

***Determinants of Private Commercial Banks' Lending in Ethiopia***

*A Thesis Submitted to the School of Graduate Studies of Jimma University in  
Partial Fulfilment of the Requirements for the Award of Degree Masters of Science  
in Banking and Finance*

**BY:**

**MISGANU BACHA BEDEDA**



**JIMMA UNIVERSITY  
COLLEGE OF BUSINESS AND ECONOMICS  
DEPARTMENT OF BANKING AND FINANCE**

**JUNE, 2021**

**JIMMA, ETHIOPIA**

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**BY:**

**MISGANU BACHA BEDEDA**

Under the Guidance of

Dr. DemisHailegebreal (Main Advisor)

And

Mrs.MohammednurKadire (Co-Advisors)



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## CERTIFICATE

This is to certify that the thesis entitles “*Determinants of Private Commercial Banks’ Lending in Ethiopia*”, submitted to Jimma University for the award Of the Degree Masters Of Science (MSc) In Banking and Finance and is a record of bonafideresearch work carried out by Mr.*MisganuBachaBededa*, under our guidance and supervision.

*Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institution for the award of any degree or diploma.*

*Main Advisor’s Name*

*Date*

*Signature*

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*Co-Advisor’s Name*

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*Date*

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*Signature*

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## DECLARATION

I hereby declare that this thesis entitled “*Determinants of Private Commercial Banks’ Lending in Ethiopia*”, has been carried out by me under the guidance and supervision of Dr.DemisHailegebreal and Mr.MohammednurKadire.

The thesis is original and has not been submitted for the award of any degree or diploma to any university or institution.

Researcher’s Name

Date

Signature

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## ***Abstract***

*This study aimed to investigate the determinants of private commercial banks' lending in Ethiopia. To this end, the researcher has selected seven senior private commercial banks in Ethiopia judgmentally. This study used secondary sources of data, which is panel data in nature, over the period 2006-2020. These data were collected from audited annual financial statements of private commercial banks, the National Bank of Ethiopia, and the Ministry of Finance to examine the bank-specific determinants as well as the macroeconomic determinants of private commercial banks' lending in Ethiopia. This research is an explanatory research design that identifies the cause and effect relationships between the loan and advances and its determinants. The collected panel data were analyzed with descriptive statistics and multiple linear regression analysis. Fixed effect panel regression model was used for this study. Eight explanatory variables that affect banks' lending were selected and analyzed with STATA 16 econometrics software package. The results of panel data regression analysis showed that bank size and volume of deposit had a positive effect on private commercial banks' lending in Ethiopia. Cash reserve requirement, lending interest rate, management efficiency, and inflation had a negative and statistically significant effect on private commercial banks' lending in Ethiopia. Liquidity ratio and Gross Domestic Product had a negative correlation but statistically insignificant with private commercial banks' lending in Ethiopia. The study suggests that Ethiopian private commercial banks should have to strive to strengthen their asset size and enhance their strategies in mobilizing deposits from the public. In addition, private commercial banks' should manage their liquidity and administer their lending activity by considering internal factors, existing economic situation, macro-economic environment, regulatory measures, and their target customers when extending loans.*

***Keywords:*** *loan and advances, lending, determinants, private commercial banks*

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## Acronyms

AB: Abay Bank

ADIB: Addis International Bank

AIB: Awash International Bank

AIDB: Agricultural and Industrial Development Bank

BBI: Birhan International Bank

BIB: Bunna International Bank

BOA: Bank of Abyssinia

BS: Bank Size

CBE: Commercial Bank of Ethiopia

CBO: Cooperative Bank of Oromia

CRR: Cash Reserve Requirement

DB: Dashen Bank

FEM: Fixed Effect Model

GDP: Gross Domestic Product

INF: Inflation

LIB: Lion International Bank

LIR: Lending Interest Rate

LR: Liquidity Ratio

ME: Management Efficiency

Mo FEC: Ministry of Finance and Economic Cooperation

NBE: National Bank of Ethiopia

NIB: Nib International Bank S.C

OIB: Oromia International Bank S.C

OLS: Ordinary Least Square

TLA: Total Loans and Advances

UB: United Bank S.C

VD: Volume of Deposit

VIF: Variance Inflation Factor

WB: Wogagen Bank S.C

ZB: Zemen Bank S.C

ZZB: Zezem Bank S.C

# CHAPTER ONE

## INTRODUCTION

*This chapter starts with discussing the background of the study that gives some insight on the issues of loans and advances. Secondly, this chapter gives the clues on the issues of the statement of the problem part that shows the direction of the study, justifies the reason to carry out this study. Thirdly, both the general and specific objectives of the study and the research hypothesis are presented. Finally, the subsequent section presents the significance of the study, the scope of the study, limitation of the study, ethical considerations, and the organization of the paper was presented.*

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

In human societies, since the evolution of money, there have always existed those who possess money over their immediate needs (surplus economic unit) and those whose current possession cannot finance their economic activities (deficit economic unit). The realization by the surplus economic unit that has excess funds can be used beneficially to meet the shortfalls experienced by the deficit economic unit led to the introduction of a credit system. This system was initially characterized by lenders (surplus units) and borrowers (deficit units) having to search out themselves and deal directly. Indirect financing includes the aggregation of deposits from various households, firms, and government by commercial banks for lending to the deficit unit; the repayment of the loan is completed to the bank which also stands ready to redeem deposit withdrawals by the surplus unit (Akpanuko & Acha, 2010).

Lending which may be on a short, medium, or long-term basis is one of the services that commercial banks do render to their clients. In other words, banks do grant loans and advances to individuals, business organizations as well as government to enable them to embark on investment and development activities as a means of aiding their growth in particular or contributing toward the economic development of a country in general (Olokoyo, 2011).

The lending activities can be described as the heart of a commercial bank's banking business. The commercial bank plays an intermediary's role by linking the excess unit and the deficit unit in the financial market together. The commercial bank accepts deposits from customers who

have a surplus of the fund while at the same time uses the fund to grant loans to the deficit unit in the financial market. Malede (2014), depicts lending plays a primary role in commercial bank daily banking activities where loan and advances are the largest components in the bank's asset portfolio and it is also the predominant source of revenue for the bank. McCarthy (2010), Bank loan is typically the largest asset and the predominant source of income for banks. Bank accepts customer deposits and uses those funds to grant loans to borrowers or invest in other assets that will yield a return higher than the amount of bank pays the depositor.

Hence, the public bank and private bank can be different in motive, ownership status, degree of risk, financial division, etc. because of the reason mentioned above researcher was taking separately and examine the determinants of private commercial banks' lending in Ethiopia. Private commercial banks are very important for the financial development of a country. They always concern about how to make funds and how they lending and investing to their borrowers.

One of the most well-known determinants of banks' lending is the ownership type. Bank lending is not uniform and various in terms of the 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 (Behr, Norden, & Noth, 2013). Government ownership of banks is pervasive and large in many countries (La Porta, Lopez-de-Silanes, & Shleifer, 2002). Government active involvement can take place in three ways; direct state ownership in banks, government sponsoring via guarantees, or state-base lending or savings programs (Behr et al., 2013).

In Ethiopia, modern banking started in 1905 with the establishment of Abyssinian Bank grounded on a 50 years agreement with the Anglo-Egyptian Central Bank. In 1931 the Ethiopian government purchased the Abyssinian Bank, which was the dominant bank, and renamed it as "Bank of Ethiopia", the first nationally owned bank in Africa (Gedey, 1990). In 1943 the Ethiopian government has established its bank called State Bank of Ethiopia, which was performing both a commercial bank and central bank activities. Later on, it was further dissolved into today's National Bank of Ethiopia and Commercial Bank of Ethiopia (Gezae, 2015).

Before the Derg regime (1974 to 1991), there were private and state-owned banks operating in the country such as CBE, AIDB (DBE), and CBB. By then, all financial institutions including

banks were nationalized. After 1992, the financial sector has been deregulated, and that gives birth to private banks, insurance companies, and microfinance institutions (Gezae, 2015).

Lately, there are nineteen commercial banks in Ethiopia during the study period out of which one and the giant is owned by the state (CBE), the other one's development bank of Ethiopia (DBE), and the remaining seventeen are private (shareholder's property) commercial banks. All commercial banks are highly regulated by an apex institution that is called the National Bank of Ethiopia. Therefore; the lending aspect of banking operations is determined by both bank-specific and macroeconomic factors.

This study aims to identify and examine the macroeconomic and bank-specific determinants of private commercial banks' lending in Ethiopia and thereby, to provide empirical evidence about the effects of bank size, the volume of deposit, liquidity ratio, management efficiency, gross domestic product, cash reserve requirement ratio and lending interest rate on Ethiopian private commercial bank's lending.

## **1.2 Statement of the Problem**

Commercial banks are the most important savings, utilization, and financial resource allocation institutions. Consequently, these roles make them a vital phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, choice, and prospects for mobilizing financial resources and allocating them to productive investments (Olokoyo, 2011).

In bank-dominated economies, the role of commercial banks is significant in providing the much-needed funds to the business public, as being the major and probably only source of funds for them in the absence of a well-developed capital market (Kannan & Sudalaimuthu, 2016). As a review of different empirical pieces of evidence, from the financial institutions, banks play an important role in the operation of an economy. This is mainly true in the case of Ethiopia where no financial market exists. Therefore, banks are the dominant providers of funds, and their stability is more important to the stability of the financial system as a whole. Since 1905 banks in Ethiopia perform several banking businesses like attracting all types of deposits and granting loans and advances to borrowers for the sake of increasing their investment capacity (Malede, 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 2020, according to the NBE annual report, the total outstanding credit of the banking system in Ethiopia (excluding credit to government and interbank lending) passed Birr 1.0 trillion of which Birr 484.6 billion shared by private commercial banks (NBE, 2020).

Lending is that the principal business activity for most commercial banks makes the loan portfolio is usually the most important asset and therefore the predominant 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 the lion share of commercial banks' earnings (Vong & Chan, 2009). On the other hand, it is also one of the greatest sources of risk to a financial institution's safety and soundness. Whether as a result of lax credit standards, poor portfolio risk management, or weakness within the economy, historically loan portfolio problems are the main reason for losses and failures of commercial banks (Vong & Chan, 2009).

Currently, the banking business is so sensitive because more of their income (revenue) was generated from credit (loan) given to their customers (Colquitt, 2007). This credit creation process exposes the banks to high credit risk which clues to loss. Therefore, without understanding the determinants of lending behavior, good bank performance or profit would be unthinkable.

The loan supply extended by commercial banks is typically expressed as a function of internal and external determinant factors. The internal factors are termed as micro or bank-specific determinants of bank lending, whereas the external factors are macroeconomic determinants that are not connected with the banks' management but tell the monetary, economic, and legal atmosphere that impact the operation and performance of banks. Studies on bank lending behavior have noted that bank-specific factors can clarify the behavior of credit delivery (Gaiotti & Secchi, 2006; Kishan & Opiela, 2000).

Several studies have examined the determinants of commercial banks' lending in various countries around the globe (Olokoyo, 2011), (Olusanya, Oyebo, & Ohadebere, 2012), (Chernykh & Theodossiou, 2011), (Tomak, 2013), (Rabab'ah, 2015), (Dai Van Pham, 2015), (Imran & Nishat, 2013), (Moussa & Chedia, 2016) and (Bhattarai, 2016). These previous studies investigate the determinants of bank lending from the perspective of bank-specific characteristics and macroeconomic determinants. Olokoyo (2011) Uses gross domestic product, lending rate, and

cash reserve requirement as variables to investigate the determinants of bank lending in Nigeria. Dai Van Pham (2015) Utilize bank-specific determinants which include non-performing loans, the volume of deposits, and liquidity to investigate the determinants of bank lending in Vietnam. Chernykh and Theodossiou (2011) Employ the bank size and non-performing loans as variables to examine bank lending in Russia. Tomak (2013) employs macroeconomic determinants like gross domestic product and lending rate as the explanatory variable to examine the determinants of bank lending in Turkey from the year 2003 to the year 2012. While, Bhattarai (2016) uses bank size, investment, liquidity, and cash reserve requirement as variables to investigate the determinants of commercial banks' lending behavior in the Nepalese.

Even if there are many studies investigate the determinants of bank lending across countries around the globe, whereas, limited studies are investigating the determinants of commercial bank lending in Ethiopia. In Ethiopia, to the best of the researcher knowledge, the empirical studies on the lending decision of commercial banks are the research undertaken by Malede (2014), Getahun (2014), Temesgen (2016), Abebie (2016), Getachew (2017) and Haile (2020) on determinants of lending commercial banks in our country (i.e. public as well as private banks) and also those the studies are not studied some significant variables. However, the results of those studies were inconsistent.

For instance, a study by Malede (2014) suggests that there is a positive and statistically significant relationship between commercial bank lending and its size, liquidity ratio, credit risk, and gross domestic product while, there is a positive but insignificant relationship between commercial bank lending and deposit, investment, cash reserve required and interest rate. however, the study of Getahun (2014) showed that volume of deposit and bank size had a positive and significant impact on loan and advance whereas, Liquidity ratio and lending interest rate had a negative and significant influence on loans and advances. Cash reserve requirement and rate of inflation had a positive and significant impact on loan and advance but the coefficient sign was not as estimated. Both of this finding of the study contradict each other's.

The study of Abebie (2016), show that liquidity ratio, capital adequacy ratio, inflation rate, and the gross domestic product has positive and statistically significant impact on the banks' lending whereas nonperforming loans, cash reserve requirement rate and lending interest rate had a negative and statistically significant impact on the lending. On the other hand, the volume of

deposits had a positive but insignificant impact on lending. In contrast, the study of (Haile, 2020) showed a volume of deposit and return on asset had a positive and statistically significant impact on the bank's lending whereas the lending interest rate had a positive but insignificant impact on lending. On the other hand, credit risk, cash reserve requirement rate, and liquidity ratio had a negative and statistically significant impact on the lending decision.

The above findings of a study conducted by different researchers put as the results of the variables contradict each other. Inconsistent results among the researchers one basic rationale for doing this study. In addition to the above, adding the new variables one rationale behind conducting this study. Consequently, the researcher adds the management efficiency variables that had taken by the previous researcher in Ethiopia. Therefore, management efficiency factors were one variable that impacts the lending of commercial banks in Ethiopia. Moreover, The other motives of the researcher to choose this title that, the Public banks had a big comparative advantage during commercial banks competition market because of state-oriented advantage, asset, and capital accumulation, more years of extended experience is difficult to face similar determinants with infant private commercial banks in Ethiopia. Then, the researcher excludes the public commercial bank of Ethiopia. Therefore, this study contributes to the existing study by proven which variables positively affect and which variables negatively affect private commercial bank lending in Ethiopia and add the above-explained variables gap by providing information about the bank-specific and macro-economic factors on private commercial bank lending in Ethiopia. To this end, the researcher used panel data for the period 2006 to 2020 G.C.

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

#### **1.3.1. General Objective**

The main objective of the study is to investigate the determinants of private commercial banks' lending in Ethiopia.

#### **1.3.2 Specific Objectives**

To achieve the above broad objective the study has been the following specific objectives:-

- ❖ To examine the impact of bank specific factors (bank size, volume of deposit, liquidity ratio, lending interest rate and management efficiency) on private commercial banks' lending in Ethiopia.

- ❖ To examine the impact of macro-economic factors (GDP, cash reserve requirement and inflation) on private commercial banks' lending in Ethiopia.

## **1.4 Hypothesis of the Study**

The research hypothesis is a predictive statement that relates an independent variable to a dependent variable (Kothari, 2004). In line with the broad purpose statement, the following hypotheses were formulated for investigation. Hypotheses of the study stand on the theories related to loans and advances that have been developed over the years by different researchers' and past empirical studies related to commercial banks' lending behavior. The results from the literature review were used in the direction of establishing expectations for the connection of the various determinants. As we say above hypothesis is developed from prior empirical studies and theoretical framework or comes from prior pieces of literature and studies on the topic. The hypotheses of this study stand on the prior empirical studies and theories related to determinants of commercial banks' lending that have been developed over the years. Prior studies and theories proposed the following research hypothesis.

**HINT:** - this hypothesis is developed based on the theories and empirical review literature write in chapter two, but this shows only directions. However, all independent variables have a hypothesis in chapter two supported by theories and empirical pieces of evidence.

H1: Bank size has a positive and significant impact on private commercial banks' lending.

H2: Volume of deposit has a significant and positive impact on private commercial banks' lending.

H3: liquidity ratio has a significant and positive impact on private commercial banks' lending.

H4: lending interest rate has a negative and significant impact on private commercial banks' lending.

H5: management efficiency has a significant and positive impact on private commercial banks' lending.

H6: cash reserve requirement has a negative and significant impact on private commercial banks' lending.

H7: gross domestic product has a significant and positive impact on private commercial banks' lending.

H8: inflation has a significant and negative impact on private commercial banks' lending.

### **1.5 Significance of the Study**

According to (Kothari, 2004) in addition to using as an integral tool to facilitate the decisions of the policymakers research has special significance in solving various operational and planning problems of business and industry, way to attain a high position in the social structure and a mean to the development of new styles and creative works.

The finding of the study is identifying the relevant factors influencing the lending of private commercial banks in Ethiopia. Therefore, this study was a numerous advantage for different organs such as policy makers (governments), the National Bank of Ethiopia, stakeholders, researchers, and other researchers.

This helps private commercial banks, the National Bank of Ethiopia, and the Government (monetary and fiscal policymakers) 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 Ethiopian economy.

The outcome of the study will serve as literature for other researchers who have endeavored to conduct further research works in the area of lending of banks in the country. It also contributes to the available store of knowledge to the already existing knowledge in the area of the lending of commercial banks.

Furthermore, the finding of the study will have an immense benefit to private commercial banks in terms of using them as inputs in formulating guidelines with which to effectively manage their lending activities in the economy of the country.

### **1.6. Scope of the Study**

The scope of this study is focused on the investigation of the bank-specific and macroeconomic determinants of private commercial bank lending in Ethiopia using secondary data. Due to the number of private commercial banks in the country are 17, this study assumed to consider a sample of private commercial banks. According to Kothari (2004), sampling rule; if the target

population is less than a hundred it is better to take all the target population as the sample of study that as the sample size approaches to the population, the results from the sample are appropriate to the total population. However, the study is concentrated to a sample of seven private commercial banks based on the availability of sufficient secondary data for the sample period of fifteen years from 2006 – 2020 G.C. Accordingly, Awash Bank, Dashen Bank, Wogagen Bank, Bank of Abyssinia, United Bank, Nib International Bank and Cooperative Bank of Oromia are included in the sample since they are in full operation from the year 2006 to 2020 G.C. As a result, the sample has 7 private commercial banks out of 17 private commercial banks for the sample period of fifteen years.

The study used total loans and advances as a dependent variable and bank size, the volume of deposit, liquidity ratio, management efficiency, gross domestic product; cash reserve requirement, inflation, and lending interest rate as explanatory variables.

### **1.7. Limitation of the Study**

While doing this research, the researchers encounter various problems, from these problems the most dominant ones are owing to the nature of the subject area, i.e., excessive confidentiality, and because of limited access, it wouldn't be easy to get all relevant information from respective banks. COVID-19 pandemic is the other prominent factor that faces the researcher while doing this paper. As an alternative, therefore, it was managed to approach the majority of the banks through acquaintances in each case, where data for fifteen consecutive years were obtained to serve the purpose. This had the effect to fine the analysis to some point. And also this study only uses secondary data, so this is one limitation of this study. The researcher hopes that readers will get some valuable ideas from the outcome of this study.

### **1.8. Ethical considerations**

Almost all financial institutions have strict policy implications on the confidentiality of their data. They can pay the ultimate price for the breach of this duty of confidentiality. Disclosing data by employees to a 3rd party can expose the institution to potential legal conflict. Due to this ethical issue, they are fearful of the disclosure of such information. However, this fear was addressed by explaining the core of the study to the information providing agents with the assurance that the data will be handled professionally through a formal letter. Therefore, before

data collection, permission is obtained from the management body of all the selected private commercial banks through a formal letter. The formal letter was taken from Jimma University specifically from the research and graduate studies office of business and Economics College and then given to those bank managements and all other concerned offices to undertake the tasks freely and confidentially.

## **1.9. Organization of the Study**

This research paper is organized into five chapters. Chapter one contained an introduction part where the background of the study, statement of the problem, objectives of the study, hypothesis, scope, significance of the study, limitation of the study, and ethical considerations were presented. The second chapter focuses on both theoretical, empirical reviews of related literature and conceptual framework. Chapter three contained research methodology where research design, research approach, population, sampling method, sample size, sources of data, instruments, data analysis technique, model specification, and variable measurement were presented. Chapter four focused on the results and discussions. Finally, Chapter five was brought of research to an end with a conclusion and possible recommendations.

# CHAPTER TWO

## REVIEW OF LITERATURE

*The focus of this chapter is a review of the history and banking industry in Ethiopia. And also I was discussing the theoretical and conceptual literature related to the determinants of private commercial banks' lending. It also incorporates the empirical studies on private commercial banks' lending decisions and reviews of related studies that have been carried out on the determinants of lending behavior of private Ethiopian commercial banks. Finally, present the conceptual framework for the study.*

### **2.1. Origin and Development of Banking Industry in Ethiopia**

The history of modern banking in Ethiopia traced back to 1905 when the Bank of Abyssinia was established based on a fifty-year franchise given to the British-owned National Bank of Egypt (Degefe, 1995). A significant feature of commercial banking in the country then was its innovative nature rather than its contribution to the 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 the considerable cost of installation (Eshete, Tesome, & Abebe, 2013)

Within a century of operation, the banking sector has passed four distinct phases. The first phase is the period of introduction of modern banking, which started with the establishment of the Bank of Abyssinia in 1905. In 1908 a new development bank (Societe Nationale "Ethiope Pour le Development de" Agriculture et du Commerce) and two other foreign banks (Banque de l'Indochine and the Compagnie de l'Afrique Orientale) were also (Degefe, 1995). 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 leading nationally owned bank on the African continent (Gedey, 1990).

During the five years of Italian occupation (1936-1941) banking activity of the country was relatively expanded. At 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 Nazionale, Casa de Credito, and Society Nazionale di Ethiopia. After independence from Italy's brief occupation, where the role of England was



paramount due to its strategic planning during WWII, 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 to 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 a concentration of their branch offices in big towns and trade routes within 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 the economic sector, the banking sector too entered its third phase (1975-1991) which was referred to as the stagnation period. During this period all the banks that emerged in the second phase were 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 in 1991 when the liberalization policy introduced by the Federal Democratic Republic of Ethiopia (FDRE) in 1992 was a new era for the banking sector in the country (EEA, 2011). Currently, there are seventeen banks in the country comprising one state-owned Development Bank and one state-owned commercial bank. The remaining sixteen banks are privately owned commercial banks.

The National Bank of Ethiopia, to protect depositors and stabilize macroeconomic conditions of the country, issues different regulations and directives and undertakes the monitoring and controlling activities on commercial banks operating in the country. These regulations and supervisions are intended to stabilize the country's economic environment. Thus, the researcher was interested to examine the determinants of the lending activities on a private commercial bank with bank-specific (internal) factors and macro-economic (external) factors commonly used variables in different studies.

## **2.2. Overview of Commercial Banks' Lending in Ethiopia**

A commercial bank is a depository institution that is relatively unrestricted in its ability to make Commercial loans and that is largely permitted to issue checking accounts. Commercial banks are the most important of all depository institutions (Miller & VanHoose, 1993). They create money by lending and purchasing securities (Thomas Lloyd, 2006). Commercial banks extend credit to various types of borrowers for various purposes.

One of the key roles of any commercial bank is providing loans to the business society. Banks collect money from those who have excess money and lend it to others who need money for a different purpose. Therefore, banks' intermediary function plays a vital role in economic activity. 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, 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. Therefore, bank credit is the primary source of available debt financing for most customers whereas good loans are the most profitable assets for banks.

In Ethiopia, the history of lending is discussed in the below ones. According to (Ayana, 1994) in the pre-1974 period, the Development Bank and Investment Corporation merged in 1970 and formed the Agricultural and Industrial Development Bank share company to deal mainly with medium and long-term loans in the agricultural and industrial loans. While other banks during the time concentrated on short-term commercial and industrial loans. The National Bank of Ethiopia as the central Bank of the country had the responsibility of licensing and supervising commercial Bank operations in Ethiopia. Lending rates and size of the loans are granted by commercial Banks were unregulated except for the 12% maximum of general application. Lending rates ranged between 6 and 9.5% for both export and other loans. Although the growth of saving rapid there was a shortage of short-term funds to meet the demand for credit from commercial banks.

The Overall credit systems during the pre-revolution period in Ethiopia were also characterized by the concentration of bank operation in few urban areas; the collateral requirements were up to 200% for loans by financial intermediaries in addition the minimum loan requirements were high which favored big businessmen over small ones.

In the post-revolution period, the financial sector institution was fully nationalized and consolidated into specialized banks, the institutions are National bank of Ethiopia (NBE) which is the central bank and financial arm of the Government, Commercial Bank of Ethiopia(CBE) which is responsible for mobilization of savings and extensions of loans for commercial activities, Agricultural and Industrial Development Bank(AIDB) extends short and long term loans to agricultural and industrial and other sectors. The Housing and Saving Bank (HISB) concentrates on activities related to the mortgage loan. Lending policies in the formal financial sector are set by NBE and were geared towards supporting the planned economy and hence all major aspects of borrowing and lending are fully regulated. Interest rates charged to borrowers and commitment fees and other charges on the loans are dictated by NBE. Within the context of the planned economy, the state and public enterprises had been major customers of the banking system as depositors, borrowers, and users of the service. In many instances, banks have been directed by National bank to lend to the public enterprises particularly state farms.

Currently, the lending rate is fully liberalized, and hence there is no lower/upper lending limit rate within the country. Each bank determines the lending rates by itself. And Ethiopian Banks grant different types of loans for their customer such as short term loans, medium and long term loans, Overdraft, pre-shipment export credit facility, revolving credit facility, merchandise facility, and Agricultural investment loan.

### **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 banks' 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 (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 have a positive effect on lending.

## **2.4. Theoretical Frame Work on Lending (Loans and Advances)**

Many theories seek to explain the behavior of commercial banks in their lending activities in various economies around the world. For this study, the theories that are considered relevant are included.

### **Loan pricing theory**

The theory suggests that banks cannot always set high-interest rates by trying to earn maximum interest income. Banks should consider the issue of adverse selection and moral hazard since it's very difficult to forecast the borrower type at the beginning of the banking relationship (Stiglitz & Weiss, 1981). If banks set interest rates too high, they'll 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 (Chodecal, 2004). From the reasoning of Stiglitz and Weiss (1981), it's usual that in some cases we might not find that the rate of interest set by banks is commensurate with the risk of the borrowers.

### **Theory of Multiple-Lending**

It is found in the literature that banks should be less inclined to share lending (loan syndication) in the presence of well-developed equity markets and after a process consolidation. Both outside equity and mergers and acquisitions increase banks' lending capacities, thus reducing their need for greater diversification and monitoring through share lending (Carletti, Cerasi, & Daltung, 2006).

### **Moral Hazard Theory**

A moral hazard occurs when a contract is executed between two parties. The two types of moral hazard are hidden information and hidden action (Arrow, 1985). Hidden information occurs when one contract party does not unveil the full range of his or her options and the consequent risk factors. Hidden action occurs when one contract party chooses options that are not in the interest of the counterparty and cannot be observed and managed thus moral hazard may arise. Concerning credit markets and analyzing the lender-borrower relationship in more detail, the financial institutions may not have the capacity to ensure that the borrower invests the borrowed

loan in productive investments and as a result of this information asymmetry, the borrower may decide to invest in risky projects leading to defaulting (Diamond & Rajan, 2001)

### **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 therefore the soft-budget-constraint problems.

According to the hold-up literature, sharing lending evades the expropriation of informational rents. This progresses firms' incentives to make proper investment choices and in turn, it increases banks' profits (Von Thadden, 2004). As for the soft-budget-constraint problem, multiple-bank lending enables banks don't extend further inefficient credit, thus reducing firms' strategic defaults. Both of those theories consider multiple-bank lending as a technique for banks to commit towards entrepreneurs and improve their incentives. None of them, however, addresses how multiple-bank lending affects banks' incentives to observe, and thus can explain the apparent discrepancy between the widespread use of multiple-bank lending and also the importance of bank watching. But according to Carletti et al. (2006), when one considers explicitly banks' incentives to monitor, multiple-bank lending may become an optimal way for banks with limited lending capacities to compel to higher monitoring levels. Despite involving free-riding and duplication of efforts, sharing lending allows banks to expand the amount of loans and achieve greater diversification. This mitigates the agency problem between banks and depositors, and it improves banks' monitoring incentives.

### **Credit Market Theory**

The theory proposes that if collateral and other appropriate 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 steady supply of the same, interest rates will need to rise. Any additional risk to a project being funded by the bank should be reflected through a risk premium that is added to the lending rate to match the increased 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, Schenk, & Szczesny, 2000). Credit market theory directly supports the idea of loan pricing theory.

## **The bank lending channel theory**

The bank lending channel theory suggests that during monetary contractions banks restrict some firms' loans, thus reducing their desired investment independently of interest rates (Clouse, Henderson, Orphanides, Small, & Tinsley, 2003).

## **Transactions theory**

Credit money created by commercial banks as primary instead of derived from central bank money credit money drives the monetary system; it doesn't claim that all money is credit money, though money is a commodity. A monetary transaction is not a bilateral transaction between buyer and seller but rather a tripartite transaction between buyers, sellers, and banks. Rather than the buyer handling a physical good in exchange for his/her purchase, instead, there's a debit to their account at a bank and a corresponding credit to the seller's account. That is precisely what happened in credit card or debit card transactions (Alfaro, Franken, García, & Jara, 2003).

## **2.5. Determinants of Private Commercial Bank Lending and Hypothesis**

### **Development**

Hypothetically factors affecting private commercial banks' lending or loan and advances are divided into two broad categories, bank-specific (internal) and macro-economic (external) factors.

#### **2.5.1. Bank Specific (Internal) Factors**

The bank's specific characteristics state the determinants that are primarily suffering from the bank's management decisions and also the bank's policy objective. Generally, bank size, the volume of deposit, liquidity ratio, management efficiency, and lending interest rate are the most common bank's specific characteristics for investigating the determinants of bank lending. The following subsections discuss in detail the bank-specific characteristics that are commonly used in studies to determine bank lending.

##### **1. Bank size**

Bank size is commonly measured by the size of the total asset of a bank. The bank size is used to measure commercial bank lending as it shows the economics of scale enjoyed by the bank (Chernykh & Theodossiou, 2011). There are several previous studies from African country

claim that bank size is among the factors that affect bank lending. For instance, Constant and Ngomsi (2012a) which employ a sample of the bank from six countries in the Central African Economic and Monetary Community suggest that bank size is the most crucial and insistent factor to control a bank's tendency to offer loan. Additionally, Malede (2014) and Amidu (2014) also study the determinants of bank lending within the context of Africa countries and they claim that bank size positively influences bank lending. Rabab'ah (2015) Who investigates the commercial bank lending in Jordan concludes that the larger banks tend to provide higher supply credit facilities to the general public.

In the context of European countries, Tomak (2013) shows that larger commercial bank in Turkey tends to provide more commercial loan to the general public. In Russia Chernykh and Theodossiou (2011) suggest that larger banks have more accessibility and bigger fund to grant loan to the public. On the contrary, Pruteanu-Podpiera (2007) examines the characteristics of bank's loan supply in Czech and the findings of the study contend that the bank size tends to negatively influence the growth rate of loans. In general, the empirical evidence from the earlier studies shows that bank size can positively influence commercial bank lending. Theoretically, the bank size tends to positively influence commercial bank lending as larger banks have more accessibility and have larger funds to grant loans to the public. Thus this study hypothesizes that:

**H1:** *Bank size has a significant and positive impact on private commercial banks' lending.*

## **2. Volume of Deposit**

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

Most business organizations, especially in developing countries are highly hooked on bank loans as a source of capital and also the ability of banks in giving loans depends much on their ability

to attract deposits (Haron, Azmi, & Shafie, 2006). This is because an increasing trend 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.

The lending activity is made possible only if the banks can mobilize sufficient funds from their depositing customers. Since commercial banks rely on depositor's money as a source of funds, it means that there are relationships between the ability of the banks to mobilize deposits and the amount of credit extended to the customers (Obamuyi, 2013).

As stated in Abebie (2016), total deposit increase the total advance, and loan increases proportionally. An increase in the deposit of a bank will improve its ability to lend more funds to its customers. In addition, an increasing trend 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 profit. Thus, this study hypothesizes that:

*H1: Volume of deposit has a significant and positive impact on private commercial banks' lending*

### **3. Liquidity ratio**

Liquidity refers to a state in which an asset can be readily converted into cash. A bank might 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, Tunc, Vardar, & Okan, 2010). This occurred because banks transform the customer's deposit into 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 (Kasman et al., 2010). Commercial banks, therefore, have to stock a reasonable quantity of cash to meet their customer's 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 over its cashing ability. Therefore, the problem of liquidity in bank operations also affects the lending of various commercial banks. Consequently, the liquidity ratio is seen as an important variable in determining the supply of loans and advances (Ojo, 1978). Thus, this study hypothesizes that:

*H3: liquidity has a significant and positive impact on private commercial banks' lending in Ethiopia*



#### **4. Lending interest rate**

The lending rate charged on the customer's loan is vital for the bank as it provides the most significant sources of income for the banks (Moussa & Chedia, 2016). According to the loanable fund's theory, banks need to aim to hold deposits for similar lengths of time as the term of loans financed. To survive, banks have to cover the interest rates they pay on deposits from the interest rates they charge on loans (interest margin). Higher loan prices in turn affect the number of funds intermediated by banks. This means that an increase in interest rates determines a reduction of credit growth. This result derives from the actual 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 the 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 & Blinder, 1988).

Moreover, the lending rate is additionally one of the monetary policy instruments employed by the Central Bank to manage the liquidity in the financial market. Richard and Okoye (2014) Factors that affect lending behavior of deposit money banks in Nigeria and the study recommends that higher interest rate tends to increase the volume of loan and advances grant by the bank. In the context of Asia countries, Swamy (2012) investigates bank lending behavior by using a sample of commercial banks in India from the year 2006 to the year 2011. The findings indicate that the lending rate has a positive and significant relationship with the commercial bank lending during the pre-recession period and recovery period of economic, but it tends to negatively influence the commercial bank lending during the period of recession.

On the other hand, Abdul Karim, Azman-Saini, and Abdul Karim (2011) conclude that the lending rate tends to negatively affect bank lending in Malaysia. In summary, empirical evidence from existing studies shows that the lending rate can influence commercial bank lending negatively. Based on the economic theory, the lending rate tends to negatively affect the commercial bank lending because the higher lending rate charged by the bank on borrower's loan will increase the financial cost of the borrower, so it will reduce the desire of the public to borrow money from the commercial banks. Thus, this study hypothesizes that:

*H4: lending interest rate has a negative impact on private commercial banks' lending in Ethiopia*

### **5. Management efficiency**

The management efficiency ratio is a determination of quality policy and its implementation, by use of the significant plan and good management for the liquidity which impact the bank performance, and the ability to lend. The measurement used is total operating expenses to total operating income and therefore the expected sign is positive, because when the expenses increase banks lend more to cover it. The qualities of any managers are achieving and hit the target of the company especially bank's management is measured on gaining high profit from the low-cost operation. Different Evidence suggests that ability of a bank to profit and manage its expense has a significant effect on lending. For instance, Qudah (2017), management quality had a positive and significant impact on bank lending. The author concludes that Highly qualified management staff in the banks assumed to have good initiations to appreciate the lending and control all activities and tasks needed to maintain an expected result. However, as stated by Tabila (2016), the ability of a bank to generate and maximize its profitability performance is very vital in carrying out its lending decision. According to the author, when banks' expenses increase as a result of higher costs and higher salaries, which tend to reduce their profitability, they become reluctant to lend. The author concludes that a negative relationship between management efficiency and banks' lending behavior. Similarly, Alhassan, Brobbey, and Asamoah (2013) conducted a study on the impact of asset quality on banking lending behavior in Ghana by investigating 25 banks for the period 2005-2010. The findings show a negative and significant relationship between management quality and lending behavior in Ghana. According to the author, Management efficiency ratio shows how banks' assets and liabilities are well organized and managed in order to maximize profit and hedge against risk. Thus, this study hypothesizes that:

*H5: management efficiency has a significant and positive impact on private commercial banks' lending in Ethiopia.*

### **2.5.2. Macroeconomic (External) Factors**

The macroeconomic determinants refer to those variables that are not under the control of bank management but reflect the monetary, economic, and legal compliance of a country that

influences the lending activities of banking institutions (Amidu, 2014). Generally, gross domestic product, exchange rate, and cash reserve requirement are the most common determinants used to examine bank lending.

### **1. Cash reserve requirement**

The cash reserve requirement is one of the monetary policy instruments which allow the Central Bank to manage the liquidity and credit creation in the banking system. Getahun (2014), States that reserve requirements are considered to be a powerful tool for the government to control the activities of commercial banks. The reserve requirement (or cash reserve ratio) refers to the central bank regulation that sets the minimum reserves each commercial bank must hold (rather than lend out) of customer deposits and notes. It is Cash stored in the form of a physical object in a bank vault or deposits set with a central bank. The required ratio reserve is sometimes used as a tool in monetary policy for influencing the borrowing and interest rates of the country by changing the number of funds available for banks to make loans. Cash reserve requirements had a positive and significant impact on loans (Getahun, 2014).

Cash reserve requirement had a negative and statistically significant effect on bank lending (Abebie, 2016) and (Haile, 2020)B. The cash reserve requirement ratio does not influence the lending behavior of Ethiopian commercial banks (Malede, 2014) and (Getachew, 2017). Banks operating in Ethiopia shall open accounts with the National Bank of Ethiopia to be used as a reserve account. It exclusively is used to maintain the reserve balance requirement and no bank shall withdraw any money from its reserve account without prior approval of the Supervision Department of the National Bank of Ethiopia and deficiencies in reserve balance subjected to a penalty. The reserve requirement shall be computed on the net deposit balance, i.e. excluding cash items in process of collection, shown at the end of every reporting week. Generally, the empirical evidence from the previous study finds that cash reserve requirements can affect commercial bank lending negatively. According to the economic theory, cash reserve requirement tends to influence commercial bank lending negatively as the commercial bank in Ethiopia are required to reserve some proportional of its eligible liabilities with among the bank of Ethiopia, hence it will restrict the credit creation of the commercial bank in Ethiopia. Therefore, hypothesis 6 is as follow:

*H6: cash reserve requirement has a negative and significant impact on private commercial banks' lending.*

## **2. Gross Domestic Product**

The gross domestic product is one of the crucial factors that influence bank lending due to the pace of the economic activity might indirectly influence the preference of the bank to grant loans to the public. A strong economic condition measured by GDP, as a motivating factor to banks, has a statistically significant impact on the issuance of more private credit to businesses. A strong economic condition creates more demand for goods and services which leads to more investment in different sectors hence increase the per capita income as well as the savings, collectively these factors convince banks to issue more private credit (Imran & Nishat, 2013). The study of Stepanyan and Guo (2011), indicating that domestic and foreign funding is positively associated with economic growth. The stronger economic growth results in higher credit growth. Constant and Ngomsi (2012b), investigate the long-term lending behavior of 35 commercial banks in Central Africa and the findings discover that the gross domestic product has a positive and significant relationship with bank lending. The study also suggests that GDP growth is one of the most vital and consistent factors to define a bank's propensity to lend a long-term business loan. Similarly, Amidu (2014) claims that when the gross domestic product increases, it'll cause the increment of bank lending in Sub-Saharan Africa countries. Moreover, Olokoyo (2011), also discovers that gross domestic product in Nigeria has a positive and significant relationship with bank lending.

*H7: gross domestic product has a significant and positive impact on private commercial banks' lending in Ethiopia*

## **3. Inflation**

Inflation is generally the persistent increase of the price level of goods and services in an economy over a period of time. While the price level rises, each unit of currency buys fewer goods and services. Consequently, inflation results in a reduction in the purchasing power per unit of money, a loss of real value in the medium of exchange, and a unit of account within the economy (Boyd, De Nicolo, & Smith, 2004).

Inflation is a key determinant of commercial banks' lending globally. According to Santoni (1986), inflation depreciates the value of money such that a percentage increase in inflation results in a similar percentage fall in the value of the country's currency. Broadly, inflation theorists attribute inflation to monetary causes and mal adjustments in an economic system.

Taner (2000) Study on the consequences of inflation uncertainty on credit markets reveals that unpredictable inflation raises interest rates, decreases loan supply, and affects loan demand. therefore, suggests that an increase in inflation may reduce the bank lending rates. To proxy inflation; the annual gross inflation rate is used in this study.

**H8:** *Inflations has a significant negative impact on private commercial banks' lending.*

## **2.6. Empirical Review Literature**

Several empirical studies examine the bank-specific (internal) and macro-economic (external) determinants of private commercial banks' lending routine studied in different countries in the world. These studies are summarized as follows:-

### **2.6.1. Empirical Review Literature on Lending (Loans and Advances) in the World**

Olokoyo (2011) Investigate the determinants of commercial banks' lending behavior in Nigeria. The model covers Nigerian commercial banks' loan and advance and other determinants or variables such as their volume of deposits, their investment portfolio, interest (lending) rate, stipulated cash reserve requirements ratio, and their liquidity ratio for the period from 1980 to 2005. They found a functional relationship between the dependent variable and the specified independent variables. They concluded that commercial banks should focus on mobilizing more deposits as this may enhance banks' lending performance and had better formulate critical, realistic, and comprehensive strategic and financial plans.

Olusanya et al. (2012) Take a look at determinants of lending behavior of commercial banks in Nigeria: a Co-integration analysis (1975 to 2010). I.e. for thirty-seven years, using pooled data regression methods. The model tested explanatory variables such as volume of deposits, the annual average exchange rate of the naira to dollar, Investment Portfolio, Interest rate (lending rate), Gross domestic product at current market price and Cash reserve requirement ratio. However, the model result reveals that there's a positive relationship between Loan and advances and Volume of deposits, the annual average exchange rate of the naira to dollar, Gross domestic

product at current market price, and cash reserve requirement ratio except for Investment portfolio and Interest rate (lending rate) that have a negative relationship. It was also revealed from the result that there is a long-run relationship between Loan and advances and the explanatory variables in the model and this shows that commercial bank has a lot of impact of their lending behavior.

Fouopi Djiogap and Ngomsi (2012), investigated the determinants of bank long-term loans using a sample of 35 commercial banks of six African countries over the period 2001-2010. They found that a bank's ability to spread long-term business loans depends on its size, capitalization, GDP growth, and also the availability of long-term liabilities. These results underlined the importance of supply-side constraints in extending vital long-term credit to firms. The multivariate test of cross-countries differences in the bank lending decisions suggests that smaller banks, less capitalized banks, banks with low levels of long-term funding sources, banks with higher nonperforming loans and operate in recession environments are more averse to lend long term.

Ladime, Sarpong-Kumankoma, and Osei (2013) investigated the determinants of bank lending behavior in Ghana. Using the GMM-System estimator developed by (Arellano & Bover, 1995) and (Blundell, Bond, & Windmeijer, 2001), found that bank size and capital structures have a statistically significant and positive relationship with bank lending behavior. Also, find evidence of the negative and significant impact of some macroeconomic indicators (central bank lending rate and rate of exchange) 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.

Imran and Nishat (2013), investigated the determinants of bank credit by using time series data from 1971 to 2010 in Pakistan. The empirical results indicated that the foreign liabilities, domestic deposits, economic growth, exchange rate, and monetary conditions have a significant impact on banks' credit to the private sector in Pakistan, particularly in the long run. Whereas inflation and money market rate do not affect private credit. In conclusion, the determinants of bank lending behavior literature indicate that bank-level (size, capitalization, ownership structure, and access to funds) and market-based (interest rate, rate of inflation, GDP) variables

impact bank lending behavior in several ways in various countries. In this context, bank lending behavior varies in line with the dynamics and also the institutional background of the country.

Moussa and Chedia (2016), examined the determinants of banks' lending in Tunisia. They studied the internal and external factors of bank credits in Tunisia using panel data of a sample of 18 banks in the period 2000 to 2013. The dependent variable of the study was Total Loans and Advances while Return on Asset, Return on Equity, Net Interest Margin, Size of the bank, Equity to Total Asset Ratio, Operating Expense to Total Asset Ratio, Financial Expense to Total Credit Ratio, Total Deposit to Total Asset Ratio, Total Liquid Asset to Total Asset Ratio, GDP growth, Rate of Inflation, the Ownership structure of the bank whether it is Private Bank or not and whether it is Foreign Bank or not were independent variables. The result of the study shows among the explanatory variables, only return on asset net interest margin, liquidity and inflation had a significant impact on total loan and advance. Return on asset and liquidity had negative while net interest margin and inflation had a positive impact on loan and advance.

Bhattarai (2016), has investigated the determinants of commercial banks' lending behavior in the Nepalese context. The pooled data of 4 commercial banks for the period 2007 to 2014 had been analyzed using a regression model. The dependent variable used in the study was loans and advances (LOA) and the independent variables used in the study were: Bank size, Liquidity, Investment Portfolio, Cash Reserve Ratio, and Deposit to Capital ratio. The regression results revealed that bank size has a significant and positive effect on loans and advances whereas liquidity ratio, investment portfolio, and cash reserve ratio have a significant and negative effect on Nepalese commercial banks' loan and advance.

According to Khangalah (2016), in their MSc thesis entitled "Determinants of commercial banks' lending behavior in Kenya: a case of state-owned banks in Kenya" he found that liquidity ratio and capital adequacy positively affected credit extension significantly whereas interest rate and asset quality inversely affected credit creation of the state-owned commercial banks. The effect of loan pricing (denominated in the rate of interest) on lending behavior was found to be statistically significant whereas asset quality was found to be statistically insignificant.

According to Timsina and Pradhan (2016) in their research called "Determinants of Bank Lending in Nepal" the model used volume of deposits, interest rate, stipulated cash reserve requirements ratio, liquidity ratio, inflation, exchange rate, and gross domestic product as

independent variables. He found that the GDP and liquidity ratio of banks have the greatest impacts on lending behavior. The study implies that GDP is the barometer of the economy and commercial banks should pay attention to the overall macroeconomic situation of the country, factors affecting the GDP in general, and their liquidity ratio in particular while taking the lending decisions.

Qudah (2017) examined the Determinants of Domestic Banks Lending Behavior Evidence of Jordan Eastern Mediterranean University, Gazimagusa, and North Cyprus. The results of regression showed that liquidity ratio, management quality, return on asset ratio, the volume of deposits, and inflation rate had positive and significant impact on banks' lending while credit risk, return on equity ratio and regional crisis had negative and significant impact on banks' lending also the result found that equity to asset ratio, bank size, and global crisis had a statistically insignificant impact on bank's lending. So the study suggested that banks should work better to receive more deposits and take caution in making decisions related to lending to avoid any default in bad loans. Experience and skills management will affect directly the banks' liquidity and profitability which lead influence the bank's ability of lending.

### **2.6.2. Empirical Review Literature Related to Lending (Loan and Advances) in Ethiopia**

In Ethiopia, as far as the researcher knowledge there are only five empirical studies conducted on this areas by (Malede, 2014), (Getahun, 2014), (Temesgen, 2016), (Abebie, 2016), (Getachew, 2017) and (Haile, 2020). So those studies are very limited work on the area of determinants of commercial banks' lending 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 review of the related studies conducted in Ethiopia

Malede (2014) Examines 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 determinants (bank size, credit risk, gross domestic product, and investment, deposit, interest rate, and liquidity ratio, and cash reserve required). Seven years of financial data of eight purposively chosen commercial banks were used for analysis purposes. Ordinary least square (OLS) was applied to determine the impact of those predictor variables on commercial banks' lending. The results recommend that there is a 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.

Getahun (2014) In his study examined the determinants of commercial banks' lending behavior in Ethiopia. The study applied the balanced fixed effect panel data of eight commercial banks in Ethiopia that covers the period 2001- 2013. The study used the 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 a dependent variable. The estimation results showed that volume of deposit and bank size had a positive and significant impact on loans and advances. The liquidity ratio and interest rate had a negative and significant effect on loans and advances. Cash reserve requirement and rate of inflation had a positive and significant impact on loan and advance but the coefficient sign was not as estimated. Finally, the real GDP growth rate had a statistically insignificant impact on bank's loans and advance.

According, to Temesgen (2016) in their research called "Determinants of Banks' Lending Behavior in Ethiopia- Pragmatic Evidence from Commercial Banks "measured that the bank loans and advances as the outcome variable and the bank-specific factors are liquidity ratio, the volume of deposit, credit risk and bank capital, and monetary policy instruments (cash reserve requirement and lending rate) and macroeconomic factors (GDP) as explanatory variables. The results show that except for the liquidity ratio and the lending rate which are significant at a 5% level of significance, all bank-specific factors are significant at a 1% significant level. Thus, the main effect on the lending behavior of commercial banks in Ethiopia. On the other hand, macroeconomic variables (GDP) and the cash reserve requirement ratio do not influence the lending behavior of Ethiopian commercial banks. Based on the result of the study, the researcher recommends that Ethiopian commercial banks had better give emphasis and employ different strategies to attract and grab deposits, launch appropriate credit programs and arrangements and also critically consider the creditworthiness, rationing, and performing ability of their debtors. Besides, they should focus to develop competent and proficient liquidity and credit risk to reduce their negative energy on their lending performance.

Abebie (2016), investigates the determinants of lending decisions of private commercial banks in Ethiopia and their effect on their financial performance. The researcher used random effect panel regression for the data of six private commercial banks in Ethiopia for the sample covered the period from 2001 to 2015. The study covered all private commercial banks that were working in the period of the study. Eight variables that affect banks' lending were selected and analyzed in the study. The regression result shows that liquidity ratio, capital adequacy ratio, inflation rate, and the gross domestic product have a positive and statistically significant impact on the banks' lending whereas nonperforming loans, cash reserve requirement rate, and lending interest rate had a negative and statistically significant impact on the lending. On the other hand, a volume of deposits had a positive but insignificant impact on lending in Ethiopia. The study suggests that Ethiopian commercial banks should/need to work more to improve their liquidity and capitalization and reduce their nonperforming loans.

According to Getachew (2017) in their MSc thesis entitled "The determinants of commercial bank's lending: Evidence from Ethiopia". In this study, the bank size, the volume of deposit, cash reserve requirement, credit risk, liquidity ratio, lending interest rate; GDP, and inflation are the independent variables. The result shows that bank size, the volume of deposit, and GDP growth positively affect Ethiopian commercial bank's lending behavior however, cash reserve requirement and liquidity ratio negatively affect Ethiopian commercial bank's lending behavior. On the other hand, credit risk, lending interest rate, and inflation have an insignificant impact on Ethiopian commercial bank's lending or loan and advances. The study suggests that Ethiopian commercial banks should enhance their strategies in mobilizing deposits from the general public and need to strive to strengthen their asset size.

Haile (2020), Examined the determinants of commercial banks' lending in Ethiopia. In there, the researcher had been used the random effect panel regression model for the data of ten private commercial banks in Ethiopia for the sample covered the period from 2009 to 2018. Ten explanatory variables that affect banks' lending were selected and analyzed with STATA 11 econometrics software package the regression result shows the capital adequacy ratio, volume of deposit, and return on asset had a positive and statistically significant impact on the bank's lending whereas lending interest rate had a positive but insignificant impact on lending. On the other hand, credit risk, cash reserve requirement rate, and liquidity ratio had a negative and

statistically significant impact on the lending decision. The study advocates that Ethiopian private commercial banks should/need to work more to improve their volume of deposit, capitalization, decrease their credit risks, and consider external situations while encompassing the loans.

## **2.7. Summary of the literature and knowledge gap**

From the above theoretical and empirical literatures review, we can conclude that a strong banking system is the backbone for financial stability and development process of any country. As an intermediary 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 activity forms part of their existence. This is why most of the researchers discovered that lending is the major business activity for most commercial banks the loan portfolio is typically the largest asset and the biggest source of revenue. At the same time, it is one of the greatest sources of risk to a financial institution's safety and soundness.

Therefore, without having sufficient understanding on lending determinants of bank performance will be difficult. Most of the related studies indicate that the banks supply of loan is 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 factors that are not related to bank management but reflect the monetary, economic and legal environment that affect the operation of bank.

However, there are many empirical studies on the determinants of lending of commercial banks in developed economies; there have been only a few studies on the lending of commercial banks in developing economies like Ethiopia. In Ethiopia, to the best of the researcher knowledge, the empirical studies on the lending decision of commercial banks are the research undertaken by Malede (2014), Getahun (2014), Temesgen (2016), Abebie (2016), Getachew (2017) and Haile (2020) on determinants of lending commercial banks in our country (i.e. public as well as private banks) and also those the studies are not studied some significant variables. However, the results of those studies were inconsistent.

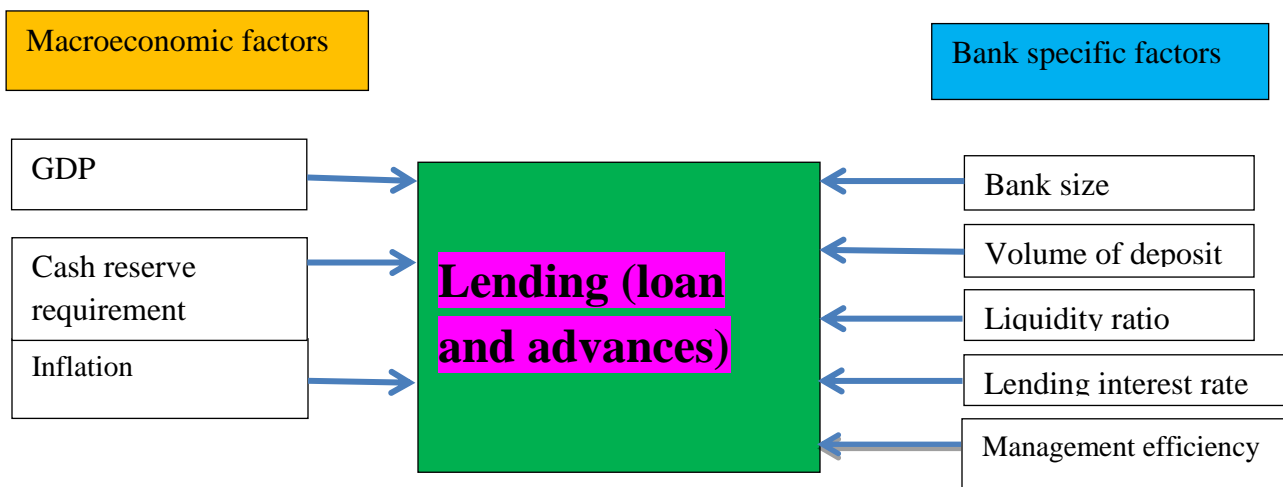
In generally, Inconsistent results among the researchers one basic rationale for doing this study. In addition to the above, adding the new variables one rationale behind conducting this study. Consequently, the researcher adds the management efficiency variables that had taken by the previous researcher in Ethiopia. Therefore, management efficiency factors were one variable that

impacts the lending of commercial banks in Ethiopia. Moreover, The other motives of the researcher to choose this title that, the Public banks had a big comparative advantage during commercial banks competition market because of state-oriented advantage, asset, and capital accumulation, more years of extended experience is difficult to face similar determinants with infant private commercial banks in Ethiopia. Then, the researcher excludes the public commercial bank of Ethiopia. Therefore, the objective of this study is to fill the above knowledge gaps.

## 2.8. Conceptual Framework

The objective of this research isto investigate the determinants of private commercial banks’ lending in Ethiopia. The bank-specific factors include the bank size, lending interest rate, volume of deposit, management efficiency, and liquidity ratio. The macroeconomic factors include the cash reserve requirement, gross domestic product, and inflation. Thus Figure below which is the conceptual framework summarizes the main focus and scope of this study in terms of variables and their relationship.

**Figure 2.1: Conceptual framework of lending or loan and advances model**



*Source: extracted by the researcher (2021)*

# CHAPTER THREE

## RESEARCH METHODOLOGY

*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 chapters were arranged as follows: Section 3.1 deals with research design. Section 3.2 presents the research approach adopted by the study. This was following the study population, under section 3.3. Next, section 3.4 the sample design, section 3.5 the nature of the data, instrument of data collection, section 3.6 deals with data analysis and presentation techniques are explained, section 3.7 describes study variables, and finally, section 3.8 deals with model specification.*

### **3.1 Research Design**

Research design provides the framework for the gathering and analysis of documents or its the plan and structure of investigation so conceived as to obtain answers to research questions (Bell, Bryman, & Harley, 2018). This means it gives the procedure necessary for obtaining the information needed to resolve the research problems.

As noted by Kothari (2004), explanatory research design examines the cause and effect relationships between dependent and independent variables. Therefore, since this study was examined the cause and effect relationships between lending (loans and advances) and its determinant, it is explanatory research. The main task is to separate such causes and to say to what extent the selected variables lead to such effects.

### **3.2. Research Approach**

As noted in Creswell (2009), in terms of investigative study there are three common approaches to business and social research namely qualitative, quantitative, and mixed methods approach. The qualitative research approach is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem with the intent of developing a theory or pattern inductively. In contrast, Quantitative research is a means for testing objective theories by examining the relationship among variables. Quantitative methods are frequently described as deductive, 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.

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. Creswell (2009)indicated that the researcher tests a theory by specifying narrow hypotheses and the collection of data to support or refute the hypotheses. Finally, the mixed-methods approach is an approach in which the researchers emphasize the research problem and use all approaches available to understand the problem. 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. Study Population**

According to Sekaran and Bougie (2003), Population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate. A target population refers to the precise population on which information is preferred. The study population or participants of this research was all private commercial banks in Ethiopia. As per the NBE report, currently, there are seventeen private commercial banks in Ethiopia (NBE, 2020). These include Abay Bank S.C (AB), Addis International Bank S.C (Adib), Awash International Bank S.C (AIB), Bank of Abyssinia S.C (BOA), Buna International Bank S.C (BIB), Cooperative Bank of Oromia S.C (CBO), Dashen Bank S.C (DB), Dehub 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), Berhan International Bank (BBI) S.C and Zemzem Bank (ZZB).

### **3.4. Sample Design**

Sample design deals with sample frame, sampling techniques, and sample size. Sampling involves the various procedure uses to select a part to represent a population. According to Brooks (2008), two main alternative procedures could be used in the selection of an appropriate sample and these include probabilistic/random sampling and non-probabilistic/non-random sampling. Probabilistic sampling is a sample procedure that gives each one in the population a

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, a non-probabilistic sample involves the selection of a sample based on 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. To obtain representative data in this study the researcher employs a non-probabilistic or purposive sampling technique.

Sample size refers to the number of units in a population to be studied. The study includes all private commercial banks that have at least fifteen and more year's data i.e., 2006-2020 G.C. The criteria set by the researcher for selecting the sample will be; first, the required banks are only private Commercial banks operating in Ethiopia. Second, those private commercial banks should have started operation before 2006 G.C, so that the data is available for consecutive fifteen years from 2006 to 2020 G.C. Therefore, from 17 private commercial banks operating in the country the study takes a sample of seven private commercial banks of which audited financial statements are available within the study period identified: These are, Awash International Bank S.C (AIB), Dashen Bank S.C (DB), Bank of Abyssinia S.C (BOA), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB) and Cooperative Bank of Oromia S.C (CBO). Therefore, the matrix for the frame is  $15 \times 7$  which includes 105 observations.

### **3.5. Types of Data and Methods of Data Collection**

As noted in Arellano and Bover (1995), 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, combining time-series and cross-section observations 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, the data used for this study is panel data.

The 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 two main sources by which the researcher can collect data; primary and secondary sources. A primary data source is when the researcher collects new information either through observations, interviews, questionnaires and then uses this data for analysis (Saunders & Lewis, 2012). Secondary data is data that exists somewhere having been collected and used for some

other purpose. After evaluating all possible data collection methods, the researcher found that the most appropriate method that provides practical answers to the stated objectives of the study is to use secondary data. Hence, the data used for this study is secondary data 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 Cooperation (MoFEC) for macroeconomic factors.

### **3.6. Method of Data Analysis**

As noted by Kothari (2004), data has to be analyzed in line with the purpose of the research plan after data collection. Accordingly, secondary data collected from NBE, MoFEC, and the head office of each respective bank were analyzed to determine its suitability, reliability, adequacy, and accuracy. Thus, this study utilized both descriptive and econometric analysis based on panel data from 2006-2020 G.C to examine the relationship between the loans and advances and its determinant factors of private commercial banks in Ethiopia. The data collected from different sources were coded, checked, and entered into a simple excel program to make the data ready for analysis. Then the collected data was processed and analyzed through STATA version 16 software packages.

For descriptive analysis; a table and percentage were used to analyze the data. Besides, results of the descriptive statistics such as mean, standard deviation, number of observations, minimum and maximum values were reported to describe the characteristics of variables under investigation. Furthermore, various diagnostic tests such as normality, Heteroscedasticity, and autocorrelation, and multicollinearity tests were conducted to decide whether the model used in the study is appropriate and to fulfill the assumption of a classical linear regression model. Thus, to examine the possible degree of Multicollinearity among variables, correlation of variables and variance inflation factor was used.

To this end, the researcher used fixed effect regression model analysis to examine the effect of each explanatory variable on the lending of private commercial banks in Ethiopia. Thus, regression results were presented in a tabular form with the appropriate test statistics and then an explanation of each parameter was given in line with the evidence in the literature.



### **3.7. Variables and Measurements**

The sources of funds for lending are reserve, deposits, and capital. All these sources may be affected by different factors and would have a direct influence on lending. Since lending is the principal function of the banking industry, the management of banks should give due attention, analyze and take the necessary measures on time on internal and external factors that affect lending. Without lending banks' incomes especially interest income would highly deteriorate and affect the overall performance of banks. In this section, both dependent and independent variables are explained by examining different works of literature.

#### **3.7.1 Dependent Variable**

##### **❖ Lending (loan and advances)**

A loan is lending of money to individuals, organizations, or any entity in which the borrower initially receives or borrows an amount of money, called principal from the lender, and obligated to pay back at a later time. Advance' on the other hand, is a 'credit facility granted by the bank relatively for a short period of time. National Bank of Ethiopia defined Loans and advances as it is any financial assets of a commercial bank arising from a direct or indirect advance (i.e. unplanned overdrafts, participation in loan syndication, and the purchase of loans from another lender, etc.) of commitment to advances funds by a commercial bank to a person that is conditioned on the obligation of the person to repay the funds, either on a specified date or dates or on-demand, usually with interest. The term includes a contractual obligation of a commercial bank to advance funds to or on behalf of a person, a claim evidenced by a lease financing transaction in which the commercial bank is the leaser. Overdraft facility to be funded by the commercial bank on behalf of a person, revocable or irrevocable documentary letters of credit, standby letters of credit, and guarantees or sureties issued on behalf of a borrower. To proxy loans and advances, a natural logarithm of loans and advances was used.

#### **3.7.2 Independent variables**

##### **❖ Bank size**

It measures the general capacity to undertake intermediary functions and is considered an important determinant of bank lending decisions (Berger & Udell, 2006). Berger and Udell (2006) provide that large and sophisticated banks tend to lend few loans to small-scale firms. Stein, Tabatabai, and Ambrose (2000) explain that small banks have comparative advantages in

producing soft information whereas large banks also have comparative advantages in lending based on hard information. On the other hand, when large and complex banks are able, through technical expertise, to process soft information about small-scale firms, then there would be a positive relationship between bank size and lending. To proxy bank size natural logarithm of total assets of the bank was used.

#### ❖ **Volume of deposit**

Deposits form the majority of banks' liabilities and play an important role in the intermediation activities of banks. The decisions of bank 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 a 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 giving out more loans and advances. Olokoyo (2011), asserts that commercial bank deposits have the greatest impacts on their lending behavior. Accordingly, a positive relationship is thus expected between the volume of deposits and bank lending decisions. The deposits ratio is measured as the ratio of customer deposits to banks' total assets.

$$\text{Volume of deposit} = \frac{\text{total deposit}}{\text{total asset}}$$

#### ❖ **Liquidity ratio**

Liquidity refers to a state in which an asset can be readily converted into cash. A bank might 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. Liquidity for a bank is that the capability of banks to satisfy their financial obligations. Banks should be considered adequate liquidity. Commercial banks are careful in their assets liability management to come to be liquid. Liquidity is that the base of confidence in the financial business and it has great implications on analyzing bank lending decisions towards government monetary policy response. The liquidity ratio had a negative and significant impact on loans and advances (Getahun, 2014). Inversely Liquidity ratio had a positive and statistically significant effect on bank's lending (Malede, 2014), (Haile, 2020), (Timsina, 2014), (Khangalah, 2016), and (Qudah, 2017). To proxy liquidity ratio total liquid asset to total asset was used.

$$\text{Liquidity ratio} = \frac{\text{liquid asset}}{\text{total asset}}$$

#### ❖ **Management efficiency**

The management efficiency ratio is a determination of quality policy and its implementation, by use of the significant plan and good management for the liquidity which impact the bank performance, and the ability to lend. The measurement used is total operating expenses to total operating income and also the expected sign is positive, for the reason that when the expenses increase banks lend more to cover it. The qualities of any managers are achieving and hit the target of the company especially bank's management is measured on gaining high profit from the low-cost operation. Highly qualified management staff in the banks assumed to possess good initiations to understand the lending and control all activities and tasks needed to take care of an expected result. Qudah (2017), management quality had a positive and significant impact on bank lending. As stated by Tabila (2016), the ability of a bank to generate and maximize its profitability performance is very vital in carrying out its lending decision. According to the author, when banks' expenses increase as a result of higher costs and higher salaries, which tend to reduce their profitability, they become reluctant to lend. The author concludes that a negative relationship between management efficiency and banks' lending behavior.

To proxy management efficiency is operating expense to operating income ratio was used in this study.

$$\text{Management efficiency ratio} = \frac{\text{operating expense}}{\text{operating income}}$$

#### ❖ **Lending interest rate**

Interest rate is that the amount charged, expressed as a percentage of the principal, by a lender to a borrower for the usage of assets. It is typically noted on an annual basis, called the annual percentage rate. Lending interest rates is one of the strong independent variables affecting private commercial bank's loans and advances. To proxy, the interest rate, the lending interest rate on annual average loans and advances is used in this study.

#### ❖ **Cash reserve requirement**

The cash reserve requirement (also known as the cash reserve ratio) is the minimum amount of money that commercial banks must hold in reserve, usually given as a percentage of customer

deposits. The cash is usually stored during a vault at the bank or with a central bank and can't be invested or loaned to businesses or individuals. The requirement is set by each country's central bank and raising or lowering the reserve requirement will subsequently influence the cash supply within the economy. Central banks used cash reserve requirements as a tool to control the liquidity of commercial banks to protect the bank against liquidity rush from its depositors in certain economic conditions.

For proxy of the cash reserve requirement, the annual cash reserve requirement rate of private commercial banks was used.

#### ❖ **Gross domestic product**

GDP growth is used to control the cyclical output effect which, it assumes, has a positive influence on bank lending. A strong economic condition measured by GDP, as a motivating factor to banks, has a statistically significant impact on the issuance of more private credit to businesses. A strong economic condition creates more demand for goods and services which leads to more investment in different sectors hence increase the per capita income as well as the savings, collectively these factors convince banks to issue more private credit (Imran & Nishat, 2013).

In a recent study Stepanyan and Guo (2011), indicated that domestic and foreign funding is positively associated with credit growth. The stronger economic progress results in higher credit growth. According to, Flamini, McDonald, and Schumacher (2009), GDP growth is used to control the 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. The real GDP growth rate had a statistically insignificant impact on bank's loans (Getahun, 2014). Inversely GDP had a positive and statistically significant effect on banks' lending (Getachew, 2017), (Timsina & Pradhan, 2016), (Malede, 2014), and (Haile, 2020). To proxy, the GDP effect annual real GDP growth rate was used.

#### ❖ **Inflation**

Inflation is generally the persistent increase of the price level of goods and services in an economy over a period of time. While the price value rises, each unit of currency buys fewer goods and services. Consequently, inflation results in a reduction in the purchasing power per

unit of money, a loss of real value in the medium of exchange, and a unit of account within the economy (Boyd et al., 2004). Inflation is a key determinant of commercial banks' lending rates globally. Inflation depreciates the value of money such that a percentage increase in inflation results in a similar percentage fall in the value of the country's currency. Broadly, inflation theorists attribute inflation to monetary causes and maladjustments in the economic system. To proxy inflation; the annual gross inflation rate was used in this study.

### 3.9. Operational Form of Variables

**Table: 3.1: Description of variables**

	Variable	Notation	Measurements	Expected sign
Dependent variable	Lending(loans and advances)	TLA	The natural logarithm of loan and advance	
Independent variable	Volume of deposit	VoD	$= \frac{\text{total deposit}}{\text{total asset}}$	positive
	Bank size	BS	The natural logarithm of total assets of the bank	Positive
	Liquidity ratio	LR	$\frac{\text{Liquid asset}}{\text{total asset}}$	positive
	Lending interest rate	LIR	The annual average lending interest rate	negative
	Management efficiency	ME	$\frac{\text{operating expense}}{\text{operating income}}$	positive
	Cash reserve requirement	CRR	annual cash reserve requirement rate	negative
	Gross domestic product	GDP	annual real GDP growth rate	positive
	Inflation	INFL	the annual gross inflation rate	negative

### 3.8. Model specification

The nature of data that was used in this study enables the researcher to use a 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 periods. As Brooks (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 were as follows:

$$Y_{it} = \alpha + \beta_i X_{it} + U_{it}$$

With subscript,  $i$  denote the cross-section and  $t$  representing the time-series dimension. The left-hand variable  $Y_{it}$  is the dependent variable,  $\alpha$  is the intercept term,  $\beta$  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,  $t = 1, \dots, T$ ;  $i = 1, \dots, N$ .

Therefore, the general models which incorporate all of the variables to test the hypotheses of the study:

$$TLA_{it} = \alpha + \beta_1 BS_{it} + \beta_2 VOD_{it} + \beta_3 LR_{it} + \beta_4 ME_{it} + \beta_5 CRR_{it} + \beta_6 GDP_{it} + \beta_7 INFL_{it} + \beta_8 LIR_{it} + \varepsilon_{it}$$

Where  $\varepsilon$  contains other variables not explicitly included in the model.

The explicit form of equation (1) above was represented as follows:

Where:

TLA<sub>it</sub> = Total loan and advances of private commercial banks in Ethiopia I at time  $t$

BS = Bank size

VOD = Volume of deposit

LR = Liquidity ratio

ME = Management efficiency

GDP = Gross domestic product

CRR = Cash reserve requirement

INFL = Inflation

LIR = Lending interest rate

$\varepsilon$  = is the error component for the company I at time t

$\alpha$  = Constant

$\beta_1 \dots \beta_8$  = coefficient of independent variables

i = Private commercial bank i = 1 . . . 7; and t = the index of time periods and t = 1 . . . 15

# CHAPTER FOUR

## RESULTS AND DISCUSSIONS

*This chapter deals with the result and discussion. The first section of this chapter starts with descriptivestatistics.The second section presents the tests for the assumptions of a classical linear regression model. The third section comprises model selection and regression results. Finally, this chapter presents the result of the regression analysis.*

### **4.1. Descriptive Statistics**

This section presents the descriptive statistics of the dependent and explanatory variables used in this study. The dependent variables used in this study is sampled private commercial banks' lending which measured by the natural logarithm of total loan and advances, whereas the explanatory or independent variables bank size, volume deposit, liquidity ratio, management efficiency, GDP, cash reserve requirement, inflation and lending interest rate.

The researcher conducted descriptive statistics using Stata 16 software in order to give more understanding about the study variables that are being analyzed. Descriptive studies produced the mean, minimum, maximum, standard deviations, and the number of observations for each variable.Accordingly, the descriptive statistics for all variables are presented in table 4.1below ones.

Table 4.1 describes the average indicators of variables computed from the audited financial statements of sampled private commercial banks collected from NBE reports and the standard deviation of the variables indicates how much dispersion exists from the mean value. According to Brooks (2008), a small standard deviation shows that the data point tends to be very close to the mean value, whereas a high standard deviation indicates the data point is dispersed out over a large range of values. In general, Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for seven sampled private Commercial Banks from the year 2006 to 2020 with a total of 105 observations. The researcher was discussed descriptive statistics for each variable here.



**Total loans and advances (TLA):** The average proportion of loans and advances provided by sampled private commercial banks during the study period (2006-2020) was about 22.40391 of the total assets. The ratio ranged from 18.6597 to 24.77112 and the standard deviation was 1.14%. The standard deviations of 1.14% indicate lower dispersion of the dependent variable from its mean for the sampled private commercial banks in Ethiopia. In addition, it is noted here that the proportion of the credit facilities is considered comparable between banks in general, as it enjoys relative stability. The maximum value indicating the Awash International Bank (AIB) and the minimum value showed one of the privately-owned commercial banks namely the Cooperative Bank of Oromia (CBO).

#### **Discussion on the descriptive statistical value of explanatory variables:**

**Bank size (BS):** the average value of bank size was shown at 18.67 with the standard deviations of 3.518. The maximum and minimum values of BS were 25.484 and 11.22 respectively. The maximum value indicating the Awash International Bank (AIB) and the minimum value had shown one of the privately-owned commercial banks namely the Cooperative Bank of Oromia (CBO).

**The volume of deposit (VOD):** The mean value of the volume of deposit was 77.14 % which shows that  $\frac{3}{4}$  of the asset private commercial banks is financed by deposit collected from customers (i.e. saving deposit, demand deposit, and fixed deposit) accounts with the maximum and minimum values of 86.89 % and 43.75 % respectively. The standard deviation for a volume of deposit was 5.81%. This shows that there was a higher variation on the volume of deposit over the sample period for this study (i.e. from 2006-2020).

**Liquidity Ratio (LQ):** liquidity ratio measured by liquid assets over total assets. The ratio of liquid assets in this study was 30.83% on average, with a minimum of 5.67% and a maximum of 61.38%. The liquidity measure shows that the Ethiopian sampled private 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 side, the standard deviation of the liquidity ratio was 13.65% which shows the highest deviation from its average value when compared to other variables. This shows that there was the highest difference among sampled private commercial banks liquidity in Ethiopia within the sample period.

**Management efficiency (ME):**The mean value of private commercial banks' management efficiency was 101.66%; with a standard deviation of 49.8% which is the largest variation from the existing independent variables in the study. It indicates that the non-interest operating income to the non-interest expense ratio of sampled private commercial banks was unstable over the sample period. It has a minimum and maximum value of 2.3% to 250% dispersion. Here, the high ratio indicates the efficiency of management in controlling the expenses.

**Cash Reserve Requirement (CRR):** The mean value of cash reserve requirement was 8% with a maximum and minimum reserve requirement of 15 % and 5% respectively during the study. The standard deviation shows 4%. This variation occurs by the measure taken by the regulatory body, NBE to check monetary growth, to control the risk of high inflation, and ensure a stable macroeconomic environment for healthy economic growth.

**Gross Domestic Product (GDP):** the average value of real GDP during the study period was 9.31% with a standard deviation of 2.84% implies that the economic growth in Ethiopia during the sample period remains stable. The maximum growth of the economy was recorded in the year 2010 (i.e. 12.551%) and the minimum was in the year 2020 (i.e. 6.1%).

**Inflation:** The mean value of inflation was 15.77% with a maximum and minimum inflation of 36.4 % and 2.8% respectively during the study period. Among other macroeconomic variables employed in this study, inflation had a higher standard deviation which was 9.416%. This implies that the inflation rate in Ethiopia during the study period remains unstable. The maximum inflation was recorded in the year 2009 (i.e. 36.4%) and the minimum was in the year 2010 (i.e. 2.8%).

**Lending interest rate:** Regarding the annual average Lending interest rate in the research period was 11.94% with the maximum lending interest rate in the country was 14.25% (2020 years) and the minimum Lending interest rate was 8.5% (2006 and 2007 years). The standard deviation of the Lending interest rate was 12.9%, which shows that the lower variation of lending interest rate among the private banks; it implies that there is a low variation of deposit interest rate in the country.

**Table: 4.1. Descriptive statistics**

Variable	Observation	Mean	Std. Dev.	Min	Max
TLA	105	22.04391	1.140021	18.6597	24.77112
BS	105	18.1308	3.51826	11.22716	25.48443
VOD	105	0.7714267	0.0581788	0.4375	0.8689912
LR	105	0.3083413	0.1365807	0.0056743	0.613819
ME	105	1.016688	0.4983634	0.023333	2.502
CRR	105	0.08	0.401918	0.05	0.15
GDP	105	0.0937278	0.0271386	0.061	0.12551
INFL	105	.1577333	0.0941607	0.028	0.364
LIR	105	.11943	.0129321	0.085	.1425

*Source:* Audited Financial statements of banks, NBE reports, and own computation through STATA 16.

#### 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 statistic is the Pearson product-movement coefficient, commonly called the Pearson correlation which was used in this study. The 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 (Yu & Meyer, 2006). The sample size of this study was 7\*15 matrixes of 105 observations which were even more than 100 hence; the study used the above justification for the 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 analysis**

	TLA	VOD	BS	LR	ME	CRR	GDP	INFL	LIR
TLA	1.000								
BS	0.9882	1.000							
LR	0.4848	0.4750	1.000						
LR	-0.6147	-0.5538	-0.2434	1.000					
ME	-0.3053	-0.2316	-0.0473	0.5944	1.000				
CRR	-0.6084	-0.5732	-0.2563	0.5986	0.4795	1.000			
GDP	-0.5258	-0.4694	-0.0751	0.6867	0.5929	0.3580	1.000		
INFL	-0.1974	-0.1914	0.002	0.1597	0.1438	-0.2752	0.4254	1.000	
LIR	0.631	0.6790	0.2056	-0.3193	-0.2305	-0.5895	-0.3142	-0.1416	1.000

*Source: Audited Financial statements of banks, NBE, and own computation through STATA 16.*

As showed in Table 4.2 above the volume of deposit, Bank size, and lending interest rate had a positive relationship with loans and advances. .However, cash reserve requirement, management efficiency, liquidity ratio, inflation, and GDP had a negative relation with loans and advances.

The volume of deposit has a statistically positive correlation of 0.4848 with loans and advances which indicates that as the volume of the deposit increases sampled private commercial banks' will have the capacity to give a loan. This was in line with the expectation. Loan and advance were positively correlated with bank size with the coefficient of correlation 0.9882 and statistically different from zero/statistically significant. During the last 15 years, the size of all banks (log of the total asset) which was included in this study shows improvement. Furthermore, loans and advances had a statistically significant positive correlation with lending interest rates. On the other hand, contrary to researchers' expectation GDP (0.5258) and liquidity ratio (0.6147) had a statistically insignificant negative correlation with loans and advances.

In addition, inflation was negatively correlated with Loans and advances with the coefficient of correlation (0.1974) and statistically significant. Cash reserve requirement was negatively correlated with loan and advance with the coefficient of correlation (0.6084) and this was similar to the expectation and was statistically not different from zero/statistically insignificant.

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

### **4.3. Test for the 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 (CLRM) assumptions must be tested for identifying any misspecification and correcting them to argue the research quality (Brooks, 2008). Different CLRM assumptions need to be satisfied and that is tested in this study (i.e., errors equal zero mean, Heteroscedasticity, autocorrelation, normality, multicollinearity, and model specification test) that were conducted to ensure whether the data fits the basic assumptions of classical linear regression model or not. The implication of the test, decision rules therein, test results, and their discussion are discussed in the upcoming sub-sections.

#### **4.3.1. Test for the errors have zero mean ( $E(u_t) = 0$ )**

According to (Brooks, 2008), if a constant term is included in the regression equation, this assumption will never be violated. Thus, in this study since the regression model included a constant term, the average value of the error term is expected to be zero. Therefore this assumption was not violated.

#### **4.3.2. Test for the assumptions of normality ( $u_t \sim N(0, \sigma^2)$ )**

According to (Brooks, 2008), 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 the presence of normal distribution. Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. The hypothesis of the normality test was formulated as follows:

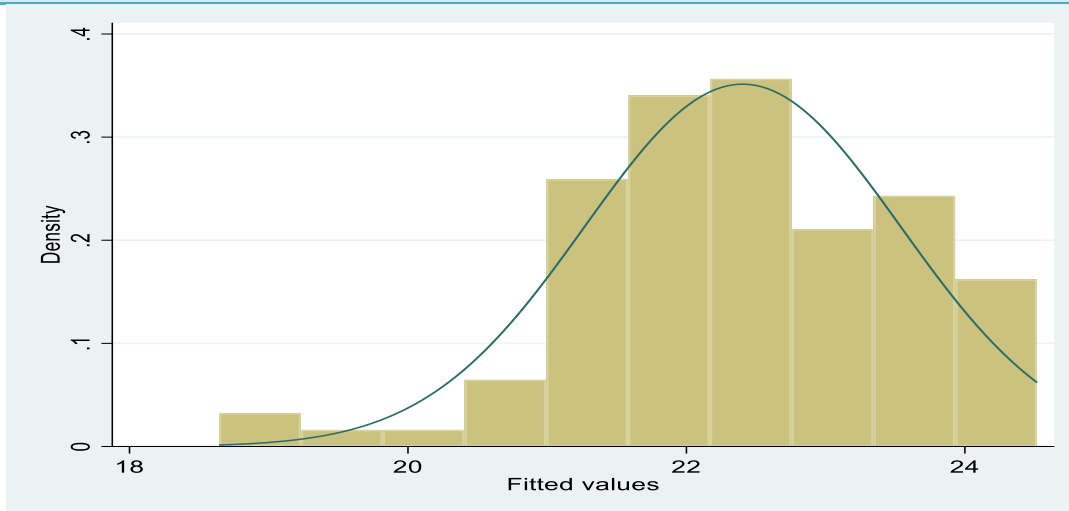
H<sub>0</sub>: The data are normally distributed.

H<sub>1</sub>: The data are not normally distributed.

**Decision Rule:** Reject H0 if the p-value is less than the significant level. Otherwise, do not reject H0

**Table: 4.3 Normality test for residuals: Bera-Jarque**

Variable	Obs	Pr(skeweness)	Pr(kurtosis)	Adj chi2(2)	Prob>chi2
Residual	105	0.0947	0.3643	3.71	0.1564



*Source: own computation by STATA 16*

As shown in the above Table 4.3 the sktest statistic has a P-value of 0.1564 which is greater than 0.05. This indicates that there was no evidence for the existence of an abnormality in the data observed. Thus, the null hypothesis that the data is normally distributed should not be rejected since the p-value was more than a 5% significance level. Moreover, it describes that the inferences made regarding the population parameters from the taken sample parameters tend to be valid.

### 4.3.3. Heteroscedasticity Test

Homoscedasticity is one of the assumptions of the CLRM which states that the variance of the errors must be constant. If the errors do not have a constant variance, they are said to be Heteroscedasticity (Brooks, 2008). If Heteroscedasticity occurs, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors.

**Table: 4.4 Breusch-pagan/ cook-Weisberg Heteroscedasticity Test**

<b>Chi2(1)</b>	<b>8.32</b>
<b>Prob&gt;chi2</b>	<b>0.0039</b>

*Source: own computation by STATA 16*

As shown in Table 4.4, there was evidence for the presence of Heteroscedasticity; hence the p-value is in less than 5% level of significance. So, in order to solve this problem the researcher robust the fixed regression model results. After that, there is no significant evidence for the existence of Heteroscedasticity.

#### **4.3.4. Model Specification Test**

The assumption of the CLRM that the econometric model used in the analysis is correctly specified has two meanings. The first is since the model is correctly specified, there is no equation specification error and the second is no model specification error. The model specification error exists due to omission of an important variable(s), the inclusion of unnecessary variable(s), incorrect specification of the error, adoption of wrong function form, and error of measurement in the regress and regressors. When the appropriate variables are omitted from a model, the OLS estimators of the variables retained in the model are biased and inconsistent. In addition to the above, the variance and standard error of these coefficients are incorrectly estimated.

As a result, including irrelevant variables in the model are also that the estimated variances tend to be larger than necessary, thereby making for a less precise estimation of the parameters. That is, the confidence intervals tend to be larger than necessary (Gujarati, 2004). Therefore, to select a correct estimated model, the researcher has carried out the Ramsey-RESET Test to check on the model specification. The hypothesis of the model specification test formulated as follows;  
H0: The model is correct.

H1: The model is incorrect.

Decision Rule: Reject H0 if the p-value is less than the significant level. Otherwise, do not reject H0

**Table 4.5: Result of model specification Test: Ramsey-RESET test**

F(3,93)	2.51
Prob>F	<b>0.0636</b>

*Source: own computation by STATA 16*

From Table 4.5 it can be concluded that this research does not reject the null hypothesis (H<sub>0</sub>), since the p-value is 0.0636, which is greater than the significance level of 0.05. Thus, it can be concluded that the model specification is correct in the sample period and the overall reliability and validity of the model were best.

#### **4.3.5 Multicollinearity Test**

Multicollinearity shows a linear relationship among explanatory variables which may result in the regression model being biased (Gujarati, 2004). If one explanatory variable is an exact linear combination of the other explanatory variables, then it said the model suffers from perfect collinearity, and it cannot be estimated by OLS (Brooks, 2008). When explanatory variables have multicollinearity, there is overlap or sharing of estimating the power. This may results in a paradoxical effect, whereby the regression model fits the data well, but none of the explanatory variables (individually) has a significant impact in estimating the dependent variable (Gujarati, 2004). If the results showed that the variance of inflation factor VIF is more than 10, the regression results would be affected by a multicollinearity problem (Gujarati, 2004).

**Table: 4.6. The variance of the inflation factor**

<b>Variable</b>	<b>Vif</b>	<b>1/vif</b>
<b>CRR</b>	<b>3.93</b>	<b>0.254678</b>
<b>BS</b>	<b>3.40</b>	<b>0.293700</b>
<b>LR</b>	<b>3.09</b>	<b>0.32354</b>
<b>GDP</b>	<b>2.79</b>	<b>0.358718</b>
<b>LIR</b>	<b>2.59</b>	<b>0.385531</b>
<b>ME</b>	<b>2.08</b>	<b>0.481245</b>
<b>INFL</b>	<b>2.05</b>	<b>0.488030</b>
<b>VOD</b>	<b>1.40</b>	<b>0.713724</b>
<b>Mean vif</b>	<b>2.67</b>	



*Source: own computation by STATA 16*

The above table shows that there is no multicollinearity problem in this study. This is because the mean VIF of variables is 2.64 which is much lower than the threshold of 10. The VIF for each variable also low. This indicates that the explanatory variables included in the model were not correlated with each other. Therefore, it can be concluded that there is no multicollinearity problem in this particular study.

#### **4.4. Model Selection (Random Effect versus Fixed Effect Models)**

The econometrics model used to examine the impact of bank size, volume of deposit, liquidity ratio, management efficiency, cash reserve requirement, gross domestic product, inflation and lending interest rate on private commercial banks' lending in Ethiopia was panel data regression model which is either fixed-effects or random-effect model. The appropriate test used to decide whether a fixed effect or random effect model is appropriate was Hausman Specification Test. Thus, Hausman Specification Test identifies whether the fixed-effects or random-effect model is most appropriate under the null hypothesis that unobservable individual effects ( $u_i$ ) are uncorrelated with one or more explanatory variables ( $X_i$ ). As noted by Gujarati (2004), the fixed-effect model is most appropriate when the null hypothesis is rejected whereas the random effect is appropriate when the null hypothesis is not rejected.

For the Hausman test, the null and alternative hypotheses are as follows:

H0:  $u_i$  is not correlated with  $X_i$  (random-effects model appropriate)

H1:  $u_i$  is correlated with  $X_i$  (fixed-effects model appropriate)

**Table: 4.7. Hausman test**

Chi2(8) =16.05
Prob>chi2 = <b>0.0417</b>

*Source: own computation by STATA 16*

Accordingly, the above Table demonstrates the Hausman Specification Test that was used to decide the best model for this study. The decision rule, for the Hausman Specification test, is rejecting the null hypothesis when the p-value is significant. Thus, as shown in Table 4.7 the Hausman specification test for this study has a p-value of 0.0417 for the regression models. In

addition, appendix1D demonstrates the Hausman Specification Test that was used to decide the best model for this study. This indicates that the p-value is significant and then the null hypothesis is rejected justifying as the fixed effect model is appropriate for the given data set in this study.

#### 4.5. Result of Regression Analysis

This section presents the regression result of the fixed-effect model that made to examine the determinant of private commercial banks' lending in Ethiopia. Accordingly, the regression result was made and coefficients of the variables were estimated via STATA version 16 software. As stated earlier in the model selection part, a fixed effect regression model is an appropriate model used in this study. Thus, the model is used to examine the determinants of private commercial banks' lending in Ethiopia. The regression result in the following Table 4.9 demonstrates both coefficients of explanatory variables and corresponding p-values as follows.

**Table: 4.8. Results of robust fixed effect regression model**

<b>TLA</b>	<b>Coefficients</b>	<b>Robust Std. err.</b>	<b>Z</b>	<b>p&gt; z </b>
<b>BS</b>	.9408193	.0307606	30.59	0.000*
<b>VOD</b>	0.3364895	.1824816	1.84	0.115***
<b>LR</b>	-.1900223	.141448	-1.34	0.228***
<b>ME</b>	-.1239178	.0261139	-4.75	0.003*
<b>CRR</b>	-3.604948	.3544166	-10.17	0.000*
<b>GDP</b>	-.6440426	.4692535	-1.37	0.219***
<b>INFL</b>	-.4185552	.0707441	-5.92	0.001*
<b>LIR</b>	-7.33545	.7874017	-9.32	0.000*
<b>Constant</b>	1.952277	.7375374	2.65	0.038**
<b>No. of observations = 105</b>				
<b>R2 = 0.9901 and Adj. R2 = 0.9811</b>				
<b>Rho = 0.26901772</b>				
<b>Prob&gt; F = 0.0000</b>				

*Source: Audited Financial statements of banks, NBE, and own computation through STATA 16.*

*Note: \*significant at 1%, \*\*significant at 5%, and \*\*\*insignificant*

Thus, based on above table 4.9, the following model was developed to investigate the determinants of loans and advances in this study.

$$TLA_{it} = 1.952 + 0.941BS + 0.336VoD - .19LR - 0.123ME - 3.60CRR - .644GDP - .418INFL - 7.33LIR + \varepsilon$$

The panel fixed effect estimation regression result in the above table 4.8 shows coefficient intercept ( $\alpha$ ) is 1.95 per cent. This means, when all explanatory variables took a value of zero, the average value TLA would take 1.95 percent and statistically significant at 5% of the significance level. R-squared coefficient of 99% obtained from the estimated model means that 99% of the explanatory variables used to estimate the model was able to explain the dependent variable. The R-squared result measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008).

The adjusted R-square result indicates that the changes in the independent variables explain 98% of the changes in the dependent variable. That is bank size, volume of deposit, liquidity ratio, management efficiency, cash reserve requirement, and GDP, inflation, and lending interest rate collectively explain 98% of the changes in total loans and advances. The remaining 2% of changes were explained by other factors which are not included in the model. Thus these explanatory variables collectively, are good explanatory variables of the total loan and advances of private commercial banks in Ethiopia. And also it can be understood that these variables are the major factors that affect Ethiopian private commercial banks' lending.

In general, the whole model is statistically significant. Since the model's F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit, the study obtained an F-statistic of 33.33 which is greater than 5 hence the model was fit for estimation (Brooks, 2008). The regression F-statistic (33.33) and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the explanatory variables in the model were able to

explain variations in the dependent variable. A P-value of 0.0000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

## **4.6. Discussions**

The preceding sections present the overall results of the study. Thus, this section discusses in detail analyses of the results for each explanatory variable and their importance in determining loans and advances following the above regression result. In addition, the discussions analyze the statistical findings of the study with the previous empirical evidence.

### **1. Bank size and loans and advances**

The regression result of the fixed-effect model in Table 4.8 is consistent with the hypothesis developed in this study. The study hypothesized that there is a positive and significant association between bank size and loan and advances. Similarly, the regression result showed that bank size had a statistically significant and positive impact on loans and advances of private commercial banks in Ethiopia. The coefficient of bank size was 0.94 and which indicates that holding other independent variables constant, when bank size increased by 1 percent, total loans and advances of sampled private commercial banks would be increased by 0.94 percent at 1 percent level of significance. As a result, the researcher failed to reject the hypothesis that bank size has a positive and significant impact on total loans and advances.

The main reason for the positive relationship between the bank size and loan and advances is that large banks have economies of scale to provide loans and advance efficiently and their capability to provide a large number of loans and advance when need by the borrowers. Additionally, large banks have a better capability of providing different loans and advance menus to their customers and they are more accessible to their borrowers. And also larger banks tend to provide more loans to the public and are more diversified and they have a larger pool of funds to support higher loan demand from the public. This finding is consistent with the prior studies conducted by (Chernykh & Theodossiou, 2011), (Tomak, 2013), (Malede, 2014), (Amidu, 2014), (Getahun, 2014), (Moussa & Chedia, 2016) and (Bhattarai, 2016).

## **2. The volume of deposit and loan and advances**

The results of the study Table 4.8 indicate that there is a positive and insignificant relationship between the volume of deposit (VoD) and private commercial banks' lending in Ethiopia. Thus, consistent with the hypothesis, the estimated coefficients and p-value of the volume of deposit were 0.336 and 0.115 respectively. The coefficient of the volume of deposit (VOD) shows that the 1 percent increment of the volume of the deposit will cause the sampled private commercial banks' lending to be increased by 0.336 percent and statistically insignificant. As a result, the researcher failed to reject the hypothesis that the volume of deposits has a positive impact on total loans and advances. This means, there is no adequate evidence to hold the negative relationship between the volume of deposits and loans and advances of private commercial banks.

The positive but insignificant association between the volume of deposit and lending of sampled 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 deposits rather than lend them. In addition, it might be most of the deposits that a bank accepts are in demand form which is repayable to depositors on demand. As a result, banks may maintain a large number of customer deposits as a reserve to meet the deposited amount. These results consistent with prior research results of Ojo (1978), Ituwe (1985), Olokoyo (2011), Olusanya et al. (2012), Malede (2014), Imran and Nishat (2013), Swamy (2012), Dai Van Pham (2015) and (Abebie, 2016), who found the positive association between volume of deposit and loans and advances. However, this finding inconsistent with the finding of Amano (2014) and Haile (2020), who finds the volume of deposit, had a positive and significant impact on lending.

## **3. Liquidity ratio and loan and advances**

The liquidity ratio measures the ability bank may be solvent by having enough assets to cover its liabilities of the banks. This study identifies the statistically insignificant and negative impact of liquidity ratio on loans and advances. Thus, the regression result of the fixed effect model in

above table 4.8 is inconsistent with the hypothesis developed in this study. The study hypothesized that there is a positive association between liquidity ratio and loan and advances of banks. According to the result, 1 percent increment of the sampled private commercial bank's liquidity will cause the lending by private commercial banks will decrease to 0.19percent and insignificant. Therefore, the researcher rejects the null hypothesis that liquidity has a positive impact on loans and advances. This means, there is evidence to support the negative relationship between liquidity and loans and advances.

The negative but insignificant association between liquidity ratio and lending of sampled private commercial banks in Ethiopia may be related to the following factors. Firstly, the negative impact of liquidity ratio on a bank's loan and advance would be based on the argument of taking loans as illiquid assets of banks. This means when the amount of loans provided by banks increase, the amount of illiquid assets in the total assets portfolio of banks increases and lead to the decrease in the level of liquid assets held by banks. another possible reason that if demand for loans is weak, then the bank tends to hold more liquid assets (i.e. short-term assets), whereas if demand for loans is high they tend to hold less liquid assets since long-term loans are generally more profitable. This finding is consistent with the findings of (Amano, 2014), (Rabab'ah, 2015),(Dai Van Pham, 2015),(Moussa & Chedia, 2016),and (Haile, 2020). On the contrary, this finding is inconsistent with prior research findings of Ojo (1978),Ituwe (1985),Ajayi (2007), and Malede (2014), who finds a positive relationship between loans and advances.

#### **4. Management efficiency and loans and advances**

The regression result of the fixed-effect model in above table 4.8 is inconsistent with the hypothesis developed in this study. The study hypothesized that there is a positive association between management efficiency and loan and advances of sampled private commercial banks'.The coefficient of the Management efficiency ratio which is measured by operating expense to operating income ratio is -0.123 with its p-value of 0.003and significant at 1 percent. This shows that the increase in operating incomemakes management not worry about lending more to cover the operating expense and earning profit from lending. That explains the negative relationship between management efficiency and total loan and advances.

The result supports the finding of Al-Kilani and Kaddumi (2015), who studied the cyclical behavior of lending in Jordan. Management efficiency is important to improve the performance of banks and the ability of lending. When management efficiency increases that indicate an increase in operating income banks will not be eager to lend more in order to cover their expenses and earn profit from lending hence they earning high compared to the expense. The finding of this study can be confirmed by the finding of (Alhassan et al., 2013) and (Al-Kilani & Kaddumi, 2015). However, these study inconsistent with the result of Gaiotti and Secchi (2006) and Pham (2015), who found a positive relationship between management efficiency and bank lending.

### **5. Cash reserve requirement and loan and advances**

The regression result of the fixed-effect model in Table 4.8 is consistent with the hypothesis developed in this study. The study hypothesized that there is a negative association between cash reserve requirements and loans and advances. The result of the model reveals that the cash reserve requirement ratio has a highly statistically negative significant relationship with sampled private commercial banks' lending with a p-value of 0.001, and a coefficient of -3.6. This negative sign indicates an inverse relationship between cash reserve requirement and loan and advances. It implies that holding other independent variables constant at their average value, when cash reserve requirement increased by one percent, loans and advances (TLA) of sampled private commercial banks would be decreased by 3.6 percent and statistically significant at one percent level of significance.

The main reason for the negative and significant association between cash reserve requirement and sampled private 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 to counteract financial imbalances in the economy or 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. The result of this study was consistent with the finding of Montoro and Moreno (2011), Bhattarai (2016), Abebie (2016), and Haile (2020) contended that, an increase in reserve requirement case to decrease bank credit. However, the result of this study inconsistent with the finding of Olokoyo (2011), Olusanya et al. (2012), Malede (2014), and Amano (2014) that reveal required reserve has

a positive impact on commercial bank loans and advances (i.e. banks credit raise when cash required reserve increase).

## **6. Gross domestic product and loan and advances**

The regression result of the fixed-effect model in above table 4.8 is inconsistent with the hypothesis developed in this study. The study hypothesized that there is a positive association between gross domestic product and loan and advance of sampled of private commercial banks. The coefficient of GDP was measured by using the GDP growth rate is -0.644 and its p-value is 0.219 and this revealed that GDP and private commercial banks' lending have an inverse relationship. This implies that for one percent change in GDP, keeping other things constant had resulted in 0.219 percent changes on sampled private commercial banks loans and advances in the opposite direction. Therefore, the researcher rejects the null hypothesis that GDP has a positive impact on loans and advances.

The p-value of the GDP is 0.219 and this indicates that GDP is not statistically significant at 1%, 5% & 10% significance levels over the study period. Thus, GDP is not a determinant for private commercial banks' lending in the study period. According to Tomak (2013), the insignificance of GDP can be explained by firms' high demand for credit or financial constraints and supply-side constraints in credit to firms. Therefore, it can be concluded that Ethiopian sampled commercial banks' lending is less reliant on the business cycle. This revealed that the lender's expectations do not depend on the current phase of business activities. This result is agreed with Tomak (2013), (Ladime et al., 2013), and Temesgen (2016), which found an inverse and statistically insignificant relation between private bank lending and GDP. However, the finding is not consistent with Olokoyo (2011), Malede (2014), Abebie (2016), and Haile (2020), who finds the positive relationship between GDP and loan and advances sampled private commercial banks during the period.

## **7. Inflation and loan and advances**

The regression result of the fixed-effect model in Table 4.8 is consistent with the hypothesis developed in this study. The study hypothesized that there is a negative association between Inflation and loan and advances. The regression output of the study shows that the coefficient of Inflation is -.418 and its P-value is 0.001. This means holding other explanatory variables



constant at their average value, when inflation increased by one percent, total loans and advances of sampled Ethiopian commercial banks in Ethiopia would be decreased by 0.418percent and statistically significant at 1 percent. Therefore, the researcher failed to reject the null hypothesis that states inflation has a negative impact on loans and advances.

The possible reason for the negative relationship is that the main activity of banks is lending and the market is therefore based on an offer of credit by banks and demand from individuals and companies. Inflation reduces the supply and demand for credit because it increases uncertainty about the future of the business market. This fall in demand would lead to a decline in lending. The rise in inflation results in decreasing real lending interest income for the commercial banks which in turn decreases the lending motive of the banks. This finding agrees with the finding in line with the finding of (Naceur & Kandil, 2009) and (Haile, 2020).

However, this result is inconsistent with the study result of Amano (2014) and Nkusu (2011), who finds a positive association between inflation rate and loan and advances. According to these researchers, higher inflation can improve the loan payment capacity of a borrower by reducing the real value of the outstanding amount. As a result, the collection of the loans according to their repayment schedule increases the lending capacity of the commercial banks. Moreover, the on-time repayment reduces the amount of non-performing loans which adversely affect the lending and capital of commercial banks, thus it enhances the lending ability of commercial banks.

## **8. Lending interest rate and loan and advances**

The regression result of the fixed-effect model in above table 4.8 is consistent with the hypothesis developed in this study. The study hypothesized that there is a negative association between lending interest rate and loan and advance of sampled of private commercial banks. The coefficient of lending interest rate measured by the average annual lending interest rate is -7.33 and its p-value is 0.000. This indicates 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 7 percent and statistically significant at 1% level of significance. Therefore, the researcher failed to reject the null hypothesis that the lending interest rate has a negative impact on loans and advances.

This finding agrees with the theory of loan pricing theory. Loan pricing theory states that setting too high-interest rate increases the chance of loan default; consequently, it boosts the rate of the nonperforming loan. Thus as explained previously the boost in the rate of nonperforming reduce the lending ability of private commercial banks. The result is consistent with the findings of (Bernanke & Blinder, 1988), (Amano, 2014), (Getachew, 2017), and (Temesgen, 2016). However, this result is contrary to the finding of Malede (2014) and Haile (2020) who find a positive but insignificant relationship between lending interest rate and loans and advances.

To sum up, results and discussions of determinants of private commercial banks' lending or loan and advances, Ethiopian sampled private commercial banks' lending is determined by bank size, and the volume of deposit positively, and by cash reserves requirement, management efficiency, lending interest rate, and inflation negatively. On the other hand, the findings suggest that the liquidity ratio and gross domestic product have not significant impact on private commercial banks' lending in Ethiopia.

**Table 4.9: Summary and Comparison of test result with expectation**

Independent variables	Expected relationship with TLA	Actual result	Statistical significance test	Hypothesis status
Bank size	positive	Positive	Significant	Accepted
Volume of deposit	positive	Positive	Insignificant	Accepted
Liquidity ratio	positive	Negative	Significant	Not accepted
Lending interest rate	negative	Negative	Significant	Accepted
Management efficiency	positive	Negative	Significant	Not accepted
Cash reserve requirement	negative	Negative	Significant	Accepted
Gross domestic product	positive	Negative	Insignificant	Not accepted
Inflation	negative	Negative	Significant	Accepted

*Source: own computation*

# CHAPTER FIVE

## CONCLUSION AND RECOMMENDATION

*The previous chapter presented the analysis of the findings obtained from different data sources that were regressed by stata 16 and personal computations. The purpose of this chapter is to discuss the conclusions and recommendations based on the findings. Accordingly, the chapter is organized into three sections; the first section presents the conclusions of the study. And, the second section presents the recommendations provided based on the findings of the study. Finally, the section highlights the direction for further studies.*

### 5.1 Conclusion

The main objective of this study is to investigate the determinants of private commercial banks' lending in Ethiopia based on panel data analysis on the period from 2006 to 2020. Specifically, the researcher examined the effect of bank-specific (internal) and macroeconomic (external) on private commercial banks' lending in Ethiopia. The bank-specific variables include bank size, the volume of deposit, liquidity ratio, management efficiency, and lending interest rate. The macroeconomic variables on the other side include cash reserve requirement, gross domestic product, and inflation. The bank-specific data was collected from audited annual financial reports of the sampled private commercial banks and the macroeconomic data were collected from the National Bank of Ethiopia and the Minister of Finance and Economic Cooperation.

Descriptive statistics, correlation analysis, and fixed effect regression model were used to identify and examine the determinants of private commercial banks' lending in Ethiopia by using the natural logarithm of total loans and advance as a dependent variable. Before performing the regression analysis, the five CLRM assumptions of the mean value of error term is zero, homoscedasticity, model specification, absence of autocorrelation, absence of multicollinearity, and normality were tested and fulfilled in this study. Hausman test was used to choose the appropriate model and a fixed-effects model was chosen. For analysis, Stata version 16 was used.

Concerning the regression result measured by loan and advances (TLA): bank size and the volume of deposit have a positive significant impact on the growth of bank lending activity in private

commercial banks in Ethiopia, on the other hand, liquidity ratio and gross domestic product have a negative and insignificant impact on private commercial banks' lending in Ethiopia. And also the cash reserve requirements; management efficiency, lending interest rate, and inflation have negative and significant impacts on private commercial banks' lending in Ethiopia. Generally, the finding of the study failed to reject five hypotheses that indicate the relationship between loans and advances and cash reserve requirement, the volume of deposit, bank size, inflation, and lending interest rate whereas, rejected the three hypotheses indicating the relationship between bank's loan and advance and liquidity ratio, gross domestic product, and management efficiency. The regression result indicated that 98.1% of the variation in total loans and advance of private commercial banks in Ethiopia was explained by the above explanatory variables during the study period.

## **5.2 Recommendations**

Private Commercial banks are the foremost in the banking system in terms of their shares of total assets and deposit liabilities next. Their total loans and advances, a major component of total credits to the private sector are still on the increase despite the major constraints posted by the government regulations, institutional constraints, and other macro-economic factors. However, private commercial banks should be mindful of the fact that the environments in which they operate are important factors in the bank's performance and activities. Where the environment is conducive and supportive, performance is enhanced and good lending guaranteed. But where the environment is unstable and harsh, the bank's performances suffer. Commercial banks should note that they need to do a lot to ensure good lending even where a good measure of macroeconomic stability is achieved. Therefore, follows that effort should be made by private commercial banks to enforce the most easily realizable policies and good credit management in every situation. Based on the results in this study, the next suggestions are recommended:

Large banks have a comparative advantage in lending to large customers as they can exploit economies of scale in evaluating the hard information. Hence, Ethiopian private commercial banks should have to strive to strengthen their asset size. And also, Private Commercial banks should strategize on how to attract and retain more deposits to further improve their lending.

Commercial banks should build systems and skills in liquidity management, assets, and liability management.

The effect of lending of interest rate was the most significant from the explanatory variables under this study. Therefore, the private commercial banks operating in Ethiopia should give due attention to the pricing of their loans and advance. Moreover, the lending of private commercial banks in Ethiopia is adversely affected by cash reserve requirements. Therefore, the government should come up with strategies aimed at reducing this burden, because the reduction in the lending ability of banks not only affects the growth and profitability of the banks but also hamper the general economy of the country. In addition, maintain the fast-growing economy and control inflation growth rate.

Commercial banks should develop credit procedures, policies, and analytical capabilities and these efforts should be expanded into full credit management including origination, approval, monitoring, and problem management tailored to the needs of each bank to improve the asset quality and maintain the governing organ requirement. In addition to internal factors, the private commercial banks should also consider the macroeconomic factors while developing their strategies and policies to utilize the opportunities and minimize the threats of the macroeconomic factors. Because the macroeconomic factors like cash reserve ratio and inflation had a significant impact on their lending. Finally, I suggest that the commercial banks should cope with their liquidity and administer their lending activity by considering internal factors, existing economic situation, competitive environment, regulatory measures, and their target customers.

### **5.3. Future Research Direction**

This study investigated the determinants of lending of private commercial banks in Ethiopia by using selected macroeconomic and banks specific variables. However, these variables are not complete. Thus, it is recommended for future researchers to further assess determinants of lending commercial banks in Ethiopia by incorporating additional bank-specific, industry-specific, and macro-economic variables. Moreover, this study was focused only on the supply side determinants of lending commercial banks. Therefore, it is also recommended for future researchers to investigate it by incorporating the demand-side variables of lending determinants. Finally, this study used only secondary data. Therefore, it is recommended for future researchers

to study the determinants of lending of commercial banks by a qualitative and quantitative approach using primary and secondary data.

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## APPENDIX

### Appendix 1A: Descriptive statics

```
. sum lending bs vod lr me crr gdp infl er
```

Variable	Obs	Mean	Std. Dev.	Min	Max
lending	105	22.40391	1.140021	18.6597	24.77112
bs	105	18.1308	3.51826	11.22716	25.48443
vod	105	.7714267	.0581788	.4375	.8689912
lr	105	.3083413	.1365807	.0056743	.6138719
me	105	1.016688	.4983634	.0233333	2.502
crr	105	.08	.0401918	.05	.15
gdp	105	.0937278	.0271386	.00061	.12551
infl	105	.1577333	.0941607	.028	.364
er	105	.187156	.0706716	.08699	.3176

-

### Appendix 1B: fixed regression result

```

. xtreg tla bs vod lr me crr gdp infl lir, fe robust

Fixed-effects (within) regression              Number of obs   =       105
Group variable: code                          Number of groups =         7

R-sq:                                         Obs per group:
  within = 0.9905                               min =         15
  between = 0.9975                              avg  =        15.0
  overall = 0.9892                              max  =         15

corr(u_i, Xb) = 0.3173                        F(6,6)          =         .
                                                Prob > F        =         .

```

(Std. Err. adjusted for 7 clusters in code)

tla	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
bs	.9408193	.0307606	30.59	0.000	-.8655508	1.016088
vod	.3364895	.1824816	1.84	0.115	-.1100269	.7830059
lr	-.1900223	.141448	-1.34	0.228	-.536133	.1560885
me	-.1239178	.0261139	-4.75	0.003	-.1878163	-.0600193
crr	-3.604948	.3544166	-10.17	0.000	-4.472174	-2.737722
gdp	-.6440426	.4692535	-1.37	0.219	-1.792265	.5041794
infl	-.4185552	.0707441	-5.92	0.001	-.5916597	-.2454507
lir	-7.33545	.7874017	-9.32	0.000	-9.262153	-5.408748
_cons	1.952277	.7375374	2.65	0.038	.147588	3.756966
sigma_u	.06696199					
sigma_e	.11038024					
rho	.26901772	(fraction of variance due to u_i)				

Source: STATA 16 software output of summarized secondary data

### Appendix 1C: normality Test

```
. sktest residual
```

Variable	Skewness/Kurtosis tests for Normality				
	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
residual	105	0.0947	0.3643	3.71	0.1564

### Appendix 1D: Hausman specification Test

. hausman fixed random

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
bs	.9408193	.9838602	-.0430409	.008877
vod	.3364895	.3623241	-.0258347	.1018586
lr	-.1900223	-.0690086	-.1210137	.
me	-.1239178	-.0782367	-.0456811	.0131304
crr	-3.604948	-3.644784	.0398363	.
gdp	-.6440426	-.9365811	.2925385	.
infl	-.4185552	-.372825	-.0457302	.
lir	-7.33545	-9.367637	2.032187	.2275106

b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 16.05  
 Prob>chi2 = 0.0417  
 (V\_b-V\_B is not positive definite)

*Source: STATA 11 software output of summarized secondary data*

### Appendix 1E: Result of model specification Test: Ramsey-RESET test

. ovtest

Ramsey RESET test using powers of the fitted values of tla  
 Ho: model has no omitted variables  
 F(3, 93) = 2.51  
 Prob > F = 0.0636

### Appendix.1F:- heteroscedascity test

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
 Ho: Constant variance  
 Variables: fitted values of tla  
  
 chi2(1) = 8.32  
 Prob > chi2 = 0.0039

### Appendix.1G:- Correlation Analysis

```
. corr tla bs vod lr me crr gdp infl lir
(obs=105)
```

	tla	bs	vod	lr	me	crr	gdp	infl	lir
tla	1.0000								
bs	0.9882	1.0000							
vod	0.4848	0.4750	1.0000						
lr	-0.6147	-0.5538	-0.2434	1.0000					
me	-0.3053	-0.2316	-0.0473	0.5944	1.0000				
crr	-0.6084	-0.5732	-0.2563	0.5986	0.4795	1.0000			
gdp	-0.5258	-0.4698	-0.0751	0.6867	0.5929	0.3580	1.0000		
infl	-0.1974	-0.1914	0.0002	0.1597	0.1438	-0.2752	0.4254	1.0000	
lir	0.6311	0.6790	0.2056	-0.3193	-0.2305	-0.5895	-0.3142	-0.1416	1.0000

*Source: STATA 11 software output of summarized secondary data*

### Appendix.1H:- Summary of variance inflation factor (VIF)

```
. vif
```

Variable	VIF	1/VIF
crr	3.93	0.254678
bs	3.40	0.293700
lr	3.09	0.323574
gdp	2.79	0.358718
lir	2.59	0.385531
me	2.08	0.481245
infl	2.05	0.488030
vod	1.40	0.713724
Mean VIF	2.67	