ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
MBA IN ACCOUNTING AND FINANCE

EFFECT OF EXCHANGE RATE ON THE
FINANCIAL PERFORMANCE OF PRIVATE COMMERCIAL BANKS
IN ETHIOPIA

BY

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THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MBA IN ACCOUNTING AND FINANCE

MAY, 2018
SMU
ADDIS ABABA

ABSTRACT

Exchange rates plays an increasingly significant role in any economy as they directly affect domestic price levels, profitability of traded goods and services, allocation of resource and investment decisions. Commercial banks, being the leading financial sectors and the prominent financers of the economy they are disposed to the change in an exchange rate. The purpose of this study was to examine the effect of change in exchange rate on the financial performance (ROE) of private commercial banks in Ethiopia. Financial statements of a sample of eight (8) Private commercial banks were used for a period of fifteen years (2002-2016) with the total of 112 observations. The Data was analyzed on quantitative basis using explanatory and regression analysis. The empirical findings of this study suggest that exchange rate has statistically significant negative impact on the profitability of commercial banks. The result of the model estimated to examine the impact of exchange rate on profitability of private commercial banks in Ethiopia showed that exchange rate has statistically significant positive impact on the financial performance of banks in Ethiopia. It examined variables such as exchange rate, inflation, gross domestic product, net interest margin and bank size in relation to return on asset (ROA).The key findings from the study are; there was a significant positive relationship between variables including exchange rate, inflation, GDP and bank size and the performance of private commercial banks. Whereas, there was insignificant and negative relation between net interest margin and performance of commercial banks. The study recommends government's fiscal and monetary policy making department needs to consider the rate change effects on companies' performance and make sure to avail appropriate strategy to reduce its adverse effect on the profitability of their bank.

Keywords: *Exchange rate, financial performance, private commercial banks*

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DECLARATION

I, Kidist Eshetu, declare that this thesis entitled "Effect of exchange rate on the financial performance of private commercial banks in Ethiopia" submitted in partial fulfillment of the degree of Masters of Science in Accounting and Finance is an outcome of my own effort, prepared under the guidance of Dejene Mamo (Assistant Prof.) and that all sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the thesis advisor. To the best of my knowledge, this study has not been submitted for any degree in this University or any other University.

By: Kidist Eshetu

Signature_____

CERTIFICATE

This is to certify that **Kidist Eshetu Tuffa** has worked her thesis on the topic of the effect of exchange rate on financial performance of private commercial banks in Ethiopia under my supervision. To my belief, this work undertaken by Kidist Eshetu Tuffa and it is original and qualifies for submission in partial fulfillment of the requirements for the award of MBA in Accounting and Finance.

Name: **Dejene Mamo**(**Assistant Professor**)

Signature:…………………………..

Date:………………………………

ACKNOWLEDGEMENTS

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ACRONYMS

CBE –Commercial Bank of Ethiopia

GDP –Gross Domestic Product

FX- Foreign Exchange

ROA –Return on Asset

S.C. –Share Company

SOB –Size of the Bank

NIM- Net Interest Margin

CHAPTER ONE

1.   INTRODUCTION

The first chapter of this thesis introduces the area of study, providing a background of the study. This chapter is organized under different sections in which background of the study, statement of the problem, basic research questions; objectives of the study, research hypothesis, delimitation of the study and limitation of the study then finally structure of the paper are presented.

1.1.   Background of the Study

Banks performance contributes greatly to the economic growth of a country by making funds available for investors to borrow and financial deepening. The coherence of the chain of activities where surplus finances are moved into fruitful ventures is paramount for development. Financial institutions facilitate ease of this chain of events (Franklin and Elena, 2008). Not only as a chain of finance but also commercial banks play a vital role by serving as facilitator of such international transactions through there international banking divisions, Foreign exchange (FOREX) in other ways has been a major concept in international banking. Without foreign exchange, international banking would be impossible as it represents the financial part of the commercial transactions which is conducted through the payment and settlement systems of the banks. Thus, foreign exchange as defined by the Business Dictionary (2015) is any currency other than the local currency which is used in settling international transactions and also a system of trading in and converting the currency of one country into that of another.

Most international business results in the exchange of one currency for another to make payment. Since exchange rate fluctuates on daily basis, the cash outflows required to make payments change accordingly. Consequently the number of unit of a firm home currency needed to purchase foreign supplies can change even if the suppliers have not adjusted their prices. This in turn leads to exchange rate risk in which the management of such is the central part in every banks decision involving foreign exchange rate and currency exposure (Allayannis et al, 2001).

Many countries can decrease the value of their local currency for several reasons but the major point raised with devaluation is economic growth as a result of an increase in production which intern rise employment rate and the increase in demand for local goods in international markets. Such an increase of demand for local products internationally labeled as export which is a reason of inflow of foreign currency as the same time facilitation of worldwide transactions. All transactions done there will form a very vital aspect of the financial sectors and the effect of commercial banks cannot be over emphasized in the allocation of economic resources (Ongore&Kusa, 2013).

To enable banks, carry out their roles in an economy Allayannis et al (2001) argued that management of risk is a central part in every banks decision involving foreign exchange rate and currency exposure. Nassreddine et al. (2013) stated that some of the factors that affect the performance of the bank could be under the control of banks management and the others could be beyond management'scontrol. Those factors which could be under the control of the management are called internal or bank specific factors. According to Mohana*et al*. (2012) they are so called bank specific factors because depending on the likely impact they have on the profitability of the bank they can be reinforced (positive treatment) or weakened (negative treatment) by the management of the bank. The major internal factors that affect performance of banks include: capital structure, asset quality, management efficiency, earning quality, liquidity, bank size, technology, human capital, loan performance and income diversification among others. Moreover, those factors which are beyond the management's control are referred as external or macroeconomic factors and these factors are related to the industry and macroeconomic factors. These factors include: bank concentration, inflation, real GDP growth, effective tax rate, interest rate, etc.

Among the others, banks can be affected by exchange rate fluctuations. Exchange rates affect most directly those banks with foreign currency transactions and foreign operations. Even without such activities, exchange rates can affect banks indirectly through their influence on the extent of foreign competition, the demand for loans, and other aspects of banking conditions.

Exchange rate risk relates to the effect of unexpected exchange rate changes on the value of the firm (Madura,1989). It can also be regarded as the possible direct loss (as a result of an unhedged exposure) or indirect loss inthe firm's cash flows, assets and liabilities, net profit and, in its stock market value from an exchange rate movement.

The performance of commercial banks is critical to the development of countries. Bad or poor performance will result to a banking crisis which will lead to falling economic growth (Panayiottis et al, 2006). The reverse is true, great performance of commercial banks will result an increase of the profitability of shareholders and promotes investment which directly contributes for the development of the economy. Profitability can be determined by the financial performance of the firm compared with that of the industry. According to Murthy and Sree (2003) financial performance refers to the ability to leverage operational and investment decisions and strategies to achieve a business financial stability. It is used as a bar to measure the achievements of a bank's financial goals guided by its financial objectives and benchmarks and it can be measured by ratios such as ROA which evaluates the easiness and efficiency of a company's asset management capability and how they in turn use this to make profits by measuring earned profit against investment on total assets.

To sum up, the main function of commercial banks is resource allocation by creating a conduit of funds from lenders to borrowers. This is done to produce enough income to protection for operating costs incurred during operation. The performance of commercial banks is very critical for the development of countries by bringing economic growth; the financial performance can be affected by various internal and external factors, therefore, the aim of this research is to analyze how exchange rate affects the financial performance of private commercial banks in Ethiopia.

1.2. Statement of the Problem

Jamal and Khalil (2011), exchange rate fluctuations are a paramount foundation of risk for banking institutions where huge exchange losses result to banks failure, besides causing huge burdens on banks profitability, foreign exchange rates volatility has negatively affect bank performance posing a challenge to commercial banks managers in their core function of credit management and profitability (Baum, Mustafa, and Neslihan, 2009).

Kairu (2016), evidence strongly suggests existence of a weak negative association between forign exchange rate volatility and banks performance in Kenya. The Kenyan currency was observed to be very volatile against the dollar over the recent years and this depreciation has had negatively affected return of banks.

On the other hand, Majok (2015) on his study showed that, the rate of fluctuation in Kenya over the years varies resulting to the sudden devaluating of KES against other world currencies which has in turn adversely affected the Kenyan economy. This has seen the exchange rate against the USD gets to as high as KS 106 making it difficult for the banks to predict the future rate with precision. This has greatly affected the performance of commercial banks as they seek to provide adequate currency to promote international business by hedging their transactions against foreign exchange losses.

The Exchange rate fluctuation has been found to be one of the drawbacks that banks faced which does not allow them effectively or efficiently derive the desired revenues from trading in the foreign exchange market. Therefore, one can conclude that the effect of exchange rates fluctuation on banks performance is subjective on the specific measure of performance used in the research, however, our results suggest that further depreciation will lead to a fall in the liquidity position of the banks, although only 31% variations in LDR can be explained by exchange rates fluctuation and the bank size but it should not be over looked. (Ademola, Olamide& Moses,2016).

There are studies with reference to Ethiopia on the effect of exchange rates, Muluken, on his study on the effect of exchange rates on economic growth in Ethiopia, states that, the long run effects of real devaluations are found to be negative, i.e. downward adjustments of Birr

leading to the depreciation of real exchange rate has an overall contractionary effect. However, in the short run, the effect of devaluations is neutral. Thus, in the long run devaluation negatively affects output growth in Ethiopia.

In the same manner, Tirsit(2011), the change in exchange rate might have small short term effect and strong long run effect. Even if the above studies in Ethiopia were conducted on the effects of exchange rate, while searching on internet, browsing through the books and journals the researcher didn't find directly related to research topics carried out on the effects of exchange rate on the financial performance of private commercial banks in Ethiopia. Therefore, the researcher believed that, the problem is almost untouched and there is a knowledge gap on the area.

1.3. Basic Research Questions

➢ What is the relationship between exchange rate and performance of commercial banks in Ethiopia?
➢ Does other bank characteristics such as bank size, net interest margin has an effect on the financial performance of private commercial banks of Ethiopia?
➢ Does the macroeconomic factors such as, inflation and GDP has any intervening effect on the performance of commercial banks in Ethiopia?

1.4. Objective of the Study

1.4.1 General Objective

The general objective of the study is to analyze the effect of exchange rate fluctuation on the financial performance of private commercial banks of Ethiopia.

1.4.2 Specific Objectives

- To assess the relationship between exchange rate and banks performance.
- To investigate bank characteristics such as bank size, net interest margin has an effect on banks performance.

- To examine macroeconomic factors of inflation and GDP has any intervening effect in relation to banks performance.

1.5. Research Hypothesis

Based on the model specified for this study, the following hypotheses are drawn:

H1: Exchange rate has positive and significant effect on financial performance of commercial banks in Ethiopia.

H2: Bank size has positive and significant effect on financial performance of private commercial banks in Ethiopia.

H3: Net interest margin has positive and significant effect on financial performance of private commercial banks in Ethiopia.

H4: Gross domestic product has positive and significant effect on financial performance of private commercial banks in Ethiopia.

H5: Inflation rate has positive and significant effect on financial performance of private commercial banks in Ethiopia.

1.6. Significance of the Study

The purpose of this paper is to analyze whether devaluation has an effect on the financial performance of private commercial banks in Ethiopia. It is expected that the result of this study will contribute to current knowledge; exchange rate effects on the performance of privet commercial banks in Ethiopia.

By understanding the relationship of exchange rate and banks performance, policy makers will be able to plane their exchange rate strategies based on exchange rate policies that enhance the performance of commercial banks.

The study will be an important source document for academicians and future researchers who may wish to investigate the performance of commercial banks in relation to exchange rates.

1.7. Scope of the Study

The study is delimited to the impacts of exchange rate on the profitability of private commercial banks in Ethiopia. The total sample size of the study is eight private commercial banks that have fifteen years of data from year 2002–2016. Even if currently seventeen commercial banks operating in Ethiopia, only seventeen private commercial banks are used as population and from those, eight banks are selected (Dashen bank, Awash bank, Bank of Abyssinia, United bank, Nib bank, Wegagen bank Lion international Bank and Cooperative Bank of Oromia) was used as a sample, because of the other banks don't have fifteen years data for the study. Commercial bank of Ethiopia was not included in this study, because CBE is the leading and dominant bank in Ethiopia by its financial performance. So, the researcher believed that including CBE in this study may affect the result and it might mislead the conclusion.

In this study ROA was used as a main performance measure. The reason for using ROA as the measurement of bank performance is because ROA reflects the ability of banks management to generate profits from the bank's assets. The study only looked independent variables such as exchange rate, bank size, net interest margin, inflation and GDP therefore, the effect of other variables were not considered in this research.

1.8. Limitation of the Study

The researcher analyzes Bank specific, internal and macroeconomic specific factors that affect the financial performance of eight private commercial banks in Ethiopia. The generalization of the results of the broader context from seventeen commercial banks in Ethiopia can be one limitation of the study. Furthermore absence of consistent and well organized information from each source of data affects the outcome of this paper.

1.9.   Organization of the Paper

The remaining part of the research report has been structured in the following way; The second chapter, literature review includes theoretical and empirical literatures and also conceptual framework which discuss about the relationship between exchange rate and performance of commercial banks. Chapter three presents the methodology used for the study and gives a detailed overview of the data source and collection procedures and data analysis procedures. Chapter four focuses on the research results and analysis. Chapter five concludes and offer recommendations for the study.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This chapter provides a basis for the topic under study and its concepts. It further centers on the review of empirical studies, theoretical framework and general literature review. It also highlights theories guiding the study, determinants of financial performance and thereby explaining the research gap after which it presents the conclusion on the empirical literature.

2.2. Ethiopian Banking Industry

Bank of Abyssinia which was the first bank of Ethiopia was established in 1905 based on thecontract signed between the National bank of Egypt, which was owned by British and Ethiopian Government (Habtamu, 2012). Based on the contract, the bank was allowed to engage in commercial banking (selling shares, accepting deposits and effecting payments in cheques) and to issue currency notes. Moreover, the contract prohibited the establishment of any other bank in Ethiopia, thus giving monopoly right to the Bank of Abyssinia. According to Lakew (2000) cited in Ebisa (2012) the Bank, which started operation a year after its foundation agreement was signed, opened branches in Dire Dawa, Harar,Dembi- DoloandGore as well as an agency office in Gambela and a transit office in Djibouti. Even though the Bank could not attract deposits from Ethiopian nationals who were not familiar with banking services, it serves foreigners living in Ethiopia and holds government accounts (NBE, 2012). The Ethiopian government under the rule of Emperor Haile Sellassie, closed the Bank of Abysinia, paid compensation to its shareholders and with a capital of pound sterling 750,000.Then, Emperor Haile Sellassieestablished the Bank of Ethiopia which was fully owned by Ethiopians. The Bank started operation in 1932. The shareholders of the Bank of Ethiopia were the Emperor and the political leaders of the time. The Bank was allowed tocombine the task of central banking (issuing currency notes and coins) and commercial banking. The Bank of Ethiopia opened branches in Dire Dawa, Gore, Dessie, Debre Tabor and Harar (NBE, 2012).

The operation of bank of Ethiopia come to an end when Italian occupy Ethiopia (1936-1941), however a number of Italian financial institutions were working in the country. These were Banco Di Napoli, Banca Nazionaledel Lavora and Banco Di Roma. It should also be mentioned that Barclays Bank had opened a branch and operated in Ethiopia during 1942-43. In 1946 Banque Del Indo chine was opened and functioned until 1963. In 1945 the Agricultural Bank was established but was replaced by the Development Bank of Ethiopia in 1951, which changed in to the Agricultural and Industrial Development Bank in 1970. In 1963, the Imperial Savings and Home Ownership Public Association (ISHOPA) and the Investment Bank of Ethiopia were founded. The later was renamed Ethiopian Development Corporation S.C. in 1965. In the same year, the Savings and Mortgage Company of EthiopiaS.C. was also founded (NBE, 2012).

With the exit of the Italians and the restoration of Emperor Haile Selassie's government, the State Bank of Ethiopia was founded in 1943 with a capital of 1 million Maria Theresa Dollars by a charter published as General Notice No. 18/1993 (E.C). Like that of the bank of Ethiopia, the state bank of Ethiopia also combined the functions of central banking with those of commercial banking by opening 21 branches, including one in Khartoum (the Sudan) and a transit office in Djibouti. In 1963, the State Bank of Ethiopia was divided into the National Bank of Ethiopia and the Commercial Bank of Ethiopia S.C. with the purpose of separating the functions of central banking from those of commercial banking. The new banks started operation in 1964(NBE, 2012).

As stated in NBE (2012), the first privately owned company in banking business establishedin 1964 was the Addis Ababa Bank S.C., which the share of the bank were owned by Ethiopian shareholders, foreigners living in Ethiopia and the National and Grindlays Bank of London. The Bank carried our typical commercial banking business. Banco Di Roma and Banco Di Napoli also continued to operate. Thus, until the end of 1974, there were stateowned, foreign owned and Ethiopian owned banks in Ethiopia. The banks were established for different purposes: central banking, commercial banking, development banking and investment banking. Such diversification of functions, lack of widespread banking habit among the wider population, the uneven and thinly spread branch network, and the asymmetrical capacity of banks, made the issue of competition among banks almost irrelevant (NBE, 2012).

As stated in NBE (2012), following the declaration of socialism in 1974 the government extended its control over the whole economy and nationalized all large corporations. Thus, the existing private banks and 13 insurance companies were nationalized and along with state owned banks,

placed under the coordination, supervision and control of the National Bank of Ethiopia. The three private banks, Banco Di Roman, Banco Di Napoli and the Addis Ababa Bank S.C. were merged and form Addis Bank. Eventually in 1980 this bank was itself merged with the Commercial Bank of Ethiopia S.C. to form the ―Commercial Bank of Ethiopia, thereby creating a monopoly of commercial banking services in Ethiopia. In 1976, the Ethiopian Investment and Savings S.C. was merged with the Ethiopian government Saving and Mortgage Company to form the Housing and Savings Bank .The Agricultural and Industrial Development Bank continued under the same name until 1994 when it was renamed as the Development Bank of Ethiopia. Thus, from 1975 to 1994 there were four state owned banks and one state owned insurance company, i.e., the National Bank of Ethiopia (The Central Bank), the Commercial Bank of Ethiopia, the Housing and Savings Bank, the Development Bank of Ethiopia and the Ethiopian Insurance Corporation (Habtamu, 2012). According to Ebisa (2012) after the down fall of the Derg regime, there are opportunities to invest in financial institutions with policies encouraging private investors to invest in the banking, MFIs and insurance companies. Although the history of private commercial banks in the country is very short, the banks have managed to contribute their part in provision of banking services and sharing the monopolies enjoyed formerly by the state owned Commercial Bank of Ethiopia (Ebisa, 2012). Accordingly, in Ethiopia the lists of private commercial banks include Awash Bank, which is the first private commercial bank in the country and others followed like Dashen Bank, United Bank, Wegagen Bank, Bank of Abyssinia, and Cooperative Bank of Oromia, Lion International Bank, Oromia International Bank, Zemen Bank, Bunna International Bank, Nib Bank, Berhan International Bank, Enat Bank, Addis Cooperative Bank, Debub Global Bank,Abay bank, and others under formation are included. Currently, the banking industry of Ethiopia is dominated by the three state owned banks namely, commercial bank of Ethiopia, construction and business bank and development bank of Ethiopia. Due to the existence of these three dominant state owned banks, the private commercial banks play a minimal role in the financial system of the country. However the state owned banks were comparatively inefficient relative to private banks (Ebisa, 2012).

2.3. Devaluation in Ethiopia

The devaluation of the Ethiopian Birr (ETB) per USD officially began during the EPRDF regime. Previously the country used to have a fixed exchange rate with a rate of 2.07 Birr per USD.(Kidane, 1994) said that the overvaluation of currency highly discouraged the export as well as domestic production by making the price of imported goods cheap. In addition there was shortage of exchange rate and only few people had the chance to enter the market.

As a result of the overvaluation and scarcity of foreign currency the unofficial or parallel exchange rate began to spread in the country. In mid1980 the unofficial rate reached 6 or 7 birr per USD where the official rate was still 2.07 birr per USD. Taking this in to account the transitional government of Ethiopia decided to devaluate the currency to 5 birr per USD in 1992. The devaluation of exchange rate was expected to increase output by encouraging the export sector as well as increase domestic production. (Taye, 1999)

(IMF, 2010: MOFED, 2009),After the devaluation in 1992 the exchange rate is changed from fixed to flexible rate in order to control overvaluation through a gradual depreciation of domestic currency every year. The gap between the unofficial and official rate also decreased compared to the period when the exchange rate was fixed. However during the fiscal year 2007/08 the rate of depreciation against other foreign currencies increased compared to the previous year. In the 2009/10 and September 2010/2011 the Ethiopian birr was depreciated to 23.7% and 16.5% respectively against the USD. The huge devaluation was expected to decrease overvaluation and increase competitiveness.

2.4. Theoretical Review

Various theories have been discussed presenting arguments that guided this study. These theories include: interest rate parity theory, purchasing power parity theory, foreign exchange exposure theory and the international fisher effect.

Foreign exchange exposure theory, "Contemporary foreign exchange exposure" as put by Shapiro (2003) argues that exchange rate variations should impact on the value of a MNC mainly through foreign receipts and foreign sales which should be in the local currency of the parent company. In spite of this study, early empirical studies on the topic say that focusing

on firms with a substantive amount of foreign operations fail to sow a considerable effect on variability in exchange rates on the stock value of MNC (Levi, 2009; Jorion, 2009; Amihud, 2009). Recent studies have indicated that rate changes through their impact on net assets and sales values are a paramount influence in influencing a company's value (Jongen et al., 2006).

The fisher effect theory on the other hand indicates that the variance in returns between two nations is equivalent to the difference in inflation rates (Shapiro, 2007). The nominal risk free interest rates encompass a real rate of return and predictable inflation. Thus, if all financiers from the different republics want the similar return then interest rate differentials amongst nations will be the outcome of differential in the anticipated inflation (Staikouras& Wood, 2004). There is substantive and crucial variation in the relationship between inflation rate differential and exchange rate as argued by (Adler & Lehman, 1983). On the other hand, Hakkio (1986) indicated that relationships between inflation rates differentials and exchange rates even wasn't picture-perfect in the long run rather recognized the usage of inflation differentials in forecasting exchange rates long run changes.

Regarding uniformity, there are two theories on which the first states that identical goods should have one price in an ideal market as brought forth by Gustav (1918). It basically puts the idea of goods costing the same in different countries after countering in the exchange rates into practice. When the deposits of all the currencies provide an equal return rate, then the foreign exchange market is taken to be at equilibrium. Exchange rate fluctuations tend to be explained by nominal interest rate differentials between two countries, this is the International Fisher effect as explained by Giddy &Dufey (2007). It's closely related to the Fisher effect as put forward by Irving Fisher. 12 Increase in the price level causes devaluation of the FX rate comparative to other nations thus ensuring the relative value of similar goods the is similar across different nations. The theory proposes that FX rate fluctuations were balanced by comparative prices indices as one price law would hold. The one price law suggests that in competitive markets, alike goods will trade for the similar amount when one currency is used to value them.

The second uniformity condition was developed by Keynes (1923) to link the exchange rates, interest and inflation. It's basically a condition that explains how disparities in rates of interest in two different nations is harmonized and matched by the changes in their monetary FX

(Huang, 2009). It goes on further to say that it harmonizes rates of interest, and FX rates and spot FX rates (Roll and Yan, 2000). Hacche and Townsend (1981) and Meese and Rogoff (1983) show that other plausible economic theories such as purchasing power parity and the monetary model add little to random walk forecasts of exchange rates, at least at horizons of less than a year. The research reported strong rejection of uncovered interest rate parity. Other studies done later have confirmed these results. More to this is an active theoretical literature that attempts to determine if the failure of uncovered interest rate parity is as a result of risk aversion or market segmentation as opposed to market inefficiency. In contrast, Roll and Yan (2000) argue that forward exchange rates are unbiased predictors of subsequent spot rates and there is really no forward premium puzzle.

2.5. Determinants of Financial Performance of Commercial Banks

An organization's performance can be determined by a number of factors; these factors are either internal or external. Factors that impact on the management of the board of directors are internal factors and affect the organization's profitability and are bank specific variables. Internal factors differ from one bank to the next and are within a bank's scope of manipulation. These comprise of information technology, capital size, labor productivity, deposit liabilities, management quality, credit portfolio, interest rate policy, bank size and ownership. External factors affecting the performance of a bank are mainly GDP, macroeconomic policy stability, Inflation, Political instability and Interest rate (Athanasogluo et al 2005).

The bank size possesses a very crucial role on bank's performance which cannot be ignored. Large banks exploit the economies of scale and thus have more efficiency as compared to small organizations (Wild, & Han, 2010). The bank's size generally affects the market share which in turn affects profitability, the larger a firm's market share, the more the sales thus if commercial banks basing ourselves on this point banks increase loans and have better interest rates hence better profits. Market share of banks basically captures probable economies or diseconomies of scale. The size of the bank affects its financial performance in many ways (Ahmed & Ahmed, 2010). Large banks can exploit economies of scale and scope and thus being more efficient compared to small firms (Wild & Han, 2010). Size can be determined by net premium which is the premium earned by a bank after deducting the reinsurance ceded.

The premium base of insurers dictates the quantum of policy liabilities to be borne by them (Teece, 2009).

Capital is a key element that affects profit of banks. It is the amount shareholders' equitythat can be used during adverse situations. (Athanasoglou, 2005). Most banks with a higher capital perform way better than their undercapitalized peers, as put forward by George and Dimitrios (2004). A positive association exists between profits and equity among EU financial institutions (Staikouras and Wood (2003). Goddard Molyneux and Wilson (2004) support the prior finding of positive relationship between capital/asset ratio and bank's earnings. Again the direction of the relationship between bank capital and bank profitability cannot be unanimously predicted in advance. Pasiouras and Kosmidou (2007) identify that the performance of domestic and foreign commercial banks in 15 EU countries during the period 1995-2001. They find that profitability of both domestic and foreign banks is affected by bank specific characteristics. The results suggest that capital adequacy, credit risk, bank size, liquidity risk have significant relationship with bank profitability, although their impacts and relation is not always uniform for domestic and foreign banks. Chirwa (2003) studied the relationship between market structure and profitability of commercial banks in Malawi using of data of time series during the years 1970-1994. The results of research show that there is a negative relationship between profitability and capital adequacy ratio and gearing ratio.

For commercial banks to smoothly mediate between deficit and surplus households then an adequate liquidity as to be available as such, managers must look for optimal liquidity balances (Ubindi, 2006). When liquidity is on the downside, then banks borrow at penal rates from fellow banks or from the central bank. High liquidity leads to a loss in in profitable opportunities (Waheed, 2009). Tabari, Ahmadi and Emami (2013) indicate that liquidity risk arises from the inability of a bank to accommodate decreases in liabilities or to fund increases in assets. An illiquidity bank means that it cannot obtain sufficient funds, either by increasing liabilities or by converting assets promptly, at a reasonable cost. In periods the banks don't enjoy enough liquidity, they cannot satisfy the required resources from debt without converting the asset into liquidity by reasonable cost (Wamukhoma, 2014). Under critical conditions, lack of enough liquidity even results in bank's bankruptcy. Bourke (1989) examined the performance of banks in twelve European, Northern American and Australian

countries. Using of international data for 1972-1981, he found that both ratios of capital and liquidity have a positive relationship with the profitability.

Credit Risk Management is a structured risk assessment approach of managing uncertainties by using strategies to control it. Strategies involved are: insurance, reducing the negative effects of the risk, risk avoidance and risk acceptance. Credit risk management involves two-step process which entails: identify the risk source and quantify the risk by means of mathematical models (Tabari&Emami, 2013). Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk. The process of risk management is a two-step process (Tabari, &Emami, 2013). The first is to identify the source of the risk, which is to identify the leading variables causing the risk. The second is to devise methods to quantify the risk using mathematical models, in order to understand the risk profile of the instrument.

Management efficiency is another key element in determining a bank's profitability. It's assessed through ratios e.g. loan growth rate, earnings growth rate and total asset growth. Management systems qualification of staff and control systems are some parameters used to gauge the management performance. Financial ratios assist in measuring the ability of management to channel resources to the most profitable ventures. One of these ratios is the operating profit ratio used in measuring management quality (Rahman, 2009).

Financial performance and inflation rates are inversely linked. Therefore, price level increase reduces value of money and encourages portfolio sift. A higher inflation rate leads to people sifting their wealth from money and financial assets to real assets. This basically means that high rates of inflation lead to lower money demand in an economy. Research carried out in developing countries based on empirical work has shown a substantial and steady coefficient for inflation resistances than for income resistances (Vong,2009). As a general rule, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies. During the last half of the twentieth century, the countries with low inflation included Japan, Germany and Switzerland, while the U.S. and Canada achieved low inflation only later. Those countries with higher inflation typically see

depreciation in their currency in relation to the currencies of their trading partners. This is also usually accompanied by higher interest rates (Bergen, 2010).

2.6.   Empirical Review

Wanjau; researcher (2014) scrutinized the correlation between real income, exchange rates and current account balances. His study was founded on 2 main theories: BOP (balance of payment) constrains and the neoclassical elasticity approaches. The study first aimed at identifying the impact in Kenya that current account balances and real exchange rate changes have on the country. The study was also conducted to identify the consistence of imports growth rate if Kenya was experiencing a stable growth in her economy. A regression analysis was first conducted for the first objective between the trade balance and real exchange rate, level of transparency and government expenditure, foreign income and comparative prices. To determine whether the Marshal-Lerner condition was viable, the signage and importance of real exchange rate coefficient was put to test.

Research carried out in Nigeria during a twenty-year period (1986-2005), put forward by Opaluwa, Umeh and Ameh (2010) argued that exchange rate adversely impacts outputs in manufacturing industries. The Nigerian manufacturing sector was depended on importation of inputs which were affected by unstable exchange rates. The methodology adopted was empirical and regression analysis. Bradley and Mole (2002) rightly put it, Cash flows and success of a firm are not reduced by volatile exchange rates and risk management strategies are critical.

Addael, Nyarko-Baasil and Tetteh (2014) also had a look at the Ghanaian banks particularly on the exchange rate sensitivity of some listed banks on the Ghana Stock Exchange (GSE) between the years 2005 and 2010. Qualitative and quantitative approaches were adopted while undertaking this study as well as econometric models. The study results showed that the banks under review engaged traded through forex and reported profits on those trading.

Kairu (2016), examined the volatility of exchange rates and performance of commercial banks in Kenya. The study had taken 43 banks as a sample and adopted a descriptive research

construction. The study also used statistical package for social sciences version 21.0 and finds that there was a weak positive relationship between exchange rate volatility and the performance of commercial banks. The finding also indicates that there was a high volatility of KES against the USD over the study period which negatively affected the performance of the banks.

2.7. Studies in Ethiopia

According to the knowledge of the researcher there are no studies with reference to Ethiopia on Exchange rate and financial performance of private commercial banks, but there are studies conducted on the effect of exchange rate on economic growth.

Tirsit (2011), studied the effect of devaluation on GDP per capital growth in Ethiopia from the period 1980 to 2010. The finding of time series data showed that devaluation has a negative effect on GDP per capital the same year where as the coefficient for the one year lagged exchange rate was significantly positive thus devaluation has a time varying effect. The study also shows that variables such as education have an expansionary effect whereas drought has a contractionary effect on GDP per capital growth.

Muluken studied the effect of exchange rates on economic growth in Ethiopia using annual time siries data spanning from 1985/86 to 2014/15. The study used real effective exchange rate, government final consumption expenditure, gross capital formation, broad money supply and trade openness as explanatory variables and multilateral real exchange rates as a measure of real exchange rates. The finding from vector error correction model revealed that real exchange rates, broad money supply and trade openness have a positive long run effect on economic growth, while government final consumption has a negative long run effect on the economic growth of Ethiopia. The study also noted that, undervaluation of currency is contructionary in the long run and neutral in the short run. In addition, in the study it is viewed that the effect of exchange rate on economic growth works through the supply channel and it is the reflection of various economic and policy shocks, mainly a strategy shift of the government.

2.8 Summary and Research Gap Analysis

This chapter reviewed the history of the banking sector and the patterns of exchange rate in Ethiopia and theories which explain how exchange rates affect organizations involved in international trade. The study also reviewed empirical studies conducted in different countries which tried to fill the gap of the effect of exchange rate and financial performance of commercial banks. But studies in Ethiopia focused on the effect of exchange rate on the economy as a whole and there is a knowledge gap on the effect of exchange rate on the performance of commercial banks. Therefore, the main objective of this research is to analyzing the effect of exchange rate on the financial performance of private commercial banks in Ethiopia.

2.9 Conceptual Framework

The following figure presents schematic conceptual framework of the relationship between Exchange rate and profitability of firms.

Figure1: Conceptual framework

Independent Variables

Exchange Rate

Inflation

Bank Size

Net Interest Margin

Growth Rate (GDP)

Dependent Variable

Profitability (ROA)
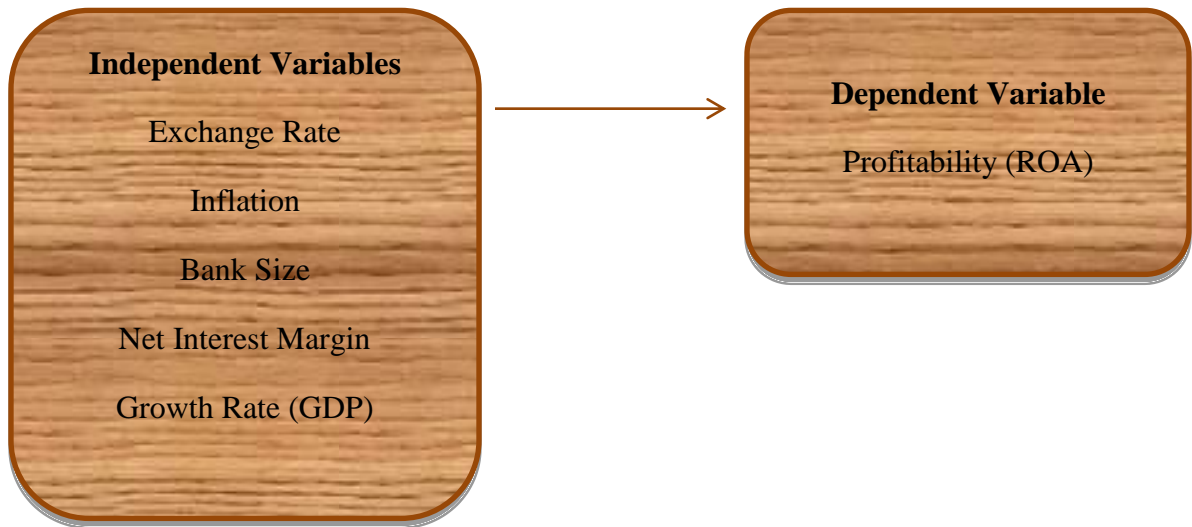
Source: own design from different literatures

CHAPTER THREE
3. RESEARCH METHODOLOGY

This chapter contains research designs, data source and collection methods, population and sample size and method of data analysis and presentation techniques that used in the study.

3.1. Research Design

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research.The main purpose of this research is to examine the effect of exchange rate on the financial performance of selected private commercial banks in Ethiopia for the period of 2002 to 2016. The study adopted descriptive research that used a quantitative research design through the use of secondary data.

Descriptive research considers traits like the size of the sample in relation to the target population, the study variables, the methodologies to the research and the methods that were engaged in data collection. For these reasons explanatory research design was more suitable since the study aims to analyze the effect of exchange rate on banks performance.

3.2. Sample Size and Sampling Procedure

A sample is a sub set of the total population that is of interest for the study topic. This total population is called the target population, to which the results of the study can be generalized (Bryman & Bell Emma, 2007). In this study the sample population was private commercial banks registered by National Bank of Ethiopia (NBE) and operate in Ethiopia, and for this study 15 years data from 2002-2016 from audited financial reports was used. Eight private commercial banks was selected as sample from 17 private commercial banks, because 15 years data was needed for the study and all the other private commercial banks have not have fifteen years data. Awash Bank, Dashin Bank, Abyssinia Bank, Nib Bank, United Bank,Wegagen Bank, Lion International Bank and Cooperative Bank of Oromia were used as sample to identify the effect of exchange rate on the financial performance of private commercial banks in Ethiopia.

3.3. Data Source and Collection Procedure

Data collection method is a phrase used to describe the way or manner in which a researcher gathers relevant information which he or she is going to use to answer the research questions. Secondary data is best source of data when the research uses data that was previously collected maybe for another purpose, used and stored (Hakim, 1982, cited by Saunders et al., 2000). Any published or unpublished work that is one step removed from the original source, usually describing, summarizing, analyzing, evaluating, and derived from or based on primary source materials is secondary data (Creswell, 2012).

In this research secondary data was used, that derived from financial statements of selected private commercial banks and these data include balance sheet and profit and loss accounts showing annual financial statements of private commercial banks for the period from the years 2002 to 2016. The secondary data was collected through structured document reviews mainly from the records held by NBE and the banks themselves.

3.4. Data Analysis and Presentation

According to Bryman and Bell (2003) data analysis refers to a technique used to make inferences from data collected by means of a systematic and objective identification of specific characteristics. Once data is collected it has to be edited to verify to the completeness of data, coded in order to assign numbers or symbols to the various answers for effective categorization/classification, entered in order to convert the information gathered to a medium for viewing and manipulation (e.g. excel or general purpose statistical software package STATA) and finally displayed through the use of frequency tables and charts.

Accordingly, the latest version of STATA (STATA 14) was used to analyze the data that was collected from secondary sources and presented using tables.

To comply with the broad objective the study was based on panel data, which was collected through structured document review. As noted in Baltagi (2005) the advantage of using panel data is that it controls for individual heterogeneity, less collinearity among variables and tracks trends in the data something which simple time-series and cross-sectional data cannot provide. Thus, the collected panel data was analyzed using descriptive statistics, correlations

and multiple linear regression analysis. Mean values and standard deviations are used to analyze the general trends of the data from 2002 to 2016. Based on the sector sample of 8 banks, a correlation matrix was adopted to examine the relationship between the dependent and independent variables.

A multiple linear regression model and specification test was used to determine the relative importance of each independent variable in influencing profitability (ROA). The multiple linear regressions model was run, and thus OLS was conducted using STATA version 14 statistical software package, to test the casual relationship between the firm's profitability and their potential determinants and to determine the most significant and influential explanatory variables affecting the profitability of private commercial banks. The rational for choosing OLS is as noted in Petra (2007) OLS out performs the other estimators when the following holds; the cross section is small and the time dimension is short. Therefore, as far as both the above facts hold true in this study it is rational to use OLS.

3.5. Model Specifications

To obtain the impact of exchange rate and achieve the objective, the researcher carried out a multiple regression analysis by means of ensuring analytical model. Therefore, from Kairu, (2016), the study adapted;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + €$

Where :- Y= Financial performance/ Profitability of banks (ROA Dependent Variable)

β_0 = Constant (Y- intercept)

X_1= Average Exchange Rate

X_2= Inflation Rate

X_3= Bank size (Natural log of Total Assets)

X_4= GDP, Real income {C+I+G+(X-M)}

X5=Net Interest Margin

€ = Error term

3.6 DESCRIPTION OF STUDY VARIABLES

In this study, the choice of explanatory variables has been based on alternative theories related to working capital management and profitability and additional variables that were used in previous studies. The variable used in this study is based on the line as applied in previous research regarding the relationship between working capital management and profitability. These variables are categorized as dependent, independent and control variables.

3.6.1 DEPENDENT VARIABLE

ROA is a widely used financial tool to determine the level and intensity of returns that a firm has generated by employing its total assets. Firms are usually considered well off when they generate returns that can attract further investors and lenders, and in trouble if they need to raise the finance required for growth or capital needs, or if their ROA does not convince financiers. ROA reflects the earnings generated by the capital invested, and is calculated as follows:

ROA = Operating income before tax/total assets

3.6.2 INDEPENDENT VARIABLES

The independent variables used in this research are (1) Exchange Rate, (2) Inflation Rate, (3) Bank Size, (4) GDP and (5) Net Interest Margin. The description of how the variables are measured and computed is explained below.

Exchange Rate

An exchange rate is a relative price of one currency expressed in terms of another currency (or group of currencies). Changes in it affect economic activity, inflation and the nation's balance of payments. There are different ways in which exchange rates are measured, in this study it is measured as follows;

Price of home currency in terms of foreign currency (E) = 1 / (R) Price of foreign currency in terms of home currency

Inflation Rate

Inflation is the rate at which the overall price of goods and services within an economy increases over a certain period of time. It is a measure for the devaluation of the currency of a country. There are two main price indexes that measure inflation:

- ➢ **Consumer Price Index** **(CPI)** - A measure of price changes in consumer goods and services such as gasoline, food, clothing and automobiles. The CPI measures price change from the perspective of the purchaser.
- ➢ **Producer Price Indexes** **(PPI)** - A family of indexes that measure the average change over time in selling prices by domestic producers of goods and services. PPIs measure price change from the perspective of the seller.

BankSize

Represents the ownership of assets by banks, high asset ownership enables banks to offer more financial services at low cost. In this study it is evaluated by the natural log of total asset.

Gross Domestic Product (GDP)

The GDP or gross domestic product of a country provides a measure of the monetary value of the goods and services that country produces in a specific year. This is an important statistic that indicates whether an economy is growing or contracting.

In this study GDP is calculated as follows:

GDP =Consumer Spending (C) + Business Investment (I) + Government Spending (G) + Net Exports, which is Exports minus Imports (X-M).

Net Interest Margin

Net interest margin is a ratio that measures how successful a firm is at investing its funds in comparison to its expenses on the same investments. A negative value denotes that the firm has not made an optimal investment decision because interest expenses exceed the amount of returns generated by investments.

In this study Net interest margin is calculated as:

Net Interest Margin = (Investment Returns – Interest Expenses) / Average Earning Assets

Table 3.1: Operational Definition of Variables

Variable	Definition	Measurement
Y	Return on Asset ROA	This is measured by banks ROA ratio, used as A measure of financial performance.
X_1	Exchange Rate	This is measured by using Std. deviation of the Changes in Birr FX rate against USD.
X_2	Inflation	This is measured by using annual change in Consumer Price Index
X_3	Bank Size	This is evaluated by the natural log of total asset
X_4	Gross Domestic Product GDP	This is calculated as Personal Consumption Expenditure plus Business Investment plus Government spending plus (Export minus Import)
X_5	Net Interest Margin	This is determined as the difference between the average lending rate of a bank and its deposit rate

CHAPTER FOUR

4. Data Presentation, Analysis and Interpretation

4.1. Introduction

This chapter presents the trend and econometric analysis of return on asset, exchange rate, growth rate of gross domestic product, inflation rate, net interest margin, and bank size. Diagnostic tests of autocorrelation, heteroskedasticity, multicollinearity, and specification test are performed. The data used for this study are secondary data collected from the National Bank of Ethiopia (about macroeconomic variables)and annual financial reports of banks included in the study. It covers fourteen years annual data between 2002 and 2016. First section of the chapter discusses the trend analysis and descriptive statistics. The second section is about discussion of diagnostic test results and the last section is about interpretation of the regression analysis report.

4.2. Descriptive Statistics and Trend Analysis

This section presents the trend analysis of the variables under study between 2002 and 2016. The statistics applied in the description of the data are mean, standard deviation, minimum and maximum. Furthermore, it explores the historical moves of the financial performance of commercial banks in Ethiopia (as measured by return on asset) in the study period.

Table 4.1. presents the summary statistics of the variables used to define ROA in this study. It shows the number of observations, means, standard deviations, minimum and maximum values of each variable. All the variables have 112 observations. The average values of all variables are positive. Almost all variables have minimal standard deviations. The maximum and the minimum values show that the range is small and almost similar over all variables.

As indicated on the table below, on average the return on asset for Ethiopian private commercial banks during the past decade and half was 26%. Although the ROE of each bank's selected in the study varies due to their size and time of establishment, the average return on asset of the Ethiopian private commercial banks, as revealed by the descriptive

statistics is quite in excess of what is considered to be favorable. Return on Asset between 15%-20% is considered to be favorable (Fraker, 2006) cited in kanwal and nadeem(2013).

Table 4.1 Summary of Descriptive Statistics

```
. su ROA exc NIM ggdp BS INF

    Variable |        Obs        Mean    Std. Dev.         Min         Max

         ROA |        112    .0265893    .0105843        .001        .049
         exc |        112    13.40807    4.812894      8.5427     21.1131
         NIM |        112    .0602275    .0173531    .0093701    .1018974
        ggdp |        112    .0940958    .0373465   -.0216136     .135726
          BS |        112    3.571988    .5174181     2.11059    4.471433

         INF |        112    .1472154    .1451791    -.012219    .5524131
```

Source: Own estimation of research data (2018)

Return on Asset
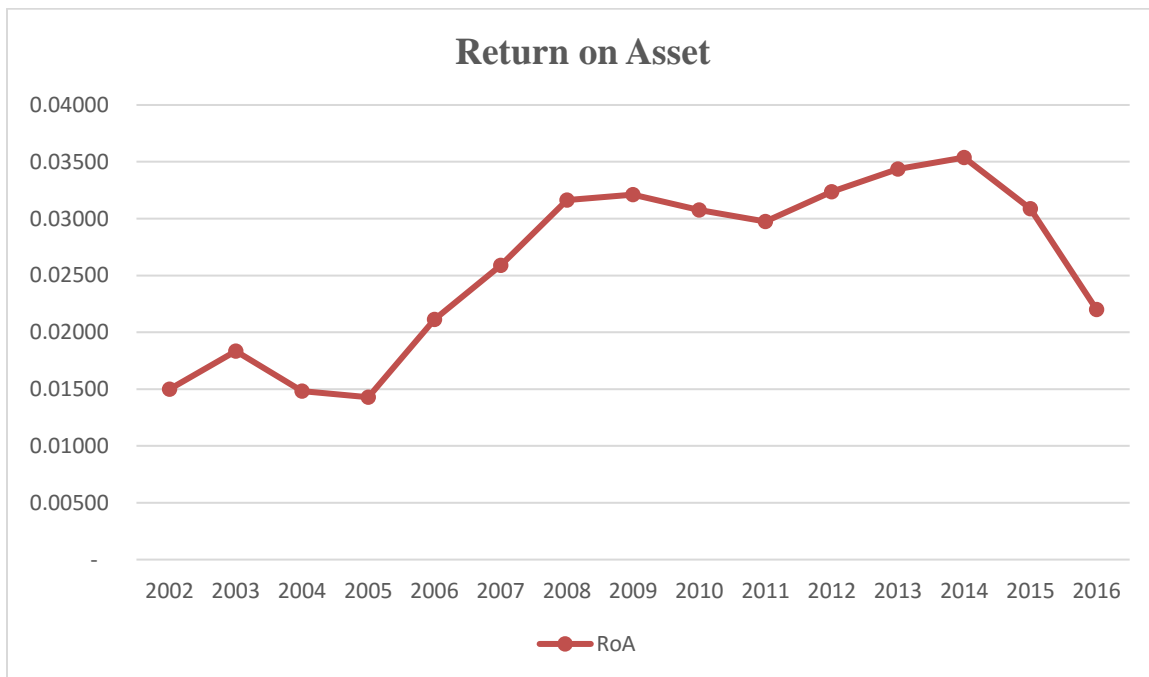
4.2.1 Diagnostic Test

This section discusses findings of the different test procedures performed to ensure reliability of the conclusion. The tests performed include multicollinearity (correlation matrix), autocorrelation, heteroscedasticity, normality and model specification tests.

4.2.1.1 Multicollinearity Test

The result presented in Table 4.2 outlined the correlation matrix among the dependent and independent variables. Correlation is a way to index the degree to which two or more variables are associated with or related to each other. The main concern of correlation coefficients is to establish linear association between two variables in terms of strength and direction. As noted by (Gujarati & Porter, Basic Econometrics, 2009), most widely used bi-variant correlation statistics is the Pearson product-movement coefficient, commonly called the Pearson correlation. There is no universally agreed upon cut-off point to delineate the association between two variables as weak correlation, medium correlation and strong correlation. It depends on the particular subject which is at the researcher's hand.

Table 3.2 Correlation Matrix

```
. correlate ROA exc NIM ggdp BS INF
(obs=112)

                 ROA       exc       NIM      ggdp        BS       INF

       ROA    1.0000
       exc    0.3723    1.0000
       NIM    0.1693    0.6562    1.0000
      ggdp    0.2124    0.1183   -0.0012    1.0000
        BS    0.1757    0.7049    0.5845    0.2197    1.0000
       INF    0.1914   -0.0773   -0.0952    0.1179    0.0213    1.0000
```

Source: own estimation of research data (2018)

Exchange rate, net interest margin, gross domestic product, bank size and inflation rate have positive linear association with return on asset. The results displayed in the table shows that there is relatively strong linear relationship (70.49%) between exchange rate and bank size. There is no particular theoretical relationship between exchange rate and bank size which

means fluctuations in the exchange rate does not necessarily bring about changes in the size of any commercial bank. Econometric theory dictates that involving two variables with perfect collinearlity poses chronic problem to the coefficient estimation. However, the correlation coefficient observed does not lend itself perfect collinearity. Therefore, its acceptable to use both the variables in the model without concern for multicollinearity.

4.2.1.2 Autocorrelation

Under this section the researcher incorporate both methods of testing for autocorrelation: Durbin-Watson autocorrelation test in the first section and Breusch-Godfrey Serial Correlation LM Test in the second section.

i. Durbin Watson Statistic

The test for autocorrelation was made by using Durbin and Watson (1951). DurbinWatson (DW) is a test for first order autocorrelation i.e. it tests only for a relationship between an error term and its immediate previous value. DW is approximately equals to two, when there is no autocorrelation between the error term and its first order lag. The null hypothesis for the DW test is no autocorrelation between the error term and its lag. According to (Brooks, 2008), DW has 2 critical values: an upper critical value (dU) and a lower critical value (dL), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected.

Table 4.3 Durbin Watson Statistic

```
. dwstat

Durbin-Watson d-statistic(  5,    37) =  1.961786
```

Source: own estimation of research data (2018)

The result of Durbin Watson statistic is very close to 2. As Gujarati (2004) put it DW statistic close to 2 can be taken as good reason to accept the null hypothesis that there is no autocorrelation problem in the data.

ii.   The Breusch-Godfrey (BG) Test

Breusch-Godfrey Serial Correlation LM Test, this is another test for Autocorrelation in residuals. The Breush-Godfrey test is used because the Durbin Watson test is not reliable when lagged values are used in the model. The Breusch-Godfrey test is much more general in that it allows for both AR and MA error structures as well as the presence of lagged regress and as an explanatory variable (Gujarati, 2004). The null hypothesis is that there is no serial correlation.

Table 4.4 Breusch-Godfey LM test for Autocorrelation

```
. bgodfrey

Breusch-Godfrey LM test for autocorrelation
───────────────────────────────────────────────────────────────────
   lags(p)   │        chi2              df            Prob > chi2
─────────────┼─────────────────────────────────────────────────────
      1      │       0.003              1               0.9554
─────────────┴─────────────────────────────────────────────────────
                    H0: no serial correlation
```

Source: own estimation of research data (2018)

Table 5 shows that the Breush-Godfrey Serial Correlation LM Test gives a probability of 0.9554 and chi-square version gives statics of 0.003. Hence, from both versions of the test we fail to reject the null hypothesis of no autocorrelation in the residuals at 1% significant level.

4.2.1.3 Heteroscedasticity Test

It has been assumed that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heteroscedasticity. The Breuch-Pagan test is applied to check for the presence of heteroscedasticity in the residuals

Table 4. 5 Breusch-Pagan test for Heteroscedasticity

```
. hettest

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

        chi2(1)      =      2.56
        Prob > chi2  =    0.1096
```

Source: own estimation of research data (2018)

As shown in Table both chi-square test and the probability gave the conclusion that there is no evidence for the presence of heteroscedasticity since the p-values is above 0.10.Generally, in the regression models used in this study it was proved that the test statistics is not significant and the variance of the error term is constant or homoscedastic and we have sufficient evidence to accept the null hypothesis of Homoscedasticity. The linear model is also correctly specified.

4.2.2   Normality Test

A normal distribution is not skewed and is defined to have a kurtosis coefficient of 3. Jarque-Beraformalizes this by testing the residuals for normality and testing whether the coefficient of Skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. The Jarque-Bera probability statistics/p-value is also expected not to be significant even at 10% significant level.

Table 4.6 Jarque Berra statistic for normality

```
. sktest e

                    Skewness/Kurtosis tests for Normality
                                                    ——— joint ———
   Variable |      Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)   Prob>chi2
------------+-------------------------------------------------------------
          e |      112     0.7481        0.7468        0.21         0.9015
```

Source: own estimation of research data (2018)

The result found from normality test procedure using Jarue-Berra Statistic confirms that the error terms are distributed normally.

4.2.3 Model Specification Test

The objective of this test is to make sure the model is correctly specified. In other words, it would make sure that there is no omitted variable.

Table 4. 7 RESET test for model misspecification

```
. ovtest

Ramsey RESET test using powers of the fitted values of ROA
        Ho:  model has no omitted variables
                  F(3, 103) =      0.75
                   Prob > F =      0.5276
```

Source: own estimation of research data (2018)

The test for omitted variable confirms that there is no omitted variable bias. The probability value (0.5276) which is above the 5% significance level requires us not to reject the null hypothesis which says the model has no omitted variable.

4.3   Results of Regression Analysis and its Interpretation

4.3.1   Interpretation of Coefficient of Determination (R^2)

Coefficient of determination is a measure of goodness of fit of the model. It demonstrates acceptability of the model. In general, R^2 tells us the capacity of combined variation of all explanatory variables to initiate changes in the dependent variable, in statistical sense. The result will be reported in the form of unitless magnitude. Although there is no clear cut rule to decide which value of coefficient of determination can be accepted as the best measure of explanatory power of a model, it's agreed among econometricians that higher values of R^2 are associated with better models. However, this is not always true. It is because higher R^2 is usually observed in time series analysis without any meaningful relationship between the dependent and independent variables.

Another misleading characteristic of the coefficient of determination is that its value gets bigger and bigger as one adds more variables to the model even the added variables justify no statistical relation with the dependent variable. Given this nature, statisticians and econometricians introduced a mechanism to get rid of the problem. It is adjusted coefficient of determination where the initial computed R^2 will be penalized with discounting.

The regression analysis confirmed that the model produced an R^2 of 0.2392 which would be interpreted as the overall variation of exchange rate, growth rate of gross domestic product, inflation rate, net interest margin and bank size has explained 23.92% of the variation in the return on asset (ROA). The remaining 0.7608 (76.08) of the variation is explained by other variables. However, since the adjusted R^2 compensates for the addition in explanatory variables, it is discounted to be 0.2033 (20.33%).

4.3.2   Interpretation of the F-Statistic

The F-statistic or Analysis of Variance (ANOVA) tells the overall significance of the model. As a rule of thumb an F-statistic of more than 5 is usually considered to be enough reason to reject the null hypothesis that the independent variables are insignificant all together. The regression F-statistic takes a value of 6.67 which is greater than 5 hence the model is fit for estimation. However, the statistic should be compared against the tabulated value from an F-table. For this analysis the tabulated F value of five and one hundred six degrees of freedom is 4.41**.** Similarly, probability values of getting an F-statistic below the tabulated F-value can be used to decide the acceptance or rejection of the null hypothesis. Since the computed value of 6.67 is much more than the tabulated 4.41 figure, we can comfortably conclude that the probability of the null hypothesis that all the independent variables are non-sense being true is zero. Therefore, the ANOVA result suggested that all or some of the explanatory variables are statistically significant to describe the variation of financial performance of commercial banks in Ethiopia (as proxied by return on asset).

4.3.3 Regression Results Discussion

This section presented the ordinary least squares result of the model which examines the effect of exchange rate changes on the financial performance of commercial banks in Ethiopia.

The operational model used is:

$$Est\ (RoA_{it}) = \beta_0 + \beta_1 exc_t + \beta_2 ggdp_t + \beta_3 NIM_{it} + \beta_4 inf_t + \beta5 BS_{it} + e_t$$

Where

Est (RoA_{it}) is estimate of return on asset

exc_t is exchange rate

$ggdp_t$ is growth rate of gross domestic product at year t

NIM_{it} is net interest margin of bank i at year t

Inf_t is annual inflation rate at year t

BS_{it} is bank size measured using

e_t is the error term

Given results of the diagnostic tests, this is the relationship between explanatory and explained variables. The direction of relationship is believed to be positive for exchange rate, growth rate of gross domestic product, inflation rate, and bank size but negative for net interest margin.

The regression analysis result affirmed statistical significance (at 5% level of significance) of two (exchange rate and inflation rate) of the five repressors in the model. It's the net interest margin which is found to be insignificant at 10% level of significance. The direction of relationship between the dependent and independent variables is consistent with the hypothesis and findings of other researchers. To optimize the power of the test, the conclusions of this analysis is based on 10% significance level.

Table 4.8 Regression Result

```
. reg ROA exc NIM ggdp BS INF

      Source |       SS           df       MS            Number of obs   =       112
-------------+----------------------------------         F(5, 106)       =      6.67
       Model |  .002974868          5  .000594974        Prob > F        =    0.0000
    Residual |  .009460239        106  .000089248        R-squared       =    0.2392
-------------+----------------------------------         Adj R-squared   =    0.2033
       Total |  .012435107        111  .000112028        Root MSE        =    .00945


         ROA |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         exc |   .0012421   .0002911     4.27   0.000     .0006649    .0018193
         NIM |  -.0237301   .0713786    -0.33   0.740    -.1652451    .1177848
        ggdp |   .0491133   .0250732     1.96   0.053    -.0005968    .0988234
          BS |  -.0049569   .0025879    -1.92   0.058    -.0100876    .0001739
         INF |   .0157501   .0062845     2.51   0.014     .0032904    .0282098
       _cons |   .0221308   .0068747     3.22   0.002     .0085009    .0357606
```

Based on the regression result, the relationship between the variables included in the model can, therefore, be represented as follows;

$$Est(RoA_{it}) = 0.0221 + 0.0012exc_t - 0.0237NIM_{it} + 0.0491ggdp_t - 0.0049BS_{it} + 0.0157inf_t$$

$$(3.22) \quad (4.27) \qquad (-0.33) \qquad (1.96) \ (-1.92) \qquad (2.51)$$

The coefficient of a variable in the regression model has the natural interpretation. The estimated coefficients have the expected signs and sensible magnitudes. It is evident fromTable9 that the estimated $\chi 2$ test statistics accept the predictions of the model, especially about the effects of exchange rate on financial performance of commercial banks in Ethiopia. The interpretation is that increases in income and the price level increase return on asset, while increases in bank size reduces return on asset.

Exchange Rate

The exchange rate is a macroeconomic variable determined by the National Bank of Ethiopia. Commercial banks do not have the power to set an exchange rate beyond certain bands specified by the central bank. In addition, this macroeconomic variable has very limited changes in a year and its fluctuations are predictable. The stability of exchange rates gave banks to operate with at least a very limited risk exposure. Furthermore, since the National

Bank of Ethiopia doesn't allow banks to maintain foreign currency in their balance sheets above 15 percent of the total capital, it helps them to absorb and stabilize a shock resulted from any exchange rate crisis.

Results of the regression model indicated that there is significant and positive linear relationship between exchange rate and return on asset at the 1 percent significance level. The coefficient 0.0024 tells us that a 1 birr change in the exchange rate at any point in time, where the change is believed to remain in effect for a reasonable time period, will result in 0.0024 unit increases in the return on asset of a bank. In other words, since the financial performance of a bank is measured in return on asset, a one birr increase in the exchange rate will enable a bank to earn additional profit of at least 0.24% of its asset as profit, keeping the effect of other variables constant. However, this linear relationship doesn't tell us from where this changes comes from.

The effect of the change in exchange rate could work through the changes on total operating cost of banks, profit from the amount of loan extended to investors, and/or gain realized from asset and liability revaluation (from assets and liability denominated in foreign currency). But it is possible to eliminate the effect of changes in exchange rate on return on asset through gains from asset and liability revaluation. It is because the federal revenue and customs authority requires commercial banks to surrender 75 percent of any gain from change in devaluation in the form of windfall tax. On the other hand, foreign currency denominated assets involves a band of currencies which lend themselves to fluctuation in relation to United States Dollar (USD). The National Bank of Ethiopia pursues pegged exchange rate regimes where the Bank determines the birr value of USD so that the exchange rate for other currencies will be derivative of this rate. As a result, due to fluctuations in exchange rate between Great Britain's Pound Sterling (GBP) and Euro against USD in the international market, their corresponding birr value fluctuates, here in the domestic market too.

For reasons related to improvement in the income growth of the nation, the banking sector in Ethiopia have demonstrated significant changes both in the number of participating banks and in their asset growth. Parallel to this, the country's involvement in international trade registered significant growth. These changes imply direct effect on the financial performance of specially commercial banks that facilitate such transactions. Banks benefit from both this

import and export operations. One of the main area of interest which needs to be accentuated here is that determination and control of exchange rate of currencies is responsibility of the central bank. The best way to capture the effect of changes in the exchange rate on the return on asset is by realizing how effective devaluation would be on improvement of the volume of exports. As the volume of exports increase, by implication, banks will get foreign currency to finance their import needs.

Finally, the relationship between exchange rate and commercial banks financial performance can be interpreted by considering its effect on domestic economic revival. When the central bank enacts a directive to raise the exchange to a certain percentage, it is expected the economy definitely experiences decline in its foreign sector performance until the real and the monetary sector stabilizes. Once this stage is completed, then comes improvement in the foreign currency earning through revival in the export sector, increase in remittances, and attraction of foreign direct investment. This upturn in the foreign exchange earning further revives the manufacturing sector through its effect of enabling it to import raw material and access domestic credit. These two will then have a direct effect on profitability and efficiency of commercial banks.

Net Interest Margin

Net interest margin is defined as the difference between the average lending rate of a bank and its deposit rate. Banks in Ethiopia apply the least interest rate on loans extended to agricultural and manufacturing sector firms involved in export oriented production. Whereas the floor interest rate for deposits (both savings and time deposit) is determined by the National Bank of Ethiopia. Commercial banks have a say on the lending rate not on the deposit rate. Theoretically, bank lending rate is reflection of the total risk exposure, inflation rate, administrative costs, profit margin and other macroeconomic influences. Given shortage of bank credit in Ethiopia, a large net interest margin would have positive (increasing) effect on profitability of banks. Although the coefficient of net interest margin is -0.0237 in the model, the statistical acceptability is very low. Therefore, this coefficient does not deserve any explanation.

Against the hypothesis made in the first chapter result of the regression analysis indicated that there is no significant relationship between net interest margin and financial performance of commercial banks in Ethiopia (as measure by changes in return on asset). This would mean that irrespective of the difference between lending and deposit rates, return on asset of a bank remains as it is, keeping the effect of other variables fixed. As the lending rate is raised high beyond the deposit rate, it will discourage investors from borrowing and banks would be forced to have lower credit portfolio. At the same time, the interest expense compared to income generated from lending will be higher. This would mean a fall in the efficiency of operations.

$$Est(RoA_{it}) = 0.0221 + 0.0012exc_t - 0.0237NIM_{it} + 0.0491ggdp_t - 0.0049BS_{it} + 0.0157inf_t$$

(3.22)   (4.27)   (-0.33)   (1.96)   (-1.92)   (2.51)

Growth Rate of Gross Domestic Product

The growth rate of total production of a nation is one of the major propelling forces for the advancement of its citizens' wellbeing. One of the role of commercial banks in this process is supporting the both the production, consumption and distribution players of the economy by managing all the available resources responsibly.

The regression analysis result shows that there is significant and positive relationship between growth rate of gross domestic product and return on asset of commercial banks in Ethiopia at the 10 percent significance level. The coefficient 0.0491 implies that a one percent change in the growth rate of gross domestic product leads to 0.0491 units change in return on asset. Similarly, a unit change in the growth rate of gross domestic product leads to 4.91 percent change in profit of a bank based on the asset threshold. Finding of the regression analysis is with regard to this variable is in line with the hypothesis made in the first chapter.

Bank Size

The coefficient of banks size is negative and significant at the 10 percent significance level. This indicates a change in the bank size leads to an opposite change on return on asset. Despite the usual explanation that large banks tend to mobilize resources at relatively small costs and then generates better profit, the findings of this regression analysis concluded to the contrary.

The size of a bank as measured by the logarithm of total asset of a bank at specific date of book closing is one manifestation of how significant its exposure would be to foreign exchange and international banking transaction. As the asset holding of a bank increase so does its profit (in absolute terms) which will then imply improvement in the return on asset. However, the increase in profit might not be as progressive as the increase in asset. As a result, since return on asset is a ratio total profit and total asset, if the speed of total profit increase is slower that the speed of total asset growth, then return on asset will display a decline.

The statistical significance of bank size on return on asset is in line with the hypothesis but not its direction of influence. In Ethiopian commercial banks, the coefficient of banks size is - 0.0049 which means that a one hundred percent increase in the bank size leads to 0.49 unit decrease in the return on asset ratio.

Inflation Rate

Inflation refers to changes in the price level in an economy. The general inflation rate peroxide by yearly rate of change of the consumer price index has been significant at 1 percent significant level and the coefficient having a positive sign. This shows that the general performance of the price index plays a very crucial role in the financial performance of commercial banks in Ethiopia. High inflation is expected to result in the non-normalization of prices in the economy which in turn result in high costs of doing business. Higher costs are expected to result in higher margin which means. These extra costs of operations are then passed on to the customers by increasing the margins of lending rates to preserve purchasing power.

The statistically significant impact of inflation on net interest margin is in line with hypothesis 5. In the Ethiopian commercial banks, inflation has estimated coefficient of 0.0157 in the return on asset regression, which means that a unit increase in the level of inflation results in a 0.0157 unit increase in return on asset. The impact of inflation was able to explain why bank financial performance is improving or declining in Ethiopia. This result was most expected in Ethiopia because the double digit inflation rate regime that was prevalent failed to normalize the prices of other goods and services in the economy.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary, the conclusion and the recommendations of the study. From the findings in chapter four, the chapter offers a conclusion after which it draws the policy recommendations. The recommendations are constructed from the objective of the study with a consideration to the limitations experienced during the study after which the study recommends for further areas of study.

5.2 Summary of Findings

It was the major aim to investigate effects of exchange rate on privet commercial banks performance for the period from Jan. 2002 to Dec. 2016. There were two specific objectives: first, to examine the impact of exchange rate on privet commercial banks performance in Ethiopia, and second to investigate whether bank characteristics such as bank size have any intervening effect on the banks performance of privet commercial banks of Ethiopia.

First, the findings of the research show that exchange rate change had an influence on commercial banks performance in Ethiopia in the study period. The co-relation findings portrayed a positive connection between the exchange rate and the profits of banks over study period. Second, the change in exchange rate was also found to be related to changes in inflationrates. The correlation between inflation & performance shows that the general performance of the price index plays a very crucial role in the financial performance of commercial banks in Ethiopia. High inflation is expected to result in the non-normalization of prices in the economy which in turn result in high costs of doing business. Third, the research findings indicated that banks total assets had increased over the research period. All the banks had an increased growth over the research period. This facilitated an increase in the return on assets.

5.3 Conclusions

The conclusions that were obtained from the results of this study in section above were as indicated here. Firstly, the evidence strongly suggests existence of a positive association between exchange rate and banks performance in Ethiopia. The finding shows that an increase in an exchange rate results in significant increase on the returns of the banks regardless of an increase in operating costs, on which the negative effect eliminated due to asset revaluations. The researcher also concludes that total assets owned by commercial banks and the inflation rates were increasing over the years.

Secondly, of the regression analysis indicated that there is no significant relationship between net interest margin and financial performance of commercial banks in Ethiopiahence it has weak effect performance. The relationship between GDP and returns on assets was significant and positive. The bank size had increased in value over the research period thereby increase in return on assets. The result of the analysis also shows that, there is a significant and positive relation between inflation rate and financial performance as a result ofhigher costs are expected to result in higher margin.

The study showed that, there has been gradual decrease in local currency through the study period. Therefore, the study concludes that the government should deploy adequate measures to safeguard the domestic currency. It should promote foreign direct investments so as to spur economic growth and consequently cause the local currency to appreciate. This would transform Birr to a competent currency against international currencies. This would consequently lower borrowing costs thus making loans even more affordable.

5.4 Recommendations

The government's fiscal and monetary policy making department needs to consider the rate change effects on companies' performance. The reason for this is that their policies may impact the performance despite their good intention to rectify the deteriorating situations in the economy.

 National Bank of Ethiopia ought to implement efficient monetary and fiscal policies so as to help curb significant deficits in balance of payments. The government at large should deploy measures that are aimed at increasing the national income of the country based on investments funded locally. International funding should be limited to small extent so that the domestic currency can be strong in the international money markets. Banks were observed to be profitable at a time when the economy was bad whereby other sectors were experiencing difficulties in remaining floating. The banking industry benefits in such times since the interest rate spread and inflation are high.

Finally, there is need for further studies to carry out on the effect of exchange rates on profitability of banks by incorporating more variables that affects financial performance. This study focused only on the relation between exchange rate and financial performance measured as ROA. There are also other measures of profitability, ROI, GOP, ROE to consider for further study and future researcher could increase the number of observations by increasing the sample size and extending the period of time with unbalanced data.

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