in default. Most of the research undertaken in this area shows that, if banks have high nonperforming loans ratios they tend to lower their credit supply in order to be more cautious. Tomak (2013) in his study on the determinants of bank lending behavior of a sample of Turkish banks, finds that a significant relationship between NPLs and bank lending behavior and NPLs show a negative impact on the growth of total loans. Hence, this study expects a negative relationship between the nonperforming loans and credit growth.

$$\textbf{NPL Ratio} = \frac{\textbf{Total Nonperforming loans } \& \textit{ Advances}}{\textbf{Total Loans and Advances}}$$

H2: Asset quality has negative effect on banks‟ loan and advance

Liquidity Ratio

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 pays 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 is described by the ratio of current asset to current liabilities.

$$\textbf{Liquidity Ratio} = \frac{\textbf{Current Assets}}{\textbf{Current Liabilities}}$$

H3: Liquidity ratio has positive effect on banks‟ loan and advance

Cash Reserve Requirement

Reserve requirements are considered to be a powerful tool for government to control the activities of commercial banks‟. The reserve requirement (or cash reserve ratio) is a central bank‟s regulation that sets the minimum reserves each commercial bank must hold (rather than lend out) of customer deposits and notes. It is normally in the form of cash stored physically in a bank vault (vault cash) or deposits made with a central bank. 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. In this study annual reserve requirement rate was used as proxy.

H4: Cash reserve requirement has negative effect on banks‟ loan and advance

- **Capital Adequacy Ratio**

Capital adequacy is the level of capital that banks are required to hold to enable them withstand credit, market and operational risks they are exposed to. It is used to absorb the potential losses resulted from their day to day activities and protect the bank's debtors. This is a critical factor in the sense that capital itself is the amount of the bank‟s own fund available to support the bank's business at all times and it also serves or acts as a buffer in strained situations. Therefore, banks‟ capital creates liquidity for the bank due to the fact that they cannot merely rely on deposit as they are most fragile and prone to bank runs. Capital adequacy is evaluated on the basis of capital adequacy ratio (CAR), which demonstrates the internal strength of the bank to withstand losses when calamity strikes.

The equity ratio is an indication of the risk characteristics which is risk aversion. Bank capitalization can affect bank willingness and ability to extend long term loans in several different ways. Banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore increasing bank equity enhances the bank‟s capacity to increase lending. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for longer term loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans. Bouvatier and Lepetit (2007) and Djiogap and Ngomsi (2012) found that poorly capitalized banks are constrained to expand credit. Bank capitalization is measured by the ratio of paid-up capital to total assets.

$$\textbf{Capital Adequacy Ratio} = \frac{\textbf{Paid up capital}}{\textbf{Total Assets}}$$

H5: Capital Adequacy Ratio has positive effect on banks‟ loan and advance

Lending Interest Rate

Monetary contraction and interest rate increase reduce spending directly; both also reduce spending indirectly by shrinking bank loan supply (Bernanke and Blinder, 1988). Abdulkarim et al. (2011) investigated the impact of interest rate on bank lending in Malaysia context: and contented that, interest rate affect bank lending negatively, while controlling for other macroeconomic variables such as GDP and Inflation. Controversial finding which states riskier credit contracts are assigned lower interest rate premiums by banks. 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 sever in some sectors such as manufacturing and suggest that, interest rates are positively associated with Islamic financing and negatively associated with conventional loan.

To proxy interest rate, lending interest rate on annual average loans and advances was used in this study.

H6: Interest rate has negative effect on banks‟ loans and advances

Inflation

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. To proxy inflation, the annual gross inflation rate was used in this study.

H7: Inflation rate has negative effect on banks‟ loan and advance

- **Gross Domestic Product (GDP)**

GDP growth is used to control cyclical output effect which, it assumes, has a positive influence on bank lending. However, when the GDP growth slows down, particularly during recessions, credit quality deteriorates, and default increases thus, reducing subsequent bank lending (Flamini et al., 2009). Most studies, specifically, Dietrich and Wanzenried (2011), Athanasoglou et al. (2008), and Demirguc-Kunt and Huizinga (1999), postulate and show that real GDP growth is a good proxy for the business cycle because its up and downswings influence the demand for borrowing. The study of the effect of GDP on demand for credit was carried by the assumption that better economic conditions increase the consumer and investor optimism. With higher expectations on future income, they tend to smooth consumption by increasing borrowing. This means that a GDP growth usually is followed by good macroeconomic conditions and usually is noticed an expansion of credit growth. The yearly real Gross Domestic Product (GDP) growth rate was used in this study.

H8: Gross Domestic Product (GDP) growth has positive effect on banks‟ loan and advance

- **Lending and Financial Performance**

Lending is a main source of commercial banks‟ profit among the others activities. Dasah et al. (2012), shows that lending is a primary business of every commercial bank in the world, which is the source of net interest income. Similarly, Hosna et al. (2009), Bashir (2000) and Fries et al. (2002) in their study indicates that granting credit is indeed one of the main sources of income; hence large credit portfolio ought to mean improved profitability of commercial banks (Aburime, undated).

H9: Bank lending has positive impact on banks‟ financial performance

3.6.Model Specification

The nature of data that was used in this study enable the researcher to use panel/longitudinal data model which is deemed to have advantages over cross sectional and time series data methodology. 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.

In summary, the fundamental thus, the general panel/longitudinal regression model was as follows:

$$Y_{it} = \alpha + \beta x_{it} + u_{it}$$

With subscript i denote the cross-section and t representing the time-series dimension. The left-hand variable Y_{it} is the dependent variable, α is the intercept term, β is a $k \times 1$ vector of parameters to be estimated on the explanatory variables, and X_{it} is a $1 \times k$ vector of observations on the explanatory variables, $t = 1, \ldots, T$; $i = 1, \ldots, N$. Therefore, the general models which incorporate all of the variables to test the hypotheses of the study are:

$$TLA_{it} = \alpha + \beta_1 LIQ_{it} + \beta_2 VoD_{it} + \beta_3 CRR_t + \beta_4 INT_t + \beta_5 CAR_{it} + \beta_6 NPL_{it} + \beta_7 INF_t + \beta_8 GDP_t + u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where,

TLA_{it}: log of Total loans and advances for bank i^{th} in year t

LIQ_{it}: ratio of Current assets to Current liabilities for bank i^{th}in year t

VoD_{it}: ratio of total deposit to total bank‟s liabilities for bank i^{th}in year t

CRR_{it}: annual cash reserve requirement rate in year t

INT_{it}: Lending interest rate on annual average loans and advances for year t

CAR_{it}: ratio of Paid-up capital to total assets for bank i^{th}in year t

NPL_{it}: ratio of total NPL to total loans and advances for bank i^{th}in year t

INF_t: annual inflation rate for year t

GDP_t: annual real GDP growth for year t

Regression is more powerful than correlation. According to Brooks (2008), unlike correlation, in the case of regression if x has significant impact on y, thus change in y is influenced by change in x. Therefore, to see the impact of banks‟ lending on financial performance, the significant factors affecting lending decision was used as the representatives for the variation in lending. Therefore, the second regression model which was used to see the impact of banks‟ lending on financial performance is:

$ROA_{it} = \alpha + \Sigma^{n}_{it}Sfal + u_{it}$**…….. (2)**

Where,

Sfal: Significant factors affect lending

↳ **Expected Sign**

Table 3.1 Description of the variables used in the regression model

Variables	Description	Notions	Used by (Source)	Expected Result
Dependent Variables				
Total Loans & Advances	Log of total loans and advances of the bank	TLA	Olokoyo (2011), Mitku (2014) & Amano (2014)	NA
Return on Assets	The ratio of net profit after tax to total assets	ROA	Obamuyi (2013) &Javaid et al. (2011)	NA
Independent Variables				
Liquidity Ratio	The ratio of Current Asset to Current Liabilities	LIQ	Ituwe (1985) &Mitku (2014)	+
Volume of Deposit	The ratio of customer deposit to total bank‟s liabilities	VoD	Ajayi (2007), Mitku (2014) &Ojo (1978)	+
Cash Reserve Requirement	annual cash reserve requirement rate	CRR	Christian & Pascal (2012), Cargill & Mayer (2006) &Montro& Moreno (2011)	-
Lending Interest Rate	interest rate on annual average loans and advances	INT	Amano (2014) & Bernanke and Blinder (1988)	-
Capital Adequacy Ratio	The ratio of Paid up capital to total assets	CAR	Djiogap and Ngomsi (2012) &Imran and Nishat (2012)	+
Asset Quality	The ratio of total NPL to total loans and advances	NPL	**Alhassan et al. (2013 Rabab'ah (2015), &Tomak (2013),**	-
Inflation	Annual inflation growth rate	INF	Naceur (2009), Banm et al. (2005) &Olaiyan (2000)	-
Gross Domestic Product growth	The yearly real GDP growth rate	GDP	Dietrich and Wanzenried (2011) &Mitku (2014)	+

CHAPTER FOUR

RESULTS AND DICUSSIONS

This chapter deals with the results and analysis of the findings. The chapter contains three sections. The first section presents descriptive analysis on variables of the study; the second section; presents the result of the fulfillment of the classical linear regression model (CLRM) assumptions; the third section lays down the results of regression analysis that constitute the main findings of this study.

4.1.Descriptive statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for six private Commercial Banks from the year 2001 to 2015 with a total of 90 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable Total Loans &Advances (TLA) and Return on Assets (ROA) and independent variables: Volume of Deposit (VoD), Nonperforming Loans (NPL), liquidity (LIQ), Cash Reserve Requirement (CRR), Capital Adequacy Ratio (CAR), Lending interest rate (INT), Inflation (INF) and Gross Domestic Product (GDP).

Table 4.1. Descriptive statistics of the dependent and independent variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Observation
TLA	9.2799	9.378	10.0887	8.1236	0.4677	90
ROA	0.0247	0.0268	0.0462	-0.0181	0.0102	90
VoD	0.8510	0.8684	0.9385	0.6249	0.0612	90
NPL	0.0713	0.0527	0.2407	0.0153	0.0493	90
LIQ	0.4423	0.4128	0.8304	0.1839	0.1560	90
CRR	0.0866	0.1000	0.1500	0.0500	0.0388	90
CAR	0.0836	0.0777	0.2503	0.0292	0.0378	90
INT	0.1116	0.1188	0.1275	0.0925	0.0157	90
INF	0.1238	0.1060	0.3640	-0.1060	0.1204	90
GDP	0.0911	0.1030	0.1260	-0.0210	0.0396	90

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

Table 4.1 shows the average indicators of variables computed from the financial statements of sampled banks as well as NBE reports and the standard deviation that shows how much dispersion exists from the average value. According to Brooks, (2008), a low standard deviation indicates that the data point tend to be very close to the mean, whereas high standard deviation indicates that the data point are spread out over a large range of values.

As shown above all variables comprised 90 observations. The dependent variables are total loans and advances (TLA) and Return on Assets (ROA). The remaining variables are the independent variables.

The mean value of the dependent variable that is total loan and advances was 9.28 with a standard deviation of 0.4677%. The standard deviations of 0.4677% show lower dispersion of total loans and advances from its mean for the private commercial banks in Ethiopia when compared to the variation in independent variable. The maximum and the minimum value of the TLA is 10.09 and 8.12respectively.The mean value of the second dependent variable that is ROA was 2.47% with the maximum and minimum value of 4.62% and -1.81% respectively. This revealed that private commercial banks in Ethiopia were able to generate an average positive return of 2.47% on their assets for the last 15 years. The maximum and minimum value indicates that the most profitable bank earned 4.62 cents of net profit from a single Birr of asset investment and least profitable bank losses 1.81 cents of net profit from a unit of Birr asset invested during the period under study. The standard deviation 1.02% was closer to the mean which shows that almost few variations were observed in the profit of private commercial banks (PCBs) in Ethiopia.

As far as independent variables concerned, the mean value of VoD was 85.10% which shows that on average customers‟ deposit (i.e. saving deposit, demand deposit and fixed deposit) share 85.10% from the total liabilities of private commercial banks. Its maximum value 93.85% and minimum value 62.49% shows that there was a higher variation on the volume of deposit over the sample period for this study (i.e. from 2001-2015).

The mean of NPLs was 7.13% with a minimum of 1.53 % and a maximum of 24.07%. This indicates that, from the total loans that private commercial banks (PCBs) disbursed, an average of 7.13% were being default or uncollected over the sample period. The lowest NPLs ratio that PCBs experienced over the sample period was 1.53 %. The disparity between the minimum 1.53 % and the maximum 24.07% of NPLs indicate the margin that NPLs ratio of PCBs ranged over the sample period. One possible reason for the declining of the NPLs ratio is that the directive issued by regulatory organ (i.e. NBE) that obliged all commercial banks to keep their NPLs ratio below 5%. Indeed, commercial banks may properly work and improve their follow-up techniques to reduce the amount of nonperforming loans to keep the ratio below the maximum threshold set by NBE as per Directive № (NBE, 2008).The standard deviation of 4.93% of NPLs from its mean value shows the existence of variation among PCBs in terms their loan recovering capacity even though they has kept the NPLs ratio below 5%.

Furthermore, the outputs of the descriptive statistics indicate that, the ratio of liquid assets was 44.23% on average, with a minimum of 18.39 % and a maximum of 83.04 %. The liquidity measure indicates that the Ethiopian commercial banks have, on average, a higher liquidity position which was higher than the statutory requirement of 15% NBE Directive № SBB/57/2014.On the other hand, the standard deviation value of liquidity was 15.60% which shows the highest deviation from its mean when compared to other explanatory variables. This indicates that there was a highest variation among private commercial banks liquidity in Ethiopia.

The mean value of capital adequacy was 8.66% with a maximum of 25.03%.The average capital adequacy ratio surpassed the minimum ratio of 8% set by NBE on Directives № SBB/50/2011. This can indicate existence of sound financial condition in Ethiopian commercial banks. The standard deviation statistics for capital strength was 3.78% which shows the existence of variation of equity to asset ratio between the private commercial banks in Ethiopia.

The average lending rate of PCBs was 11.16%; the standard deviation (i.e. 1.57%) was the lowest of all the explanatory variables used in this study. This indicates that the average lending rate of PCBs was highly stable over the sample period. On the other

hand, the mean value cash reserve requirement rate was 8.66% with the maximum and minimum value of 15% and 5 % respectively. Its standard deviation was 3.88% which was high when compared to the standard deviation of average lending interest rate.

Among macroeconomic variables employed in this study inflation had a higher standard deviation which was 12.04%. This implies that inflation rate in Ethiopia during the study period remains unstable. On the other hand, the average real GDP growth in Ethiopia for the last fifteen years was 9.11%, with a standard deviation of 3.96% implies that the economic growth in Ethiopia during the sample period remains stable as compared to the inflation rate.

4.2.Correlation Analysis

Correlation is a way to index the degree to which two or more variables are associated with or related to each other. The most widely used bi-variant correlation statistics is the Pearson product-movement coefficient, commonly called the Pearson correlation which was used in this study. Correlation coefficient between two variables ranges from +1 (i.e. perfect positive relationship) to -1 (i.e. perfect negative relationship). The sample size is the key element to determine whether or not the correlation coefficient is different from zero/statistically significant. As a sample size approaches to 100, the correlation coefficient of about or above 0.20 is significant at 5% level of significance (Meyers et al., 2006). The sample size of the study was 6*15 matrixes of 90 observations which was around 100 hence the study used the above justification for significance of the correlation coefficient.

According to Brooks (2008), if it is stated that y and x are correlated, it means that y and x are being treated in a completely symmetrical way. 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. Correlation Matrix of Dependent and Independent Variables

Correlation Probability	TLA	ROA	VoD	NPL	LIQ	CRR	CAR	INT	INF	GDP
TLA	1.0000									
ROA	0.5688	1.0000								
VoD	0.3860	0.0920	1.0000							
NPL	-0.6628	-0.2190	-0.1810	1.0000						
LIQ	0.1534	-0.0985	0.0766	0.0372	1.0000					
CRR	-0.5417	-0.1759	-0.1664	0.3779	0.2530	1.0000				
CAR	0.5172	0.1483	0.2693	-0.1374	0.2088	-0.0054	1.0000			
INT	0.5104	0.3700	0.1586	-0.6111	-0.2482	-0.6478	0.0642	1.0000		
INF	0.4595	0.4338	0.1686	-0.3455	-0.3290	-0.2765	0.1935	0.3557	1.0000	
GDP	0.5219	0.5634	0.3012	-0.5148	-0.0400	-0.0273	0.2763	0.4299	0.2961	1.0000

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

As indicated in the table above nonperforming loans and cash reserve requirement rate had statistically significant and negative relationship with loans and advances. Similarly, volume of deposit had statistically significant but positive linear relationship with total loans and advances. The result for these the three variables are in line with the expectation of the study.

Lending interest rate had statistically significant and positive linear relationship with total loans and advances. This result was opposing to the expectation of the study which states that total loans and advances and lending interest had negative relationship. This derives from the fact that when banks increase lending interest rates the individuals or businesses tend to lower their demand for credit and finally results in that increase of interest rates determines a reduction of credit growth and vice versa. On the other hand capital adequacy ratio had statistically significant and positive linear relationship with total loans and advances and the result is in line of the expectation of the study. The study was expects positive linear relationship. Because, bank capitalization can affect bank willingness and ability to extend loans and advances in several ways: Banks with larger

capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore increasing bank equity enhances the bank‟s capacity to increase lending.

Similarly, liquidity of the bank had positive relationship with total loans and advances but statistically insignificant/ not different from zero with coefficient correlation of 0.15. This result is also in line with the expectation of the study. Indeed, a bank‟s ability to grant loans and advances was checked by the available cash in its vault. The demands by customers in terms of withdrawals from their deposits 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 (Ituwe , 1985).

The macroeconomic factors both real Gross Domestic Product and inflation had statistically significant and positive linear relationship with total loans and advances. But, the result of inflation goes up against to the expectation of the study.

As far as return on assets concerned, volume of deposit, liquidity, cash reserve requirement and capital adequacy had statistically insignificant relationship with ROA whereas, nonperforming loans, lending interest rate, inflation, and gross domestic product had statistically significant linear relationship with ROA at 5% significance level. Among the significant variables nonperforming loan had negative linear relationship with return on assets.

In general, volume of deposit, capital adequacy, lending interest rate, inflation and real gross domestic product had statistically significant at 5% significance level and positive linear relationship with total loans and advances with coefficient correlation of 0.38, 0.52,0.51, 0.45 and 0.52 respectively. This implies that an increase in these factors also leads to an increase in total loans and advances in private commercial banks in Ethiopia.

On the other hand, nonperforming loans and cash reserve requirement had negative linear relationship with total loans and advances and statistically significant at 5% significance level with coefficient correlation of -0.66, and -0.54 respectively. This shows that an

increase in these factors leads to decrease in total loans and advances of private commercial banks in Ethiopia and vice versa.

Finally, even though the correlation analysis shows the direction and degree of associations between variables, it does not allow the researcher to make cause and effects inferences regarding the relationship between the identified variables. Thus, in examining the effects of selected independent variables on total loans and advances, the econometric regression analysis which is discussed in the forthcoming section of the paper gives assurance to overcome the shortcomings of correlation analysis.

4.3. Regression model tests

For valid hypothesis testing and to make data available for reliable results, the test of assumption of regression model is required. Accordingly, the study has gone through the most critical regression diagnostic tests consisting of errors equal zero mean test, heteroskedasticity, normality, autocorrelation, multicollinearity and model specification accordingly.

4.3.1. Classical Linear Regression Model (CLRM) assumptions

To maintain the data validity and robustness of the regressed result of the research, the basic classical linear regression model (CRLM) assumptions must be tested for identifying any misspecification and correcting them so as to augment the research quality (Brooks, 2008). There are different CLRM assumptions that need to be satisfied and that are tested in this study, which are: errors equal zero mean test, normality, heteroskedasticity, autocorrelation, and multicollinearity.

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

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

4.3.1.2.Test for heteroskedasticity assumption (var(ut) = σ2 <∞)

The condition of classic linear regression model implies that there should be homoscedasticity between variables. This means that the variance should be constant and same. Variance of residuals should be constant otherwise, the condition for existence of regression, homoscedasticity, would be violated and the data would be heteroskedasticity (Brooks, 2008). To check for this, White test were applied. The white tests of the null hypothesis that the error variances are all equal versus the alternative that the error variance are a multiplicative function of one or more variables.

Hence, following the general null hypothesis of white tests, the researcher develops the following hypothesis to check the presence of heteroskedasticity:

- H_0*:homoscedastic error term*
- H_1*:heteroscedasticity error term*

Table 4.3.Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	1.412151	Prob. F(44,45)	0.1264
Obs*R-squared	52.19711	Prob. Chi-Square(44)	0.1854
Scaled explained SS	37.31720	Prob. Chi-Square(44)	0.7517

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

Both F-statistic and chi-square (χ 2*)* tests statistic were used. As presented in the above table heteroskedasticity test both the *F*- and χ2 -test statistic give the same conclusion that there is no significant evidence for the presence of heteroskedasticity. Since the *p*-values in all of the cases were above 0.05, the null hypothesis of homoscedasticity is failed to reject at 5 percent of significant level. This implying that there is no significant evidence for the presence of heteroskedasticity in these research models. The third version of the test statistic, "scaled explained SS", which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, also give the same conclusion (See Appendix 1 for detail).

4.3.1.3. Test for absence of autocorrelation assumption (cov(ui , uj) = 0 for i _= j)

Another basic assumption of regression model says that the covariance between error terms should be zero. This means that error term should be random and it should not exhibit any kind of pattern. If there exists covariance between the residuals and it is non-zero, this phenomenon is called autocorrelation (Brooks, 2008). To test for autocorrelation, three methods can be used. The researcher apply Btreuch-Godfrey test.

Breusch–Godfrey Serial Correlation LM test

The Breusch–Godfrey serial correlation LM test was run. Breusch–Godfrey tests area joint test for autocorrelation that will allow examination of the relationship between uˆ t and several of its lagged values at the same time. According to Brooks (2008), The Breusch-Godfrey test is a more general test for autocorrelation up to the r^{th}order.

Hypothesis of this test are:-

Following the general null hypothesis of Breusch–Godfrey serial correlation LM test, the researcher develops the following hypothesis to check the absence of autocorrelation:

- H_0: *No autocorrelations errors*
- H_1:*Autocorrelations errors*

Table 4.4: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.713499	Prob. F(2,79)	0.1869
Obs*R-squared	3.741854	Prob. Chi-Square(2)	0.1540

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

As can be seen in the above table 4.4, F test result and the P value of F-statistic 0.1869 which is way beyond the significance level of 5%. Hence, the null hypothesis of no autocorrelation is failed to reject at 5 percent of significance level. This implying that there is no significant evidence for the presence of autocorrelation in this model. The Chi-Square P-value of the model also supports the absence of autocorrelation (See Appendix-2 for detail). Therefore, can be concluded that, the covariance between

residuals is zero, data is normal and absence of autocorrelation problem was found conclusively from the LM test.

4.3.1.4. Test of normality (*ut*~N(0, σ2))

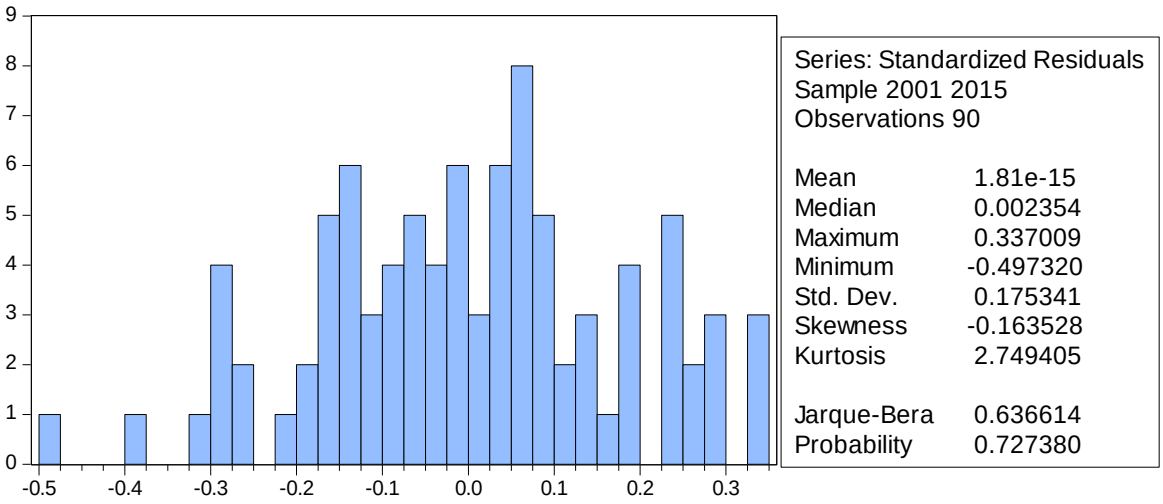
Normality test was applied to determine whether a data is well-modelled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. If the residuals are normally distributed, the histogram should be bell-shaped and the Jarque-Bera statistic would not be significant. This means that the p-value given at the bottom of the normality test screen should be greater than 0.05 to support the null hypothesis of presence of normal distribution at the 5% level.

Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. Jarque-Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis close are zero and three respectively. Skewness refers to how symmetric the residuals are around zero. Perfectlysymmetric residuals will have a skewness of zero. Skewness measures the extent to which a distribution is not symmetric about its mean value. Kurtosis refers to the „„peakedness‟‟ of the distribution. For a normal distribution the kurtosis value is 3. Kurtosis measures how fat the tails of the distribution are, the Jarque–Bera test for normality is based on two measures, skewness and kurtosis. The Jarque-Bera probability statistics/P-value is also expected not to be significant even at 10% significant level (Brooks, 2008).

The hypothesis of normality distribution is:

- ***H_0:*** *residuals follows a normal distribution*
- ***H_1:****residuals do not follows a normal distribution*

Figure 4.1 Normality test for residuals



Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

As shown in the histogram above in the figure 4.1 kurtosis close to 3 (i.e. 2.749405) and skewness approaches to 0 (i.e.-0.163528). The Jarque-Bera statistics was not significant even at 10% level of significance as per the P-values shown in the histogram (i.e. 0.636614). Hence, null hypothesis of the residuals follows a normal distribution is failed to reject at 5 percent of significant level. Hence, it seems that the error term in all of the cases follows the normal distribution and it implies that the inferences made about the population parameters from the samples tend to be valid.

4.3.1.5. Test for multicollinearity

Multicollinearity indicates a linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2004). 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). When independent variables are multicollinear, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable (Gujarati, 2004). According to Lewis-Beck (1993) suggestion in order to find out the multicollinearity problem, the bivariate correlations among the independent variables should be examined and the existence of correlation of about 0.8 or

larger indicates a problem of multicollinearity. Also, Cooper and Schendlar (2003) suggested that a correlation above 0.8 should be corrected.

Table 4.5: Correlations matrix of explanatory variables

	VoD	NPL	LIQ	CRR	CAR	INT	INF	GDP
VoD	1.0000							
NPL	0.1810	1.0000						
LIQ	-0.0766	0.0372	1.0000					
CRR	-0.1664	0.3779	0.2530	1.0000				
CAR	0.2693	-0.1374	0.2088	-0.0054	1.0000			
INT	0.1586	-0.6111	-0.2482	-0.6478	0.0642	1.0000		
INF	0.1686	-0.3455	-0.3290	-0.2756	0.1935	0.3557	1.0000	
GDP	0.3012	-0.5148	-0.0400	-0.0273	0.2763	0.4299	0.2961	1.0000

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

The Pearson correlation, which varies between -1 and 1, if the p-value is 0, there is no linear correlation, and if the p-value is -1 or 1 we have a perfectly negative or positive relationship between the variables. According to Pallant (2005), the results in the above correlation matrix table 4.5 shows that the highest correlation of -0.6478which is between lending interest rate and cash reserve requirement rate. Since there is no correlation above 0.8 in this study according to Cooper and Schendlar (2003) and Lewis-Beck (1993), it can be concluded in this study that there is no problem of multicollinearity, thus enhanced the reliability for regression analysis.

4.4.Choosing Random effect (RE) Vs fixed effect (FE) models

The results so far indicate that all CRLM assumptions are not violated, so the ordinary least square regression can be safely applied. However, since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM) (Brooks, 2008).

The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both

cross-sectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally (Brooks, 2008). To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the REM model (Baltagi, 2005). The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method.

The Hausman test hypothesis is

- ***H_0:*** *Random effect model is appropriate*
- ***H_1:*** *Fixed effect model is appropriate*

Table 4.6. Hausman test

Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	8	1.0000

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

Table 4.6 above shows Hausman specification test, the P-value of a models is 1.0000, which is more than 5% level of significance. Hence, the null hypothesis of the random effect model is appropriate is failed to reject at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model and gives more comfort that random effects model results are valid (see Appendix-4 for detail).

4.5. Regression analysis results-Lending Decision

E-views regression output is divided into three panels. The top panel summarizes the input to the regression, the middle panel gives information about each regression

coefficient, and the bottom panel provides summary statistics about the whole regression equation. The two most important numbers, "R-squared" (the one who answered how much percent of the variance in the dependent variable in the regression accounted for) and "S.E. of regression." and the one that shows how far is the estimated standard deviation of the error term. Five other elements, "Sum squared residuals," "Log likelihood," "Akaike info criterion," "Schwarz criterion," and "Hannan-Quinn criter." are used for making statistical comparisons between two different regressions. The next two numbers, "Mean dependent var" and "S.D. dependent var," report the sample mean and standard deviation of the left hand side variable (Brooks, 2008).

"Adjusted R-squared" makes an adjustment to the plain-old to take account of the number of right hand side variables in the regression. Measures what fraction of the variation in the left hand side variable is explained by the regression. The adjusted, sometimes written, subtracts a small penalty for each additional variable added.

"F-statistic" and "Prob (F-statistic)" come as a pair and are used to test the hypothesis that none of the explanatory variables actually explain anything. Put more formally, the "*F*-statistic" computes the standard *F*-test of the joint hypothesis that all the coefficients, except the intercept, equal zero. "Prob (F-statistic)" displays the *p*-value corresponding to the reported *F*-statistic.

The final summary statistic is the "Durbin-Watson," the classic test statistic for serial correlation. A Durbin-Watson close to 2.0 is consistent with no serial correlation, while a number closer to 0 means there probably is serial correlation (Brooks, 2008).

4.5.1. Operational model

The operational panel regression model used to examine the significant factors that affect the lending decision of private commercial banks in Ethiopia which represented by Total Loans and Advance (TLA) was:

$$TLA_{it} = \alpha + \beta_1 LIQ_{it} + \beta_2 VoD_{it} + \beta_3 CRR_t + \beta_4 INT_t + \beta_5 CAR_{it} + \beta_6 NPL_{it} + \beta_7 INF_t + \beta_8 GDP_t + u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Table 4.7.Random effects model regression results

Dependent Variable: TLA
Method: Panel EGLS (Cross-section random effects)
Date: 05/23/16 Time: 14:28
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.78366	0.485722	22.20131	0.0000
VoD	0.408225	0.353589	1.154519	0.2517
NPL	-0.030429	0.005521	-5.511647	0.0000*
LIQ	0.801876	0.144527	5.548269	0.0000*
CRR	-0.063833	0.007369	-8.662184	0.0000*
CAR	3.646285	0.578010	6.308337	0.0000*
INT	-0.072832	0.028197	-2.582978	0.0116**
INF	0.008071	0.001914	4.216197	0.0001*
GDP	0.032046	0.006770	4.733778	0.0000*

R-squared	0.829086	Mean dependent var	9.014131
Adjusted R-squared	0.795169	S.D. dependent var	0.466409
S.E. of regression	0.183525	Sum squared resid	2.728201
F-statistic	61.72750	Durbin-Watson stat	1.263733
Prob(F-statistic)	0.000000		

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

*and ** correlation coefficient significant at 1% and 5% significance level respectively

4.5.2.Interpretation of Regression Results

Table 4.7 presents the estimation results of the operational panel regression model of total loans and advances as dependent variable and bank specific and macroeconomic explanatory variables for the sample of six private commercial banks in Ethiopia. The R-squared and adjusted R-squared 82% and 79% respectively. It indicates that the model is a good fit. This means, more than 79% of variations in total loans and advances of private commercial banks in Ethiopia were explained by independent variables included in the model. However, the remaining 21% changes in total loans and advances of private commercial banks in Ethiopia are caused by other factors that are not included in the

model. Furthermore, the F-statistic was 61.72 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable (TLA) and the independent variables, is 0.000000 indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in total loans and advances.

The panel random effect estimation regression result in the above table 4.7 shows that, coefficient intercept (α) is 10.78. This means, when all explanatory variables took a value of zero, the average value TLA would be take 10.78 unit and statistically significant at 5% level of significance.

4.5.2.1. Volume of Deposit (VoD) and Loans and Advances (TLA)

As Table 4.7 above depicted that, the coefficient of volume of deposit (VoD) which was measured by the ratio of total deposit to total liabilities is 0.408225 with the p-value of 0.2517. This indicates that holding other independent variables constant at their average value, when volume of deposit increased by one percent, total loans and advances (TLA) of sampled private commercial banks would be increased by 0.41 percent and statistically insignificant .Therefore, the researcher failed to rejects the null hypothesis that volume of deposit has positive impact on total loans and advances. This means, there is no sufficient evidence to support the negative relationship between volume of deposit and loans and advances.

This positive association between volume of deposit and total loans and advances is supported by prior research results of (Amano, 2014), Mitku (2014), Ajayi (2007), Ituwe (1985) and Ojo (1978) who finds the positive relationship between loans and advances.

The positive but insignificant association between volume of deposit and lending of private commercial banks in Ethiopia may be related to the following factors. First, due to the credit ceiling during the sample period the growth of deposit volume and lending of private commercial banks in Ethiopia is not proportional. Second, during the sample period there was a fluctuation in the liquidity and cash reserve requirement in the country which obliged banks to hold more deposit rather than lend it. In addition, it might be due to the fact that most of the deposits what a bank accept are in demand form which is

repayable to depositors on demand. As a result banks may maintain large amount of customer deposits as a reserve to meet deposited amount.

4.5.2.2. Nonperforming Loans (NPLs) and Total Loans and Advance (TLA)

As indicated in the table 4.7 the coefficient of nonperforming loans (NPLs) which was measured by the ratio of nonperforming loans and advances to total loans and advances is -0.0342925 with the p-value of 0.0000. This indicates that holding other independent variables constant at their average value, when nonperforming loan (NPLs) increased by one percent, total loans and advances (TLA) of sampled private commercial banks would be decreased by 0.03 percent and statistically significant at 1% level of significance. Therefore, the researcher failed to rejects the null hypothesis that nonperforming loans has a negative effect on total loans and advances. This means, there is no sufficient evidence to support the positive relationship between nonperforming loans and total loans and advances.

The result is parallel with the prior studies of Alhassan et al. (2013), Djiogap and Ngomsi (2012), Rabab"ah (2015) and Tomak (2013) who finds that a significant relationship between NPLs and bank lending behavior and NPLs show a negative impact on the growth of total loans. However, it is in contrary with the studies of Mitku (2014) that founds a positive relationship between NPLs and total loans and advances.

This negative association between nonperforming loans and commercial lending could be attributed to the fact that, the impact of nonperforming loans on lending decision is both direct and indirect. With the direct effect, deterioration in bank loan assets indicates that banks are taking on high risks and hence banks cannot build up its risk at minimum levels, they tighten credit standards which will reduce the number of the whole loan applicants as well as successful loan applicants. With the indirect effect, incurring losses from nonperforming loans demands loan write-offs which depletes the equity capital of banks. This would in-turn affect the banks, ability to extend more loans to their customers, hence leads to reduction in lending.

In addition, if banks have high nonperforming loans it indicates the existence of high credit risk. This adversely affects the trust of the bank which in turn reduces that deposit of the bank which is the main source of commercial banks loans and advances. This tends the commercial banks to lower their credit supply.

4.5.2.3. Liquidity (LIQ) and Total Loans and Advances (TLA)

Table 4.7 presented that, the coefficient of liquidity (LIQ) measured by current asset to current liability ratio is 0.801876 and its P-value is 0.0000. Holding other independent variables constant at their average value, when liquidity (LIQ) increased by one percent, total loans and advances (TLA) of sampled private commercial banks would be increased by 0.8percent and statistically significant at 1% level of significant. Therefore, the researcher failed to rejects the null hypothesis that liquidity has positive impact on loans and advances. This means, there is no sufficient evidence to support the negative relationship between liquidity and loans and advances.

The result of positive association between liquidity and total loans and advances is supported by prior research findings of (Mitku, 2014), Ajayi (2007), (Ituwe , 1985) and (Ojo, 1978). However, it is in contrary to the findings of Amano (2014), Benjamen and Onyeuchi (2015) and Rabab"ah (2015) who finds the negative relationship between loans and advances.

This positive association between liquidity and commercial lending could be attributed to the fact that, due to the absence of capital market, banks extend loans to borrowers mainly from the deposit collected from the public and the contribution from the shareholders which is very limited source. Therefore, when a bank is more liquid extend more loans and advances to their customers and vice versa. Indeed, commercial banks cannot afford to grant loans and advances in excess of their cashing ability.

4.5.2.4. Cash Reserve Requirement (CRR) and Total Loans and Advances (TLA)

The E-views results of table 4.7, shows the coefficient of the cash reserve requirement which measured by annual reserve requirement rate is -0.06383 and its p-value is 0.0000. It implies that holding other independent variables constant at their average value, when cash reserve requirement increased by one percent, total loans and advances (TLA) of

sampled private commercial banks would be decreased by 0.064 percent and statistically significant at 1% level of significant. Therefore, the researcher failed to rejects the null hypothesis that cash reserve has a negative impact on loans and advances. This means, there is no sufficient evidence to support the positive relationship between cash reserve requirement and loans and advances

The expected negative coefficient estimate of cash reserve requirement and loans and advances is in line with the result of (Christian & Pascal, 2012), (Cargill and Mayer, 2006), and (Montoro & Moreno, 2011). The justification provided in the empirical literature on negative significant association between cash reserve requirement and commercial banks‟ lending is that, in the banking business, reserve requirements are imposed on banks by the central bank of a given country to achieve financial stability in the following manner. They can 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 their customers. However, the result of this study inconsistent with the finding of Olusanya et al. (2012) that reveal required reserve has positive impact on commercial bank loans and advances (i.e. banks credit raise when cash required reserve increase).From this it is logical to concluded that the evidence is not uniform and consistent in indicating that whether cash reserve affects commercial banks‟ credits or not.

The negative association between cash reserve requirement and private commercial banks‟ lending in Ethiopia could be attributed to the fact that, the National Bank of Ethiopia like other countries central bank use the reserve requirement as an instrument to control the amount of loans and advances extended by the private commercial banks in Ethiopia to maintain financial stability. This can be inferred from the fact that, during the sample period (i.e. from 2001-2015) reserve requirement directive amended more than four times by the regulatory organ to control the lending activities of commercial banks in the country.

4.5.2.5. Capital Adequacy Ratio (CAR) and Loans and advances (TLA)

As indicated in table 4.7 above the coefficient of capital adequacy measured by the ratio of paid-up capital to total asset is 3.646265 and its p-value is 0.0000. This indicate that holding other independent variables constant at their average value, when Capital adequacy ratio increased by one percent, total loans and advances (TLA) of sampled private commercial banks would be increased by 3.65 percent and statistically significant at 1% level of significant. Therefore, the researcher failed to rejects the null hypothesis that capital adequacy ratio has a positive impact on loans and advances. This means, there is no sufficient evidence to support the negative relationship between capital adequacy ratio and loans and advance.

This result is supported by the prior findings of (Bouvatier & Lepetit, 2007), (Djiopap & Ngomsi, 2012), Imran and Nishat (2012) and Ajayi (2007). The basic argument of these researchers for the positive relationship between bank capitalization and lending ability is that banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore, increasing banks equity enhances the banks‟ capacity to increase lending. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for longer term loans. But the result is in contrary to the finding of Ehrmann et al. (2003) who finds that there is no relationship between capitalization level of European banks and supply of loan.

In addition to the finding inconsistency among the researcher, opinion differs among experts in banking and finance as to what constitutes adequate capital. Because, high levels of capital allow banks to can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans. According to Nwankwo (1991) adequate capital is that quantum of funds which a bank should have or plan to maintain in order to conduct its business in a prudent manner.

The possible reason for the positive relationship between capital adequacy ratio and commercial bank lending in Ethiopia could be the fact that the main source of fund for lending is shareholder contribution in the form of equity and customers deposit. As a result, level of capital can affect the commercial banks‟ lending decision both directly and indirectly. With the direct effect, since the capital itself used as a source of fund for

lending, well capitalized banks has the ability to extend more loans than poor capitalized banks. This implies that when private commercial banks raise their capital level they grant more loans to their customers.

As far as the indirect effect of capital adequacy concerned, adequate capital in banking is a confidence booster. It provides the customer, the public and the regulatory authority with confidence in the continued financial viability of the bank. Confidence to the depositor that his/her money is safe enhances the deposit of the banks as well as solvency of the banks. The improvement in the solvency of the commercial banks enables the banks to extend more loans and advances.

4.5.2.6.Lending Interest Rate (INT) and Loans and advances (TLA)

Table 4.7 also indicates that the coefficient of lending interest rate measured by the average annual lending interest rate is -0.07832 and its p-value is 0.0116. This indicate that holding other independent variables constant at their average value, when lending interest rate increased by one percent, total loans and advances (TLA) of sampled private commercial banks would be decreased by 0.078 percent and statistically significant at 5% level of significance. Therefore, the researcher failed to rejects the null hypothesis that lending interest rate has a negative impact on loans and advances. This means, there is no sufficient evidence to support the positive relationship between lending interest rate and loans and advance.

As expected, the relationship between lending rate and lending of private commercial banks in Ethiopia is negative. The result is similar to the findings of (Amano, 2014) and (Bernanke and Blinder, 1988). In addition the result is in line with the loan pricing theory, that states setting too high interest rate increase the chance of loan default, consequently it boosts the rate of nonperforming loan. Thus as explained previously the boost in the rate of nonperforming reduce the lending ability of commercial banks. On the other hand, this result is in contrary to the finding of Mitku (2014) who find the positive but insignificant relationship between lending interest rate and loans and advances.

The possible reason for the negative relationship between lending interest rate and private commercial banks‟ lending could be due to the fact that, during the sample period (i.e. 2001-2015) the growth of banking industry, particularly private owned commercial banks, is at infant stage. Consequently, the trend of borrowers depending on banks‟ loan as a source of fund is less when compared to developed countries. Hence, the borrowers are more sensitive to the lending interest changes. This has a possibility to reduce the demand of loan.

4.5.2.7.Inflation Rate (INF) and Loans and advance (TLA)

The regression output of the study in Table 4.7 above shows that the coefficient of Inflation rate (INF) measured by annual inflation rate is 0.8071 and its P-value is 0.0001. Holding other independent variables constant at their average value, when inflation (INF) increased by one percent, total loans and advances (TLA) of sampled Ethiopian commercial banks in Ethiopia would be increased by 0.8 percent and statistically significant at 1% level of significant. Therefore, the researcher rejects the null hypothesis that states inflation has a negative impact on loans and advances. The sign differs from the initial assumption. This means, there is no sufficient evidence to support the negative relationship between inflation and loans and advances.

The positive association between inflation and total loans and advances is in line with the finding of (Amano, 2014). However, it is in contrary to Naceur (2009), Banm et al. (2005) and Olaiyan (2000) who find the negative relation between inflation and loans and advances. According to these researchers the main reason for negative relationship is that, the main activity of banks (mostly commercial) is lending and the market is therefore based on an offer of credit (provided by banks) and demand (the individuals and companies). Inflation reduces the demand for credit because it increases uncertainty about the future. This drop in demand would lead to a decline in lending.

The possible reason for the positive relationship between inflation and lending of private commercial banks in Ethiopia, as discussed previously in section 4.1. (i.e. Descriptive statistics) of this study there was a high variation in inflation rate in Ethiopia during sample period (i.e. from 2001-2015). This higher inflation can enhance the loan payment

capacity of borrower by reducing the real value of outstanding amount. Consequently, the collection of the loans according to its repayment schedule increases the lending capacity of the commercial banks. Moreover, the on time repayment reduces the amount of nonperforming loans which adversely affect the lending and capital of commercial banks, thus it enhances the lending ability of commercial banks. In addition, the collected amount increases the solvency of banks which enable banks to extend more loans and advances. This argument supported by the finding of (Nkusu, 2011).

4.5.2.8.Gross Domestic Product (GDP) and Loans and advances

As can be seen in the above table 4.7, the coefficient of gross domestic product (GDP) growth measured by real gross domestic product growth rate is 0.0304 and its P-value is 0.0000. Holding other independent variables constant at their average value, when gross domestic product (GDP) increased by one percent, total loans and advances (TLA) of sampled Ethiopian private commercial banks would be increased by 0.032 percent and statistically significant at 1% level of significant. Therefore, the researcher failed to rejects the null hypothesis that growth domestic product has a positive impact on loans and advances. This means, there is no sufficient evidence to support the negative relationship between gross domestic product and loans and advances.

As expected, the relationship between gross domestic product and lending of private commercial banks in Ethiopian is positive. The result of the regression output supported by the previous works of (Athanasoglou et al., 2008), (Dietrich & Wanzenried, 2011), (Djiopap & Ngomsi, 2012), (Demirguc-kunt & Huizinga, 1999), (Mansor, 2006), (Micco and Panizza, 2004), (Mitku, 2014), (Olokoyo, 2011), (Prutean-Podpiera, 2007)and (Rehana & Rizwana, 1998). Their finding states that gross domestic product affect bank loans positively since an increase in GDP causes a raises in both supply and demand for loans. An increase in GDP means more funds are available for banks to make loans since deposits are more likely to increase. On the other hand, the result of this study is in contrary to the findings of Amano (2014), which states that there is no relationship between gross domestic product and lending behavior of commercial banks in Ethiopia.

In addition, the positive relationship between gross domestic product and lending of private commercial banks is due to the fact that during the economy downturn the bank tends to be more careful and alert in selecting the loan borrower by qualifying them based on their credit condition. In conjunction, the bank will reduce the volume of credit when they found out that the economic growth is low and vice versa.

4.6. Regression Analysis Results-The Impact of Lending on Financial Performance

The section deals with presentation and analysis of the regression output of the impact of lending decision on the financial performance of private commercial banks in Ethiopia through the significant factors that affects the lending decision. Therefore, the significant factors affecting lending decision were used as the representatives for the variation in lending.

4.6.1. Operational Model

The operational panel regression model used to examine the impact of lending decision on the financial performance of private commercial banks in Ethiopia through the significant factors that affects the lending decision was:

$$ROA_{it} = \alpha + \Sigma^{n}_{it} Sfal + u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{(2)}$$

Where,

Sfal: Significant factors affect lending

Table 4.8.Random effects model regression results

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 05/19/16 Time: 08:10
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020211	0.005926	3.410434	0.0010
LIQ	0.024050	0.003934	6.113635	0.0000*
NPL	-0.042397	0.013769	-3.079069	0.0028*
CAR	0.012941	0.014787	0.875123	0.3841
CRR	-0.070867	0.015632	-4.533483	0.0000*
INT	0.008383	0.004185	2.003206	0.0485**
INF	-0.034313	0.049870	-0.688046	0.4934
GDP	0.078285	0.013289	5.891218	0.0000*

Weighted Statistics

R-squared	0.721032	Mean dependent var	0.009977
Adjusted R-squared	0.691486	S.D. dependent var	0.007926
S.E. of regression	0.003951	Sum squared resid	0.001280
F-statistic	39.44702	Durbin-Watson stat	1.718473
Prob(F-statistic)	0.000000		

Source: Financial statement of sampled banks, MoFED reports and own computation through E-views 9

*and ** correlation coefficient significant at 1% and 5% significance level respectively.

4.6.2. Interpretation of Regression Results

Table 4.8 presents the estimation results of the operational panel regression model of return on assets as dependent variable and bank specific and macroeconomic explanatory variables that significantly effects lending decision for the sample of six private commercial banks in Ethiopia. The R-squared and adjusted R-squared 72% and 69% respectively. It indicates that the model is a good fit. This means, more than 69% of variations in return on assets (Profitability) of private commercial banks in Ethiopia were explained by independent variables included in the model. However, the remaining 31% changes in return on assets of private commercial banks in Ethiopia are caused by other

factors that are not included in the model. Furthermore, the F-statistic was 39.44 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable (ROA) and the independent variables, is 0.0000 indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in profitability (ROA).

4.6.2.1. Impact of Bank Lending on Financial Performance

As indicated in table 4.8 liquidity ratio (LIQ) and gross domestic product growth rate (GDP) had positive and statistically significant impact on the financial performance of private commercial banks in Ethiopian. Their coefficient sign were positive both in the case of lending decision as well as in the financial performance and statistically significant. This indicates the positive relationship between lending of commercial banks and their financial performance. This is due to the fact that more liquid banks extend more loans and advances to their customer and earn more income which in turn boosts their profitability. Similarly, as discussed in section 4.5 (i.e. under the analysis of the regression output of factors affecting lending decision) an increase in GDP causes raises in both supply and demand for loans. This leads to increases the lending ability of private commercial banks in Ethiopia and enhances their profitability.

Lending interest rate had positive and significant effect on the financial performance of private commercial banks in Ethiopia. Its coefficient sign was opposite to the case of lending decision. The positive association between lending interest rate and financial performances is in line with the findings of Vong et al. (2009) which states that the major source of banks revenue is interest income and it contributes about 80% of commercial banks earnings. In view of the significant contribution of loans to the financial health of banks through interest income earnings lending has positive impact on banks‟ financial performance.

On the other hand, nonperforming loans (NPLs) and cash reserve requirement rate (CRR) had negative and statistically significant impact on financial performance. The negative and statistically significant impact of nonperforming loans on financial performance of

private commercial banks in Ethiopia is due to the following main possible reasons. First, deterioration in bank loan assets indicates that banks are taking on high risks and hence banks cannot build up its risk at minimum levels, they tighten credit standards which will reduce the number of the whole loan applicants as well as successful loan applicants. Second, incurring losses from nonperforming loans demands loan write-offs which depletes the equity capital of banks. These would in-turn affect the bank's ability to extend more loans to their customers, leads to reduction in lending. Reducing in the lending ability reduces the capacity of earning sufficient income. Third, when the amount of nonperforming loans increases, the banks obliged to hold more loan losses provision (i.e. considered as extra expenses) which highly hampered the profitability of the banks.

Among the factors statistically significantly affecting banks‟ lending decisions the remaining two variables namely capital adequacy ratio had positive and inflation rate negative but, insignificant impact on financial performance.

Therefore, all the above facts indicate that bank lending had an impact on the financial performance of private commercial banks in Ethiopia. The impacts were positive as well as negative depends on the factors affecting the lending decision of the banks. From this it can realized that, the banks have to balance their goals between generating a certain amount of profit and managing the risk from their lending activities.

Table 4.9. Comparison of test results with expectation

Independent Variables	Expected Relationships with TLA	Actual result	Statistical Significance test	Hypothesis Status
Volume of Deposit	+	+	insignificant	Failed to Reject
Nonperforming loans	-	-	Significant at 1%	Failed to Reject
Liquidity Ratio	+	+	Significant at 1%	Failed to Reject
Cash reserve requirement	-	-	Significant at 1%	Failed to Reject
Capital Adequacy	+	+	Significant at 1%	Failed to Reject
Lending interest rate	-	-	Significant at 5%	Failed to Reject
Inflation rate	-	+	Significant at 1%	Reject
GDP	+	+	Significant at 1%	Failed to Reject

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

The basic intent of this chapter is to present the overall overviews of the research by summing the main findings of the analysis part and give future research directions. Accordingly, the chapter starts with its discussion by briefly sum up the overviews of the study and its main findings. In section two based on the study finding the researcher highlight some recommendations for the target populations the study pivoting on and at last highlight further research directions.

5.1. Conclusion

Banks play very important roles in the economic development and growth of any nation. As an important component of the financial system, they channel scarce resources from the surplus economic units to the deficit economic units in the form of loans and advances. The supply of bank loans is usually expressed as a function of internal and external determinants. The internal determinants are termed as micro or bank-specific determinants of bank lending, while the external determinants are macroeconomic variables that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation and performance of financial institutions.

Accordingly, the broad objective of this research was to examine the effect of bank specific and macroeconomic determinants of lending decision and their impact on the financial performance of private commercial banks in Ethiopia. To achieve this broad objective, the study used quantitative research approach. To this end, data collected from Ministry of Finance and Economic Development (MoFED), National Bank of Ethiopia (NBE) and each bank‟s annual financial reports and a sample size of six Ethiopian private commercial banks over the period of 2001 to 2015.

Empirical literature identified many variables as an influential factor of lending decision. However, depending on the practical context of Ethiopian commercial banks the researcher selected eight variables namely: volume of deposit, nonperforming loans, liquidity ratio, cash reserve requirement rate, capital adequacy ratio, lending interest rate,

inflation rate and gross domestic product rate as independent variables and two dependent variables total loans and advances (as a proxy for lending decision) and return on asset (as a proxy for commercial banks financial performance).

The analysis was conducted using panel data estimation technique of random effect model using E-views 9 statistical software. The study goes through all diagnostic test, including multicollinearity, heteroskedacity, normality and autocorrelation. Hence, the test result shows that the data was found to be homoskedastic, free of autocorrelation free of Multi-collinearity and normally distributed. The descriptive statistics revealed the data to be normal. Also the coefficient of determination (R^2) is 0.795169 and 0.691486 for banks‟ lending and banks‟ financial performance respectively. This indicates that the explanatory variables were able to explain 79.5% and 69 % of the total variations of the dependent variables banks‟ lending decision and banks‟ financial performance respectively.

The regression result shows the liquidity ratio, capital adequacy ratio, inflation rate and gross domestic product had positive and statistically significant impact on the banks‟ lending whereas volume of deposit had positive but insignificant impact on lending decision. On the other hand, nonperforming loans, cash reserve requirement rate and lending interest rate had negative and statistically significant impact on the lending decision.

Liquidity ratio (LIQ) found to have positive and significant relationship with the lending decision of private commercial banks in Ethiopia. Due to the absence of capital market, banks extend loans to borrowers mainly from the deposit collected from the public and the contribution from the shareholders which is very limited source. Therefore, when the bank is more liquid extend more loans and advances to their customers and vice versa.

Capital adequacy ratio also found to have positive and significant impact on the lending decision of private commercial banks in Ethiopia. This implies that in Ethiopia well capitalized banks extend more loans and advances to their customers than poorly capitalized banks. This due to the fact that adequate capital in banking on one hand directly increases the liquidity of the of commercial banks in Ethiopia and on other hand indirectly used as a confidence booster to the depositor that his/her money is safe and

enhances the deposit as well as solvency of the banks. This enables the banks to extend more loans and advances.

The findings suggested also that both GDP and INF had a significant and positive relationship with the lending decision of private commercial banks in Ethiopia. This shows that lending capacity of private commercial banks in Ethiopia increases during high economic growth and inflation period. Higher inflation can enhance the loan payment capacity of borrower by reducing the real value of outstanding (Nkusu, 2011). Consequently, the collection of the loans and advances according to its repayment schedule increases the lending capacity of the commercial banks. Similarly, an increase in GDP causes raises in both supply and demand for loans. An increase in GDP means more funds are available for banks to make loans since deposits are more likely to increase. Therefore the positive association between these two macroeconomic variables and commercial banks‟ lending in Ethiopia is that, during the sample period (i.e. from 2001-2015) on average there is a double digit growth of GDP and high fluctuation in the inflation rate. Volume of deposit found to have positive but insignificant relationship with private commercial banks‟ lending in Ethiopia. The finding showed that an increase in volume of deposit leads to increases in the lending of private commercial banks in Ethiopia. But the insignificance indicates that, the increase in volume of deposit and loan and advances is not proportional. This can due to the fluctuation in the cash reserve requirement rate in Ethiopia during the sample period and the high share of demand deposit from the total deposit which repayable to depositors on demand. Because, these factors obliged banks to maintain high amount of deposit instead of lending. In addition the credit ceiling during the period under study may leads to the insignificant relationship.

On the other hand, the finding showed that lending interest rate, cash reserve requirement and nonperforming loans had negative and statistically significant relationship with the lending of private commercial banks in Ethiopia. This indicates that an increase in lending interest rate, cash reserve requirement rate and nonperforming loans leads to decrease in the lending of private commercial banks in Ethiopia during sample period.

As far as the impact of banks‟ lending on the financial performance of private commercial banks concerned, liquidity ratio, gross domestic product and lending interest rate had positive and statistically significant impact on the financial performance of private commercial banks in Ethiopia. This shows that an increases in these three variable leads to in increases in the profitability of commercial banks during the sample period. The result also suggests that inflation rate had negative but insignificant relationship with the financial performance of commercial banks. This indicates an increase or decrease in the inflation rate has no significant impact on the profitability of private commercial banks in Ethiopia during the period of the study.

Nonperforming loans and cash reserve requirement rate had negative and statistically significant relationship with the profitability of private commercial banks in Ethiopia. This implies that an increase in these two variable leads to decrease in the profitability of commercial banks in Ethiopia during the sample period.

5.2. Recommendations

Based on the research findings and conclusions above, the following possible recommendations are forwarded:

- Among bank specific variable capital adequacy and liquidity were the major factors that positively and significantly affect the lending decision of private commercial banks in Ethiopia. Hence, banks need to work more towards improving their liquidity position and level of capitalization so as to increase their lending ability and to ensure their profitability.

- Nonperforming loans and lending interest rate were factors that negatively and significantly affect the lending decision of commercial banks in Ethiopia. Thus, banks might revise or re-emphasized their credit procedures, policies and analytical capabilities and these efforts should be expanded into full credit management including origination, approval, monitoring and problem loans management to reduce the nonperforming loans. Moreover , banks should give due attention in their loan pricing decisions, because too high or too low lending interest rate had an effect on the lending of the banks.

- There is need for private commercial banks to consider the macro economic factors as equal as bank specific factors when developing their strategies to efficiently manage their lending as well as extending loans, as it was found significant relationship between macro-economic factors and lending decision.

- Cash reserve requirement adversely affect the lending of private commercial banks in Ethiopia. Therefore, government should come up with strategies aimed at reducing this burden, because reduction in the lending ability of banks not only affect the growth and profitability of the banks but also hamper the general economy of the country. In addition maintain the fast growth economy and control inflation growth rate at single digit.

The finding indicates that bank lending had an impact on the financial performance of private commercial banks in Ethiopia. The impacts were positive as well as negative depends on the factors affecting the lending decision of the banks. Thus, the banks have to balance their goals between generating a certain amount of profit and managing the risk from their lending activities. Moreover, banks should exert additional effort to properly manage their loan portfolio order to enhance their profitability.

5.3. Future Research Recommendations

This study examined the determinants of lending decision and their impacts on the financial performance of private commercial banks in Ethiopia by using selected macroeconomic and bank specific variables. However, these variables are not exhaustive. Thus, it is recommended for future researchers to further assess determinants of lending decision and their impacts on the financial performance of commercial banks in Ethiopia by incorporating additional bank specific and macro-economic factors. This study focuses only on the supply side determinants of lending decision. Hence, it is also recommended for future researchers to examine it by incorporating the demand side determinants. Finally, this study use only secondary data. Therefore, it is recommended for future researchers to study the determinants of lending decision and their impact on financial performance of commercial banks by using primary data or the mixture of primary and secondary data.

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APPENDICES

Appendix-1: Heteroskedasticity Test: White

F-statistic	1.412151	Prob. F(44,45)	0.1264
Obs*R-squared	52.19711	Prob. Chi-Square(44)	0.1854
Scaled explained SS	37.31720	Prob. Chi-Square(44)	0.7517

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/23/16 Time: 10:57
Sample: 1 90
Included observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-45.65606	102.3229	-0.446196	0.6576
VoD^2	-0.057189	1.565257	-0.036537	0.9710
VoD*NPL	-0.041436	0.039679	-1.044267	0.3019
VoD*LIQ	-0.774385	0.888338	-0.871724	0.3880
VoD*CRR	-0.027379	0.042843	-0.639057	0.5260
VoD*CAR	1.791904	4.592448	0.390185	0.6982
VoD*INT	-0.243913	0.136216	-1.790630	0.0801
VoD*INF	0.009376	0.010006	0.937102	0.3537
VoD*GDP	-0.015827	0.030427	-0.520162	0.6055
VoD	3.100589	3.394010	0.913547	0.3658
NPL^2	0.000164	0.000451	0.362397	0.7188
NPL*LIQ	-0.015707	0.014294	-1.098869	0.2777
NPL*CRR	-0.000377	0.000896	-0.420504	0.6761
NPL*CAR	0.017124	0.075431	0.227011	0.8214
NPL*INT	-0.003770	0.002722	-1.384940	0.1729
NPL*INF	1.50E-05	0.000167	0.089581	0.9290
NPL*GDP	0.000628	0.000519	1.209579	0.2328
NPL	0.063836	0.043398	1.470960	0.1483
LIQ^2	0.229091	0.369932	0.619279	0.5389
LIQ*CRR	-0.023590	0.019148	-1.231980	0.2244
LIQ*CAR	1.656294	2.071288	0.799644	0.4281
LIQ*INT	-0.052505	0.111475	-0.470999	0.6399
LIQ*INF	-0.002863	0.006126	-0.467386	0.6425
LIQ*GDP	-0.005191	0.023739	-0.218664	0.8279
LIQ	2.047227	1.565942	1.307346	0.1977
CRR^2	0.015835	0.011541	1.372091	0.1768
CRR*CAR	-0.016112	0.062458	-0.257956	0.7976
CRR*INT	-0.082630	0.183974	-0.449139	0.6555
CRR*INF	0.013488	0.013614	0.990734	0.3271

CRR*GDP	0.028929	0.021633	1.337224	0.1879
CRR	0.137398	1.789683	0.076772	0.9391
CAR^2	-4.668922	3.592793	-1.299524	0.2004
CAR*INT	0.193543	0.213387	0.907005	0.3692
CAR*INF	0.009857	0.023344	0.422260	0.6748
CAR*GDP	0.028298	0.094904	0.298174	0.7669
CAR	-4.343498	5.214746	-0.832926	0.4093
INT^2	-0.126328	0.442516	-0.285477	0.7766
INT*INF	0.000571	0.005609	0.101743	0.9194
INT*GDP	-0.248150	0.338468	-0.733155	0.4673
INT	6.574212	15.01145	0.437946	0.6635
INF^2	0.000236	0.000471	0.500156	0.6194
INF*GDP	0.020312	0.021704	0.935886	0.3543
INF	-0.302951	0.364568	-0.830988	0.4104
GDP^2	0.065500	0.079105	0.828012	0.4120
GDP	1.117186	1.994615	0.560101	0.5782

R-squared	0.579968	Mean dependent var	0.030401
Adjusted R-squared	0.169270	S.D. dependent var	0.040618
S.E. of regression	0.037021	Akaike info criterion	-3.447793
Sum squared resid	0.061676	Schwarz criterion	-2.197888
Log likelihood	200.1507	Hannan-Quinn criter.	-2.943758
F-statistic	1.412151	Durbin-Watson stat	1.986926
Prob(F-statistic)	0.126388		

Appendix-2:Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.713499	Prob. F(2,79)	0.1869
Obs*R-squared	3.741854	Prob. Chi-Square(2)	0.1540

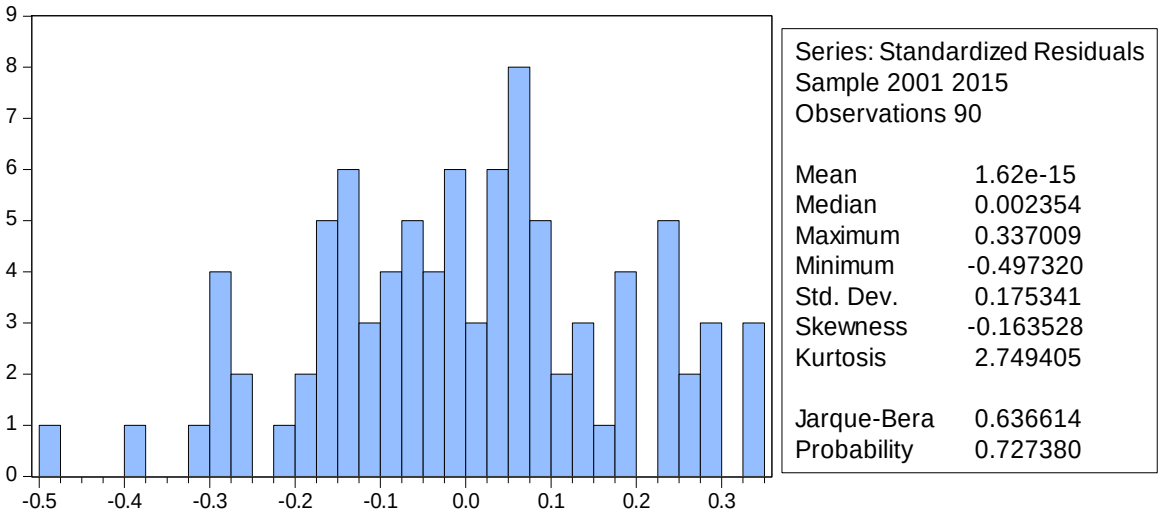
Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/23/16 Time: 10:57
Sample: 1 90
Included observations: 90
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.039063	0.479901	-0.081399	0.9353
VoD	0.089394	0.350624	0.254956	0.7994
NPL	0.001548	0.005545	0.279184	0.7808

LIQ	-0.099061	0.154669	-0.640474	0.5237
CRR	5.01E-05	0.007320	0.006838	0.9946
CAR	0.242335	0.606183	0.399773	0.6904
INT	-0.005533	0.028165	-0.196458	0.8448
INF	0.000316	0.001907	0.165739	0.8688
GDP	-0.001467	0.006898	-0.212644	0.8322
RESID(-1)	0.217673	0.125253	1.737869	0.0861
RESID(-2)	0.068296	0.123780	0.551750	0.5827

R-squared	0.041576	Mean dependent var	3.01E-15
Adjusted R-squared	-0.079743	S.D. dependent var	0.175336
S.E. of regression	0.182193	Akaike info criterion	-0.453414
Sum squared resid	2.622358	Schwarz criterion	-0.147882
Log likelihood	31.40364	Hannan-Quinn criter.	-0.330206
F-statistic	0.342700	Durbin-Watson stat	1.954763
Prob(F-statistic)	0.966347		

Appendix-3: Normality Test



Appendix-4: Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	8	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VoD	1.042385	0.408225	0.092826	0.0374
NPL	-0.030124	-0.030429	0.000005	0.8859
LIQ	0.712286	0.801876	0.004925	0.2018
CRR	-0.061311	-0.063833	0.000001	0.0275
CAR	2.966969	3.646285	0.207964	0.1363
INT	-0.071144	-0.072832	0.000015	0.6671
INF	0.007873	0.008071	0.000000	0.4310
GDP	0.030974	0.032046	0.000003	0.5373

Cross-section random effects test equation:
Dependent Variable: TLA
Method: Panel Least Squares
Date: 05/23/16 Time: 11:03
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.11680	0.567355	17.83153	0.0000
VoD	1.042385	0.466745	2.233305	0.0285
NPL	-0.030124	0.005916	-5.091555	0.0000
LIQ	0.712286	0.160666	4.433333	0.0000
CRR	-0.061311	0.007457	-8.221487	0.0000
CAR	2.966969	0.736247	4.029854	0.0001
INT	-0.071144	0.028469	-2.499030	0.0146
INF	0.007873	0.001931	4.077589	0.0001
GDP	0.030974	0.006989	4.431615	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.870928	Mean dependent var	9.279957
Adjusted R-squared	0.848850	S.D. dependent var	0.467706
S.E. of regression	0.181835	Akaike info criterion	-0.429403
Sum squared resid	2.512852	Schwarz criterion	-0.040544
Log likelihood	33.32314	Hannan-Quinn criter.	-0.272592
F-statistic	39.44767	Durbin-Watson stat	1.276667
Prob(F-statistic)	0.000000		

Appendix-5: Random effects model regression results (Lending)

Dependent Variable: TLA
Method: Panel EGLS (Cross-section random effects)
Date: 05/23/16 Time: 10:59
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.78366	0.485722	22.20131	0.0000
VoD	0.408225	0.353589	1.154519	0.2517
NPL	-0.030429	0.005521	-5.511647	0.0000
LIQ	0.801876	0.144527	5.548269	0.0000
CRR	-0.063833	0.007369	-8.662184	0.0000
CAR	3.646285	0.578010	6.308337	0.0000
INT	-0.072832	0.028197	-2.582978	0.0116
INF	0.008071	0.001914	4.216197	0.0001
GDP	0.032046	0.006770	4.733778	0.0000

Effects Specification	S.D.	Rho
Cross-section random	0.011593	0.0040
Idiosyncratic random	0.183528	0.9960

Weighted Statistics			
R-squared	0.829086	Mean dependent var	9.014131
Adjusted R-squared	0.795169	S.D. dependent var	0.466409
S.E. of regression	0.183525	Sum squared resid	2.728201
F-statistic	61.72750	Durbin-Watson stat	1.263733
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.859453	Mean dependent var	9.279957
Sum squared resid	2.736266	Durbin-Watson stat	1.260008

Appendix-6: Random effects model regression results (Return on Assets)

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 05/19/16 Time: 08:10
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020211	0.005926	3.410434	0.0010
LIQ	0.024050	0.003934	6.113635	0.0000
NPL	-0.042397	0.013769	-3.079069	0.0028
CAR	0.012941	0.014787	0.875123	0.3841
CRR	-0.070867	0.015632	-4.533483	0.0000
INT	0.008383	0.004185	2.003206	0.0485
INF	-0.034313	0.049870	-0.688046	0.4934
GDP	0.078285	0.013289	5.891218	0.0000

Effects Specification		
	S.D.	Rho
Cross-section random	0.002398	0.2730
Idiosyncratic random	0.003914	0.7270

Weighted Statistics			
R-squared	0.721032	Mean dependent var	0.009977
Adjusted R-squared	0.691486	S.D. dependent var	0.007926
S.E. of regression	0.003951	Sum squared resid	0.001280
F-statistic	39.44702	Durbin-Watson stat	1.718473
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.736596	Mean dependent var	0.025691
Sum squared resid	0.001635	Durbin-Watson stat	1.345662