



**ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE
STUDIES**

**THE EFFECT OF INVESTMENT ON PERFORMANCE OF
COMMERCIAL BANKS IN ETHIOPIA**

**By
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**July, 2016
ADDIS ABABA, ETHIOPIA**

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

**JUNE, 2016
ADDIS ABABA, ETHIOPIA**

ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS

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DECLARATION

I, the undersigned, declare that this thesis is my original work, presented under the guidance of Zenegnaw Abiy(PhD). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher institution for the purpose of earning any degree.

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ENDORSEMENT

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Acknowledgment

My deepest and heartfelt thank goes to the Almighty God and his mother St. Marry, who follow me in all aspect of my life.

I would like express my deepest gratitude to my advisor, Dr. Zenegnaw Abiy, for his support, encouragement, invaluable comments advice and guidance at various stages of this study. Thank you very much!!!

I would also like to convey my sincere thanks to my parents, whose unconditional love and silent prayers encouraged and protect me throughout my life.

Finally I would like to thank my entire families and friends for their immeasurable assistance though out my study.

List of Acronyms

CLRM	Classical Linear Regression Model
CA	Capital Adequacy
DW	Durbin-Watson
EI	Equity Investment
FD	Foreign Deposit
FA	Fixed Asset
FEM	Fixed Effect Model
NBEB	National Bank Bill purchase
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
OLS	Ordinary Least Square
REM	Random Effect Model
ROE	Return on Equity

Abstract

The effect of investment has been considered to be an important issue on the performance of commercial banks. This study empirically examines the effect of investment on banks performance in Ethiopia and interprets the result by relating with the regulations. The study used balanced panel model in examining the regression model and collect data from eight commercial banks covering the period of eleven consecutive years, 2005-2015. The study used panel data techniques specifically Fixed Effect model on the regression analysis and used EView8 software. Before the regression analysis the researcher test the assumption of CLRM that are, error of zero mean, normality, heteroscedasticity, autocorrelation and multicollinearity were conducted on the data. The study used one dependent variable ROE, four independent variables that are fixed asset investment, foreign deposit, equity investment and NBE Bill purchase and one control variable capital adequacy. The regression result show that fixed asset investment and foreign deposit had a positive and significant effect on performance of banks. On the other side NBE Bill purchase had a negative and significant effect on the performance of commerce banks. The control variable also had a negative and significant effect on the performance of commercial banks. One of the independent variable equity investments had negative and insignificant effect on banks performance. The research provides evidence for all variables that investment has an effect on the performance of Ethiopian commercial banks. The research concluded that investment plays a significant roll on the performance of Ethiopian commercial banks. The study recommended Ethiopian commercial banks should give attention on their investment policy and NBE policy maker to review the directives considering different factors.

Key words: - Banks, Investment, Performance and Regulations

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Banks play an essential role in economic development through engaging themselves in an intermediary role which enhances investment and growth (Bashir, 2007). Regardless of their ownership, banking sectors plays dominant role in the growth and development of the economies of counties. Additionally (Bashir, 2007) observe that commercial banks contribute positively to economic growth by channeling surplus funds to their most productive uses. He not only showed the greater function of banks in the economy but also stressed that without the existence of a sound and efficient banking system, the economy can't function well.

Banks should be closely watched because of their power to create money in the form of spendable deposits by making loans and investments. The government has the responsibility to strongly follow banks works and decisions because, banks are among the leading depositories of the public's savings, especially the savings of individuals and families.

As banks work to supply loans, accept deposits, and provide other financial services to their customers, they must do so within a climate of extensive federal and state rules designed primarily to protect the public interest. What is worse is that banks are subjected to systemic risk due to the contagious nature of a bank failure. Failure of a single bank erodes public confidence in other banks as well so that the failure would spread to other banks due to unexpected demand for payment from depositors. Failure in one bank may lead to failure of all banks thereby damaging the entire economy (Getnet, 2010). This is why banks are regulated and limited under unique grounds of intervention by the government to ensure safe and sound operation and continuity of banks.

Bank regulations exist for safeguarding the industry against systemic risk, protecting consumers from excessive prices or opportunistic behavior and finally to achieve some social objectives, including stability (Llewellyn, 1999). Regulations display that the government or the central bank of the country has maintained limitations on both investment in banks and banks investment in other business activities.

Effective bank regulation has two main objectives: the first is to protect private interests of depositors, investors, and creditors; the second is to safeguard public or collective interest by promoting the integrity and reputation of financial services markets. The wave of deregulation of the financial services in the 1980s and the recent globalization of the industry have both counter balanced by a rise in regulations and enforcement actions (Gully, 2005).

Banks are permitted to investment in other non banking business with a limited percentage. Limitations on investment by banks pressure the need to limit the level of equity invested by a bank in other firms and limiting the scope of allowable economic activities to be carried out by banks. The investment limitations by banks are generally matters of regulating the scope of investment in banks by appropriate investors and controlling the scope of services to be rendered by banks and scope of equity investment by banks (Getnet, 2010).

At different point of view that national regulators hold about the importance of costs and benefits has hindered an international coordination of national regulations dealing with the affiliation between banking and commerce. However, there are some common patterns between countries on the regulations about banks' ownership of non-financial firms. These regulations usually limit a bank's investment in the equity of a firm to a certain percentage of the bank's capital or impose a limit on a bank's investment in the equity of a firm to a certain percentage of either the firm's capital or its voting rights (Francisco 2010).

However different countries have their own regulation on banks investment policy or limited percentage that allow banks to invest in other non banking business. As mentioned on Francisco (2010) paper, he stated banks invest limitation on different countries in Belgium & Italy they can invest 45 % of their capital, 60% in Finland, France, Germany, Greece, Portugal or Spain, the 25% in Czech Republic or Poland. This implies that different countries have a regulation on banks investment policy.

To conclude, in Ethiopia the national bank had also developed a regulation on the banks investment policy. This paper examined the effect of banks investment on their level of performance and related the result with the existing regulation set by NBE.

1.2. Statement of the Problem

Bank regulation typically refers to the rules that govern the behavior of banks, whereas supervision is the oversight that takes place to ensure that banks comply with those rules (Barth, 2006). Regulations covers many area of banking operation and one of the major areas of argument in financial regulation is the degree of separation that should exist between banking and commerce (Saunders, 1994). This implied that to what extent a bank competes with other types of financial and non financial firms, in other word controlling the scope of services to be rendered by banks and scope of equity investment by banks. As equity investments are considered risky investments, banks with greater equity investments are required to have a higher capital.

Researchers in developed countries imply that investment made by banks does not predict a clear effect on bank's profitability. Study conducted by Francisco (2010) indicates that investment in equity is riskier than investment in debt, those banks increasing the proportion of their investments can expect their portfolio to bring higher profits and with it higher risk. Based on this idea, regulators from certain countries justify the regulation that separates banking from commerce as a tool to reduce the instability in the banking system and the probability of a banking crisis. Micheal Fuest, Lawrence Goldberg and Pere Gomis(2012) considered on their paper the types of activities that banks are allowed to perform by the regulation. The three main types of non-banking activities that must be considered are securities, insurance and real estate (fixed asset) activities. These activities will direct banks to earn additional profit that lead banks performance higher. These two papers indicated the effect of investment with relate to regulations one the performance of commercial banks.

The national bank of Ethiopia had regulated new directive that forced private banks to invest in NBE bill in order to support other sectors. Prior studies conducted in Ethiopia are mainly on the effect of this regulation. There are a number of studies conducted on the effect of NBE Bill purchase Yodit(2012), Eden(2014), Tesfaye(2015) and Shibiru(2014). They mainly concentrated on the regulation they do not consider it as an investment and measured the performance using return on asset and net interest margin. These studies are mainly focused on the regulation effect without considering the area of investment. Another study conducted by Taddese (2015) on the effect of investment in accounting information system on performance of commercial banks in

Ethiopia. He mainly focused on the area of investment that banks invest to perform their daily service not on other area of business that they can earn an additional profit.

Prior studied made in Ethiopia were limited their studies with one direction that is bill purchase and ignored other investment areas that are allowed to the banking industry .This research had studied on the effect of investment on performance of commercial banks. The research had analyzed the three main types of investment that was mentioned by Micheal et al. (2012) by reclassifying it in the context of Ethiopia banks area of investment. This research include four investment area that are equity investment, investment on foreign deposit, fixed asset investment and NBE bill purchase and measured the performance by return on equity. Finally the paper had relates the regression result with NBE directives.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of the study is to examine the effect of investment on banks performance.

1.3.2. Specific Objectives

The specific objectives of the study are

- To study the effect of foreign bank deposit on bank performance.
- To examine the effect of fixed asset investment on banks performance.
- To examine the effect of NBE bill purchase on banks performance.
- To examine the impact of equity investment on banks performance.

1.4. Research Hypothesis

This study attempted to test the following hypotheses in the case of commercial banks in Ethiopia.

The first variable used in order to analyze the effect of investment on banks performance is foreign deposit. Prior studies indicated that foreign deposit has a positive and signification effect on banks performance Ghassan (2015) and Koji (2007). This paper also hypothesizes foreign deposit as positive and significant effect on performance.

H1: there is positive and statistically significant effect on investment in foreign bank deposit and financial performance of commercial banks.

The second variable used to examine the effect of investment on banks performance was fixed asset investment. Prior studies conclude that fixed asset investment have positive and significant effect on banks profitability Olatunj (2014) and Michael et al.(2012). This research also support their result that fixed asset has positive and significant effect on banks profitability.

H2: there is positive and statistically significant effect on investment in fixed asset and financial performance of commercial banks.

The third variable used to examine the effect of investment on profitability of Ethiopian commercial bank was NBE bill purchase. There are researcher conducted on the effect of NBE bill purchase and conclude that NBE bill purchase have negative and significant effect on banks performance Eden (2014) and Shibr(2015) but Tesfaye(2014) on the other side concluded that bill purchase has a positive and significant effect on banks performance. This paper supports the researchers that conclude NBE bill purchase has a negative and significant on performance.

H3: there is a negative and statistically significant effect of investment in NBE Bill purchase and financial performance of commercial banks.

The other variable that determines the effect of investment on performance of commercial banks was equity investment made by banks to other non banking businesses. Prior studies suggest that equity investment has a positive and significant effect on bank performance Allen (2010), Franciso (2010) and Michael et al.(2012). This research also agrees with the prior studies that equity investment has a positive and significant effect on banks performance.

H4: there is positive and statistically significant effect on equity investment and financial performance of commercial banks.

1.5. Significant of the Study

This study will give additional point for the banking sector on the national bank regulation, limitation on the area of investments and the impact of the regulation affect their profits that will be earned form investment. Also the research will give importance points to the banking sector to

act on their investment policy by using the opportunities that NBE allowed them and how to manage their investment portfolio without rejecting the regulation. Findings from this study will also help national bank of Ethiopia to improve the investment regulation without making the policy highly restrictive. Furthermore, the study will help other researchers as a source of reference and an initial point for those who want to make further study on the area of banks investment.

1.6. Scope and Limitation of the Study

This research mainly concentrated on the effect of investment on performance of banks and it relates the finding with NBE regulation. The researcher includes commercial banks established in Ethiopia and made the analysis using secondary source of data. The study had taken in to account the performance of banks for the last 11 years that is from 2005 to 2015. The eleven year because of the data availability. As a result, the research included banks that start operation before 2005, which include one government owed commercial bank and 7 private commercial banks who operate in Ethiopian.

1.7. Organization of the Paper

This research report is prepared in to five chapters. Chapter one provides the general introduction, statement of the problem, research objective, research hypothesis, significant and scope of the study. Chapter two describes the review of related theoretical and empirical literatures. Chapter three provide detail description of the methodology employed in the research. Chapter four contains data presentation, analysis and interpretation. Finally, the last chapter concludes the total work of the research and gives relevant recommendations based on the findings.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature

In explain the relationship between regulation and commercial banks performance, several theories have been advanced. Banking regulations have attracted both theoretical and empirical interest, and several studies attempt to assess whether and how the regulatory framework influences the performance and behavior of banks.

2.1.1. Overall Regulation

According to Coglianesi (2012) the word “regulation” itself can mean many things and has been defined variously by various researchers. At its most basic level, “regulation” is treated as synonymous with law .They are rules or norms adopted by government and backed up by some threat of consequences, usually negative ones in the form of penalties. According to Orbach (2012) regulation is state intervention in the private domain, which is a byproduct of our imperfect reality and human limitations.

Regulation is defined as the public administrative policing of private activities based on a set of rules that were developed in the public interest. When the definition is applied to the financial system, it is termed financial regulation and refers to a process in which there is a monitoring of the financial institutions by a body that is directed by the government in an effort to achieve macroeconomic goals through monetary policies as well as other measures permissible by law. Thus regulations are concerned, they must be extensively considered and skillfully administered because in appropriate or ineffective regulatory measures results in catastrophic economic problems Greenidge (2000).

Kirkpatrick (2004) defined regulation as the diverse set of instruments by which governments set requirements on enterprises and citizens. Regulations include laws, orders and rules issued by all level of governmental bodies to which governments have delegated regulatory powers. Regulation can take many forms and the form of regulation policy adopted in developing countries has shifted over the time. Regulations touch our everyday life in thousand ways that we

may never imagine (Brito, 2012). They provide social benefits and impose social costs on individuals and businesses beyond the direct dollars expended to write and enforce them.

2.1.2. Bank Regulation

Banking regulation in its strictest sense refers to the framework of law and rules under which banks operate. Banking law and regulation extend to various aspects of banking, including who can open banks, what products can be offered and how banks can expand (Kenneth, (2000). Prudential banking regulation is designed to protect the banking system from crises because banking crises typically affect the entire economy. The most important rationale for regulation in banking is to address concerns over the safety and stability of financial institutions, the financial sector as a whole, or the payments system (Bonn, (2005).

2.1.3. Why Banks are Regulated

According to Kenneth (2000) banks are operated for profit and bankers are free to make many decisions in their daily operations, banking is commonly treated as a matter of public interest. Banking laws and regulations extend to many aspects of banking, including who can open banks, what products can be offered, and how banks can expand. No central architect was assigned to design the overall system or lay out a single set of principles. Instead, many people with many viewpoints, objectives, and experiences have been responsible for the current supervisory framework. As a consequence, bank regulation has evolved to serve numerous goals which have changed over time and on occasion even been in conflict with one another.

According to Kenneth (2000), the following are why banks are regulated. Also, because of the potential for conflict among regulatory goals, special attention is given to what banking regulation should not do.

Protection of depositors

The most basic reason for regulation of banking is depositor protection. Pressure for such regulation arose as the public began making financial transactions through banks, and as businesses and individuals began holding a significant portion of their funds in banks. Banking poses a number of unique problems for customers and creditors. First, many bank customer's use

a bank primarily when writing and cashing checks and carrying out other financial transactions. To do so, they must maintain a deposit account. As a consequence, bank customers assume the role of bank creditors and become linked with the fortunes of their bank. This contrasts with most other businesses, where customers simply pay for goods or services and never become creditors of the firm. A second problem for bank depositors is that under the fractional reserve system of banking, deposits are only partially backed by the reserves banks hold in the form of cash and balances maintained with the Federal Reserve. As a result, depositor safety is linked to many other factors as well, including the capital in a bank and the condition and value of its loans, securities, and other assets. While depositors could conceivably make general judgments about the condition of banks, the task would still be difficult, costly, and occasionally prone to error. These facts, especially when combined with the history of depositor losses before federal deposit insurance, explain much of the public pressure for banking regulation to protect depositors.

Monitory and financial stability

Apart from just being concerned about individual depositors, banking regulation must also seek to provide a stable framework for making payments. With the vast volume of transactions conducted every day by individuals and businesses, a safe and acceptable means of payment is critical to the health of our economy. In fact, it is hard to envision how a complex economic system could function and avoid serious disruptions if the multitude of daily transactions could not be completed with a high degree of certainty and safety. Ideally, bank regulation should thus keep fluctuations in business activity and problems at individual banks from interrupting the flow of transactions across the economy and threatening public confidence in the banking system.

Efficient and competitive financial system

Another aspect of a good banking system is that customers are provided quality services at competitive prices. One of the purposes of bank regulation, therefore, is to create a regulatory framework that encourages efficiency and competition and ensures an adequate level of banking services throughout the economy. Efficiency and competition are closely linked together. In a competitive banking system, banks must operate efficiently and utilize their resources wisely if

they are to keep their customers and remain in business. Without such competition, individual banks might attempt to gain higher prices for their services by restricting output or colluding with other banks. Competition is also a driving force in keeping banks innovative in their operations and in designing new services for customers. A further consideration is that for resources throughout the economy to flow to activities and places where they are of greatest value, competitive standards should not differ significantly across banking markets or between banking and other industries.

Consumer protection

Another goal of banking regulation is to protect consumer interests in various aspects of a banking relationship. The previous regulatory objectives serve to protect consumers in a number of ways, most notably through safeguarding their deposits and promoting competitive banking services. However, there are many other ways consumers are protected in their banking activities. These additional forms of protection have been implemented through a series of legislative acts passed over the past few decades.

2.1.4. Investment

Barton (2005) state Investment analysis as encompasses methodology for accommodating the fundamental uncertainty of the financial world. It provides the tools that an investor can employ to evaluate the implications of their portfolio decisions and gives guidance on the factors that should be taken into account when choosing a portfolio. Investment analysis cannot eliminate the uncertainty, but it can show how to reduce it. A serious investor will want to go beyond just accepting market data and progress to an understanding of the forces that shape the data. This is the role of financial theories that investigate explanations for what is observed. Additional Johan (2013) state that investments are made until the present value of expected future revenues, at the margin, is equal to the opportunity cost of capital. This means that investments are made until the net present value is equal to zero. Deeper understanding of the market encouraged by theory can benefit an investor by, at the very least, preventing costly mistakes. The latter is especially true in the world of derivative securities we meet later. But a theory remains just that until it has been shown to unequivocally fit the data, and the wise investor should never forget the limitations of theoretical explanations.

2.1.5. The Investment Process

Gareth (2003) describes investment process as description of the steps that an investor should take to construct and manage their portfolio. These proceed from the initial task of identifying investment objectives through to the continuing revision of the portfolio in order to best attain those objectives.

The steps in this process are:

1. **Determine Objectives.** Investment policy has to be guided by a set of objectives. Before investment can be undertaken, a clear idea of the purpose of the investment must be obtained. The purpose will vary between investors. Some may be concerned only with preserving their current wealth. Others may see investment as a means of enhancing wealth. What primarily drives objectives is the attitude towards taking on risk. Some investors may wish to eliminate risk as much as is possible, while others may be focused almost entirely on return and be willing to accept significant risks.

2. **Choose Value** the second decision concerns the amount to be invested. This decision can be considered a separate one or it can be subsumed in the allocation decision between assets (what is not invested must either be held in some other form which, by definition, is an investment in its own right or else it must be consumed).

3. **Conduct Security Analysis.** Security analysis is the study of the returns and risks of securities. This is undertaken to determine in which classes of assets investments will be placed and to determine which particular securities should be purchased within a class. Many investors find it simpler to remain with the more basic assets such as stocks and fixed income securities rather than venture into complex instruments such as derivatives. Once the class of assets has been determined, the next step is to analyze the chosen set of securities to identify relevant characteristics of the assets such as their expected returns and risks. This information will be required for any informed attempt at portfolio construction.

4. **Portfolio Construction.** Portfolio construction follows from security analysis. It is the determination of the precise quantity to purchase of each of the chosen securities. A factor that is important to consider is the extent of diversification. Diversifying a portfolio across many assets

may reduce risk but it involves increased transactions costs and increases the effort required to manage the portfolio.

5. Evaluation. Portfolio evaluation involves the assessment of the performance of the chosen portfolio. To do this it is necessary to have some yardstick for comparison since a meaningful comparison is only achieved by comparing the return on the portfolio with that on other portfolios with similar risk characteristics.

6. Revision. Portfolio revision involves the application of all the previous steps. Objectives may change, as may the level of funds available for investment. Further analysis of assets may alter the assessment of risks and returns and new assets may become available. Portfolio revision is therefore the continuing reapplication of the steps in the investment process.

2.1.6. Bank Investment Portfolio

Barton (2005) state investment portfolio is formed as a result of investment operations, which are the activities of the attachment of funds of the bank on a relatively long period of time in securities, real estate, the statutory funds of enterprises, collections, precious metals and other objects of investments, market value of which has the ability to grow and to bring the owner of interest income, dividends, profits from the resale and other direct and indirect revenues.

According to Barton (2005) Portfolio investment includes both financial and real investment. Financial investments is investing in a variety of financial instruments such as securities, deposit accounts, special bank deposits, shares, shares, investment in the authorized capital of companies. Real investment is to invest in tangible and intangible assets. By investing material objects belong: at home, buildings, equipment, precious metals, collections, and other commodity material values. This group includes investment in reproduction and growth of fixed and current assets, which are implemented in the form of capital investment. Significant portion of the portfolio securities of the bank is part of the investment portfolio, forming a financial investment.

Additionally Johan (2013) state not all securities that are in the banking book, can be classified as an investment. Thus, in the form of debt securities bills, treasury bills with circulation period of a year, derivatives are not legally classified as investments. Nevertheless, banking is first and

foremost, financial activities, so it should be considered financial investments of the bank's management as a priority investment. Of course, the real investment in any case takes a share of the active operations of the bank, at least in the form of capital investment. But excessive concentration of the investment portfolio of banks in the real investment is regarded as the exercise of unusual bank activity. The success of such activities are primarily determined by the availability of highly skilled professionals is not only a profound knowledge of financial markets, but also features production and scientific technical activities of the functioning of other markets such as real estate market, commodity market or art market.

2.1.7. Determinate of Banks Performance

In order to be able to assess the effects that regulation had on the performance of banks, it is important to define performance in relation to banks. There are various types of bank performance measures in order to understand them it is better to classify them in terms of internal and external factors. Internal factors described as efficiency, productivity and profitability of the bank concerning size optimizes and capital structures. The external factors consist of degree of liberalization of the banking industry (Athanasoglou, 2005) and GDP of the country (Beck, 2003).

In most of the literatures, there are two way and sometimes three ways of classifying the determinants of bank performance. Al-Tamimi, 2010; Aburime, 2005, for instance classified the determinant factors in to two: bank specific (internal) and macroeconomic variables. The internal factors are individual bank characteristics which affect the bank's performance. These factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks. Other studies, Ongore, 2011, attempted to integrate sector specific factors like bank ownership bank size and concentration as a specific determinant of bank performance. This approach seems to segregate the external factor determinants in to sector specific and macroeconomic variable. However, some authors, (Chantapong, 2005; Olweny, 2011) focused on sector specific variables with total neglecting of the macroeconomic variables like GDP and inflation. In general the two approaches seem similar in context and wide variation is not observed in classifying the determinants of bank performance and most of the researchers used both internal and external variables in their studies.

Internal determinates

Internal determinants of bank performance can be defined as factors that are influenced by a bank's management decisions. More precisely, the internal factors are bank specific variables which influence the profitability of specific bank,(Al-Tamimi, 2010; Aburime, 2005). Even if there is variation in the number of determinant factors pointed out by the number of studies, the variables can be summarized using the CAMEL framework to proxy the bank specific factors as done in the study of Dang, 2011. CAMEL stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings ability and Liquidity. Each of these indicators is described below:

Capital Adequacy

The NBE has set specific measure of the capital adequacy position of Banks, adequacy Ratio (CAR) (Directive No. SBB/9/95). The directive clearly set out the computation mechanism and the conversion factors for both on and off-balance sheet items and strictly set for all banks not to maintain their capital level below 8% of their risk weighted assets. Regardless of such regulatory framework, the major intention of holding capital is to build the internal strength of the bank to withstand losses during crisis (Dang, 2011). However some authors argue that capital also affects performance via creating liquidity, hence banks with strong capital position are able to reduce their financing costs, for example by paying low interest rates on their debt(Diamond, 2000). However, holding high capital level is not without drawbacks: a higher CAR ratio reduces the ROE due to two mechanisms: A high ratio indicates a lower risk, and the theory of markets to balance advocating a strong relationship at risk and profitability would lead us to infer a lower profitability.

Asset Quality

The asset side of a Bank's balance sheet is another bank specific variable that affects the profitability of a bank. Even if the total package of the Bank's asset consist of various asset components such as cash, deposit with banks including reserves at the NBE, loans, investments, fixed assets etc, there seems an agreement to focus on the quality of the loan portfolio. This seems due to the large size of loans in the Banks balance sheet which mainly emanated from the

inherited intermediation activity of banks. In addition, more often bank loan of a bank is the major asset that generates the major share of the banks income. Hence the quality of loan portfolio determines the profitability of banks. The highest risk facing a bank is the losses derived from delinquent loans and it's highly affects the performance of Banks Dang, (2011).

Management Efficiency

Management Efficiency is one of the key internal factors that determine the bank profitability but appears to be one of the complexes subject to capture with financial ratios (Ongore, 2011). Management relates to the competency of the bank's managers, using their expertise's to make subjective judgments, create a strategic vision, and other relevant qualities. Management is the key variable which determines a banks' success. The evaluation of the management is the hardest one to be measured and it is the most unpredictable (Golin, 2001). There are two ratios representing the management in the previous studies, operating costs to net operating income ratio, and operating expenses to assets ratio.

Liquidity

Liquidity indicates the ability of the bank to meet its financial obligations in a timely and effective manner. There are variations among scholars with regard to the measurement ratios. The most common financial ratios that reflect the liquidity position of a bank according to Samad, (2004) are customer deposit to total asset and total loan to customer deposits.

External determinates

External determinants of bank profitability are factors that are beyond the control of a bank's management. They represent events outside the influence of the bank Al-Tamimi, (2010). The two major components of the external determinants are sector specific and macroeconomic factors.

Bank Size

Bank size as measured by total deposits Civelic, (1991) or assets Smirlock, (1985) is one of the control variables used in analyzing performance of the bank system. This is included to control for the possibility that large banks are likely to have greater product and loan diversification. The

impact of bank size on profitability is uncertain a priori for the fact that on the one hand, increased diversification implies less risk and hence a lower required return, and on the other hand, bank size takes into account differences brought about by size such as economies of scale. For large firms their size permits them to bargain more effectively, administer prices and in the end realize significant higher prices for the particular product, Agu (1992).

Macroeconomic factors

The macroeconomic policy stability, Gross Domestic Product, Inflation, Interest Rate and Political instability are macroeconomic variables that affect the performances of banks.

Economic Growth

Most literatures support the positive impact of economic growth to Bank performance. For instance, the trend of GDP affects the demand for banks asset. During boom the demand for credit is high compared to recession (Athanasoglou, 2005).

Inflation

The effect of inflation is also another important determinant of banking performance. In general, high inflation rates are associated with high loan interest rates and thus high income. Athanasoglou, (2005), state in relation to the Greek situation that the relationship between inflation level and banks profitability is remained to be debatable.

2.2. Empirical Study

2.2.1. Cross Country Study

In this section empirical studies that have been made regarding on the effect of investment on performance of commercial banks.

Franciso(2010) studied on the effect of equity investment on banks profitability. The research objective was analyzes the influence of equity investments on banks' profitability in a panel data of 24 OECD countries. He used time series and cross-country data derived from balance sheets and income statements of commercial banks in OECD countries, as available from the Bank Profitability database published by the OECD. The results show that bank equity investments have a positive effect on net interest income and on net income. This positive influence remains the same after controlling for the potential increase of bank risk that higher equity investments can originate. Thus, the highest profitability that portfolio theory suggests for banks with higher equity investments does not disappear after considering the highest provisions and capital ratios that these banks are obliged to keep. The positive influence on net interest income is consistent with the view that banks can use their shareholder position in non-financial firms to obtain benefits in the lending relationship that they usually keep with firms in which they also take equity. In fact, the positive influence on banks interest margin is the main benefit of the bank equity investments because we do not observe differences in banks' profitability caused by capital losses or gains derived from equity transactions.

Based on a large sample of Russian banks over the period 1999-2006, the researcher found that performance tends to be non monotonically related with diversification strategy, and the marginal effects of the focus indices on banks' performance are also nonlinearly associated with the level of risk and foreign ownership. Specifically, he found that the banks tend to enjoy higher profits and lower risk when they move from a complete diversification strategy towards less diversification. However, the benefit of being less diversified tends to be negated when the extent of focus exceeds a certain threshold. Further, diversification strategy tends to have a stronger impact on performance when banks operate at higher risk level.

Fater (2014) studied on the effect of regulation and supervision European banking profitability and risk. The research objective was in investigation of the relationship between regulation,

supervision, profitability, and stability is not very well developed, although the relative literature has increased, particularly after the recent global financial crisis. The aim of this paper was to fill the gap, while investigating the impact of regulatory and supervisory policies on profitability and risk using recent data and appropriate econometric methodology. In particular, they apply panel data modeling to test whether restrictions on bank activities, capital requirement, deposit insurance, supervisors' power, and supervisory authority independence have an impact on the stability and profitability of the biggest European banks. Their data was collected from an original database collected from the World Bank by Barth et al. (2001, 2004, 2006, 2008). Second, they focus on an interesting and original sample including the ten largest European banks in the selected European countries (France, Germany, UK, Spain, Italy, and Greece) over the period 2005 to 2011. By using different approaches they conclude that, the paper investigates the effects of regulatory and supervisory policies on profitability and risk-taking for a large sample of the biggest European banks in a context of financial crisis and economic downturn from 2005 to 2011. Using an original sample of regulatory, supervision and profitability proxies, the study carried out and back tested a panel data regression model. The findings offer interesting results that show that increasing European banking regulations and supervision could improve banks' profitability and decrease their risk taking, the restrictions on banking activities decrease profitability, while capital adequacy and the deposit insurance system increase banks' profitability, reinforcing supervisors' powers reduces risk taking and promotes banking stability. These results can have different policy implications for bankers as well as for regulators in terms of improving regulatory measures and adapting them to the banking environment and financial context.

Another study made by Michael et al. (2012) on Regulation and Its Effect on Banking Industry Structure and Performance: Some Cross-Country Evidence. The measures of bank activity regulation that the study considers in the paper are securities (SEC), insurance (INS) and real estate activities (REA). These measures specify the degree to which the national regulatory authorities allow banks to engage in each respective activity. In particular, these measures quantify the degree of regulatory restrictiveness for each activity on a scale from one to four, with larger numbers representing greater restrictiveness. These types of regulation determine the degree to which a bank may diversify its business operations as well as capitalize on any synergies that may arise from complementary activities. They concluded that restrictions on bank

activities tend to yield more government ownership, less private credit, and a larger fraction of nonperforming loans. The effect on concentration is unclear, with different activity constraints yielding different results. Having an implicit deposit insurance scheme reduces bank concentration, foreign ownership, and private credit. Stricter entry requirements reduce government ownership of banks. Restrictions on ownership only affect concentration. In particular, restricting non-financial firms from owning banks reduces concentration, while restricting banks from owning non-financial firms increases concentration.

Russia

Allen (2010) and his associates studied on the effect of weather diversification increase or decrease bank risk and performance. They analyze banks in one emerging economy, Russia. This nation has been characterized by a dramatically improving macroeconomic environment, rapid development of its banking sector, and changes in banking regulations that have led to lower barriers to foreign investment and acquisitions. This paper specifically investigates the relationship between diversification strategies and the risk-return tradeoff in the Russian banking industry over the period from 1999 to 2006.

2.2.2. Study Conducted in Africa

Rwanda

Study conducted by Karemera, (2013) on the “relationship between regulation and financial performance of Rwanda commercial banks”. The objective of the study is to establish the relationship between regulation and financial performance of commercial banks in Rwanda. The findings of his study in some areas concur with past studies while in others it contradicts past findings by other scholar. Capital requirement may not explain the financial performance due to the fact that the total asset increase more than the equity and this can lead to the to the low rate of profitability of the commercial banks. The equity of all the commercial banks has been increasing but this does not contribute to the increase of return on assets may be because of the increase of total assets in the particular period. Liquidity ratio has shown that it does not at all explain financial performance of commercial banks in Rwanda. The negative relationship between management efficiency and financial performance is most likely to have been come

from the highest increase of total assets in that period. Particularly in this period the cost of construction was very high to almost all the commercial banks in Rwanda consequently this has increased the total assets of the banks.

Nigeria

Study conducted in Nigeria on the title of Investment in fixed asset and firm profitability empirical evidence from the Nigerian banking sector by Olatunji and Adegbite (2014). The objective of the study was to examine the effect of investment in fixed asset on profitability of selected Nigerian banks and to analyze analyses the significant components of fixed assets investment of Selected Nigerian Commercial Banks, examines the relationship between fixed assets values and Return on Investment (ROI) and determines the effect of fixed assets investment on Net profits of sampled Nigerian commercial banks. The study result showed that investment in fixed assets has significant positive relationship to the performance of the sampled banks. Investments in fixed assets have strong and statistical positive impact on the profitability of banking sector in Nigeria. In order to improve bank profitability there should be efficient management of fixed assets.

Kenya

Kuria (2012) studied on the relationship between investment in intangible asset and financial performance of commercial banks in Kenya. The objective of his study was to establish the relationship between computers fixed assets and financial performance of commercial banks in Kenya and to investigate the relationship between investment in intangible assets and financial performance of commercial banks in Kenya. Qualitative approach was used in order to gain a better understanding and possibly enable a better and more insightful interpretation of the results from the qualitative data.

The study concludes that there was a positive correlation between increase in investment in intangible assets and increase in computer assets and the increase in financial performances of commercial banks in Kenya in the year 2006 to 2011. An increase in intangible assets evidently leads to an increase in commercial banks financial performances during the 5 year period of study. In this paper, we explored the impact of intangible assets and increase in computer assets

on commercial banks' financial performance. The significant relationship between investment in assets and operating performance remains strong after controlling for other firm characteristics. He found that banks with higher intangible assets and higher computer assets tend to earn higher net income returns that gradually increase during the period.

Ethiopia

Eden (2014) studied on "The Impact of National Bank Regulation on Banks Performance: Evidence from the Private Banks of Ethiopia". Start her study by the general objective of examine the impact of National Bank regulation on private banks performance in Ethiopia. The conclusion of her study is that NBE-Bill purchase has negative and significant effect on banks performance measured through both Return on Asset and Net Interest Margin. The researcher concludes that investment in NBE Bills results a negative impact due to the lesser amount of interest rate compared to the amount of interest rate if the amount invested on the Bill was invested on other investments. Change in reserve requirement has negative and significant effect on the banks cost of intermediation measured through Net Interest Margin. This is due to the reason that banks reserve which is hold by National Bank of Ethiopia do not generate any return since it doesn't bear any interest at all. Credit cap has negative and statistically significant effect on banks performance measured through both Return on Asset and Net Interest Margin. The researcher concludes that credit cap has a negative impact on banks performance and this is due to since there was credit ceiling any bank cannot give the amount of loan above that ceiling so the interest income generated from loans will decrease but the bank will pay an interest expense for the depositors no matter what amount the banks get an interest income from the loan.

Yodit(2012) with the use of in depth interview made on exploratory research to investigate on the implication of NBE bill Purchase on performance of private commercial banks in Ethiopia and found out that the directive affects the bank's profitability in an adverse manner. The directive states that banks should purchase 27% based on their total disbursement with disregard to the nature of loan, which have revolving nature and are also short term, would aggravate the liquidity problem. But taking into consideration the deposit structure of the banks into account if the banks shift to loan term maturing loan in order to avoid the aggravated problem of liquidity with such revolving loans the banks would be faced with asset liability mismatch. The directive

as can be seen excludes the state owned bank which create an unfair ground for competition between the privateer and state owned banks specifically CBE. The directive preferential treatment hence, resulted in the shift of customers from the private banks to public banks as a result reduce the private banks market share in the industry while increasing the already strong market share of CBE. In addition, the directive is also a barrier to new entrants. The directive is also push the private banks to change both their deposit as well as loan structure.

Study conducted by Nahom(2015) on the title of determinants of banks performance of private commercial banks in Ethiopia, analyzed on the determinants of banks performance by classifying his independent variables on bank specific factors and macroeconomic factor and significant determinant of performance among the banks specific and macroeconomic variables . His banks specific variables are capital adequacy, liquidity and asset quality and the external variables are real GDP growth rate, annual inflation rate, internal rate, NBE bill purchase. He used two dependent variables to measure banks performance they are return on equity and net interest margin. And he concludes that capital adequacy from banks specific factors and NBE bill purchase from macroeconomic factors was the major determinate of bank performance as measured by return on equity. And liquidity, real GDP growth rate, annual inflation rate and NBE bill purchase are the major determinants of banks performance as measured by net interest margin.

Another study conducted by Shibiru, (2014) on the assessment of the implication of regulatory policy on the development of private commercial banks in Ethiopia in case of NBE bill purchase directive. The objective of his study was to assess the implications of NBE bills purchase directive on the development of private commercial banks in Ethiopia. The conclusions of his study was, implications of bills purchase directive of NBE negatively reflected on almost all private commercial banks' performances/activities consequently on the development of private commercial banks. The study also revealed the directive has negative implications on the expense of the private commercial banks via increasing the expenses of private commercial banks. Likewise, the study revealed that the negative implication of bills purchase directive on the profitability, liquidity and capital and reserve of private commercial banks. The directive has no implication on the asset size of private commercial banks since the bills are one of the elements of asset of private commercial banks; however, it affected the potential growth of rate

of assets and asset portfolio of banks. The assessment also disclosed, the couples of positive implications that directive had, enhancing branch expansion of private commercial banks and forcing them to develop new products, services and system to attract customers. He also conclude that the implications of the directive was rated as significant on asset, capital and reserve, branch expansion and very significant on liquidity, income, Loan able fund and overall development of private commercial banks.

Tesfaye (2014), made research on the impact of policy measures on Ethiopian private banks performance on the case of government bill purchase. The major theme of the study is to assess the effect of sector specific policy measures on bank performance. The study has taken one of the top policy issues; the requirement to purchase government securities, and analyzed its impact on profitability measure, ROA. The study finds that exposure to government bills has negative and significant relationship with performance. Nevertheless, the magnitude is not severe. Even the pre and post policy periods comparison revealed a relatively better profitability record for private banks during times of policy restrictions. Hence, the bill seems contributed positively to performance via moping the excess liquidity holding of banks or providing an opportunity for private banks to invest their excess funds in government securities than the customary practice of holding their liquid asset in zero earning accounts at the National Bank of Ethiopia. The study focused on historical impact of the bill measure and it can serve as initial work to further pursue on the impact of policy measures on the long run performance of Banks.

Taddesse (2015) made a research on the Investment of Accounting information system and performance of Private commercial banks in Ethiopia in financial terms, so by testing the impact of the investment on AIS on some performance measures of financial common and traded such as return on assets (ROA), and return on equity (ROE) and productivity as a key proxy of financial metrics for the performance of private banks. His study adopted model for the study of panel research design to realize a stated objective. His study was employed quantitative research approach by using both primary and secondary data gathered from managers and financial statement of private commercial banks respectively. For primary data researcher were made discussion between head of accounting and finance particularly designated accounting clerk of each bank at the head office level in order to get the separated ledger cost of Infrastructure, software and IT service. The overall result obtained from the regression model indicates that

investment on AIS has positive significance impact on performance of Private commercial Banks in Ethiopia to an important extent with some improvement observed from implementation of appropriate software and quality of services which leads the performance of AIS's on infrastructure. The independent variables (components of AIS) used in order to achieve the objectives stated were; Infrastructure, software and related service. Size factor was also taken into consideration which was represented by the total Asset Investment of each private Banks in order to control its effect on interpretation.

2.3. Conclusion on the Literature Review and Knowledge Gap

As shown in the above empirical literature review, researches were conducted by many researchers on the effects of banks investment on banks performance. Studies have been conducted in the area of banks investment on both developed and developing countries. The researcher used different variables to identify the effect of investment on banks performance.

From the empirical studies reviewed in the above section Franciso and michael had explained the effect of investment by measuring different European countries bank performance and used different measurement points.

Franciso (2010) manly studied on the effect of banks equity investment on performance and conclude that equity investment has a significant effect on banks performance. On the other hand Michael et al. (2012) had classified banks investment areas in to three, which are securities, insurance and real estate activity. They measure the degree to which the national regulatory authority allows banks to engage in every investment activities that will have a significant effect on the banks performance.

Different African countries also conducted a research on the effect of investment. Olatunji and Adgbitr(2012) studied the effect of fixed asset investment on Nigerian commerce banks performance but they limit their study only on fixed asset investment. Another study conducted in Kenya by Kuria (2012) in the effect of intangible asset investment on bank Kenyan commercial banks performance. This study also limits the research only on intangible asset investment without considering other area of banks investment.

In the case of our country most of the researches conducted was in the area of NBE Bill purchase. Research conducted by Yodit (2012), Eden (2014) and Tesfaye(2014) was mainly concentrated on the effect of NBE Bill purchase. Another study conducted by Taddese (2015) on the effect of investment in accounting information system this study also limit the research on banks investment for their daily operation . As far as the researchers knowledge the prior study was concentrated on the effect of NBE regulation on NBE Bill purchase and do not include other investment area that are permitted to banks. This study has focused on the effect of different investment area that Ethiopian banks are allowed to invest in order to generate additional income and relate the result with the regulation.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Research Design

Explanatory research type was used in this research because the study identifies the cause and effect of investment on banks performance. The methodology to conduct this study was based on the general and specific objectives of the paper. The study was based on quantitative research approach to construct an empirical model in order to measure the effect of investment on performance of commercial banks in Ethiopian. Specifically, regression analysis was used to measure the effect of determinants on the dependent variable. The use of regressions considers the simultaneous relationships among the multiple numbers of independent and dependant variables found across the regression model, therefore it was found suitable for such a study. Regressions were further utilized to examine the associative relationships between variables in terms of the relative importance of the independent variables and predicted values of the dependent variables

3.2.Method of Data Collection

The research used secondary source of data to interpret the effect of investment on the performance of banks. Since the study used quantitative research approach, banks annual audited financial reports were collected from sample banks and different directives were collected form National bank of Ethiopia. Other published and unpublished documents were also used to construct the literature part of this thesis.

3.3.Population of the Study

The study populations are all commercial banks in Ethiopia. There are seventeen commercial banks in Ethiopia that are one government owned and sixteen privately owned banks which are; Commercial bank of Ethiopia(CBE), Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), Bank of Abyssinia S.C (BOA), Lion International Bank S.C (LIB), Cooperative Bank of Oromia S.C (CBO), Berehan International Bank S.C (BIB), Buna International Bank S.C (BUIB),

Oromia International Bank S.C (OIB), Zemen Bank S.C (ZB), Addis International Bank S.C (AIB), Abay Bank S.C (AB), Enat Bank S.C (EB) and Debub Global Bank S.C (DGB).

3.4. Sample and Sampling Techniques

The total population of the banks is seventeen but for the study purpose the researcher used sample of eight banks. The sampling techniques used in this research were purposive sampling because the banks are selected based on their establishment year. These eight banks were selected because the operation times of the others are less than eleven years. The study covered a period of 11 years from 2005-2015 and included all commercial banks, with 11 and above establishment year. The sample banks are Commercial bank of Ethiopia (CBE), Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), Bank of Abyssinia S.C (BOA) and Corporative bank of Oromia. Therefore, the matrix for the frame will be 11*8 that includes 88 observations.

3.5. Model Specification and Variable Description

To test the effect of investment on banks performance, the researcher estimates a linear regression model in the following form.

$$ROE = \alpha + \beta_1 EI + \beta_2 FA + \beta_3 FD + \beta_4 NBEB + \beta_5 CA + \beta_6 BZ + \varepsilon$$

Where:-

ROE= return on equity

α = constant term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ =represent estimated coefficient for specific bank

EI= equity investment

FA= fixed asset investment

FD= foreign deposit

NBEB= NBE bill purchase

CA= capital adequacy

BZ= bank size

Dependent Variable

Profit is the ultimate goal of commercial banks. All the strategies designed and activities performed thereof are meant to realize this grand objective. However, this does not mean that commercial banks have no other goals. Commercial banks could also have additional social and economic goals. However, the intention of this study is related to the first objective, profitability. There for, to measure performance the dependent variable will be profitability. To calculate the profitability of commercial banks there are variety of ratios used of which ROA and ROE are the major ones Alexandru (2008).

Return on Equity (ROE)

Return on Equity (ROE) is obtained by the ratio of Net Income to Total Equity and expressed in percentage. This ratio is also an important indicator of bank profitability in the case of the use of the shareholder's Equity. Furthermore, it shows the ability of the management to utilize the shareholder's Equity whether to improve the return earning or to keep the bank in good position. Thus the better the management of the shareholder's Equity, the more efficient or the more profit the bank will generate in term of return on Equity.

The Independent Variables

NBE Bill Purchase

NBE-Bill was introduced in April 4, 2011 NBE has issued new directive which requires private commercial banks to allocate assets amounting to 27% of their total disbursement for priority sector financing . The banks are forced to redirect their disbursement to the purchase of NBE bill which earns 3% interest (Yodit 2012). This represent amount of forced bill purchase by a bank, which is measured as total amount of investment in NBE-Bills. NBE request banks to invest significant amount of their return on the government bill. This study will see the effect of this bill purchase and the bank's profitability.

H1: there is a negative and statistically significant effect of investment in NBE Bill purchase and financial performance of commercial banks.

Equity Investment

National bank of Ethiopia gave permission to commercial banks to invest their income on different non banking companies share with limited percentage. These companies can be insurance company or other share companies. The banks invest on this business in order to collect an additional income from interest payment. It is measured by the total amount of investment on insurance company share and other share companies stock. The study will see on the effect of amount invested on equity purchased and the bank's profitability.

H2: there is positive and statistically significant effect on equity investment and financial performance of commercial banks.

Fixed Asset Investment

National bank of Ethiopia has allowed banks with limited percentage of amount to invest on fixed assets, this refer to the business of buying and developing properties consistence of houses and other building for facilitating there own operation or for resale. It is measured by the total amount of investment on fixed asset. This research will examine the effect of investment in fixed asset on profitability.

H3: there is positive and statistically significant effect on investment in fixed asset and financial performance of commercial banks.

Foreign Bank Deposit

Banks are permitted to deposit their excess cash in other foreign banks in order to facilitate their services and also to generate an additional interest income. Deposit is measured by the total amount of money that the bank's deposit in foreign banks in a given time. This study will examine on the effect NBE regulation on the banks foreign deposit and the interest income they generate on bank's performance.

H4: there is positive and statistically significant effect on investment in foreign bank deposit and financial performance of commercial banks.

Control Variables

Capital Adequacy

This measures capital strength of the banks. The ratio of Equity to total Asset is employed as a measure for bank Capital Adequacy. This measures the percentage of the total asset that is financed with equity capital. Capital adequacy therefore describes the sufficiency of the amount of equity that can absorb shocks that banks may experience. It is expected that the higher the Equity to Asset ratio, the lower the need for external funding and therefore the higher the profitability of the bank. Bank with higher capital to asset ratio are considered relatively safer and remained profitable even during economically difficult times. Conversely, banks with lower capital adequacy are considered riskier relative to highly capitalized banks Kosmidou (2008). Considering the fact that capital adequacy may have an ambiguous effect on profitability, theoretical expectation of capital adequacy remains a puzzle to be answered by empirical investigation.

Bank Size

In most studies of bank performance determinants researchers used banks size as a control variable Michael et al.(2012), Eden (2014). Total asset is used a measure for bank size. Bank size is usually used to account for potential economies or diseconomies of scale in the banking sector Samuel (2015.) Size might be an important determinant of bank performance if there are increasing returns to scale in banking. However, size could have a negative impact when banks become extremely large due to bureaucratic and other reasons Eden (2014).

Table 3. 1 Summarized Description of the Variables and Their Expected Relationship

Variables	Measurement	Expected sign
Dependent variable		
Return on equity(ROE)	Net Income to Total Equity ratio	NA
Independent variable		
NBE bill purchase(NBEB)	Natural log of total NBE bill purchased	-
Equity investment	Natural log of total equity investment	+
Fixed asset investment	Natural log of total fixed asset investment	+
Foreign deposit	Natural log of total foreign deposit	+
Control variable		
Capital adequacy	Equity to total Asset ratio	
Bank size	Natural log of total asset	

3.6. Data Analysis

The nature of data used in this research enabled to use panel data model which was considered to have advantages over cross sectional and time series data. Panel data involves the pooling of observations on the cross-sectional over several time periods. The issue that may arise from the use of panel data is whether the individual effect is considered to be fixed or random. The choice between both approaches was done by running a Hausman test.

Data collected from different sources was analyzed using Eviews 8 software package. The multiple linear regressions model was run using OLS through EViews 8 econometric software package, to test the effect of investment on the performance on banks. But before running the regression analysis, diagnostic tests was performed to ensure whether the assumptions of the Classical Linear Regression Model (CLRM) are not violated.

This assumption was test before analyzing the regression result. The first assumption is errors have zero mean. According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated.

The second assumption is hetroskedasity. The assumption of homoscedasticity is that the variance of the errors is constant or equal. If the variance of the errors is not constant, this would be known as hetroskedasity (Guajarati, 2004). In order to test homoscedasticity the white test will be used.

The third assumption is the autocorrelation assumption that the covariance between the error terms over time is zero; it assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are serially correlated. Usually, Durbin-Watson (DW) value in the main regression table is considered and used to test the presence of autocorrelation.

According to Brooks (2008) the fourth assumption is Normality of the error distribution assumed the errors of prediction (differences between the obtained and predicted dependent variable scores) is normally distributed (Brooks, 2008).

Finally the fifth assumption is multicollinearity assumption which refers to the situation in which the independent variables are highly correlated. When independent variables are multicollinear, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fit the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable (Gujarati, 2004).

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

This chapter of the research paper presents the data analysis and present the outcome of the results. To reach to the possible outcome in the effect of investment on performance of commercial banks in Ethiopia, the research used the annual balanced panel data, where all the variables are observed for each cross-section and each time period. The study has a time series segment spanning from the period 2005 up to 2015 and a cross section segment which considered eight Ethiopian commercial Banks that are: CBE, AIB, DB, WB, BOA, UB, NIB and CBO. Accordingly, the result of descriptive statistics, correlation analysis, the test of CLRM assumption and result of the regression analysis are presented in the following sub-sections.

4.1. Descriptive Statistics of the Data

The descriptive statistics for the dependent and independent variables for eight commercial banks of Ethiopia from year 2005 to 2015 with a total of 88 observations are presented below.

Table 4. 1 Descriptive Statistics

Variables	Mean	Std.Dev.	Median	Maximum	Minimum	Observation
ROE	12.43	6.29	12.01	35.18	-1.67	88
CA	24.97	20.39	23.26	62.60	8.40	88
EI	5.61	2.95	6.70	7.92	0.00	88
FA	7.55	1.65	7.47	8.56	6.55	88
FD	8.75	1.40	8.82	9.69	6.77	88
NBEB	3.79	4.50	0	9.76	0.00	88

Source: - annual report of sample bank computed using EViews 8

As indicated in the above table, the profitability measured (ROE) shows that Ethiopian commercial banks has achieved on average a positive profit over the last eight years. For the total sample, the mean of ROE was 12% with a maximum of 35% and a minimum of -1.67%. That means most profitable banks among the sampled earned 35% profit from investment.

Regarding the standard deviation, it means the value of ROE deviate from its mean to both sides by 6 percent which indicate there was low variation from the mean.

The mean value of the control variable CA was 24.97 and maximum and the minimum value of 62.60 and 8.4 respectively. This result shows that most capitalized bank kept 62% of its total asset for CA and the less capitalized kept 8.4%. The standard deviation of the CA was 20.39. The mean value of capital adequacy ratio (24.97%) provides the evidence that most of Ethiopian commercial banks maintain higher level of capital requirement than given by National bank of Ethiopia.

The average value for equity investment as measured by the total investment was 5.61 with standard deviation of 0.02, maximum of 7.92 and the minimum of Zero. Form the sample commercial banks maximum level of investment was 7.29% this implies the banks are not investing up to the permitted percentage that is 10% of their net worth and the minimum value zero indicate most banks stare equity investment in recent years.

The average value for fixed asset investment as measured by the total fixed asset investment was 7.55 with standard deviation of 0.47, maximum of 8.56 and minimum of 6.55. This means most of the sample banks are investing on fixed asset.

The average value for the other independent variables foreign deposit and NBE Bill purchase was 8.75 and 3.79 with standard deviation of 0.5 and 0.04, maximum of 9.69 and 9.76 and minimum of 6.77 and 0 respectively. For foreign deposit investment the mean value implies banks deposit their excess money on foreign banks. On the other hand banks investment in NBE Bill had an average value of 3.79 with maximum value of 9.76 and minimum value of zero. The minimum zero value is because of NBE bill purchase directive was implemented on April 2011 for only private commercial banks so the years before 2011 and CBE value was zero.

4.2. Correlation Analysis

Correlation measures the degree of linear association between variables. Values of the correlation coefficient are always ranged between +1 and -1. A correlation coefficient of +1 indicates that the existence of a perfect positive association between the two variables, while a correlation coefficient of -1 indicates perfect negative association. A correlation coefficient of

zero, on the other hand, indicates the absence of relationship (association) between two variables (Brook, 2008).The table below shows the correlation matrix among dependent and independent variables.

Table 4. 2 Correlation Matrix

Variables	CA	EI	FA	FD	NBEB
ROE	0.63772	0.192823	0.308868	0.522303	0.10336

Source: - annual report of sample bank computed using EViews 8

This study had calculated correlation of dependent variable with the independent and control variables. For the table equity investment, fixed asset investment and foreign deposit had a positive correlation with return on equity. Capital adequacy and NBE Bill purchase had negative correlation with return on equity.

4.3. Testing Assumption of CLRM

Before going further in to panel data econometric measurement, the first issue is to test the assumption of classical linear regression model (CLRM).

Five assumptions were made relating to the classical linear regression model (CLRM). These were required to show that estimation technique, ordinary least squares (OLS), had a number of desirable properties, and also hypothesis tests regarding the coefficient estimates could validly be conducted (Brooks 2008).

Test1:- The Error have Zero Mean $E(u_t) = 0$

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brooks 2008). Since this research included a constant term (α) in the regression model it passed the first assumption.

Test2: Heteroskedasticity $(u_t) = \sigma^2 < \infty$

It has been assumed that the variance of the errors is constant, σ^2 this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be

heteroscedastic Brooks (2008). To test this assumption the white test was used having the null hypothesis of heteroskedasticity. The result for this test shows:-

Table 4. 3 Heteroskedasticity Test:

Heteroskedasticity Test: White

F-statistic	1.476440	Prob. F(27,59)	0.1315
Obs*R-squared	35.08013	Prob. Chi-Square(27)	0.1617
Scaled explained SS	66.18220	Prob. Chi-Square(27)	0.1010

Source: - annual report of sample bank computed using EViews 8

As shown for the above table for the test of both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroskedasticity, since the p-values were in excess of 0.05. So, for the second assumption it was proved that the variance of the error term is constant or homoskedastic and had no evidence of heteroskedasticity and sufficient evidence to reject the null hypothesis of heteroskedasticity.

Test3: Covariance Between the Error Terms Over Time Zero $cov(u_i, u_j) = 0$ for $i \neq j$

This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are ‘auto correlated’ or that they are ‘serially correlated’ Brooks (2008). Brooks (2008) noted that the test for the existence of autocorrelation is made using the Durbin-Watson (DW) test and Breusch-Godfrey test.

The lagged value of a variable is used in this research in order to adjust the autocorrelation. Lagged the value is simply the value that the variable took during a previous period (Brooks 2008). So from the regression result DW is 2.11 it is closed to two.

Additional test for the existence of autocorrelation is thought Breusch-Godfrey test.

Table 4. 4 Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.897164	Prob. F(2,78)	0.4119
Obs*R-squared	1.956361	Prob. Chi-Square(2)	0.3760

Source: - annual report of sample bank computed using EViews 8

The above table show test of autocorrelation after inclusion of lagged variable and p value is greater than 0.05 and it indicates the absence of autocorrelation.

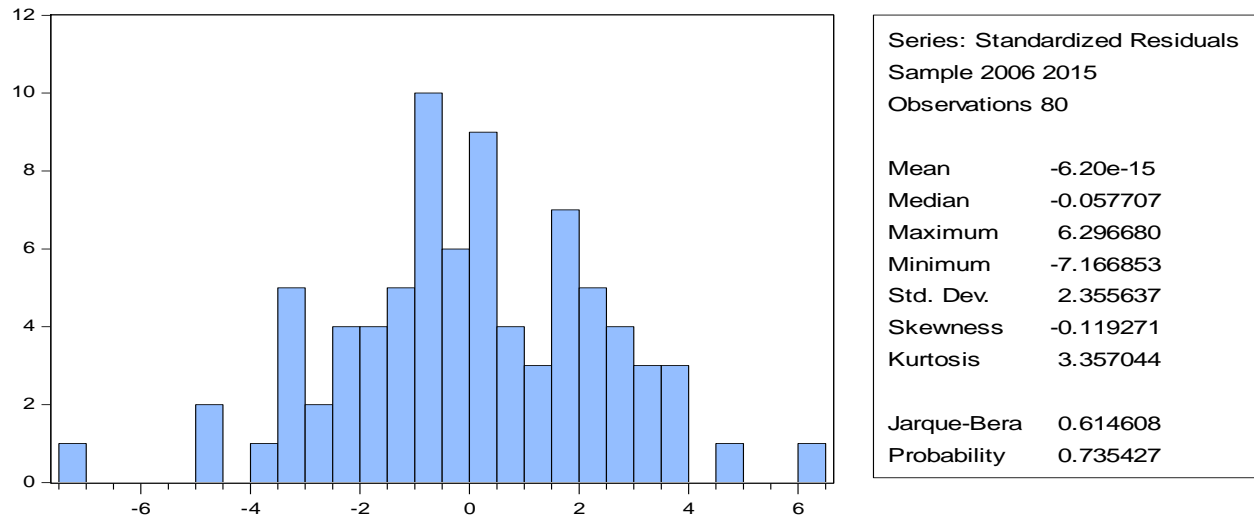
The conclusion from both versions of the test in this case is that the null hypothesis of autocorrelation is rejected and the errors are uncorrelated.

Test4: Normality (errors are normally distributed ($u_t \sim N(0, \sigma^2)$))

A normal distribution is not skewed and is defined to have a coefficient of kurtosis ≈ 3 . Jarque Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are ≈ 0 and ≈ 3 respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure. If the Jarque Bera value is greater than 0.05, it's an indicator for the presence of normality (Brook, 2008).

In addition, it is quite often the case that one or two very extreme residuals cause a rejection of the normality assumption. Such observations would appear in the tails of the distribution, which enters into the definition of kurtosis, to be very large. Such observations that do not fit in with the pattern of the remainder of the data are known as outliers. If this is the case, one way to improve the chances of error normality is to use dummy variables Brooks (2008). The table below shows the result of normality by including dummy variables.

Figure 4. 1 Normality Test Result



Source: - annual report of sample bank computed using EViews 8

The diagram witnesses that normality assumption holds the coefficient of kurtosis was close to 3, skewness was zero and the Jarque-Bera statistic has a value of 0.614608 which is greater than 0.05. These imply that the data were consistent with a normal distribution assumption. Based on the statistical result, the study failed to reject the null hypothesis of normality.

Test5: Multicollinearity Test

This assumption is concerned with the relationship between explanatory variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect Collinearity, and it cannot be estimated by OLS (Brooks, 2008). Multicollinearity condition exists where there is high, but not perfect, correlation between two or more explanatory variables (Cameron & Trivedi, 2009; Wooldridge, 2006). Malhotra(2007) stated that Multicollinearity problem exists when the correlation coefficient among variables is greater than 0.75. Kennedy (2008) also suggests that any correlation coefficient above 0.7 could cause a serious Multicollinearity problem leading to inefficient estimation and less reliable results. This indicates that there is no a single agreed upon measure of Multicollinearity. In this research paper the researcher had 6 explanatory variables. The table below shows the correlation result for all the independent and control variables in this research.

Table 4. 5 Test of Multicollinearity

	CA	BZ	FD	FA	EI	NBEB
CA	1					
BZ	-0.09814	1				
FD	-0.55501	0.809743	1			
FA	-0.05334	0.508251	0.423026	1		
EI	-0.26419	0.387928	0.411001	0.522544	1	
NBEB	-0.01463	0.285614	0.241907	0.321468	0.547126	1

Source: - annual report of sample bank computed using EViews 8

As show in this table, when multicollinearity test was made foreign deposit and bank size are correlated which is 0.809743. As a result the researcher excludes banks size for the regression model in order to solve correlation problem. So the table below shows the final result of the multicollinearity by excluding one variable that is bank size.

Table 4. 6 Adjusted Multicollinearity Result

	CA	FD	FA	NBEB	EI
CA	1.000000				
FD	-0.55501	1.000000			
FA	-0.05334	0.423026	1.000000		
NBEB	-0.01463	0.241907	0.321468	1.000000	
EI	-0.26419	0.411001	0.522544	0.547126	1.000000

Source: - annual report of sample bank computed using EViews 8

4.4. Random Effect (RE) Versus Fixed Effect (FE) Models

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models (FEM) and random effects models (REM) (Brooks, 2008). The choice between both approaches is done by running a Hausman test. To conduct a Hausman test the number of cross section should be greater than the number of coefficients to be estimated. The following results are observed, with only the top panel that reports the Hausman test results being reported here in the following table.

Table 4. 7 Hausman Test

Correlated Random Effects - Hausman Test
Equation: EQ01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	19.141870	5	0.0018

Source: - annual report of sample bank computed using EViews 8

According to (Brook, 2008) if the p -value for the test is less than 1%, indicating that the random effects model is not appropriate and that the fixed effects specification is to be preferred. As show in the above table the result of Hausman test the p - value is less than 1%, the null hypothesis which is random effect model appropriate was rejected and the research used the fixed effect model.

In addition to the Hausman test (Gujarati, 2004) state, if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model/FEM and random effect model/REM. Hence the choice here is based on computational convenience. On this score, FEM may be preferable. Since the number of time series (i.e. 11 year) is greater than the number of cross-sectional units (i.e. 8 commercial banks), FEM is preferable in this case. According to Brooks(2008); Verbeek (2004); Wooldridge(2006), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. Hence, this study chose to use FEM since the sample for this study was not selected randomly and closely approximates the sample frame.

4.5. Analysis and Interpretation of Regression Result

Empirical model: the empirical model used in the study in order to indentify the effect if investment on banks performance is:-

$$ROE = \alpha + \beta_2CA + \beta_3EI + \beta_4FA + \beta_5FD + \beta_6NBEB + \varepsilon$$

Table 4. 8 Regression result

Dependent Variable: ROE

Method: Panel Least Squares

Date: 06/09/16 Time: 16:52

Sample (adjusted): 2006 2015

Periods included: 10

Cross-sections included: 8

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.46110	2.912580	-6.338399	0.0000
CA	-0.068422	0.030021	-2.279110	0.0261
FD	2.730014	0.298834	9.135560	0.0000
FA	0.487331	0.212150	2.297103	0.0250
NBEB	-0.170374	0.082343	-2.069074	0.0427
EI	-0.111211	0.160082	-0.694712	0.4898
ROE(-1)	0.540037	0.077868	6.935265	0.0000
D112	11.49371	2.534006	4.535786	0.0000
D107	-14.76487	2.580626	-5.721432	0.0000
D315	9.202903	2.548418	3.611222	0.0006
D408	-8.253521	2.580062	-3.198962	0.0022

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.892244	Mean dependent var	12.52098
Adjusted R-squared	0.862697	S.D. dependent var	6.371833
F-statistic	30.19833	Durbin-Watson stat	2.118713
Prob(F-statistic)	0.000000		

Source: - annual report of sample bank computed using EViews 8

Thus, based on the result in above Table, the following model was developed to examine the effect of investment on banks performance.

$$ROE = \alpha - 0.068422CA - 0.111211EI + 0.487331FA + 2.730014FD - 0.170374NBEB + \varepsilon$$

On the above regression outputs the beta coefficient may be negative or positive; beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). R-squared statistics and the adjusted-R squared statistics of the model was 89% and 86% respectively. The adjusted *R* squared value 86% indicates the total variation of banks performance was explained by the variables in the model. Thus these variables collectively, are good explanatory variables to identify the effect of investment on banks performance. The regression F-statistic (30.19) and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable.

The coefficient of variables it start from the constant variable; it shows that the effect of investment on commercial bank of Ethiopia will have constant amount of -18.4611 on performance other things being constant described by ROE.

The coefficient for CA is -0.068422 on ROE indicates that the capital adequacy of the banks had negative relationship with ROE and also the relationship is significant at 5% level of significant. The coefficient for FD is 2.730014 on ROE indicate that the foreign deposit of the banks had a positive relationship with ROE and the relationship is significant at 1% level of significant. The coefficient for FA is 0.48733 on ROE indicate that the fixed asset investment of the banks had a positive relationship with ROE and significant at 5% level of significant. The coefficient for NBEB is -0.170374 on ROE indicate that the NBE Bill purchase had a negative relationship with ROE and significant at 5% level of significant. The coefficient for EI is -0.111211 on ROE indicate that equity investment had a negative relationship with ROE but insignificant effect at 5% level of significant.

The negative relationships indicate that there is an inverse relationship between the three independent variables and ROE. Thus the increase of those variables will lead to a decrease in ROE. On the other hand the positive relationships indicate that there is a direct relationship between the other two independent variables and ROE. The increase of this variables will led to an increase in ROE.

4.6. Discussion of Regression Result

The following section provides a brief analysis of the results for each independent and control variable and their importance in examining the effect of investment on commercial Banks in Ethiopia. In addition each of the research hypotheses discussed in chapter one are interpreted based on the finding. Also the statistical findings of the study in relation to the previous empirical studies are discussed.

➤ Foreign Deposit

According to the regression result investment in foreign deposit had a positive relationship with profitability with a coefficient estimate of 2.730014 and the p value of FD is 0.0000 reveals that it is statistically significant at 1% level of significance and also it was in line with the first hypothesis. So the result supported the working hypothesis that is there is positive and significant effect on investment in foreign bank deposit and financial performance of commercial banks.

The implication of this result is that the national banks of Ethiopia do not restrict banks on the amount of money that they can deposit on foreign banks. But the banks should report there amount of deposit on their liquidity position report every week (NBE directive NO SBB/57/2014). This freedom allows the banks to deposit there excess cash, that do not affect their liquidity on foreign banks in order to earn an additional interest income. This implies that banks with more foreign deposit might have earning much more interest income. When Ethiopian banks have started to deposit their money on foreign banks the liquidity position increase that they can decrease the risk of liquidity.

This is consistent with prior empirical evidence that was made using foreign deposit as one of a variable in banks performance in Jordanian case (Ghassan 2015) and the result of the regression was similar. This implies that foreign deposit has positive and significant effect on bank profitability.

Foreign deposit is one of an investment area that Ethiopian commercial banks are permitted to involve. As indicated in the above regression analysis amount of foreign deposit has a significant effect on banks profitability in a positives way. When the amount of deposit increases the performance of the banks also increase. This increase in performance can be seen in many ways:-

- First to deposit money in foreign banks the Ethiopian banks should open an account on foreign banks. Opening of accounts lead them to become a customer of that banks and will have all the opportunity to receive services that the foreign banks give to its customers and have safe and secure global access to their money.
- Secondly depositing money in foreign banks can links the Ethiopian banks to engage in international market. This situation give the banks opportunity of expand their service in order to deliver to their customers. The banks will communicated with foreign bank on payment and delivery of goods on behalf of their customers. Giving this service will lead banks to earn higher profit.
- According to NBE one of the liquid assets on banks is foreign deposit. If the bank invested on foreign deposit it leads to decrease liquidity risk. So an increase in bank liquidity ratio will decrease credit risk of banks. On the other side banks with higher liquidity ratio will give loan to their customers and earn higher interest income.

To conclude, banks investing their excess money on foreign bank will have an additional opportunity of earning higher profit than other banks and increase their performance.

➤ **Fixed Asset Investment**

From the regression result FA had a positive relationship with profitability with a coefficient estimate of 0.487331 and the p value of FA is 0.0250 reveals that it is statistically significant at 5% level of significance. The result of the study supports working hypothesis that is there is positive and significant effect on investment in fixed asset and financial performance of commercial banks.

The national bank of Ethiopia has a directive on the investment of fixed asset like building and land. No bank shall invest more than 10% of its net worth in real estate acquisition and development other than for own business premises without approval of that national bank (NBE directive No.SBB/60/2015).

Banks have the opportunity to invest in fixed asset that relate to their objective without any restriction and can increase their profit. And also the banks can invest in other fixed asset that are not related to their business activity up to 10% of their net worth and increase their income.

According to other prior study made in Nigeria Olatunji (2014), Ethiopian Taddess (2014) suggested that there is a positive and significant effect in investing in fixed asset and banks performance. This implies that investments in fixed assets have strong and statistical positive impact on the profitability of banking sector.

Fixed asset is one of the main areas of investment that banks are willing to invest. As indicated in the result of the regression investment in fixed asset has a positive and significant effect on banks profitability. Investment on fixed asset can affect banks in different ways.

- Building is one of the major fixed assets that banks are investing and it affects their profitability. Banks invest in build can be investing on others building or real estate to resale but the NBE had restricted this by limited percentage.
- Another area of fixed asset investment is on information communication technology system. Banks invest their money in information technology system in order to facilitate their service in more advanced and reliable system. Investing in the system the banks will be advantages on serving customers easily and quickly. This investment will make banks to attract many customers and increase their market share in the industry.
- Other fixed asset investment made by banks is investment in machineries. The technology advancement lead banks to involve in purchasing of different machineries that can facilitate their service. One of this is ATM machine that serves the customers to withdrawer money without physically appeared to the banks. Investing in this machine will be advantages because they can reach to their customers easily. This will make the banks to increase their market share and also increase their profitability.

➤ **NBE Bill Purchase**

According to the regression table investment in NBEB is negatively related with profitability with a coefficient estimate of -0.170374 and the p value of NBEB is 0.0427 reveals that it is statistically significant at 5% level of significance and also it was in line with the third hypothesis. Accordingly, the working hypothesis is accepted, there is a negative and statistically significant effect on investment in NBE Bill purchase and financial performance of commercial banks.

The national bank of Ethiopia had a directive, since April 01, 2011 issued as NBE bills purchase directives. It mainly pertains to purchase of Bonds (the great renaissance dam saving bond) by commercial banks from NBE (which later transferred to the Development Bank of Ethiopia) equivalent to 27% of new loan disbursement issued at an interest rate of three-percent (Directive No. MFA/NBEBILLS/001/2011). Even though these directives only include private commercial banks it is one of the investment areas that banks are investing.

The result of the regression implies that there is a negative and significant effect on profitability of banks that is consistent with prior studies made by Eden (2014), Yodit(2012) and Tesfaye(2014).

NBE Bill purchase is another investment area that Ethiopian private commercial banks are forced to purchase the bill in order to support other prior sector finances. But as shown in the regression result it has a negative effect on ROE. This affects banks' investment in different ways:-

- First and foremost, banks are profit-seeking organizations and their first priority is to generate income. The main area for banks to generate income is giving loans to borrowers and collecting higher amounts of interest. This regulation limits banks' capacity to give loans to borrowers because NBE collects 27% of their total disbursement in bill purchase.
- As indicated in different prior research, the interest rate that is 3% is very small (Eden (2014) and Shibiru (2014)). The rate is even smaller than what banks paid as interest to their depositors that is 5%. The effect of the interest rate directs the banks' investment to be negative.
- The other suggestion is that due to the higher amount of money invested in bill purchase, the banks are losing their benefit if it would have been invested in relatively high interest-bearing investment. If banks lend their money to borrowers with an interest rate of 12%-15%, they can generate higher interest income, but NBE bills only generate a 3% return, which results in a 9%-12% opportunity cost.
- Even though the government implements this regulation to support other prior sector finance, it decreases the loan facilities that the banks can give to private investors. This will limit the amount of money that banks can give to private investors. Due to this, the private

investors will be discouraged to involve in huge investment area. This leads to a decrease in the overall investment in the country.

- NBE implements this directive on private commercial banks in this case the commercial banks of Ethiopia that is the only government bank can raise its capital. Even though CBE purchases other government bills with different interest rates and maturity dates it is not obligated to purchase this bill. So CBE can invest this money in other areas of investment or can lend the money to customers. This leads to an increase in CBE market share in the market and a decrease in private bank level of competition, thus strengthening the government-owned banking system.

To conclude, the banks are investing in NBE bills with a negative effect on their profitability. This implies that NBE bill purchases had a negative and significant effect on bank profitability.

➤ **Capital Adequacy**

According to the regression table, capital adequacy had a negative relationship with profitability with a coefficient estimate of -0.068422. This means that holding other factors constant, a 100% increase in capital adequacy reduces ROE by 6.84% and the p-value of CA is 0.0261, which reveals that it is statistically significant at the 5% level of significance. The research used this variable as a control variable and predicts that capital adequacy had a positive and significant effect on profitability. But the result showed that CA had a negative and significant effect on bank profitability.

This result is consistent with other prior studies that capital adequacy has a negative and significant effect on profitability when measured by ROE (Muluaem, 2015). This implies that commercial banks in Ethiopia use their equity as sources of capital in order to meet the regulatory requirement level of capital.

As the result implies, capital adequacy has a significant effect on bank performance since it is an expensive source of funds, it affects the performance of banks. This is because capital adequacy directly and automatically influences the amount of funds available for loans, which invariably affects the level and degree of risk absorption.

In addition, higher capital adequacy ratios may restrict the competitive ability of banks they also affect banks growth capabilities. NBE set fixed amount to banks capital to continue their service and if the banks are not able to meet up with the mandatory capital ratio it may affect their going concern and on their lending abilities which eventually affect their primary function of banks.

➤ **Equity investment**

According to the regression table equity investment is negatively related with profitability with a coefficient estimate of -0.111211. This means holding other factors constant, a 100% increase in equity investment in reduces ROE by 11.12% and the p value of EI is 0.4898 reveals that it is statistically insignificant at 5% level of significance. According to regression result claim in the first hypothesis that there is significant relationship between equity investment and profitability of commercial banks was not supported.

The national bank of Ethiopia had a regulation state that, a bank's aggregate equity investment in all non banking business including insurance companies shall not exceed 10% of its net worth (NBE directive No SBB/60/2015).

Prior study made in other country does not consist with this finding they conclude that equity investment had a positive and significant effect in banks profitability (Francisco).

As indicated in the regression analysis equity investment had a negative and insignificant effect on return on asset. The result was total opposite with other prior studies it can be due to:-

- The NBE regulation highly restricts banks in involving of investment in other companies stock. The banks and allowed only to invest 10% of their net worth. Due to this regulation banks cannot exercise investment in other non banking businesses.
- Even though NBE allowed banks to invest 10% of their net worth banks has other prior obligation that should be fulfilled. The first one is commercial banks have to open a reserve account in NBE and shall deposit money as per the regulation. The reserve account has no interest income and the NBE also penalize the banks if this reserve is in deficit. The second one is NBE bill purchase, as discussed in the previous point private banks have forced to purchase this bill. So banks firstly give priorities on this obligation.

- On the other side most of the commercial banks year of establishment is a maximum 20 years except the government bank. Due to early age of establishment banks invest their money on prior investment that can increase their services quality and capital. Especially private commercial banks have to raise their capital as NBE requires. So that the banks are anxious to take higher risk on investing in others equity.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

The preceding chapter presented the results and discussion, while this chapter deals with conclusions and recommendations based on the findings of the study. Accordingly this chapter is organized into three subsections.

5.1. Summer of Findings

The research general objective was to examine the effect of investment on the performance of commercial Banks in Ethiopia. The study used 11 years data from eight selected commercial Banks in Ethiopia. It carried out by constructing a balanced panel regression model based on OLS and fixed effects model of the secondary data obtained from the audited annual report of sampled commercial Banks in Ethiopia.

The overall result obtained from the regression model indicates that investment has an effect on performance of commercial Banks in Ethiopia. The dependent variables used to measure banks performance was return on equity and in order to achieve the objectives, the study used four independent variables were, equity investment, fixed asset investment, foreign deposit and NBE Bill purchase. Capital adequacy was also taken into consideration as a control variable.

From the regression result, fixed asset investment and foreign deposit had a positive and significant effect on performance of commercial banks. Capital adequacy and NBE Bill purchase had negative and significant effect on performance. Equity investment had negative but insignificant effect on performance of commercial banks.

5.2. Conclusion

- The result shows that foreign deposit had a positive and significant effect on the performance of commercial banks. This implies that when banks increase the amount of foreign deposit it increases their performance.
- Fixed asset investment has a significant effect on the performance of commercial banks. This implies that fixed asset investment has a direct relationship with performance. As banks invested on fixed asset like building and other intangible assets either for their

business or in other industries they can earn higher profit and can also increase their market share.

- Investing in NBE bill purchase has a negative and significant effect on performance on commercial banks. This implies that investing on NBE bill lead banks to decrease their return this is due to the lesser amount of interest rate compared to the amount of interest rate if the amount invested on the Bill was invested on other investments.
- Capital adequacy has a negative and significant effect on the performance of commercial banks. Since equity is an expensive source of finance when banks highly concentrated on raising their capital, they would not be willing to involve in other investment area.
- Equity investment has negative but insignificant effect on the performance of bank. This is due to the level of percentage that the government allowed banks to invest in other companies stock and the banks willingness in investing on other companies share. Also the other regulation that NBE set hold banks capital like, reserve requirement and capital requirement restrict banks to invest in other equities.

5.3. Recommendations

Based on the major findings of the study, the researcher indicated the following recommendations.

- The analysis indicated that foreign deposit were significant related to performance of banks. So Ethiopian commercial banks with excess cash should deposit their money on foreign banks in order to generate additional income and also to get addition experience and service with foreign banks.
- Investment in fixed asset yields a significant effect on the performance of commercial banks. So Ethiopian banks should increase the amount of investment on fixed asset and also proper management of those assets in order to in increase their profitability.
- NBE requires each bank to purchase bill which is 27% of their total loan with 3% interest rate. This regulation affects banks profitability, therefore it is suitable if policy makers minimize either the percentage of total loan required to purchase the bill or increase the interest rate paid for the bill.
- Capital adequacy had negative and significant effect on ROE. This implies that commercial banks in Ethiopia used equity in order to meet the regulatory requirement

level of capital. This has negative impact on ROE. So the study recommended to the banks to find other cheaper source of finance other than equity to meet the requirement.

- National bank of Ethiopia should consider the capital of the banks and permits an additional percentage in order to involve banks in other investment. Also banks should analyze their portfolio and look for additional opportunity with minimum risk to increase their performance.

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APPENDIXES

Appendix 1- List of Commercial Bank in Ethiopia

No	Name of Banks	Year of establishment
1	Commercial bank of Ethiopia S.C (CBE)	1963
2	Awash International Bank S.C (AIB)	1994
3	Dashen Bank S.C (DB)	1995
4	Bank of Abyssinia S.C (BoA)	1996
5	Wegagen Bank S.C (WB)	1997
6	United Bank S.C(UB)	1998
7	Nib International Bank S.C(NIB)	1999
8	Cooperative Banks of Oromia S.C(CBO)	2005
9	Lion International Bank S.C(LIB)	2006
10	Oromia International Bank S.C(OIB)	2008
11	Zemen Bank S.C(ZB)	2009
12	Bunna International Bank S.C(BIB)	2009
13	Berhan International Bank S.C (BBI)	2010
14	Abay Bank S.C. (AB)	2010
15	Addis international Bank SC. (AdIB)	2011
16	Debut Global Bank S.C. (DGB)	2012
17	Enat Bank S.C. (EB)	2013

Appendix 2- Descriptive Analysis

	ROE	CA	EI	FA	FD	NBEB
Mean	12.42766	26.44381	5.299894	7.190815	8.555644	3.578364
Median	11.97	23.28	6.69897	7.439424	8.812879	0
Maximum	35.18	174.42	7.927561	8.565443	9.693727	9.764317
Minimum	-1.676	0	0	0	0	0
Std. Dev.	6.298879	20.39558	2.95697	1.651274	1.401747	4.540193
Skewness	1.022047	5.248238	-1.150943	-3.760414	-5.255953	0.473025
Kurtosis	6.14031	35.95392	2.532047	16.76803	32.35041	1.231993
Jarque-Bera	51.47953	4385.836	20.23142	902.4457	3563.804	14.74315
Probability	0	0	0.00004	0	0	0.000629
Sum	1093.634	2327.055	466.3907	632.7917	752.8966	314.8961
Sum Sq. Dev.	3451.801	36190.25	760.6994	237.2234	170.9459	1793.362
Observations	88	88	88	88	88	88

Appendix 3-Correlation Analysis

	ROE	CA	EI	FA	FD	NBEB
ROE	1	-0.5143	0.259688	0.225118	0.46369	-0.05439
CA	-0.5143	1	-0.264194	-0.053336	-0.555007	-0.01463
EI	0.259688	-0.264194	1	0.522544	0.411001	0.547126
FA	0.225118	-0.053336	0.522544	1	0.423026	0.321468
FD	0.46369	-0.555007	0.411001	0.423026	1	0.241907
NBEB	-0.054386	-0.014633	0.547126	0.321468	0.241907	1

Appendix 4-Test of Heteroskedasticity

Heteroskedasticity Test: White

F-statistic	1.430875	Prob. F(27,53)	0.1315
Obs*R-squared	34.15038	Prob. Chi-Square(27)	0.1617
Scaled explained SS	69.20122	Prob. Chi-Square(27)	0.1010

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 06/21/16 Time: 11:36

Sample: 2 87

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1161.002	3154.732	-0.368019	0.7143
CA^2	0.079482	0.053339	1.490117	0.1421
CA*EI	0.054728	0.300460	0.182146	0.8562
CA*FA	-2.399209	1.917397	-1.251285	0.2163
CA*FD	0.822005	1.721920	0.477377	0.6351
CA*NBE	0.101248	0.197143	0.513578	0.6097
CA*ROE(-1)	0.064206	0.222341	0.288772	0.7739
CA	4.534116	15.29079	0.296526	0.7680
EI^2	1.977680	1.549223	1.276563	0.2073
EI*FA	-4.702505	5.718802	-0.822288	0.4146
EI*FD	-2.272243	5.413796	-0.419713	0.6764
EI*NBE	-0.322877	2.160989	-0.149412	0.8818
EI*ROE(-1)	0.429453	0.269455	1.593783	0.1169
EI	34.13216	62.58994	0.545330	0.5878
FA^2	18.62822	23.40958	0.795752	0.4297
FA*FD	-29.12745	37.56702	-0.775346	0.4416

FA*NBEF	2.194637	4.242857	0.517255	0.6071
FA*ROE(-1)	-6.889892	3.550897	-1.940324	0.0577
FA	136.9722	502.4495	0.272609	0.7862
FD^2	3.696898	20.98822	0.176142	0.8609
FD*NBEF	5.405001	3.163622	1.708485	0.0934
FD*ROE(-1)	1.818847	3.130603	0.580989	0.5637
FD	96.43419	480.7651	0.200585	0.8418
NBEF^2	-1.820281	2.821246	-0.645204	0.5216
NBEF*ROE(-1)	0.034151	0.409604	0.083375	0.9339
NBEF	-49.71398	35.44349	-1.402627	0.1666
ROE(-1)^2	0.049283	0.101873	0.483774	0.6305
ROE(-1)	33.04584	41.38417	0.798514	0.4281
<hr/>				
R-squared	0.421610	Mean dependent var	11.97024	
Adjusted R-squared	0.126958	S.D. dependent var	26.54163	
S.E. of regression	24.79963	Akaike info criterion	9.526735	
Sum squared resid	32596.15	Schwarz criterion	10.35445	
Log likelihood	-357.8328	Hannan-Quinn criter.	9.858824	
F-statistic	1.430875	Durbin-Watson stat	2.481444	
Prob(F-statistic)	0.131539			

Appendix 5-The Regression Result

Dependent Variable: ROE

Method: Panel Least Squares

Date: 06/09/16 Time: 16:52

Sample (adjusted): 2006 2015

Periods included: 10

Cross-sections included: 8

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.46110	2.912580	-6.338399	0.0000
CA	-0.068422	0.030021	-2.279110	0.0261
FD	2.730014	0.298834	9.135560	0.0000
FA	0.487331	0.212150	2.297103	0.0250
NBEF	-0.170374	0.082343	-2.069074	0.0427
EI	-0.111211	0.160082	-0.694712	0.4898
ROE(-1)	0.540037	0.077868	6.935265	0.0000
D112	11.49371	2.534006	4.535786	0.0000
D107	-14.76487	2.580626	-5.721432	0.0000
D315	9.202903	2.548418	3.611222	0.0006
D408	-8.253521	2.580062	-3.198962	0.0022

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.892244	Mean dependent var	12.52098
Adjusted R-squared	0.862697	S.D. dependent var	6.371833
S.E. of regression	2.361042	Akaike info criterion	4.751191
Sum squared resid	345.6202	Schwarz criterion	5.287147
Log likelihood	-172.0476	Hannan-Quinn criter.	4.966071
F-statistic	30.19833	Durbin-Watson stat	2.118713
Prob(F-statistic)	0.000000		

Appendix 6-Hausman Test

Correlated Random Effects - Hausman Test

Equation: EQ01

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	19.141870	5	0.0018

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CA	-0.031076	-0.069737	0.000135	0.0009
FD	1.684255	1.336482	0.011337	0.0011
FA	0.287987	0.366326	0.003269	0.1707
NBEB	-0.000386	-0.152039	0.001696	0.0002
EI	-0.090941	0.109169	0.008136	0.0265

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Date: 06/21/16 Time: 11:27

Sample: 2005 2015

Periods included: 11

Cross-sections included: 8

Total panel (balanced) observations: 88

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.747957	4.126582	-0.665916	0.5075

CA	-0.031076	0.033405	-0.930294	0.3552
FD	1.684255	0.480010	3.508789	0.0008
FA	0.287987	0.364181	0.790781	0.4316
NBEB	-0.000386	0.136982	-0.002815	0.9978
EI	-0.090941	0.254491	-0.357345	0.7218

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.600727	Mean dependent var	12.42766
Adjusted R-squared	0.536844	S.D. dependent var	6.298879
S.E. of regression	4.286739	Akaike info criterion	5.884536
Sum squared resid	1378.210	Schwarz criterion	6.250506
Log likelihood	-245.9196	Hannan-Quinn criter.	6.031976
F-statistic	9.403462	Durbin-Watson stat	1.343557
Prob(F-statistic)	0.000000		
