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

HOW EXCHANGE RATE AFFECTS PERFORMANCE:

A CASE STUDY ON ETHIOPIAN PRIVATE COMMERCIAL BANKS

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN

ACCOUNTING AND FINANCE

BY:

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June 2019

Addis Ababa, Ethiopia

Declaration

I, MeskeremAssegid hereby declare that the thesis work entitled "How exchange rate affects performance –A case study of Ethiopian Private Commercial Banks" submitted by me for the award of the degree of Master of Science in Accounting and Finance of Addis Ababa University, is original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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This is to certify that the thesis prepared by MeskeremAssegidManyahilihal,entitled: How exchange rate affects performance – Case of Ethiopian Private Commercial Banks in Ethiopia and submitted in partial fulfillment of the requirements for the Degree of Masters of Science in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

The banking industry in Ethiopia faced uncertainties that pose a threat for the success of banks. Among the major threats, exchange rate is the one which influence banking financial performance.The aim of this study is to examine how exchange rate affects performance of private commercial banks in Ethiopia by using panel data of eleven sample private commercial banks over the period of 2009/10-2017/18.The secondary data analyzed using descriptive statistics, correlation matrix and random panel regression model.The internal factors used in this study include loan growth, lending interest rate, Bank size whereas; the external factor is foreign exchange rate, real GDP growth and inflation rate. Moreover, Return on asset (ROA)was used to measure the banks performance.The empirical finding of this study reveals that at 5% level of significance exchange rate depreciation and loan growth has positive and statistically significant influence on the performance of private commercial banks in Ethiopia. On the other hand, lending interest rate, bank size, GDP growth and inflation have statistically insignificant influenceon the performance of private commercial banks. Based on the finding of the study, the study extends the following recommendations: the issues related to foreign exchange trading should always be taken into account in efforts to improve banks' foreign exchange transactions and financial performance. The banks management should adopt strategies so as to mitigate foreign exchange risk since depreciation has influence in determining the performance of the private commercial banks. Furthermore, private commercial banks should give adequate weight for foreign exchange risk management.

Key words: Performance, Exchange rate deprecation, private commercial banks

Acknowledgements

My deepest and warmest thank goes to the Almighty God, who help me in all aspects of my life including the achievement of this masters program. Along with, I would like to express my sincere gratitude to my advisor Dr.HabtamuBerhanu, for his expert guidance and suggestions.

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List of Acronyms and Abbreviations

AIB - Awash International Bank S.C
AdIB-Addis International Bank
BLUE- Best Linear Unbiased Estimators
BOA - Bank of Abyssinia S.C
BIB- Bunna International Bank
AB- Abay Bank
CBE - Commercial Bank of Ethiopia
CBO- Cooperative Bank of Oromia
CLRM- Classic Linear Regression Model
DB - Dashen Bank S.C
DGB- ,Debube Global Bank
DBE - Development Bank of Ethiopia
ETB: Ethiopian Birr
FDI: Foreign Direct Investment
FEXRA- Foreign Exchange Rate
GDP - Gross Domestic Product
LDCs- Least developing countries
LIB- Lion International Bank
OIB-, Oromia International Bank
NER-Nominal Exchange Rate
NBE - National Bank of Ethiopia
NIB - Nib International Bank S.C
OLS - Ordinary Least Square
ROA - Return on Assets
ROE - Return on Equity
UB - United Bank S.C
USD: United States Dollar
WB - Wegagen Bank S.C
ZB- Zeman Bank

CHAPTER ONE

1. Introduction

1.1 Back ground of the study

Commercial Banks plays a pivotal role in the economic development of a country through channeling the accumulate fund of the people and make them available for investment. The importance of Banks, however goes beyond intermediation role and their financial performance of the Banks have critical implications on the economic growth of countries. Poor Banking performance can lead to banking failure and thisultimately have negative impact on the economic growth(Ngerebo, 2012).Thus, the healthy Banking system is important in maintaining the stability of the Banks as well as the economy in general (Tafri, et al., 2009).

In the process of providing financial services, the performance of Commercial Banks can be affected by external (macroeconomic) and internal (Bank specific) factors (Ongore and Kusa, 2013). Internal factors are basically bank precise factors that generally touch on the internal decisions made by the management of the banks while external factors on the other hand are sector or industry wide factors beyond a Banks control. These factors include credit risk, liquidity risk, exchange rate risk and interest rate risk which are related to the financial operation of a business and which arise due to the uncertainty in movement of foreign exchange, interest rates, credit quality, and liquidity position (Bessis, 2002).

The banking sector is the single sector highly affected by external factors (i.e Exchange rate variation) and without foreign exchange, international banking would be impossible due to their involvement in foreign exchange transaction. A foreign exchange rate is the price of one currency in terms of another currency. In other words, a foreign exchange rate compares one currency with another to show their relative values. Since standardized currencies around the world float in value with demand, supply, and consumer confidence, their values change relative to each over time.

Many countries have practiced the various forms of exchange rate arrangements: Fixed regime, Flexible regime and Managed-float regime.Fixed exchange rates are decided by Central Banks of

a country whereas floating exchange rates are decided by the mechanism of market demand and supply. Managed-floating regime, which permits their policymakers to intervene in the foreign exchange markets during periods of exchange rate uncertainty and trade imbalances. Most countries including Ethiopia have adopted this kind of exchange rate arrangement.

Exchange rate is very important in economic activities for at least two reasons. First, changes in the real exchange rate (appreciation and depreciation) have a strong influence on the direction of trade. If a country's real exchange rate experiences depreciation (i.e Loss in value of a country currency against foreign currencies), goods and services become cheaper relative to those of her trade partners. Therefore, the country should experience a surge in its exports (Sekkat and Varoudakis, 2000). In contrast, if the real exchange rate appreciates (i.eIncrease in the value of the one currency with other countries), then the country's goods and services become expensive, leading to a surge in her imports (Salehi-Isfahani, 1989). Second, an unstable exchange rate creates uncertainty, which may produce undesirable consequences.

Many countries, especially developing countries Such as Venezuela, Thailand, China, Mexico and Czech Republic were devalued their currency.One of the reason a countries devaluate its currency is to boost exports and shrink trade deficit (Nega,2015).

Like many developing countries, Ethiopian is not the exception in depreciate or devaluate their own currency. For instance, in August 2010, the government of Ethiopia devaluate Birr against the major currency by 17% with aim to boost export performance. Furthermore, after2010, the Birr has been continuously depreciating on average by 5% per year and recently, also the governments depreciate Birr by 15% in October, 2017(NBE, 2017/18).

It is a widely held view that exchange rate movement could also influence the bank's performance. Depreciation of local currency affects firms undertaking international transaction such as Commercial Banks that transact in foreign currencies (Ahmed, 2015).Depreciation of home currencies may affect the Banks through the structure of assets and liabilities denominated in foreign currency (Martin and Mauer, 2003).When assets and liabilities are invoiced in foreign currency, exchange rate depreciationmay affect the values of the assets and the liabilities in terms of domestic currency, through recognition of gain or loss.

For a country that is import dependent, exchange rate plays significant impact in the economy as it directly affects domestic price level, profitability of traded goods and services andcredit allocation of commercial Banks. It is therefore, important to examine whether depreciation of domestic currency (i.eBirr)against foreign currency (i.eUSD) has a positive or negative influence on the performance of private Commercial Banks in Ethiopia.

1.2 Statement of the problem

Banking industry of Ethiopia is operating in a dynamic environment whereby they are constantly faced with uncertainties that pose a threat for the success of Banks. Among the major threats, Exchange rate movement is the one which constitutes impact on the economy in general and the Banking sector in particular. Exchange rates play an increasingly significant role in any economy as they directly affect domestic price levels, profitability of traded goods and services, allocation of resources and investment decision of the Banks. Besides, Exchange rate determines the trade flows, capital flows & FDI, inflation, and remittance of an economy (Kassie, 2015). Commercial Banks, being the leading financiers of economy, are especially prone to the effects of exchange rate variation. Thus, currency risk management is increasingly viewed as an approach to reducing Commercial Banks vulnerabilities from major exchange rate movement (Isaac, 2015).

The government of Ethiopia devaluate Birr with against major currencies by assuming that weakening of domestic currency improving a country's trade balance. In the view of this, the government devaluate Birr many times. For instance, inAugust,2010, the government of Ethiopia devaluate Birr against major foreign currency by 17% with aim to boost export performance and bring about structural change in the economy. Since then, Birrhas been continuously depreciating on average by 5% per year (NBE, 2017/18) andrecently also devaluate by 15% in October, 2017. The devaluation led to interest rate adjustment from 5% to 7%to stimulate savings as well as to counter inflation.

This makes more difficult for banksmanagement to fully counter exchange rate depreciation. Since, the financial performance in the banks is exposed to foreign exchange depreciation. As the result, to remain competitive, the Banks management is expected toevaluate their external macroeconomic factor. This is attributed mainly due to the banks operating on foreign currency;hence any slight changes in the exchange rate may have significant effect on the performance of Banks.

As a financial intermediary, the variation in exchange rate could affect the performance of commercial banks. The influence of exchange rate on banks performance can be easily determined by measuring the change in the value of foreign currency denominated asset and liability. When home currency is depreciated, Banks recognize accounting gain on their foreign currency denominated asset and loss on foreign currency denominated liability (Tadesse, 2016). For instance, in September 2010, Dashen Bank gains Birr 402 million as windfall gains as the result from this devaluation (Tadesse, 2016).

Majoritystudies done on the effect of exchange rate on banks performance skewed to the more industrialized and developing economies and thus leaving somewhat of a gap in the least developing countries like Ethiopia.These, studies have been done in countries were Banking and Capital market is more advanced and this may not be applicable for Ethiopia where the financial sector relay only on banking(Olayinka and Jayeoba, 2016). Furthermore, in Ethiopia, there are few studies done on the impact of exchange rate deprecation on macro-economic variables such as GDP, export, trade balance, and Inflation. (Gebeyehu, 2014, Nega, 2015, Tolchaand Rao, 2016).There are no studies in Ethiopia examine the effect of exchange rate deprecation on the commercial banks performance**.**As previously mentioned, Ethiopian Birr has been continuously depreciating against major hard currencies and how this depreciating trend affects the performance of Banks is not clearly known. In addition, those studies have been done in countries were Banking and Capital market is more advanced and this may not be applicable for Ethiopia wherethe financial sector relay only on banking.Thus, the findings of this study will potentially support bank managers as well as policy makers to clearly understand how the depreciationinfluence Banks performance and devise appropriate policies and procedures to reduce the exchange rate risk exposure of their banks.This study therefore, fill gap by answering the effect of exchange rate on financial performance of private Commercial Banks in Ethiopia.

1.3 Research Hypothesis

To attain objective of the study, the following hypotheses were developed based on literatures. These are the following:

- HP1: There is a significant positive/negative relationship between the exchange rate depreciation and bank's performance
- HP2: There is a significant positive relationship between the loan growth and bank's performance
- HP3: There is a significant positive/negative relationship between lending interest rate and bank's performance
- HP4: There is a significant positive/negative relationship between the bank size(total asset) and bank's performance
- HP5: There is a significant positive relationship between the real GDP growth and bank's performance
- HP6: There is a significant negative relationship between the inflation and bank's performance

1.4 Objective of the study

The main objective of the study is to investigate theeffect of exchange rate on the performance of private Commercial Banks in Ethiopia.

1.4.1Specific Objectives

The specific objectives of this study are to:

i. To examine the influenceof deprecation of domestic currency on theperformance ofprivate commercial banks;
ii. To examine the degree of depreciation of domestic home currencyagainstforeigncurrency over time;
iii. To examine the influence of Bank specific and macroeconomic variables on performance of private commercial banks;
iv. To indicate policy recommendation for Banks management and policy makers.

1.5 Significance of the study

This study has a paramount importance for Banks management to see how the exchange rate variation affects banks performance. The study result can be a potential input for the Banks management to devise strategy to alleviate the likelihood effect of depreciation. Furthermore, the study result may also be a useful input for Bank regulators and supervisors to induce banks to have proactive exchange rate risk management strategy that encompasses the effect of exchange rate variation on banks performance. The last but not the least, it helps other scholars as a source of reference and as a stepping stone for those who want to make further study on the area afterwards.

1.6 Scope of the study

The scope of the study is restricted to private commercial banks operating in the country start from the year of 2009/2010 to 2017/2018. To do so, the study used ROA as dependent variables and exchange rate, lending interest rate, loan growth, Asset, GDP growth and inflation as independent variables. The eleven leading private commercial banks were selected based on market share and year of establishment. Namely, Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank, Nib International Bank, Cooperative Bank of Oromia, Lion International Bank,Zemen Bank, Oromia International Bank and Bunna Bank

1.7 Organization of the Paper

This paper consists of five chapters with different sections and sub-sections, and it was structured as follows. Chapter one presents the introduction for the main part of the paper. Chapter Two reviews the most significant analytical and empirical studies. Chapter three focuses to present the methodology of the study. Chapter four also provides the analysis of results and discussion. Chapter five, as usual, gives conclusion and recommendation with policy implication and further research direction.

CHAPTER TWO

2 LITERATURE REVIEW

2.1 Introduction

This study aims to fill the gap in the existing literature by identifying the effect of exchange rate on the performance of commercial banks. This section of the study reviews previous literatures in the effect of exchange rate on the banks performance. More specifically, this section provides the definition of exchange rate, Role of commercial banks in the economy, exchange rate regime in Ethiopia, macroeconomic impact of exchange rate depreciation on the economy and the effect of exchange rate depreciation on the performance of commercial banks. Then, reviews the empirical literatures, the effect of exchange rate on the performance of commercial banks.

2.5 Theoretical Review

Role of Commercial Banks in the Economy

It is obvious that a sound and profitable banking sector is able to endure negative shocks and contribute to the stability of the financial system (Athanasoglou, Sophocles, &Matthaios,2005) Moreover, commercial banks play a significant role in the economic growth of countries. Through their intermediation function banks play a vital role in the efficient allocation of resources of countries by mobilizing resources for productive activities.

They transfer funds from those who don't have productive use of it to those with productive venture. In addition to resource allocation good bank performance rewards the shareholders with sufficient return for their investment. When there is return there shall be an investment which, in turn, brings about economic growth. On the other hand, poor banking performance has a negative repercussion on the economic growth and development. Poor performance can lead to runs, failures and crises. Banking crisis could entail financial crisis which in turn brings the economic meltdown (Marshall, 2009) That is why governments regulate the banking sector through their central banks to foster a sound and healthy banking system which avoid banking

crisis and protect the depositors and the economy (Shekhar&Lekshmy, 2007). Thus, to avoid the crisis due attention was given to banking performance.

2.5.1 Definition of Exchange rate

Exchange rate is defined as the rate at which one currency can be exchanged for another. That is, the exchange rate is the price of a country's currency in terms of another currency. Appreciation is a rise in the price of a country's currency in terms of foreign currency while depreciation is a fall in the price of a country's currency in terms of foreign currency(Isaac, 2015).An exchange rate appreciation causes a slower growth of GDP because of a fall in net exports and a rise in the demand for imports while when exchange rate depreciates the amount of imports falls and the amount of exports rises. This can increase real GDP growth and ultimately decrease unemployment rate (Gebeyehu, 2014).

2.5.2 Types of Exchange rate

Broadly, exchange rate is classified in two ways depending on how the value of currency is measured, which is in terms of other currencies or in terms of the goods and services it can buy.

A. Nominal Exchange Rate (NER)

Nominal Exchange Rate is the relative price of the currency of two countries. In other world, it is the price of foreign currency in terms of domestic currency. If the nominal exchange rate between the dollar and Birr is 28, then one dollar will purchase 28 Birr. It takes into account only the numerical value of the currencies. It doesn't take into account the purchasing power of the currencies.

B. Real Exchange Rate (RER)

Real Exchange Rate is the relative price of the goods of two countries. It is a bit more complicated than the nominal exchange rate. Nominal exchange rate tells how much foreign currency can be exchanged for a unit of domestic currency while the real exchange rate tells how much the goods and services in the domestic country can be exchanged for the goods and services in a foreign country. In real exchange rate manipulation, the effects of inflation have

been taken into account. In other word, real exchange rate can be defined as the nominal exchange rate adjusted for inflation differentials among the countries. Real exchange rate calculated as follows = (nominal exchange rate X domestic price) / (foreign price).

2.5.3 Exchange Rate Regimes

Exchange rate regime refers to the way the value of the domestic currency in term of foreign currencies is determined. It is closely related to monetary policyand broadly categorized into three categories, namely fixed, floating and managed float (semi-fixed exchange rates) (Lencho, 2013).

I. Fixed exchange rate regime

In a fixed exchange rate system, the government intervenes in the foreign exchange market to ensure that the exchange rate stays close to a predetermined target. Fixed rates provide greater certainty for exporters and importers as there are no or limited exchange rate risks. As businesses have the perfect knowledge that the price is fixed and therefore not going to change, it is relatively easier for them to plan ahead. However, fixed exchange rate regime may create a significant gap between the official rate and the rate determined by the market. This can promote black markets. In a black market the bulk of foreign exchange transactions are carried out outside the banking system. This may force government to draw down on reserves to meet its obligations and cause scarcity of foreign exchange.

II. Floating exchange rate

In a floating exchange regime, the market's demand and supply of currency determines the exchange rate. There is no pre-determined official target for exchange rate set by the government. In this case, central bank can indirectly influence the exchange rate by managing the level of domestic and foreign currencies in the banking system. This is a common type of regime among the world's major advanced economies because it can contribute to macroeconomic stability by cushioning economies from shocks and allowing monetary policy to be focused on targeting domestic economic conditions.The rates under this system are determined by a self-sufficient mechanism. Therefore, the dependence on government or international monetary organizations is minimum. Also, the determination of rate by the market

forces of demand and supply promote efficiency and robustness of operations. Despite such benefit, Floating rate systems are prone to greater volatility since they are determined by the market forces. The increased volatility increases the risk quotient in such markets consequently making it a relatively expensive place for the foreign investors.

III. Managed float exchange rate

Managed floating is the type of exchange rate is given a specific target and a central bank keeps the rate from deviating too far from a target value and periodically adjusted. In this regime, exchange rates are still free to float, but governments try to influence their values whenever necessary to stabilize the foreign exchange market. Central bank participation in a floating exchange rate system is called a managed float. Countries that have a floating exchange rate system intervene from time to time in the currency market in an effort to raise or lower the price of their own currency. Typically, the purpose of such intervention is to prevent sudden large swings in the value of a nation's currency.

2.5.4 Exchange Rate Regimes in Ethiopia

Due to their vulnerability to external economic shocks, least developing countries (LDCs) have considered the exchange rate as central policy issue over the years. The external economic shocks, it is argued, contributed to the deterioration of the trade balance, domestic inflationary pressure and the over competitive position of LDCs. Consequently, the adjustment policies to be followed, and the consequence of such measure have attracted attention and have been controversial policy issue. Ethiopia's Exchange rate policy, as in other LDC's, has been subject to such scrutiny. And this scrutiny seems to have gained momentum due to the recent political changes in the country and the renewed interest to liberalize the economy (Kibert, 2010).

Ethiopia exchange rate policy has passed different regimes. Before 1992, the country was exercising a fixed exchange rate regime, when the rate is solely determined by the government. Since 1992 the country is implementing an exchange rate policy which is more close to managed floating, where there is a government intervention whenever necessary to stabilize the foreign exchange market.

Following the overthrown of Derge regime, Federal Democratic Republic of Ethiopia (EPRDF) introduced the auction-based exchange rate determination scheme and the interbank money market. Additionally the principle of gradualism in liberalization of exchange rate market is at the heart of this policy development. The exchange rate reform was started by devaluing the currency which was fixed for about two decades to 2.07 birr per US dollar by 140% to 5 birr per US dollar in October 1992. In 1993 the National Bank of Ethiopia (NBE) introduced the auction-based exchange rate system. In August, 2010 the government of Ethiopia devaluate Birr against major foreign currency by 17% with aim to boost export performance and bring about structural change in the economy and more recently the government of Ethiopia also devaluate Birr by 15% against foreign currency in October, 2017.

2.5.5 Macroeconomic impact of Currency devaluation on the economy[1]

Devaluations are an important element of economic adjustment and stabilization programs and are frequently used to improve a country's balance of payments position, boost domestic employment, and accumulate more foreign exchange reserves (Ilir, 2006).

- **Export growth.** A country's exports can gain market share as its goods get cheaper relative to goods priced in stronger currencies. The resulting increases in sales can boost economic growth and jobs as the result of increase of export, as well as increase corporate profits for companies that do business in foreign markets.
- **Imports more expensive.** A devaluation means imports, such as petrol, food and raw materials will become more expensive.
- **Inflation increase.** Inflation can climb when countries import goods from countries with stronger currencies, since it takes more of a weak currency to buy the same amount of goods priced in a stronger currency.
- **Improvement in the current account**. With exports more competitive and imports more expensive, we should see higher exports and lower imports, which will reduce the current account deficit.

[1] https://www.economicshelp.org

2.2.6 Factors affecting bank performance

Theoretically, factors affecting bank performance are mainly divided into two categories as internal and external variables. The internal (bank-specific factors) are factors that are related to internal efficiencies and managerial decisions. These factors are bank specific variables which influence the performance of specific bank. These factors are within the scope of the bank to manipulate them and that they differ from bank to bank. These factors include Capital Adequacy, Asset Quality, Management Efficiency, Earnings Ability, Liquidity and Bank size (Dang &Uyen, 2011,). (Molyneux and Thornton,1992). On the other hand, the external factors which are beyond the managements control are referred as external or macroeconomic factors and these factors are related to the industry and macroeconomic factors. The external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and performance of financial institutions. According to (Deepak &Abebaw, 2011), the external factors, they have a relatively small impact on the performance of Ethiopian banks. The following are macro factors such as Exchange rate, GDP, money supply growth, and inflation rate among others (Athanasoglou et al. ,2008).

2.2.7 Exchange rate movement and Bank performance

The Federal Bank of San Francisco in its Economic research publications (1996)and Lencho, 2013)classifies the sources of foreign exchange risk as direct and indirect sources. As Foreign exchange rate fluctuations affect banks performance. The effect comes from banks' holdings of assets (or liabilities) with net payment streams denominated in a foreign currency. Foreign exchange rate fluctuations alter the domestic currency values of such assets.

Banks foreign assets or liabilities can be exposed to currency risk because the exchange rate can affect the profitability of its domestic banking operations (Popper, 1996). For instance, consider the value of a bank's loan to a USA exporter. An appreciation of the dollar might make it more difficult for the U.S. exporter to compete against foreign firms. If the appreciation thereby diminishes the exporter's profitability, it also diminishes the probability of timely loan repayment and, correspondingly, the profitability of the bank. In this case, the bank is exposed to foreign exchange risk: a stronger dollar decreases its profitability. In essence, the bank is "short" dollars against foreign currency.

2.3 Empirical Review

Exchange rate and Bank performance

Ngerebo (2012) looked at the impact of foreign exchange fluctuation on the intermediation of banks in Nigeria (1970-2004). The study used data sourced mainly from Central Bank of Nigeria publications. In conducting this relationship study, sample sizes of 34 years (1970 – 2004) were collected and analyzed. The result led to the conclusion that exchange rate fluctuation has significant impact on banks' intermediation.

Majok (2015) conducted a study on the effects of exchange rate fluctuations on financial performance of commercial banks in Kenya. The study adopted a descriptive research design. The study used secondary data from the banks consolidated financial statements as well as the Central bank of Kenya data. The study established that there was a positive relationship between foreign exchange rate fluctuations and the financial performance of banks as measured by the returns on assets ratio.

Casey, He and Fayman (2014) conducted a study on Bank Profitability and the impact of foreign currency fluctuations. The study investigated whether the performance of 22 large US commercial banks affected by foreign exchange fluctuations over a 40 year period . The study found that these large U.S. banks are exposed to foreign exchange risk and that specific bank performance is related to the value of the dollar relative to market baskets of other currencies. The value of the local currencies in respect to strong foreign currencies like the Euros, pounds and others affects profitability of commercial banks in respect to the rate of exchange for the currencies. This is especially true for commercial banks with international presence and with customers who transact in different currencies.

Kiganda (2014) conducted a study on the effect of macroeconomic factors on commercial banks profitability in Kenya as in the case of Equity bank limited. This study was modeled on the theory of production and based on correlation research design. Sample size consisted annual data

spanning 5 years from 2008- 2012. To accomplish this task the study used Cobb-Douglas production function transformed into natural logarithm. This study employed OLS to establish the relationship between macroeconomic factors and bank profitability. The results indicated that macroeconomic factors (real GDP, inflation and exchange rate) have insignificant effect on bank profitability in Kenya with Equity bank in focus at 5% level of significance.

Tadesse (2016), examines the effect of exchange rate on the profitability of commercial banks in Ethiopia using a balanced panel data set of banks over the period of 2000-2014. Furthermore, this study tried to determine how exchange rate affects the growth of bank loan with the intension to identify whether one of the indirect effects of exchange rate on bank profitability is through its effects on loan growth. The finding reveals that, exchange rate has statistically significant negative impact on the profitability of commercial banks in Ethiopia. Besides, exchange rate has statistically significant positive impact on the loan growth of banks in Ethiopia.

Taiwo and Adesola(2013) examined the effect of exchange rate on the performance of Nigerian banks for the period between 1970- 2005. They used two different dependent variables: ratio of loan loss to total advance and capital deposit ratio to represent the performance of the bank. The effect of exchange rate on these two proxies of bank performance was empirically tested with two different modes. The regression results for the model tested the relation of loan loss to total advance and exchange rate revealed that there exist a positive relationship between exchange rate and loan loss which may explain the tendency of bank to accumulate bad loans as a result of fluctuating exchange rate. The result of the second model indicated that capital deposit ratio does not have significant relationship with exchange rate.

Another study on Nigeria bank by Osuagwu (2014), found that exchange rate is significant as a determinant of bank profitability through return on equity and non-interest margin, but not significant to return on asset as a measure of profitability. The researcher mentioned that the insignificance of exchange rate to return on asset is perhaps attributed to the fact that a very large percentage of bank assets are fixed or off balance sheet items. The variability of the asset portfolio of banking firms is not largely responsive to the variations in exchange rate.

Another study by; He et al. (2014) examined the effect of foreign exchange rate fluctuation on the profitability of US based commercial banks. The study was conducted on 22 large US based banks for a period of 40 years. The study basically evaluated how the US bank earning (net income) respond to the changes in value of the foreign currencies relative to US dollar. The regression result indicated that the value of the dollar relative to a basket of global currencies considered in the study (i.e. European currencies and Asian currencies) is positively related to the returns generated by the largest U.S. based banks. Merikas (1999) also finds that stock returns of Greek banking institutions are also impacted by exchange rate fluctuations.

Ahmed, 2015 investigated the impact that foreign exchange risk exposure has on commercial banks performance. Both primary and secondary data was used by the study with a census approach being used so as to include all the commercial banks. The study established changes in the rates had minimal to no risk at all the commercial banks, as they had placed mechanisms to counter the foreign exchange risks. The study only focused on the interest rates and inflation without considering other macroeconomic variables. Additionally, the study was not able to clearly establish the relationship that existed between the variables.

Majok (2015) investigated exchange rate fluctuations on commercial banks in Kenya. The study used a descriptive research survey. The target population comprised 43 commercial banks operating in Kenya as at December 2014.The secondary data was collected from the banks consolidated financial statement as well as central bank of Kenya office. The study found that there was a positive relationship between foreign exchange fluctuation and the financial performance of banks a measured by the returns on assets ratio. The study did not consider other macro-economic variables such as interest rates.

Lending Interest rate and Bank performance

Ngure (2014) sought to determine the effect of interest rates on financial performance of commercial banks in Kenya. The study used descriptive research design using secondary data obtained from Central Bank of Kenya for the period of five years from 2009 to 2013. The study concluded that interest rate volatility had positive effect on profitability of commercial banks.

Ngumi (2014) conducted a study on the effect of lending interest rates on financial performance of deposit taking micro finance institutions in Kenya. The data for nine deposit taking micro-finance banks was analyzed for five years (2009-2013) using multivariate regression model. The study found out that a strong relationship exists between lending interest rates and financial performance of deposit taking micro-finance banks.

Irungu (2013) looked at the effect of interest rate spread on financial performance of commercial banks in Kenya. The target population in this study is all 43 commercial banks in Kenya Regression analysis was used to analyse the data and find out whether exists a relationship between interest rate spread and the performance of commercial banks in Kenya. The study found that there is strong positive relationship between financial performances of commercial banks with interest rate spread.

Ndichu (2014) established the effect of interest rate spread and on the financial performance of deposit taking micro-finance banks in Kenya. The showed that interest rate spread is statistically has positive and significant at 95% significant level. That means, when the interest rates spread increases the financial performance of deposit taking micro-finance banks increased.

Loan growth and Performance

One of the most important roles of banks is to offer loans to borrowers and loans serves as the main source of earnings for commercial banks. In different words, loans are the highest interest yielding asset on bank's balance sheet. According to Abreu and Mendes (2002) the more the banks offer loans the more they do generate revenue and more profit they make. Therefore, loans should positively affect profitability as the bank is working vigilantly and not taking excessive risk.

Bank size and Bank performance

The goal of the study conducted by (Yadollahzadeh, Ahmadi, &Soltan, 2013) was to examine the effective factors on the performance of commercial banks in Iran for nine commercial banks during 2006- 2010 using panel data regression method. They considered Return on asset and return on equity as dependent variables which are separately examined by explanatory variables including bank's size, gearing ratio, nonperforming loans, asset management, operating

efficiency and capital adequacy ratio. Their research results show that the variable of bank's size has a positive effect on the performance of commercial banks.

(Weersainghe&Ravinda, 2013) examined the impact of bank specific such as Bank Size, Liquidity Risk, and Operating Cost, Capital adequacy, Credit Risk and macroeconomic determinants like GDP growth rate and Interest Rate on the profitability of commercial banks in Sri Lanka by using quarterly data relating to the bank specific and macroeconomic indicators during the period 2001-2011 and carrying out a multiple panel regression. Moreover, they used ROA and ROE as profitability indicator. According to the empirical results, it was observed that the large banks are recorded more profits due to economic of scale than the banks which are well sound with a higher regulatory capital ratio.

GDP growth and Performance

Gikombo (2012) sought to investigate the factors that influenced commercial bank rate adjustment disparity with what the Central Bank of Kenya would expect after variation of the Central Bank Rate and Cash Reserve Ratio. The study used secondary data which was collected from the Central Bank of Kenya and the Kenya National Bureau of Statistics, and on those basis comparisons were made with reference to the Non-Performing Loans, Operating Costs, industry Return on investment, and Overall Gross Domestic Product. The study revealed that gross domestic product had little and negative influence on commercial bank profitability and that an increase in gross domestic product did not significantly trigger commercial banks' adjustment of interest rate, and if it did, it was to the opposite direction. An adjustment in interest rates often renders the effect of GDP on productivity useless. It is of great importance to test the impact of GDP on profitability alone while interest rate is held at a constant.

Macroeconomic factors affect the profitability of commercial banks in different extent and magnitude. For example, Kanwal and Nadeem (2013) in their study of the impact of Macroeconomic variables on the profitability of listed commercial banks in Pakistan, have found that; GDP has positive insignificant impact on the ROA of the bank, but insignificant negative impact on ROE while Inflation rate on the other hand, has a negative link with all profitability measures (ROA, ROE). Overall, the selected macroeconomic factors are found to have a

negligible impact on earnings of commercial banks. However, the impact of exchange rate on the banks profitability was not assessed in this study.

Francis (2013) identified determinants of commercial bank profitability in Sub-Saharan Africa. Using the cost efficiency model, bank profitability was estimated using panel random effects method in static framework. The explanatory variables are growth in bank assets, growth in bank deposits, capital adequacy, operational efficiency (inefficiency), and liquidity ratio as well as the macroeconomic variables of growth in GDP and inflation. The findings clearly show that both bank-specific as well as macroeconomic factors explain the variation in commercial bank profitability.

Inflation rate and Bank performance

Hooshyari and Moghanloo (2015) evaluated the impact of inflation on profitability of banks. The population was the state and private banks in Iran. The study concluded that there is a strong correlation between inflation and profitability of banks in Iran.

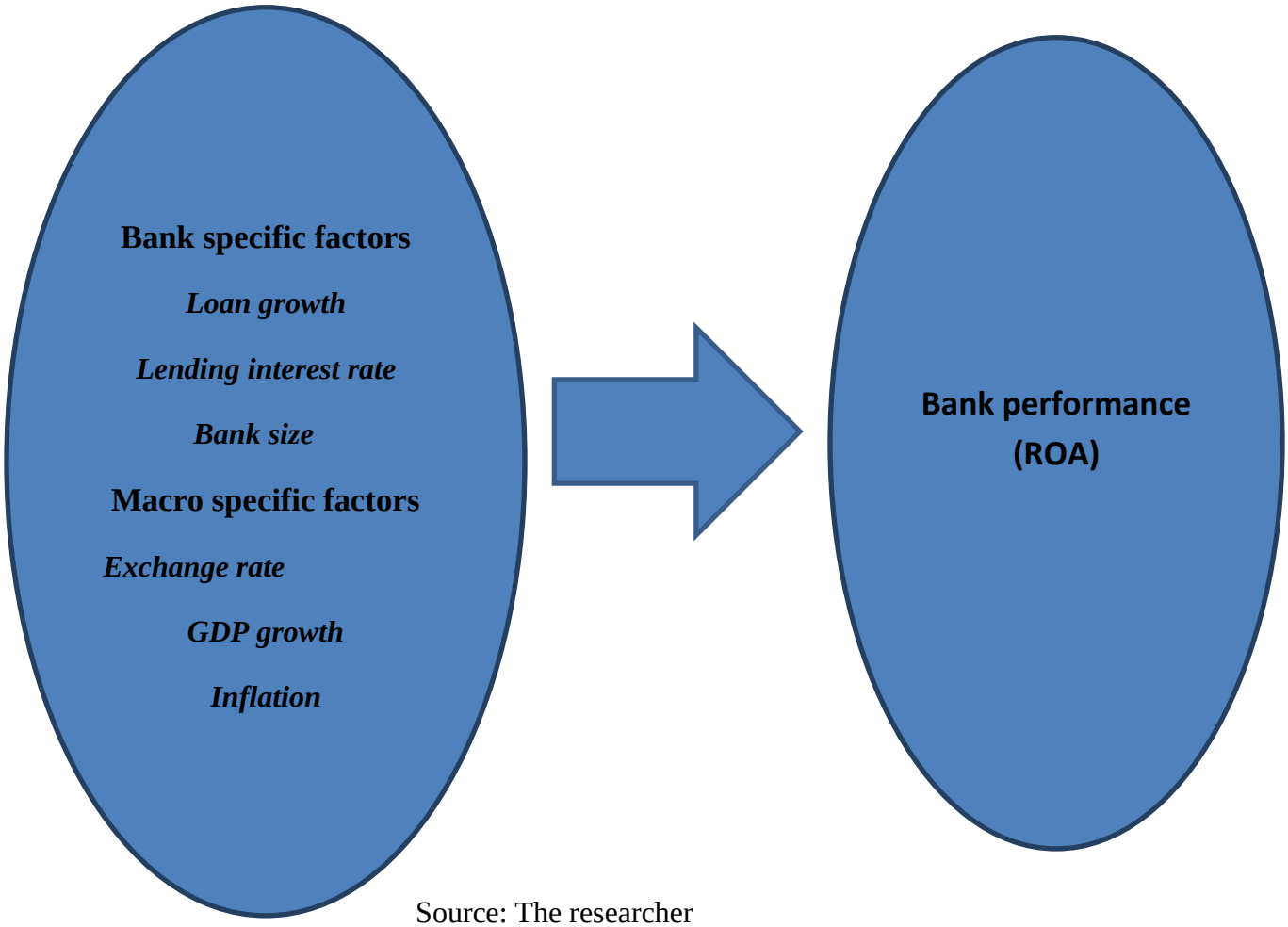
Chioma, Adanma and Clementina(2014) study was designed to empirically examine the relationship between inflation and banks' performance and how the outcome influences the lending decision of such banks. The result revealed that there is positive but not significant relationship between inflation, banks' performance and the investment decision of commercial banks operating in Nigeria.

Khan, Shahid, Bari, Anam, Shehzad and Siddique (2014) analysed the impacts of inflationary trends on banks' performance (large banks segment) in Pakistan. This research was qualitative in nature where the data was taken from large banking segments being categorized by State bank of Pakistan. Through discussion and calculated results, a strong positive relation was found among the variables and the study concluded that inflation has a strong correlation on bank performance.

2.4 Conceptual frame work

Different empirical evidences suggested that profitability of financial institutions specifically banks are affected by different factors. Based on the literature obtained from different study, below found the conceptual frame work to see the how exchange rate affects performance of private commercial banks.

Fig2.1: Conceptual Framework



Source: The researcher

CHAPTER THREE
3. Research Methodology

This chapter covered the research methodology that are used in the study. It also discussed the sampling design and techniques, definition of variables, source of data and method of data analysis.

3.1 Sampling Design and Techniques

In this proposal, the target population was Commercial Banks operating in Ethiopia. According to National Bank of Ethiopia (NBE), currently, 18 commercial banks operating in Ethiopia (i.e two[2]state Banks, and sixteen[3] private Banks). The magnitude and diversification of income of the government banks is quite different from the private bank's income. Furthermore, government commercial banks have support from NBE[4]in availing of foreign currency at the time of shortage as well as government commercial banks relatively in better position with regard to sensitivity to depreciation and also difficult to get audited recent data; therefore, the study was forced to concentrate on private commercial Banks. Based on market share and significant exchange rate movement started since 2009/10, thus, the proposal includes those banks established since 2009/10,therefore, the study selects 11 private commercial banks (I.e. AB, DB, BOA, WB, UB, NIB, CBO, LIB ,ZB, OIB, BIB), out of 16 private banks.

3.2 Source of Data

This study employed secondary data to investigate the influence of depreciating of ETB against USD on the performance of private commercial banks. The data collected from National Bank of

2 Commercial Bank of Ethiopia (CBE)and Development Bank of Ethiopia (DBE)

3Awash Bank(AB), Dashen Bank(DB), Bank of Abyssinia(BOA), Wegagen Bank (WB),United Bank (UB), Nib International Bank(NIB), Cooperative Bank of Oromia (CBO), Lion International Bank(LIB),Zeman Bank(ZB), Oromia International Bank(OIB), Bunna International Bank(BIB), Birhan Bank, Abay Bank(AB), Addis International Bank(AdIB), DebubeGlobal Bank(DGB), Enat Bank(EB).

4To ease the shortage in foreign currency, in June 2019, NBE avail USD 200 million for commercial bank of Ethiopia while only USD 100 million distributed to 16 private commercial banks.NBE news report of June,2019.

Ethiopia (NBE), Ministry of Finance and Economic Cooperation (MoFEC) and Annual Reports of the Respective Banks.

Variable specification

To see the how exchange rate affects performance of private commercial Banks, the study identifies the return on asset as dependent variable and loan growth, total asset, lending rate, exchange rate, inflation and GDP growth as independent variables.

3.1.1 Dependent variables

A. Returns on Assets (ROA)

There are different financial ratios that can be used to assess banks performance. Most studies suggested that financial ratios such as Returns on Assets (ROA), Returns on Equity (ROE), and Net Interest Margins (NIM) are the commonly used measure of profitability (Rao, K,R,M.&Lakew, T,B.(2012). The ROA reflect the ability of banks management to generate profits from the bank's assets and is expressed in percent. Likewise, Return on equity (ROE) also used as alternative measure of performance and defined as the net income over shareholder equity. Similarly, Net interest margin (NIM) is also another indicator in evaluating banks performance because it reveals a bank's net profit on interest-earning assets, such as loans or investment securities. Since the interest earned on such assets is a primary source of revenue for a bank, this ration is a good indicator of a bank's overall profitability, and higher margins generally indicate a more profitable bank. It calculated as the sum of interest income minus interest e expenses; this amount is then divided by the total of earning assets.

The study however; used return on asset (ROA) as measure of performance. It is can be measured as the ratio of net income divided by total asset. Bank performance is best measured by ROA, because it represents the best measure of the ability of a firm to generate returns on its portfolio assets (Goaied and Naceur 2008). ROA indicates the profit earned per unit asset and which is most important, it shows the management's ability to utilize the bank's financial and real investment resources to generate profits. As Golin (2001) points out, the ROA has emerged as a key ratio forthe evaluation of bank profitability and has become the most common measure of bank performance in the literature.

3.1.2 Independent Variables

A. Exchange Rate

Foreign Exchange risk arises when a bank holds assets or liabilities in foreign currencies and impacts the earnings and capital of bank due to the fluctuations in the exchange rates. This may induce the performance of Ethiopian private banks to be affected by the exchange rate variation of ETB against USD, mainly because of the reserve of these foreign currencies held to facilitate import and export trading. No one can predict what the exchange rate will be in the next period, it can move in either upward or downward direction regardless of what the estimates and predictions were. This uncertain movement poses a threat to the earnings and capital of bank if such a movement is in undesired and unanticipated direction (Evans, 2014). According to Songul, 2013, there is found positive relationship between exchange rate and bank performance. On other hand, Yalemselam, 2019 found that, there is a negative relationship between foreign exchange rate and bank performance. From this result it is understood that the continuous currency/Ethiopian birr depreciation relative to U. S. dollar has a negative effect on Ethiopian private commercial banks performance. The above result indicates that, there mixed results found on the effect of foreign exchange rate on the performance of banks.

HP1: There is a significant positive/negative relationship between the foreign exchange rate and bank's performance.

B. Total Asset

Bank size is measured by the natural log of total assets. Size is included in the regression as a proxy of bank size to capture the possible cost advantages associated with the economies of scale. In the literature, mixed relationships are found between size and performance. Large banks are likely to have an advantage of engaging in higher investment diversification than small banks. Since this diversification reduces risks and economies of scale lead to increase operational efficiency through minimizing costs, positive relationship is expected between bank size and performance (Rao&Tekeste, 2012). On the other hand, in the diversification of bank branches, for instant, the operational expense may get higher and the variable may exhibit negative effects Ameur and Mhiri, 2013 and Sufian and Chong, 2008. The impact of bank size on its performance cannot be theoretically anticipated (Dietricha and Wanzenriedb, 2009). Hence, the expected sign of the coefficient of bank size is unpredictable based on academic literature.

HP4: There is a significant positive/negative relationship between the size of a bank and bank's performance.

Lending interest rate

Interest rate is an important macroeconomic determinant of bank performance. Ogunleye (2001) indicated that when interest rates rise or fall, it exerts an impact on banks' performance through adjustment to revenues. Empirical evidence from Molyneux and Thornton (1992) indicate that high interest rate is significantly associated with higher bank profitability, i.e. a significant positive relationship. Conversely, Naceur (2003) highlights a negative relationship between interest rates and bank performance .

HP3: There is a significant positive/negative relationship between the size of a bank and bank's performance.

C. Inflation rate

Another important macro-economic condition which may affect both the costs and revenues of banks is the inflation rate (INFL). In this regard, the relationship between bank Performance and inflation, stating that the effect of inflation on bank Performance depends on how inflation affects both salaries and the other operating costs of the bank. In this context, Staikouras& Wood (2003) point out that as inflation may have direct effects, that is, increase in the price of labor, and indirect effects, that is, changes in interest rates and asset prices, on the Performance of banks. Perry (1992) also suggests that as the effects of inflation on bank performance depend on whether the inflation is anticipated or unanticipated. In the anticipated case, the interest rates are adjusted accordingly, resulting in revenues to increase faster than costs and subsequently, having positive impact on bank Performance. On the other hand, in the unanticipated case, banks may be slow in adjusting their interest rates resulting in a faster increase of bank costs than bank revenues and consequently, having negative effects on bank Performance. Thus, the expected sign of the inflation is unpredictable based on prior research.

HP6: There is a significant positive/negative relationship between the inflation rate and bank's performance

D. Loan Growth

Popper (1996) argues that a bank without foreign assets or liabilities can be exposed to currency risk. This is mainly due to the fact that exchange rate can affect the Performance of its domestic banking operations. For example, exchange rate may diminish loan servicing capacity of the bank customers and their demand for loans.

HP2: There is a significant positive relationship between the loans growth and bank's performance

E. GDP growth rate

Poor economic conditions can worsen the quality of the loan portfolio, generating credit losses and increasing the provisions that banks need to hold, thereby reducing bank Performance. In contrast, an improvement in economic conditions, in addition to improving the solvency of borrowers, increases demand for credit by households and firms with positive effects on the Performance of banks (Athanasoglou et al. 2008). Thus, the variable is expected to exhibit positive relationship with bank PerformanceVariable specification

Panel regression models are specified to measure the influence of home currency depreciation on the performance of private commercial banks in Ethiopia. To see the effect of depreciation on the performance of private commercial Banks the study identifies the dependent (i.e Return to asset)and independent variables (i.e Exchange rate, Total asset, Loan growth, lending interest rate, inflation, and GDP growth).

HP5: There is a significant positive relationship between the gross domestic product growth and bank's performance.

3.4. Variable specification

Panel regression models are specified to measure the influence of home currency depreciation on the performance of private commercial banks in Ethiopia. To see the effect of depreciation on the performance of private commercial Banks the study identifies the dependent (i.e Return to asset)

and independent variables (i.eExchanged rate, Total asset, Loan growth, lending interest rate, inflation, and GDP growth).

3.5 Methods of Data Analysis

In order to achieve the objective of the study, the study will employ descriptive as well as inferential statistics to see the influence of exchange rate on the Performance of private commercial banks.

3.5.1 Descriptive Statistics

Basically, descriptive statistical tools were used to analyze the mean, standard deviation, minimum and maximum values of the study. It helps to examine the general trends of the data from 2009/10 to 2017/18 based on the sector sample of 11 private commercial banks.

3.5.2. Inferential Statistics: Panel Regression Model

Panel data refer to a data set containing observations on the same units in several different time periods. Panel data models examine group (individual-specific) effects, time effects, or both in order to deal with heterogeneity or individual effect that may or may not be observed. This method helps investigate causal relationship between the Performance and their potential determinants and to determine the most significant and influential explanatory variables affecting the Performance of private banks. Panel data involves different models that can be estimated. These are pooled, fixed effects and random effects.

a. The constant Coefficients Model/ pooled regression model.

One type of panel model has constant coefficients referring to both intercepts and slopes. In the event that there is neither significant Banks nor significant temporal effects, we simply pool all observations and estimate the grand regression, ignoring the cross-section and time series nature of the data and run an ordinary least squares regression model. Although most of the time there are either bank or temporal effects, there are occasions when neither of these is statistically significant. The main problem of the pooled model is that it does not allow for heterogeneity of

Banks. It does not estimate Banks specific effects and assumes that all Banks are homogenous. It is a restricted model.

b. The Fixed Effect Model (FEM)

In Fixed effect model, the intercept in the regression is allowed to differ among individual Banks in recognition of the fact that each Banks might have some special characteristics of its own. Therefore, the models assume that, it captures unobserved heterogeneity among Banks. The FEM is appropriate in situations where the individual specific effect might be correlated with one or more regressors (Wooldridge, 2013, Gujirati, 2009).

c. Random effect Model(REM)

In contrast, in random effects model, the individual-specific effect or variation across Banks is assumed to be a random variable that is uncorrelated with the explanatory variables. The main distinction between fixed effect and random effect is whether the unobserved individual effect is correlated with the predictors in the model.

3.6. Model specification

Panel econometric model was used in this study to analyze the relationship between bank performance as the dependent variable against independent macroeconomic variables; Foreign Exchange rate (FER), Loan growth (LG), Lending interest rate (LIR), Total asset (TA), Inflation(INF) and GDP growth (GDPG).

$$Y= \beta o+ \beta 1FERit+ \beta 2LGit+ \beta 3LIRit+ \beta 4lnTAit +\beta 5GDPGit + \beta 6INFit+ €it$$

it= i the commercial banks and t the time for the yearly data period from 2009/10 to 2017/18

ln= Natural log that was used to reduce error and increase stability of the model

Y= Bank's Performance, measured as the ratio of net income to total asset (ROA).

β1FERit = Exchange rate (Birr to US Dollar) measured as nominal exchange rate in year t.

β2LGit = Outstanding loan growth of private commercial banks for the period of 2009/10 to 2017/18.

β3LIR it = Interest rate measured by the average lending interest rate for the period 2009/10 to 2017/18.

B4lnTA it = The size of the private commercial banks (Natural log of Total Assets)

B5GDP it = Gross Domestic Product rate in year t.

B6INF it = Inflation rate measured by Consumer Price Index in year t

β1, β2, β3, β4 β5 β6 = Are regression coefficient.
€it = error term

3.7. Panel Data Diagnostic Test

Before analyzing the influence of exchange rate on the performance of private commercial Banks, it is necessary to test regression assumptions due to the fact that violation of these assumptions may lead to inaccurate results. If these Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, these diagnostic tests are performed to ensure whether the assumptions of the CLRM are violated or not in the model (Guajarati, 2005).

A. Normality Test

One of the assumptions in panel regression analysis is whether variables in the model are obtained from normally distributed population or not. If the disturbances are normal allows exact inference about the estimate and standard error of estimated coefficients. The study employed the relevant normality tests.

B. Test for Multicollinearity

Multicollinearity referees to the situation where two or more of the predictors in a regression model are highly correlated. It implies that one can be linearly predicted from the others with a substantial degree of accuracy. In presence of multicollinearity, the coefficient estimates of the multiple regressions may change erratically in response to small changes in the model or the data. If there is multicollinearity in the model, the estimated coefficients possess large standard error, which means the coefficients cannot be estimated with great precision or accuracy

(Gujarati, 2009). To alleviate this problem one or more of the correlated variables must be dropped from the model. Therefore, the study checked for the presence of Multicollinearity in the model.

C. Heteroscedasticity test

The test for heteroscedasticity investigates whether the variance of the error in the model are constant or not. In a presence of heteroscedasticity, the estimators are no longer of minimum variance or efficient. As a result, the tests based under the standard assumptions may not be reliable, resulting in erroneous conclusions regarding the statistical significance of the estimated regression coefficients. Assuming homoscedastic disturbances when heteroscedasticity is present still result in consistent estimates of the regression coefficients, but these estimates will not be efficient. The loss of efficiency leads to biased standard error and hence the inferences from this estimate become invalid. Under this test the null hypothesis of the error term is homoscedastic while the alternative is heteroscedasticity of the error term.

D. Test for Autocorrelation

Autocorrelation normally occur while employing in long panel data. This problem occurs when two or more consecutive error terms are correlates. If there is autocorrelation problem in model, the estimator no longer efficient. In consequence, the tests may not be valid. When the covariance between two or more consecutive error terms is correlated the error term is subject to autocorrelation. If there is autocorrelation in the data the estimates become inefficient and standard errors estimated are invalid.

CHAPTER FOUR

4. DATA ANALYSIS AND DISCUSSION

This chapter presents the data analysis, findings, interpretation and the discussion of the influence of exchange rate on the performance of private commercial Banks in Ethiopia. Therefore, to achieve the given objectives, the data analyzed using descriptive and inferential statistics.

4.1 Descriptive Statistics of the study variables

This part of the study presents the descriptive statistics of the dependent and independent variables included in the study. This descriptive statistics reported by mean, standard deviation, minimum and maximum value. The purpose of generating this statistics is to give overall description about data used in the model.

As indicated intable1, except loan growth[5], all variables comprised 99 observations. The mean value of ROA was 8.3% with a minimum of 3.8% and a maximum of 12%. That means, the most profitable bank among the sampled banks earned 12 cents of net income for a single birr invested in the assets of the firm. On the other hand, the least profitable bank of the sampled banks earned 3.8 cents of net income for each birr invested in the assets of the firm. The standard deviation statistics for ROA was 0.016 which indicates that the profitability variation between the selected banks was very small.

Table4.1: Descriptive statistics of variables (In % and Million Birr)

Variables	Obs	Mean	Std. Dev	Min	Max
ROA	99	0.083	0.016	0.038	0.12
Loan growth	98	37.15	29.96	-10.87	226.54
Exchange rate	99	19.24	3.61	12.89	26.1
Lending Rate	99	12.29	0.55	11.88	13.5
Total asset	99	12,529	10,343	480.1	55,268
Inflation	99	13.71	9.62	7.32	38.04
GDP growth	99	9.76	1.24	7.77	11.4

Source: Stata output, 2019

[5]The reason for one observation less for loan growth isbecause of, the loan growth data need one year's previous data (2008/2009) to calculate the loan growth of 2009/10. This missing data observed in Buna Bank, which established in 2009/10.

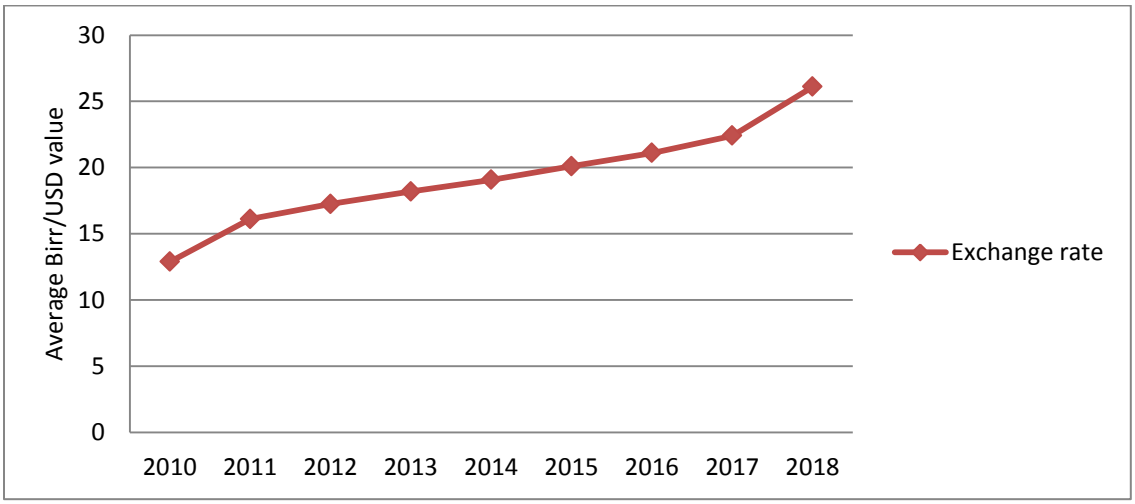
Regarding the explanatory variables, the mean value of the loan growth is 37.15 % with standard deviation of 29.96%. Similarly, the average value exchange rate of USD to ETB was ETB 19.24 while the minimum and maximum exchange rate recorded was ETB 12.89 and 26.01 respectively. Likewise, the average asset value was BTB 12.52 billion during the study period. While maximum was ETB 55.26 billion and the minimum was ETB 480.1 million. The standard deviation of ETB 10.34 billion. This indicates that, the total asset of the private commercial banks was relatively far from the mean value. In other word, there is high variability in asset value of private commercial banks in Ethiopia.

The average lending interest rate of those banks included in the study had charged their clients as the rate of 12.29%. The lower and higher lending interest rate of the banks were 11.88% and 13.15% respectively. The standard deviation of 0.55% indicated that the lending interest rate charged by the banks included in the study is fairy distributed among the mean value. The macroeconomic variables incorporated in this study have the mean value of 9.76% and 13.71% with the standard deviation of 1.24% and 9.62% for real GDP growth and inflation, respectively. This indicates there is lower variability in real GDP growth rate while there is greater variability in inflation rate.

4.2 Trend of Exchange Rate: Birr against USD

This section presents the exchange rate trend of ETB against USD from 2009/10 up to 2017/18. As shown in figure 1, the average yearly exchange rate moves from 12.89 in 2010 to 26.1 in 2018. This exchange rate movement arises due to the fact that in August 2010, the government of Ethiopia devaluate Birr against the major currency by 17% with aim to boost export performance. However, after August 2010, the Birr has been continuously weakening on average by 5% per years. Recently, also the government devaluated Birr by 15% in October, 2017. In general, the Birr was weakening against USD by 9.42% for the last nine years.

Fig. 4.1: Exchange rate trend of ETB/USD (2019/10-2017/18)



Source: Stata output, 2019

4.3 Correlation Analysis

Correlation analysis is used to assess the relationship between two or more variables. Besides, it tells us the direction as well as the strength of relationship that exists between variables. To this effect, the study employed Pearson's correlation coefficient to assess the relationship among the study variables. This section presents the correlation between dependent variables (ROE) and independent variables (total asset, loan growth, exchange rate, leading rate, inflation and GDP growth). As presented in table2, total asset (r=0.38), loan growth (r=0.11), lending rate (r=0.51), exchange rate (r=0.64), and GDP growth (r=0.32) are positively correlated variables with performance of private commercial banks in Ethiopia. This correlation clearly shows that, loan growth, total asset, exchange rate, GDP growth and lending rate increase, performance also moves to the same direction. On other hand, inflation(r=-0.25) is negatively correlated with the banks performance. This indicates that, when the inflationincreases, the performance moves to the opposite direction.

Table 4.2: Correlation matrix between for Return of asset (ROA) and independent variables.

	ROA	Loan growth	Asset	Inflation	Exchange rate	GDP growth	Lending rate
ROA	1						
loan growth	0.1117	1					
Asset	0.3843	-0.3677	1				
Inflation	-0.2527	0.0008	-0.271	1			
Exchange rate	0.6437	-0.0502	0.670	-0.2263	1		
GDP growth	0.3219	0.0717	-0.333	0.2366	-0.5374	1	
Lending rate	0.5115	-0.0126	0.535	-0.2217	0.7461	-0.585	1

Source: Stata output, 2019

4.4 Panel data diagnostic tests

Before running the regressions, the data sets were checked for certain tests to fit whether the data fulfill the Classical Linear Regression Model (CLRM) assumptions and due to the fact that violation of these assumptions may lead to inaccurate results or unreliable estimations.

A. Normality Test

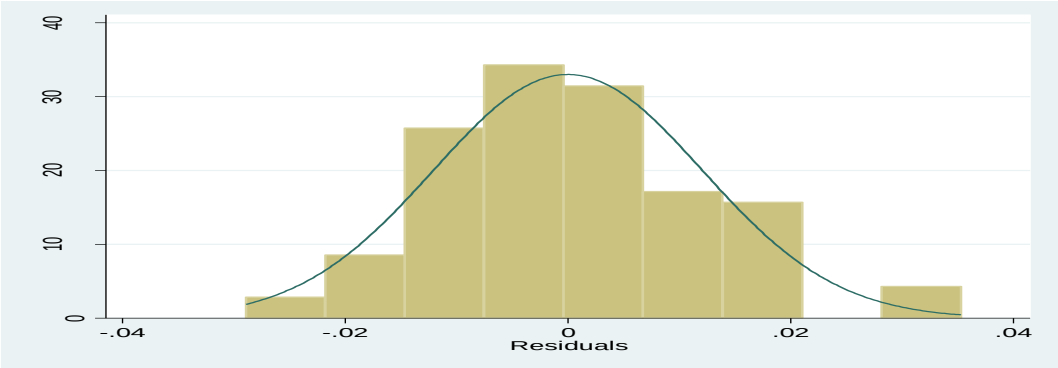
According to (Brooks, 2008) in order to conduct hypothesis test about the model parameter, the normality assumption must be fulfilled. The normality assumption is about the mean of the residuals is zero. In this study, the normality of the data was checked using graphically and statistically. The histogram is bell-shaped and the Shapiro statistic is not significant. This means that the p-value (0.138) larger than 0.05 to not reject the null of normality at the 5% level. This implies, the residuals are normally distributed. Therefore, there is no problem of normality in model.

Fig.4.2: ShiproWilk statistic

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e	98	0.97987	1.634	1.089	0.13815

Fig.4.3: Normality Test



Source: Stata output, 2019

B. Multicollinearity Test

As indicated in the figure, the variance inflation factor (VIF) shows a mean VIF of less than 2.05 for the whole variables. The larger the value of VIF, the more troublesome or collinear the variables and as a rule of thumb a VIF greater than 10 is unacceptable (Guajarati, 2009). Generally there was no Multicollinearity problem among the variables.

Fig4.4: Multicollinearity Test

Variable	VIF	1/VIF
exchangerate	3.20	0.312698
lendingrate	2.58	0.387614
asset	2.43	0.410758
rgdpg	1.64	0.610009
loang	1.30	0.770240
inflation	1.12	0.890988
Mean VIF	2.05	

Source: Stata output, 2019

C. Heteroscedasticity Test

Breusch-Pagan/Cook-Weisberg test for heteroscedasticity was used for testing whether the error variances are constant or not. As shown in the table below, its null hypothesis (error variance are

homoscedastic) was accepted because statistically significant (Prob> chi2 = 0.235) at 5% level of significance. The result shows that the error variances are constant variance or there is heteroscedasticity problem in the model.

Fig.4.5: Heteroscedasticity Test

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of roa

         chi2(1)      =     1.41
         Prob > chi2  =   0.2351
```

Source: Stata output, 2019

D. Testing Serial correlation/Autocorrelation

Serial correlation is usually a result of model miss-specification or genuine autocorrelation of the model error term. In the presence of such a phenomenon, ordinary least squares are no-longer BLUE (Best Linear Unbiased estimators). In such cases R-squared may be over-estimated. There was thus every need to test for serial correlation in the residuals. According to (Brooks, 2008) , when the error term for any observation is related to the error term of other observation, it indicate that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Wooldridge test was used to detect autocorrelation problem. Wooldridge test for autocorrelation test was used test for residual serial correlation up to some specified lag order. As shown in the figure below, its null hypothesis (No first-order no autocorrelation) was rejected because statistically significant (Prob> chi2 = 0.0001) at 5% level of significance. To deal with problem, the autocorrelation effect of error variance was handled by using cluster robust standard error in order to get unbiased estimators.

Fig,4.6: Autocorrelation Test

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      10) =     39.639
           Prob > F =      0.0001
```

Source: Stata output, 2019

4.5 Panel Regression Analysis

To investigate the influence of exchange rate on the performance of private commercial banks, the study used multiple panel regression models to understand how the typical dependent variable (ROA) changes when one or more independent variables is varies.

4.5.1 Panel Regression Analysis

There are broadly three classes of panel data estimator approaches that can be employed in empirical research: Pooled OLS, Fixed Effects and Random Effects models. Before starting regression analyses to examine the influence of on performance of private commercial banks in Ethiopia, choosing appropriate approach is critical. Therefore; the first issue is which regression approach is more appropriate for this specific scenario (i.e. Pooled OLS, fixed effects and random effects). The Breusch-Pagan Lagrange multiplier test (LM test) test was used in order to decide whether a random effects regression or a Pooled OLS regression should be used. The null hypothesis is that variances across entities is zero (i.e. a Pooled OLS regression is appropriate). As depicted inthe table below, the null hypothesis of LM test is rejected (i.e. p-value is less than 0.05), the random effects regression is more appropriate than random effect model.

Table4.3: Breusch and pagan Lagrangian multiplier test (LM test) ROA as dependent variables

```
Breusch and Pagan Lagrangian multiplier test for random effects

        roa[bank_code,t] = Xb + u[bank_code] + e[bank_code,t]

        Estimated results:
                     |       Var      sd = sqrt(Var)
             ---------+------------------------------
                 roa |    .0002661        .0163136
                   e |    .0001244        .0111519
                   u |    .0000193        .0043946

        Test:   Var(u) = 0
                            chibar2(01) =      4.99
                         Prob > chibar2 =    0.0127
```

Source: Own computation, 2019

Since the random effect is appropriate, the next step to choice of a fixed effects model or a random effects model is more appropriate. To do this effect, Hausman test used. As depicted in table 6, Hausman test revels that random effect model appropriate than fixed effect. Since the random effects model is the appropriate one, the influence of exchange rate on bank's performance of private commercial banks analyzed and interpreted based on random effect model result.

Table6: Hausman Test ROA as dependent variables

```
                 ---- Coefficients ----
                 |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                 |       fe           re       Difference          S.E.
-----------------+------------------------------------------------------------
       inflation |   .0000644    -.0001022        .0001666        .0000205
    exchangerate |  -.0005002     .0024463       -.0029465        .0009239
           rgdpg |  -.0007879    -.0001833       -.0006046               .
       assetlog |   .0201312     .0043601        .0157711        .0049569
          loansg |   .0001689     .0001347        .0000342               .
------------------------------------------------------------------------------
                           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(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          5.62
                Prob>chi2 =        0.3454
                (V_b-V_B is not positive definite)
```

Source: Own computation, 2019

4.5.2. Results of Panel regression analysis

This section presents the empirical findings from the econometric results of the influence of foreign exchange rate on the performance of private commercial banks in Ethiopia. The analysis focused on the results of the panel regression analysis for the internal and external factors during the period under consideration 2009/10 up to 2017/18. The selected factors are the internal factors are: Bank size, loans growth, lending interest and external factors: exchange rate, GDP growth and inflation rate.

The estimation result of the panel regression model presented in the table below, the R-squared statistics of the model was 52.33%. The result indicates that the changes in the independent variables explain 52.33% of the changes in the dependent variable. That is loan growth, asset. Lending interest rate, exchange rate, inflation and GDP growth collectively explain 52.33% of the changes in performance (ROA). The remaining 40% of changes was explained by other factors which are not included in the model. Thus these variables collectively, are good explanatory variables of the performance of private commercial banks in Ethiopia. Besides, over all significance of the model revels that, the null hypothesis of Prob>Chi2-statistic (the overall test of significance) is equal to zero was rejected at 5% as the p-value (0.00). This indicates, over all the model is statistical significance at 5% of level of significance.

Table4.5: Random effect panel regression model of ROA as dependent variable

ROA	Coef	Std. Err	P-value	Z- value
Constant	-0.0097	0.043648	0.823	-0.22
Loan growth	0.001	0.0000476	0.039	2.07
Asset	0.003	0.0062989	0.548	0.60
Exchange rate	0.002	0.0006701	0.000	3.73
Inflation	-0.0001	0.0001314	0.189	-1.31
GDP growth	0.0006	0.001216	0.581	0.55
Lending rate	0.002	0.0034197	0.590	0.54
Prob>Chi2	0.000			
R-Square	52.33%			

Source: Stata result, 2019

A. Foreign Exchange rate

As indicated in table below, the coefficient of foreign exchange is 0.002 and its P-value is 0.00. This revels that exchange rate depreciation has positive and statistical significant impact on the performance of private commercial banks in Ethiopia. This indicates holding other independent variables held constant; when foreign exchange rate increased by one unit, performance (Return on asset) of sampled Ethiopian commercial banks would be increased by 0.002 unit. From this result it is understood that the continuous Birr depreciation relative to USD has a positive effect on Ethiopian private commercial banks performance during the period under consideration. The positive effect of exchange rate on performance is in line with the result of (Riman and Akpan, 2016).

B. **Lending Interest Rate**

Lending interest rate is positive but statistically insignificant relationship with banks performance with p-value of 0.590 at 5% level of significance. The positive coefficient (0.002) shows that remaining other things constant a one unit increase in lending interest rate will increase the performance with 0.002 units. This indicates, when lending interest rate is higher, sufficient amount of interest revenue will be collected. This result is in line with the result of Abreu and Mendes (2002).

C. Bank size

Bank size which is measured by the natural log of total assets has a positive impact on banks performance in Ethiopian private commercial banks with a non- significant coefficient. Furthermore, the positive correlation between banks size and performance indicates that larger banks are better placed than smaller banks and experience more significant increases in performance through economies of scale. The result is consistent with the finding of Damena (2011).

D. Loan growth

Loans growth has a positive relationship with banks performance in Ethiopia. The loans growth was statistically significant at 5% significance level. The coefficient of 0.001 in the regression model indicates that loans are a significant determinant of banks performance. This indicates that increase in loan growth will result in increased performance. Loan interest is a main source of income to banks. Hence, the higher the loan portfolio the higher the interest margin and profit. From this finding we can conclude as loan growth was one of the main factors which significantly affect the performance of private commercial banks in Ethiopia. The finding was consistent with previous studies of Kwast& Rose (1982), Hester &Zoellner (1966) and Asiri (2007) their study found that assets are positively related to banks performance.

E. Gross Domestic product

The coefficient estimate of real GDP growth revealed a positive but statistically insignificant association with the performance of private commercial banks at 5% significance level (p-value of =0.581). The magnitude of the coefficient estimate (0.006) indicates the existence of positive relationship between real GDP growth and performance of private commercial banks. The findings was in accordance with prior expectation and theory that suggested whenever there was a positive GDP growth, the economic activities in general were increasing and the volume of cash held for either businesses or households was increasing. These conditions contributed to decrease the likelihood that borrowers delay their financial obligations. In addition, strong positive growth in real GDP creates a new and potential demand for financial services that can easily translates into more income. Hence, it can be concluded that, the existing ever increasing economic growth in Ethiopia over the sampled period creates a new and potential demand for financial services and ultimately increase the performance of private commercial banks. The findings suggested that, real GDP growth was one of the influential factors in the performance of private commercial banks. This result was consistent with the findings of Pasiouras&Kosmidou (2007),

F. Inflation

Inflation affects banks performance through different channels and its impact on performance can be positive or negative. If the inflation is not anticipated, the banks may be slow in adjusting their interest rates and this adversely or negatively affects bank performance. On the other hand, if the inflation is anticipated, banks may get an opportunity to adjust their interest rates accordingly and resulted with revenues that increased faster than costs. Despite this fact, the coefficient estimate of inflation in this particular study revealed a negative association with the performance of private commercial banks' in Ethiopian. This implies the existence of inverse relationship among inflation and performance of private commercial banks. However, this negative association was not statistically significant; thus, the findings suggested that inflation was not a major factor that determine the performance of private commercial banks of Ethiopia as far as the parameter for this variable is insignificant as illustrated by a p-values of 0.189.

In conclusion the result clearly reveals as private commercial banks performance is not influenced by inflation.This result is in line with previous studies such as BlertaBami, 2014andYalemselam, 2019.

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATION

5.1. CONCLUSION

The main objective of this study was to examine the influence exchange rate on the performance of private commercial banks in Ethiopia. To this effect, 2009/10 up to 2017/18 time period data was collected a sample size of eleven private commercial banks and analyzed using descriptive statistics, correlation matrix and multiple linear regression analysis. In order to conduct the empirical analysis, one dependent variable (performance measured by ROA), and five independent variables such as lending rate, exchange rate, loan growth, total asset, real GDP growth and inflation rate were selected. The variables were selected by refereeing different theories and empirical studies that have been conducted on the influence of exchange rate and banks performance. Consequently, the empirical findings of this study suggested the following conclusions:

- The mean value of ROA was 8.3% with a minimum of 3.8% and a maximum of 12%. The mean value of exchange rate is 19.24, Loan growth (37.15%), Lending interest rate (12.29%), total asset (Birr 12.53 Billion) and macro variables the GDP growth rate is 9.76% and inflation is 13.71%.
- The loan growth has positive and significant effect on the performance (ROA) of commercial banks at 5% of level significance, therefore, it is concluded that loan growth is the largest segment of interest bearing asset and that enables banks to generate more profit through interest income.
- The exchange rate was positive and significant effect on the performance of private commercial banks of Ethiopia at 5% level of significance. This implies that, as the value of Ethiopian birr depreciated against USD, the performance of Ethiopian commercial banks will increase. The positive relationship between exchange rate and performance may reflect how devaluation of Birr may have contributed to the growth of performance of the banks. This may be attributed to the fact that many imports are paid by the locals

using the dollar and, with the ETB weakening against the dollar, the banks are making an arbitrage profit (NYandema and Langat, 2016) and (Gemechu, 2016).

- Bank size has insignificant and positive influence on performance of Ethiopian private commercial banks. This shows that in Ethiopia banking industry large bank size performs better than the smaller banks due to the existence of economies of scale in contrast banks with less size perform less.
- Lending interest rate has positive but insignificant influence on the performance of private commercial banks in Ethiopia. This positive relationship indicates that increase in loan growth will result in increased performance.
- Lastly, the macroeconomic variables incorporated in this study model were the general rate of inflation and real GDP growth. The GDP growth has statistically insignificant but positive relationship with performance. On the other hand, inflation has negatively correlated with the performance and no impact on the performance of private commercial banks at 5% significance level.

5.2 RECOMMENDATION

Based on the research findings, the following possible recommendations are forwarded to all the concerned bodies.

- The issues related to foreign exchange trading should always be taken into account in efforts to improve banks' foreign exchange transactions and financial performance. The banks management should adopt strategies so as to mitigate against foreign exchange risk since devaluation has impact in determining the performance in banks. Furthermore, the study recommended that, banks should give adequate weight for foreign exchange risk management.
- Commercial banks dealing in foreign currencies and holding assets and liabilities in foreign denominated currencies, are constantly exposed to Foreign Exchange Risk. These activities include the purchase or sale of foreign currencies to allow customers to participate in international commercial trade transaction. Therefore a better way of assessing the risks associated with Forex trading and how these risks affect the banking sector in general must be undertaken. Besides, the Bank management should regularly

analyze how exchange rate affects their revenue from different stream, to reduce the magnitude of the adverse effect of exchange rate variation on their bank's performance, by sorting out those revenue streams that are highly sensitive to and negatively affected by exchange rate movement. Moreover, it is equally recommended that the bank should operate within the framework of best global practices in order to avoid exchange rate fluctuations.

- It is equally suggested that relevant regulatory authorities should pay more attention to macroeconomic stability and the enhancement of efficiency which will guarantee a more stable economic environment which in turn will encourage the performance of banking sectors for exchange rate stability in Ethiopian economy.
- Performance can be realized through enlarging the size of the banks in Ethiopian private commercial Banks. Thus, there is a possibility for banks to be benefited from economies of scale through expanding market share in Ethiopian banking industry.
- Finally, the study sought to investigate the influence of exchange rate deprecation on the performance of private commercial banks in Ethiopia. For comprehensive investigation future researcher could increase the number of observations by increasing the sample size of private and government Banks (CBE) and extending the period of time.

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Appendix

Appendix1: Pooled OLS regression Model

Source	SS	df	MS	Number of obs	=	98
				F(6, 91)	=	12.47
Model	.011650067	6	.001941678	Prob > F	=	0.0000
Residual	.014164912	91	.000155658	R-squared	=	0.4513
				Adj R-squared	=	0.4151
Total	.025814979	97	.000266134	Root MSE	=	.01248

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
loang	.0000666	.0000482	1.38	0.170	-.0000291	.0001623
asset	-.0019114	.004927	-0.39	0.699	-.0116982	.0078754
inflation	-.0002048	.0001391	-1.47	0.144	-.000481	.0000715
exchangerate	.0028744	.0006335	4.54	0.000	.0016162	.0041327
rgdpg	.0008935	.0012979	0.69	0.493	-.0016846	.0034716
lendingrate	.002381	.0036575	0.65	0.517	-.0048842	.0096462
_cons	-.0017128	.0461158	-0.04	0.970	-.0933162	.0898905

Appendix2: Fixed effect model

```
Fixed-effects (within) regression               Number of obs      =        98
Group variable: bank_code                       Number of groups   =        11

R-sq:                                           Obs per group:
     within  = 0.5557                                         min =         8
     between = 0.2807                                         avg =       8.9
     overall = 0.2389                                         max =         9

                                                F(6,81)            =     16.88
corr(u_i, Xb)  = -0.4884                        Prob > F           =     0.0000
```

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
loang	.0001417	.0000483	2.94	0.004	.0000457	.0002378
asset	.0330352	.012034	2.75	0.007	.0090913	.056979
inflation	-.0000246	.0001362	-0.18	0.857	-.0002956	.0002464
exchangerate	.0003702	.0010029	0.37	0.713	-.0016252	.0023656
rgdpg	-.0001779	.0012005	-0.15	0.883	-.0025666	.0022108
lendingrate	.000223	.0033221	0.07	0.947	-.006387	.006833
_cons	-.0596124	.0456945	-1.30	0.196	-.1505302	.0313053
sigma_u	.01189575					
sigma_e	.01115189					
rho	.53224126	(fraction of variance due to u_i)				

Appendix3: Random Effect Model

Random-effects GLS regression — Number of obs = 98
Group variable: bank_code — Number of groups = 11

R-sq:
within = 0.5232
between = 0.0287
overall = 0.4432

Obs per group:
min = 8
avg = 8.9
max = 9

Wald chi2(6) = 86.48
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
loang	.0000984	.0000476	2.07	0.039	5.07e-06	.0001917
asset	.0037846	.0062989	0.60	0.548	-.0085609	.0161302
inflation	-.0001725	.0001314	-1.31	0.189	-.0004301	.000085
exchangerate	.0024974	.0006701	3.73	0.000	.001184	.0038109
rgdpg	.0006704	.001216	0.55	0.581	-.0017129	.0030536
lendingrate	.0018429	.0034197	0.54	0.590	-.0048596	.0085454
_cons	-.0097503	.043648	-0.22	0.823	-.0952988	.0757982
sigma_u	.00439462					
sigma_e	.01115189					
rho	.13441709	(fraction of variance due to u_i)				

Appendix4: Summary of the data

Banks	Years	Asset	loans	ROA	Inflation	Exchange rate	GDP	Lending rate
AIB	2010	7,944.78	3145.69	0.067	7.32	12.89	10.57	12.25
AIB	2011	10,115.80	3986.46	0.071	38.04	16.12	11.4	11.88
AIB	2012	11,936.70	5504.61	0.069	20.81	17.25	8.7	11.88
AIB	2013	14,858.80	7710	0.076	7.39	18.19	9.9	11.88
AIB	2014	17,601.20	9176.36	0.082	8.46	19.07	10.3	11.88
AIB	2015	25,210.50	12265	0.091	10.45	20.1	10.4	11.88
AIB	2016	31,148.00	15215	0.091	7.5	21.11	8	12.75
AIB	2017	41,975.00	22247	0.090	8.8	22.41	10.9	12.75
AIB	2018	55,268.00	31049	0.098	14.7	26.1	7.7	13.5
BOA	2010	6,279.54	3153.24	0.054	7.32	12.89	10.57	12.25
BOA	2011	7,277.96	3315.69	0.062	38.04	16.12	11.4	11.88
BOA	2012	8,239.51	3897.41	0.062	20.81	17.25	8.7	11.88
BOA	2013	10,129.40	4702.07	0.051	7.39	18.19	9.9	11.88
BOA	2014	11,276.40	5061.01	0.077	8.46	19.07	10.3	11.88
BOA	2015	13,667.60	5905.22	0.088	10.45	20.1	10.4	11.88
BOA	2016	16,828.00	8012	0.097	7.5	21.11	8	12.75
BOA	2017	25,325.00	13927	0.094	8.8	22.41	10.9	12.75
BOA	2018	31,983.00	17781	0.102	14.7	26.1	7.7	13.5
Bunna	2010	480.11	192.26	0.038	7.32	12.89	10.57	12.25
Bunna	2011	781.00	366.26	0.077	38.04	16.12	11.4	11.88
Bunna	2012	1,365.03	651.94	0.064	20.81	17.25	8.7	11.88
Bunna	2013	2,128.45	949.43	0.062	7.39	18.19	9.9	11.88

Banks	Years	Asset	loans	ROA	Inflation	Exchange rate	GDP	Lending rate
Bunna	2014	3,011.94	1343.3	0.080	8.46	19.07	10.3	11.88
Bunna	2015	4,499.70	2417.94	0.107	10.45	20.1	10.4	11.88
Bunna	2016	6,821.00	3632	0.108	7.5	21.11	8	12.75
Bunna	2017	9,820.00	5202	0.089	8.8	22.41	10.9	12.75
Bunna	2018	13,021.00	6842	0.107	14.7	26.1	7.7	13.5
CBO	2010	1,768.32	721.77	0.057	7.32	12.89	10.57	12.25
CBO	2011	2,500.59	801.9	0.060	38.04	16.12	11.4	11.88
CBO	2012	3,670.73	1383.51	0.067	20.81	17.25	8.7	11.88
CBO	2013	6,538.72	2116.06	0.072	7.39	18.19	9.9	11.88
CBO	2014	7,350.37	3644.12	0.120	8.46	19.07	10.3	11.88
CBO	2015	11,462.10	6566.04	0.107	10.45	20.1	10.4	11.88
CBO	2016	10,606.00	5852	0.102	7.5	21.11	8	12.75
CBO	2017	17,235.00	9680	0.088	8.8	22.41	10.9	12.75
CBO	2018	29,888.03	15144.93	0.084	14.7	26.1	7.7	13.5
DB	2010	12,353.40	5048.84	0.058	7.32	12.89	10.57	12.25
DB	2011	14,659.80	6217.54	0.065	38.04	16.12	11.4	11.88
DB	2012	17,520.00	8123.81	0.075	20.81	17.25	8.7	11.88
DB	2013	19,747.20	8862.32	0.067	7.39	18.19	9.9	11.88
DB	2014	21,962.20	9429.63	0.088	8.46	19.07	10.3	11.88
DB	2015	24,763.90	11333.1	0.102	10.45	20.1	10.4	11.88
DB	2016	28,576.00	12479	0.096	7.5	21.11	8	12.75
DB	2017	34,625.00	17717	0.099	8.8	22.41	10.9	12.75
DB	2018	45,525.00	23057	0.097	14.7	26.1	7.7	13.5
LIB	2010	1,363.61	583.99	0.067	7.32	12.89	10.57	12.25

Banks	Years	Asset	loans	ROA	Inflation	Exchange rate	GDP	Lending rate
LIB	2011	1,808.11	676.33	0.063	38.04	16.12	11.4	11.88
LIB	2012	2,463.03	970.66	0.073	20.81	17.25	8.7	11.88
LIB	2013	2,942.43	1318.06	0.082	7.39	18.19	9.9	11.88
LIB	2014	3,613.33	1541.17	0.074	8.46	19.07	10.3	11.88
LIB	2015	5,859.36	2830.57	0.109	10.45	20.1	10.4	11.88
LIB	2016	8,119.00	4303	0.110	7.5	21.11	8	12.75
LIB	2017	10,976.00	5486	0.095	8.8	22.41	10.9	12.75
LIB	2018	14,319.60	7374.041	0.105	14.7	26.1	7.7	13.5
NIB	2010	5,970.51	2546.14	0.078	7.32	12.89	10.57	12.25
NIB	2011	7,111.52	2766.52	0.076	38.04	16.12	11.4	11.88
NIB	2012	8,275.70	3708.9	0.073	20.81	17.25	8.7	11.88
NIB	2013	9,144.54	4542.99	0.073	7.39	18.19	9.9	11.88
NIB	2014	10,747.30	5407.74	0.062	8.46	19.07	10.3	11.88
NIB	2015	13,256.10	6894.04	0.091	10.45	20.1	10.4	11.88
NIB	2016	15,830.00	7512	0.090	7.5	21.11	8	12.75
NIB	2017	21,020.00	10711	0.093	8.8	22.41	10.9	12.75
NIB	2018	26,689.00	13499	0.093	14.7	26.1	7.7	13.5
OIB	2010	1,118.57	368.99	0.058	7.32	12.89	10.57	12.25
OIB	2011	1,961.94	661.74	0.061	38.04	16.12	11.4	11.88
OIB	2012	2,787.39	1019.6	0.062	20.81	17.25	8.7	11.88
OIB	2013	3,911.23	1621.23	0.069	7.39	18.19	9.9	11.88
OIB	2014	6,151.66	2531.61	0.072	8.46	19.07	10.3	11.88
OIB	2015	9,534.85	4706.57	0.089	10.45	20.1	10.4	11.88
OIB	2016	11,282.00	5166	0.103	7.5	21.11	8	12.75

Banks	Years	Asset	loans	ROA	Inflation	Exchange rate	GDP	Lending rate
OIB	2017	16,293.00	7042	0.085	8.8	22.41	10.9	12.75
OIB	2018	23,797.00	11589.87	0.104	14.7	26.1	7.7	13.5
UB	2010	5,896.23	2613.61	0.069	7.32	12.89	10.57	12.25
UB	2011	7,725.62	3276.96	0.063	38.04	16.12	11.4	11.88
UB	2012	8,786.86	4085.38	0.072	20.81	17.25	8.7	11.88
UB	2013	9,977.67	4710.76	0.066	7.39	18.19	9.9	11.88
UB	2014	11,765.80	4996.57	0.065	8.46	19.07	10.3	11.88
UB	2015	14,360.90	6776.21	0.093	10.45	20.1	10.4	11.88
UB	2016	17,270.00	8423	0.090	7.5	21.11	8	12.75
UB	2017	21,903.00	11848	0.087	8.8	22.41	10.9	12.75
UB	2018	28,031.00	14870	0.103	14.7	26.1	7.7	13.5
WB	2010	5,741.93	2473.87	0.085	7.32	12.89	10.57	12.25
WB	2011	8,061.05	2910.05	0.089	38.04	16.12	11.4	11.88
WB	2012	8,347.15	3565.67	0.085	20.81	17.25	8.7	11.88
WB	2013	10,393.80	4690.14	0.075	7.39	18.19	9.9	11.88
WB	2014	11,242.60	4604.42	0.075	8.46	19.07	10.3	11.88
WB	2015	13,711.40	6071.92	0.097	10.45	20.1	10.4	11.88
WB	2016	16,190.00	7506	0.095	7.5	21.11	8	12.75
WB	2017	20,949.00	10235	0.102	8.8	22.41	10.9	12.75
WB	2018	27,391.00	14785	0.113	14.7	26.1	7.7	13.5
ZB	2010	1,055.62	383.92	0.105	7.32	12.89	10.57	12.25
ZB	2011	1,613.42	645.23	0.109	38.04	16.12	11.4	11.88
ZB	2012	2,394.24	1012.69	0.084	20.81	17.25	8.7	11.88
ZB	2013	3,248.47	1369.65	0.094	7.39	18.19	9.9	11.88

Banks	Years	Asset	loans	ROA	Inflation	Exchange rate	GDP	Lending rate
ZB	2014	3,924.77	1429.96	0.087	8.46	19.07	10.3	11.88
ZB	2015	4,874.34	2156.69	0.103	10.45	20.1	10.4	11.88
ZB	2016	7,374.00	3254	0.095	7.5	21.11	8	12.75
ZB	2017	9,669.00	3971	0.100	8.8	22.41	10.9	12.75
ZB	2018	12,439.00	4995	0.091	14.7	26.1	7.7	13.5