THE EFFECT OF BANK REGULATION ON PERFORMANCE OF PRIVATE COMMERCIAL BANKS IN ETHIOPIA

BY

ZEGEYE TADESSE

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

FEBRUARY, 2018

ADDIS ABABA, ETHIOPIA

THE EFFECT OF BANK REGULATION ON PERFORMANCE OF PRIVATE COMMERCIAL BANKS IN ETHIOPIA

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS DEPARTMENT OF ACCOUNTING AND FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTERS OF SCIENCE IN ACCOUNTING AND FINANCE.

BY

ZEGEYE TADESSE

ADVISOR

G/MEDIHN G/HIWOT (ATO)

FEBRUARY, 2018

ADDIS ABABA, ETHIOPIA

Declaration

I, Zegeye Tadesse, hereby declare that the thesis work entitled " T**he effect of bank regulation on performance of private commercial banks in Ethiopia**" submitted by me for the award of the degree of Masters of Science in Accounting and Finance of Addis Ababa University at Addis, Ethiopia, is my original work and it has never been presented in any university. All sources and materials used for this thesis have been duly acknowledged.

Name ***Zegeye Tadesse*** *Advisor's Name* G/Medihn G/Hiwot ***(ATO)***

Signature: _____ *Signature:* _____

Certification

Addis Ababa University
School of graduate studies

This is to certify that the thesis prepared by Zegeye Tadesse entitles: ***The effect of bank regulation on performance of private commercial banks in Ethiopia*** and submitted in partial fulfillment of the requirements for the degree of masters of Science in accounting and finance compiles with the regulations of the university and meets the accepted standards with respect to originality and quality.

Approved by:

Internal Examiner: Dr. Degefa Duressa Signature_____Date_____

External Examiner: Dr. Zinegnaw A Signature_____Date_____

Advisor: Ato G/Medihn G/Hiwot Signature _____Date_____

Chair of Department or Graduate Program Coordinator

Acknowledgement

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

First, I would like express my deepest gratitude to my advisor, G/Medihn G/Hiwot***(ATO)***, for his support, encouragement, invaluable comments, advice and guidance at various stages of my study. Thank you very much!!!.

I am very grateful to my friends (Hana Atfraw, Tamene Demisse, Fikru Yohannis & Others) for your unreserved support during all stage of my learning and study. I am also indebted to all friends who helped me during data collection.

I would like to give my most profound gratitude to my mother, sisters, brothers and relatives for their unconditional love and steadfast support at all times.

Finally I m grateful to my manager, Ato Henock Fanta and all unstated friends who gave me an idea and support throughout this study. This study was impossible without the support of all.

Abstract

The financial system plays a pivotal role in economic activities in any country. Thus it is vital to determine the status and assess the financial health of the financial system and take corrective policy measures continuously. The main objective of the study is to examine the effect of bank regulation on the performance of private commercial banks. The study used balanced panel model in examining the regression model and collect data from ten private commercial banks covering the period of six (6) consecutive years, 2011-2016with a total of 60 observations. To this end, the study employed a quantitative research approach by documentary analysis based on their audited financial statement. The study used panel data techniques specifically fixed effect model on the regression analysis and used E-view8 software. The study used two dependent variables return on asset (ROA) and return on equity (ROE), six independent variables that are NBE bill purchase, legal reserve requirement, equity investment, capital requirement, capital adequacy and bank size. The findings of the study for ROA model revealed that NBE Bill Purchase and Legal reserve requirement have negative and significant effect on performance of private commercial bank in Ethiopia, where as equity investment, capital requirement, bank size and capital adequacy are positive and significant effect on performance of private commercial bank in Ethiopia. The regression result of the second performance indicator ROE model revealed that NBE Bill Purchase and Legal reserve requirement have negative and significant effect on performance of private commercial bank in Ethiopia, where as equity investment, capital requirement, bank size and capital adequacy are positive and significant effect on performance of private commercial bank in Ethiopia. The research concluded that NBE regulation has significant effect on the performance of Ethiopian private commercial banks. Hence, the study recommend in support of each variables for Ethiopian private commercial banks to give due attention on NBE regulation to enhance their performance significantly.

Key words: - Bank, Bank regulation and Performance

Table of Content

List of tables

List of figures

List of Acronyms and Abbreviations

AB	Awash Bank
ARCH	Autoregressive Conditional Heteroscedasticity
BOA	Bank of Abyssinia
BZ	Bank Size
CAR	Capital Adequacy Ratio
CBO	Cooperative Bank of Oromia
CLRM	Classical Linear Regression Model
CR	Capital Requirement
DB	Dashen Bank
DBE	Development Bank of Ethiopia
dL	Durbin critical lower value
dU	Durbin critical upper value
DW	Durbin–Watson
EI	Equity investment
GoE	Government of Ethiopia
GTP	Gross Transformation Plan
JB	JarqueBera
LIB	Lion International Bank
LRR	Legal reserve requirement
NBP	National bank Bill purchase
NBE	National Bank Of Ethiopia
NIB	Nib International Bank
OIB	Oromia International Bank
OLS	Ordinary Least Square
ROA	Return on Assets Ratio
ROE	Return on Equity Ratio
SBB	Supervision of banking business
UB	United Bank
WB	Wegagen Bank
ZB	Zemen Bank

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Commercial banks play a vital role in the economic resource allocation of countries Ongore and Kusa, (2013). They contribute to economic growth of the country by making funds available for investors to borrow as well as financial deepening in the country (Otuori, 2013).They engaged in the business of accepting deposits from depositors and channeling the resources to those who needs them. They are also engaged in the areas like money transfer and international banking operations i.e. import and export businesses through their financial intermediation role. Beyond the intermediation function, the financial performance of banks has critical implications for economic growth of countries. Good financial performance rewards the shareholders for their investment. This, in turn, encourages additional investment and brings about economic growth. In order to provide a sustainable intermediation services in the economy and reasonable reward for the shareholders, banks need to be profitable. They can do so, if they generate necessary income to cover their operational cost. On the other hand, poor banking performance can lead to banking failure and crisis which have negative repercussions on the economic growth. Ongore and Kusa, (2013).

There are many aspects of the performance of banks that can be analyzed. As noted in (Flamini, 2009) bank profits provide an important source of equity especially if re-invested into the business. This should lead to safe banks, and as such high profits could promote financial stability. However, too high profitability is not necessarily good. Garcia-Herrero(2009) observed that too high profitability could be indicative of market power, especially by large banks. This may hamper financial intermediation because banks exercising strong market power may offer lower returns on deposit but charge high interest rates on loans. Too low profitability, in turn, might discourage private agents (depositors and shareholders) from conducting banking activities thus resulting in banks failing to attract enough capital to operate. Furthermore, this could imply that only poorly capitalized banks intermediate savings with the corresponding costs for sustainable economic growth.

According to different studies Rao and Lakew, (2012);Kanwal and Nadeem (2013); Panand Pan (2014); Ongore and Kusa (2013);Kiganda (2014)and banking literature, the performance of bank can be influenced by different factors. The performance of commercial banks can be affected by internal and external factors which can be classified into bank specific (internal) and macroeconomic variables (Ongore and Kusa, 2013). The internal factors are the individual bank characteristics that affect the profitability of banks and these factors are basically influenced by the decision of management and board. The external factors are wide or country factors, which are beyond the control of the company. Generally, the bank specific factors may relate to a bank's overall managerial practices on different operational aspects of the bank while the external factors are related to the industry and macroeconomic variables, within which the bank operates.

Bank Regulation is one of the external factors that could influence banks performance, it may affect individual banks directly and/or indirectly (Martin and Mauer, 2003).Regulation is implemented with the aim of restricting or limiting banking activities, the banks' conduct of business and the efficiency with which they operate will be affected. This in turn could induce banks to engage in riskier activities and /or to invest in ways to circumvent regulation; it could even ultimately affect economic growth (Jalilianet, 2007).

Bank regulations try to provide this stable framework which seeks to assure certainty and safety to users of the banking payment system which is critical for the wellbeing of the economy. Moreover, apart from maintaining public confidence, banking regulations also try to create a regulatory environment where banks are expected to be efficient and competitive; and are also expected to provide reasonable levels of banking services throughout the economy (Nafis, 2012).

The special role that banks play in the economic system implies that banks should be regulated and supervised not only to protect investors and consumers but also to ensure systemic stability. More specifically, 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 for banks are being rewritten in response to the global financial crisis, their implementation requires complex steps depending on each country's policies and they could have very different effects on bank performance depending on institutional environment where banks operate. Furthermore, the existing empirical evidence is inconclusive about the impact of regulatory and supervisory policies on bank performance (Faten, 2013).

The National Bank of Ethiopia, in order to protect depositors and stabilize macroeconomic conditions of the country, issues different regulations and directives and undertakes monitoring and controlling activities on commercial banks operating in the country. These regulations and supervisions are intended to stabilize the country's economic environment.

When we see the net income, it provides information on how well the bank is doing but the constraints on using it is that it is not adjusted for the size of the bank. This makes it difficult to compare how well a bank is doing compared to one other. In this way basic measurement of bank profitability is the return on asset (ROA) which corrects for the size of the bank. It is true that ROA provides useful and necessary information on bank profitability but this is not on the major interest of the bank's owners (equity holders). They are more concerned about how much the bank is earning on their equity investment, an amount that is measured by the return on equity (ROE), the net income per currency of equity capital (Mishkin Frederic 2009).Thus, the researcher was interested to examine the effect of bank regulations on the banks performance of private commercial bank as measurement of return on asset and return on equity.

1.1.1 Bank regulation

A. Requirement of purchasing NBE bill

On April 4, 2011 (NBE Directive No.MFA/NBE Bills/001/2011), the NBE issued a directive requiring all private commercial banks to invest 27% of their every new loan disbursements in NBE bills with maturity of five years at a very low interest rate, 3%, far below from what banks pay as an interest for the deposit. The government took this action as a way of mobilizing

resources for government targeted private sector activities and these funds are administered by the DBE. Following the five-year development plan - GTP (2010/11-2014/15) which aims to at least lay the ground for the structural transformation of the economy from agriculture to industry, the government has fully recognized the pivotal role of the private sector in the transformation process and committed to finance the private sector in selected strategic sectors that facilitates such transformation. These strategic sectors (manufacturing and agro processing) require long-term and large loans. However, private banks are not interested in providing long-term loans and have also limited capacity in providing large loans (single borrower limit). It is this factor that led the GoE to issue this bill to mobilize resources and facilitate access to long-term and large loans. These resources are being intermediated by the DBE, a bank established to financing long-term projects. Consequently private banks are shifting to long-term loans so as to reduce the amount of NBE bills as the turnover of short-term loans is high.

Private Banks are also engaged in rescheduling loans, which is not considered as new loan and hence managed to avoid additional NBE bills. They are also engaged in fee-based projects where they only give loan guarantee for projects and simply get money for this service without even being engaged in administration. NBE was aware of private banks‘ reaction such as shifting to long-term loans, and came up with a new regulation that forces all private banks‘ short-term loans to constitute at least 40% of total loans in 2013 (Directive No. MFA/NBE Bills/002/2013)

According to IMF report (2012), the NBE directive introduced in April 2011 is having tangible impacts on the banking sector, including maturity mismatch and less profitability. The requirement on private banks to purchase NBE bills equivalent to 27 percent of any new loans appears to have a sizable negative impact on private banks’ intermediation activities. The requirement also has the potential of creating maturity mismatches as private banks collect savings at two to three-year maturity and even shorter in some cases, but have to freeze these resources for five years at rates lower than cost of funds.

B. Equity investment Regulation

Countries may limit banks to a specific range of activities, or allow them to engage in broad activities, because this scope of activities basically defines what the term bank, is; therefore banks may not be the same in every country around the world. With regard to the meaning of a bank the National Bank of Ethiopia issued proclamation NO. 592/2008and define bank business as: receiving funds from the public, using the funds for loans or investment at the risk of the person undertaking banking business, buying and selling of gold and silver and foreign exchange; the transfer of funds to other local and foreign persons and the discounting promissory notes, drafts, bills of exchange and other debt instruments; are some of them.

The three main regulatory variables that significantly affect the activities of banks:

(a) Banks engage in Securities; such as underwriting, brokering, dealing, and all aspects of the mutual fund industry.
(b) Banks engage in insurance underwriting and selling.
(c) Banks engage Real Estate investment, development, and management.

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).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 was seen on the effect of amount invested on equity purchased and the bank's profitability.

C. Paid Up Capital requirement

Traditional approaches to bank regulation emphasize the positive features of capital adequacy requirements (Dewatripont and Tirole, 1994). Capital serves as a buffer against losses and hence

failure. Furthermore, with limited liability, the tendency for banks to engage in higher risk activities is curtailed with greater amounts of capital at risk. Capital adequacy requirements, especially with deposit insurance, play a crucial role in aligning the incentives of bank owners with depositors and other creditors (Berger, 1995).

With the objective of enhancing commercial banks capacity to absorb unexpected or unusual losses, the NBE promulgated a directive that sets the minimum paid up capital for new and existing commercial banks. Since September 2011, new commercial banks shall raise birr 500 million as a minimum startup capital, which was 75 million birr (Directive No. SBB/50/2011). Existing commercial banks are also required to raise their minimum paid up capital to Birr 500 million in less than five years 'time, by 30 June 2016. Regarding directive No. SBB/3/95 the contribution in kind of the initial capital requirement and stated capital contribution in kind is not allowed for fulfilling minimum required capital and even if the bank fulfills its requirement the capital contributed in kind must not exceed 25% of paid up capital.

D. Legal Reserve requirement

High reserve requirements could result in financial repression which distorts the well-functioning of domestic financial markets (Tesfaye, 2014). According to Shimelis (2016) most of the less developed countries the use of reserve requirements against banks liabilities goes beyond their traditional role as a monetary instrument and a prudential measure. They have been used to control the quantity of money and credit; affect the liquidity of the banking system.

Following the success in getting down the inflation in the country, the NBE revised the reserve requirement downwards to 5% effective from March 2013 (Directive No.SBB/55/2013). However, high reserve requirements decrease loan able funds available for investment by reducing the fraction of given volumes of deposits rate and by reducing the equilibrium volume of deposits through decreasing the profit-maximizing deposit Hence they are considered as a leakage in the intermediation process (James, 2002).

Reserve requirement policy in Central Bank of Montenegro primarily affects liquidity of the banking system and indirectly affects the stability and confidence in the banking system. Also,

using this instrument, the Central Bank of Montenegro influences the level of lending activity, i.e. indirectly it has effects on the money supply in the economy. Besides that, the reserve requirement policy change potentially impacts the maturity structure of deposits (Velibor, 2014).

1.2 Statement of the problem

Banking sector is the backbone of any economy and plays an important role in the economic development of a country (Barth et al., 2006). This may be achieved through facilitating the vital financial intermediation function by transferring the deposit in to productive investment. In the new era of globalization the function of banks diversified from the traditional function, accepting deposit and granting of loan, to a wide range of financial service and products like overdraft, discounting of bills of exchange, agency functions, payment mechanisms, mobile banking, internet banking, agent banking and miscellaneous functions. Hence, along with the number of products the bank operations are managed by different regulation issued by central banks.

Financial crises in 2007 which began from United State subprime mortgage crisis create a big recession in the world economy. At that time financial institution written off losses of worth billions of dollars which forced them to decrease their employees and the government also incurred a loss in subsidizing these financial institutions. In addition, this crises show there was a financial risk created in the banking sector. The bankruptcy in the financial sector has a contagion effect that can lead to overall financial crisis and economic tribulation. Moreover, the financial crisis incurred in the banking sector transmits from one country to another country (IMF, 2008).

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. The issue of financial regulation – particularly in relation to the banking sector – is often considered a controversial issue. Regulation is costly and can give rise to moral hazard problems. In addition distortions between regulated and unregulated institutions can occur (Barth, 2006).

In Ethiopia, National Bank exercises control over the banking sector through issuance of directives and regulation pertaining formation and operation of a banking business. Most of the directives on operation aim at reducing risk of financial and liquidity in the banking system. Some of NBE's directives are issued as part of the central bank's conduct of monetary policy and some are issued to ensure that the sector plays adequate role in channeling funds to priority sectors of the economy.

Most notable action by NBE is its revision of the reserve requirement to combat skyrocketing inflation in the country. The bank reserve requirement 5% in 2004 (NBE directive no.SBB/37/2004) and revised in 2007 from 5% to 10% (NBE directive no.SBB/42/2007) and again revised from 10% to 15% in 2008 (NBE directive no.SBB/45/2008)and revised in 2012 from 15% to 10% (NBE directive no.SBB/46/2012) and finally reserve requirement revised from 10 % to 5% in 2013(NBE directive no.SBB/55/2013).

The other most important directive of NBE is minimum paid up capital requirement was 75 Million in 1999 ((NBE directive no.SBB/24/1999) but it's revised in 2011by directive no (NBE directive no.SBB/50/2011) increased to 500 million and the other regulation of the NBE 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).

Moreover, NBE has introduced a new directive which requires all private commercial banks in the country to purchase NBE Bill amounting to 27%of total loan disbursed starting from 4th April 2011 (Directive number: MFA/NBE Bills/001/2011). The bill has a maturity period of 5 years. The interest rate on the bills is 3 percent while the rate of interest that banks charge when they accept deposits is 5 percent. This literally means that banks offered loan for the NBE at a loss of 2 percent. This does have a significant negative effect on the performance of private 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 NBE bill purchase regulation; (Yodit, 2012; Eden, 2014; Tesfaye, 2014 and Shibiru, 2014). They do not consider on equity investment and minimum paid up capital requirement regulation. And also the other study (Addsiu, 2016),evaluate the effect of bank regulation on the profitability of private commercial but in this research NBE bill purchase is not considered and this research was not consistent to previous study.

Thus, now the researcher considers four regulations (NBE bill purchase, Legal reserve requirement, Equity investment and capital requirement) and also checks the consistency of the result of the above study, finally this study was designed to contribute to the current literature by providing some evidence on the effect of bank regulation on the performance of private commercial banks in Ethiopia.

1.3 Research Questions

RQ1: What are the effects of NBE Bills purchase regulation on the performance of private commercial banks in Ethiopia?

RQ2: What are the impacts of legal reserve requirement on the performance of private commercial banks in Ethiopia?

RQ3: What are the impacts of Capital Requirement on the performance of private commercial banks in Ethiopia?

RQ4: What are the effects of equity investment on the performance of private commercial banks in Ethiopia?

1.4 Objective of the study

1.4.1 General Objective

The general objective of this study is to examine the effect of Bank regulations on the performance of private commercial banks in Ethiopia.

1.4.2 Specific Objectives

The specific objectives are as follows:

- To examine the effect of legal reserve requirement on performance of private commercial banks in Ethiopian.
- To study the effect of paid up Capital requirement on the performance of private commercial bank in Ethiopia.
- To analysis the effect of NBE bill purchases on the performance of private commercial bank in Ethiopia.
- To examine the effect of equity investment on the performance of private commercial bank in Ethiopia.

1.5 Hypotheses of the study

In order to evaluate and examine the impact of NBE regulation on the performance of Ethiopian private commercial banks, the following hypotheses are tested.

H1: NBE bill purchase has negative and significant effect on ROA
H2: Legal reserve requirement has negative and significant effect on ROA
H3: *Equity investment has positive and significant effect on ROA*
H4: Capital requirement has positive and significant effect on ROA
H5: NBE bill purchase has negative and significant effect on ROE
H6: Legal reserve requirement has negative and significant effect on ROE
H7: *Equity investment has positive and significant effect on ROE*
H8: Capital requirement has positive and significant effect on ROE

1.6 Scope of the Study

The study is limited to evaluate the effect of the regulatory variables on banks performance and this study was focuses only on private commercial banks in Ethiopia. The rest two public banks are excluded due to their unique features. Such as Development bank of Ethiopia have unique business motive than other commercial banks and commercial bank of Ethiopia which has long history and outstanding performance in Ethiopian banking industry and some of NBE directives are exclude both banks.

The study has taken the cross sections based on their total assets, profit and market share that can refer more than 80% of the total population. The study used four regulatory variables i.e. NBE bill purchase, Legal reserve requirement, equity investment regulation and paid up capital requirement and two control variable i.e. capital adequacy ratio and bank size . As the result, these variables could explain the topic properly by and referring previous empirical works.

1.7 Limitations of the Study

The study was limited on the effect of bank regulation on performance of private commercial bank in Ethiopia and made the analysis using secondary source of data. The study had taken in to account the performance of private commercial bank in Ethiopia for the last 6 years that is from 2011 to 2016. As a result, the research included private commercial bank in Ethiopia that started operation before 2011, which include 10 private commercial banks in Ethiopian.

The study also limited to evaluate the impact of the regulatory variables on banks performance, which are applied by the National Bank of Ethiopia, observed for six consecutive years: 2011-2016. The limitation that is faced by the researcher is lack of literature in National bank regulations and its impact on banks performance in Ethiopia.

Furthermore, the researcher could not acquire much theory basically on the country and subjects under the study for reviewing and to make comparative analysis on the result. With the exception of some research papers on the impact of bank regulation on the performance of commercial banks in Africa, all the other theories presented under theoretical review of European, American

and Asian countries which may not be directly related to Ethiopia in terms of differences in macroeconomic condition and industry structures.

1.8 Significance of the study

The study has the following significances for policy makers, companies and other stakeholders:

- National Bank of Ethiopia can use the study or the recommendations included in this paper as a base to improve its policy\regulation after carefully evaluating its effect.

- The results of this study will create improvement for banks about the effect of NBE regulation on their performance and give the opportunity to influence NBE by providing feedback during policy formulation and implementation.

- In additional to the above point there is no sufficient research in Ethiopia with the objective of investigating the effect of bank regulation on the performance of private commercial banks in Ethiopia. As a result, this study makes a number of contributions to other researchers as a source of reference and as a stepping one for those who want to make further study on the area afterwards.

1.9 Structure of the study

The research paper is organized in to five chapters. Chapter one is an introduction part where back ground of the study, statement of the problem, objectives of the study, hypothesis, scope, significance and limitation of the study are presented. Chapter two is review of literature in which theories, empirical evidence and conceptual frame work are identified. Chapter three contained research methodology where research design, research approach, population, sampling method, sample size, sources of data, instruments, data analysis technique, model specification, variable definition and hypothesis development were covered. Chapter four focused on the results and discussion in which the findings results that are interpreted. Finally, Chapter five brought of research to an end with summary, conclusion and possible recommendation.

CHAPTER TWO: LITERATURE REVIEW

A comprehensive review of published and unpublished works in the areas of regulations and the performance of banks is made to develop and identify the problem, to develop research questions and so as to come up with appropriate research methods. It also comprises various researchers point of view on related research works from the context of various countries. Therefore, the literature review is organized and presented in two sections. The first section discusses the theoretical literature about regulatory measures and the performance of banks from different perspectives and the second section presented empirical literature on studies made at similar level.

2.1 Theoretical Literature

Banks operate in one of the most regulated industries, and it is not surprising that banking regulations have attracted both theoretical and empirical interest. However, the theory provides conflicting views about which regulations are the most appropriate ones and what the optimal levels. Also debates are still going on whether bank-regulatory environment is improving and making financial systems more efficient and stable or not.

2.1.1 Definition of Banking Regulation

Banking regulation in its strictest sense refers to the framework of laws and rules under which banks operate. Kenneth, (2000) defines it as: the banking agencies' monitoring of financial conditions at banks under their jurisdiction and to the ongoing enforcement of banking regulation and policies. Bonn,(2005) stated that banking regulation originates from microeconomic concerns over the ability of bank creditors (depositors) to monitor the risks originating on the lending side and from micro and macroeconomic concerns over the stability of the banking system in the case of a bank crisis. Harvey (2012) defines regulation as the formulation and issuance by authorized agencies of specific rules or regulations, under governing law, for the conduct and structure of banking.

Adam, (2005) argued that in addition to statutory and administrative regulatory provisions, the banking sector has been subject to widespread "informal" regulation, i.e. the government's use of its discretion, outside formalized legislation, to influence banking sector outcomes, for example to bail out insolvent banks, decide on bank mergers or maintain significant state ownership. When we look at regulation and supervision, 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 (Giorgio's Ct al., 2010).

2.1.2 **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 too many aspects of the activities of banking, including who can open banks, what products can be offered, and how banks can expand.

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

Banking regulation is favored so as to provide stability in the banking system and meet up to its requirements of a high solvency and liquidity level (Adam, *2005;* Fatimah, 2012). The most basic reason for regulation of banking is depositor protection. (Marcia et al. 2004). 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 (Kenneth, 2000).

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 (Kenneth, 2000).

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 (Kenneth, 2000).

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 (Kenneth, 2000)

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 (Barthet. al 2006).

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 (Barth et. al 2006).

2.1.3 **The role of bank regulators**

The role bank regulators assume in protecting and insuring depositors is similar to the position any creditor or insurer takes in protecting his or her interests. Bank regulators take many similar steps in an effort to control banking risks and thereby protect depositors and ensure financial stability. Banks, for instance, are restricted to certain activities and must maintain adequate capital relative to asset and operational risks. They are also expected to maintain enough low-risk liquid securities to cover normal fluctuations in deposits. They are regularly examined, and bank supervisors will impose tighter restrictions on banks if their condition declines (Kenneth, 2000).

Commercial banks perform several valuable services to sectors of the economy. The effect of a disruption in the provision of the various services on firms, households, and the overall economy when something goes wrong in the commercial banking sector makes a case for the need to monitor performance and market value and to impose regulations that in turn affect bank performance and market value. Although regulations may be beneficial to households, firms, and the overall economy, they also impose private costs that can affect the performance and market value of commercial banks (Marcia et al., 2004).

Another goal of banking regulation is to protect consumer interests in various aspects of a banking relationship. The aforementioned regulatory objectives serve to protect consumers in a number of ways, most notably through safeguarding their deposits and promoting competitive banking services. In addition to their responsibilities for depositor protection and monetary stability, bank regulatory agencies are also responsible for promoting an efficient, competitive banking environment and preventing monopolization of banking markets (Kenneth, 2000).

In banking regulation, the objective of monetary stability has been closely linked with the goal of depositor protection. Financial crises and unintended fluctuations in the money supply have been prevented primarily by promoting confidence in banks and guaranteeing the safety of deposits.

2.1.4 **Characteristics of Good Banking Regulation**

Because bank regulation has been extended to cover a range of goals, there is always the possibility that it might be extended to areas that are not a proper concern for public policy. Thus, the limits of bank regulation can best be understood in terms of the things it should not try to-do.

Banking Regulations and Government Policies Discrimination

Discriminatory intervention in banking regulation, except in cases of obvious distortions, is not desirable for several reasons. In a free society, market forces should be free to allocate credit and resources. Rules that interfere with the market are inconsistent with this principle and may have unforeseen side effects (Marcia et al., 2004). Any such intervention in banking is often likely to be futile, or nearly so, since borrowers and other customers can frequently shift their business into “favored" areas or switch to less regulated entities.

Consequently, banking regulation must be evenhanded in its effects on various groups. Regulation should not give preferential treatment or discriminate financial institutions or to their customers, and it should not favor one size or type of financial institution over another. For example, banks should not be protected from the competition of other institutions nor other institutions from bank competition. In the interest of a competitive and efficient banking system,

good bank regulation should have minimal effects on credit and resource allocation decisions and should not encourage costly efforts at circumvention (Kenneth, 2000). For good regulation to be enacted, policy makers must know what it looks like and be willing to go through the requisite political process. However, good regulation has been elusive, partly because banks and governments have developed "corruptive dependencies" (Lessig, 2011).

When political considerations enter the implementation of beneficial regulation improperly, the promotion of the public interest is compromised. To avoid this outcome, it is desirable that banking supervision should be immune from interference by the government. Subordination of supervision to the government has traditionally been justified on the grounds that taxpayer must foot the bill if banks run into difficulties. However, the symbiosis of banks and government with banks fund in government favored projects and governments bailing out banks corrupts the governance of both. Supervisory independence could perhaps break the nexus. Even then, capture of regulators or supervisors by revolving-door recruitment or by the greater sophistication and information of bank managers remains a serious concern (Lessig, 2011).

Ideally, it would be useful to allow supervisory judgment to address pro-cyclicality and prevent inefficient asset sales, or to adjust capital requirements depending on the assessed buildup of systemic risk through business and credit cycles. However, discrimination is problematic if regulators or supervisors are captured. The past decade does not provide grounds for optimism. These distortions shall only be implemented if and only if it does not impede or distort competition. (Kenneth, 2000).

Banking Regulation Must Keep Banks From Failing

Provided insured depositors can be protected and adequate banking services can be maintained, preventing the failure of individual banks is not a primary focus of banking regulation. In cases where banks are failing, regulatory aid might serve only to protect those responsible for the bank ‘spoor performance its management and stockholders. Furthermore, in a dynamic banking system, regulation cannot prevent all banking failures, at least not at an acceptable cost (Fotios et al.,2008). Even if failures could be prevented, the result would be to sacrifice some of the main

objectives of regulation. For example, poorly managed banks and their stockholders might have to be protected from competition and the discipline of the marketplace, thus giving them further incentives to take excessive risks and avoid corrective actions. Such protection might also leave the customers of these banks with overpriced, low-quality services. Finally, to prevent failures, regulators might have to impose tight restrictions on the entire banking industry, thus keeping well-managed banks from fully meeting the needs of their customers (James et al., 2012).

For the most part, the bank regulatory agencies have handled banking problems and failures with little disruption to depositors, other bank customers, and the local economy. Kenneth (2000) puts the characteristics of a good regulation as one that facilitate invention and that thinks globally so as to utilize as well as protect itself from the spillover effects of failure in another country. Through these actions, failing banks and their management and stockholders can be forced to bear the full consequences of their actions, and the deposits and many of the assets at these banks can be taken over by banks operated in a safer and more efficient manner.

Bank Regulations Substitute Government Decisions

Kenneth, (2000) argues that bank regulations are partly the substitute of the political environment and should be in place carefully so as not to put too much burden in the industry. When bank examiners identify problems at banks, they may offer advice on how the problems could be corrected. The examiner is not in a position, however, to determine policy at a bank or to establish particular lending and investment practices.

Bank supervisors can often judge a banker's decisions only in retrospect. Credit decisions, for instance, might be based partly on characteristics of individual borrowers that only the lending officer understands. Also, a bank supervisor or examiner who spends only a few days or weeks in a bank cannot gather all the information available to the banker or fully comprehend all the policy decisions made in the bank. In meeting their own objectives, bank examiners and regulators must therefore be careful not to hinder banks as they serve the needs of their customers and the overall economy (Fotios et al., 2008).

2.1.5 **Theoretical and policy debates**

Grabbing Hand theory and Helping hand theory:

In economic theory there are two perspectives on the role of the government in the market place: the public interest world based on the premise that markets can fail so that intervention by a benevolent government is justified ("helping hand" view); and the private interest theory, portrayed by the "grabbing hand" by Shleifer and Vishny (1998), recognizing that both despotic and democratic governments are likely to pursue goals that are different from "social welfare". Instead, economic policy is designed in such a way that it benefits those who currently have political power.

As cited Bonn (2005) this section discusses seven policy issues. For each issue, the researcher : (1) stress the conflicting theoretical predictions and policy debates, (2) emphasize that specific regulations and supervisory practices are so inextricably interrelated it is important to examine them simultaneously.

Regulations on bank activities and banking-commerce links

There are five main theoretical reasons for restricting the degree to which banks can engage insecurities, insurance, and real estate activities, or own nonfinancial firms. Indeed, it is these types of regulations that help define what observers mean by the term "bank." First, conflicts of interest may arise when banks engage in such diverse activities as securities underwriting, insurance under writing, and real estate investment. Banks, for example, may attempt to "dump" securities on or shift risk to ill-informed investors so as to assist firms with outstanding loans Second, to the extent that moral hazard encourages riskier behavior by banks, they will have more opportunities to increase risk if allowed to engage in a broader range of activities. Third, broad financial activities and the mixing of banking and commerce may lead to the formation of extremely large and complex entities that are extraordinarily difficult to monitor. Fourth, large institutions may become so politically and economically powerful that they become "too big to discipline." Finally, large financial conglomerates may reduce competition and hence efficiency in the financial sector. According to these arguments, a helping hand from the government can ease market failures and thereby enhance bank performance and stability by restricting activities (Bonn, 2005).

There are alternative theoretical reasons for allowing banks to engage in a broad range of activities, however. First, fewer regulatory restrictions permit the exploitation of economies of scale and scope. Second, fewer regulatory restrictions may increase the franchise value of banks and thereby augment incentives for more prudent behavior. Lastly, broader activities may enable banks to diversify income streams and thereby create more stable banks (Bonn, 2005).

Regulations on domestic and foreign bank entry

Economic theory provides conflicting views on the need for and the effect of regulations on entry into the banking sector. The helping-hand view suggests the government can play a positive role in screening entry. Since banks play such an important role in an economy, widespread failures would reverberate throughout an economy with devastating effects. By effectively screening of bank entry can promote stability.

Thus, there may be a helping-hand role for the government in limiting destabilizing competition. In addition, regulators may need to limit entry in accordance with the ability of official agencies to supervise banks. Specifically, since it is costly to monitor banks and since there are externalities associated with monitoring banks, many private agents will free-ride, resulting in a socially sub-optimal level of monitoring. Consequently, official supervisors play a crucial and necessary role in overseeing banks, according to the helping-hand view.

The grabbing-hand view provides a quite different perspective on regulating entry. While there may exist valid economic reasons for regulating entry, this view stresses the negative impact of such limits on corruption and economic efficiency. According to the grabbing-hand view, politicians and regulators use entry restrictions to reward friendly constituents, extract campaign support, and collect bribes [Shleifer and Vishny (1993) and Djankov, La Porta, Lopez-de Silanes, and Shleifer(2001)]. Furthermore, an open, competitive banking sector may be less likely to produce powerful institutions that unduly influence policymakers in ways that adversely affect bank performance and stability.

Regulations on capital adequacy

Traditional approaches to bank regulation emphasize the positive features of capital adequacy requirements. Capital serves as a buffer against losses and hence failure. Furthermore, with limited liability, the proclivity for banks to engage in higher risk activities is curtailed with greater amounts of capital at risk. Capital adequacy requirements, especially with deposit insurance, play a crucial role in aligning the incentives of bank owners with depositors and other creditors.

Deposit insurance design

Countries adopt deposit insurance schemes to prevent widespread bank runs. If depositors attempt to withdraw their funds all at once, illiquid but solvent banks may be forced into insolvency. To protect payment and credit systems from contagious bank runs, many favor deposit insurance plus powerful official oversight of banks to augment private-sector monitoring of banks. Deposit insurance schemes come at a cost, however. They may encourage excessive risk-taking behavior, which some believe offsets any stabilization benefits. Yet, many contend that regulation and supervision can control the moral-hazard problem by designing an insurance scheme that encompasses appropriate coverage limits, scope of coverage, coinsurance, funding, premier structure, management and membership requirements.

Supervision

The helping-hand view of government suggests an important, powerful role for official regulators and supervisors. The line of reasoning essentially is as follows. First, banks are costly and difficult to monitor. Private agents may not have the ability or incentive to supervise banks and will attempt to free-ride. Thus, there will be too little monitoring of banks, which implies sub-optimal performance and stability. Official supervisors can ameliorate this market failure. Second, because of informational asymmetries, some argue that banks are prone to contagious and socially costly bank runs. According to the helping-hand view, government supervision in such a situation can serve a socially efficient role. Third, since many countries choose to adopt a deposit insurance scheme, this situation: (1) creates incentives for excessive risk-taking behavior by banks, and (2) reduces the incentives for depositors to monitor banks. Thus, strong, official

supervision will help prevent banks from engaging in excessive risk-taking behavior and thus improve bank development, performance and stability (Kane, 1990).

The grabbing-hand view highlights the potential negative implications of powerful government regulators and supervisors. As noted above, governments with powerful supervisory agencies may use this power to benefit favored constituents, attract campaign donations, and extract bribes. Powerful regulators/supervisors, according to this view, will be less focused on over coming market failures and more concerned with currying political support and implementing their own arrow objectives. Thus, the grabbing-hand view predicts that powerful supervision and regulation will be positively related to corruption and will not improve either bank performance or stability (Kane, 1990).

In practice, policymakers and international institutions debate and make recommendations on a wide variety of bank regulatory and supervisory practices. In the area of supervisory resources and powers, countries assign very different priorities to bank supervision. We have collected data on the number of supervisors, average tenure of supervisors, legal power of the supervisory agency, and independence of the supervisory agency. We assess whether the impact of official supervisory resources, powers, and independence depends on: (a) the extent of private-sector monitoring, (b) regulatory restrictions on bank activities, and (c) the degree of moral hazard created by deposit insurance schemes Kane (1990).

2.1.6 **Economic theory of bank regulation**

The evolution of banking regulations closely parallels the evolution of the economic analysis of regulation. Until the 1960s, the analysis of banking regulations that mostly prevailed amongst academics and regulatory authorities focused on the public interest motive underlying regulations. From the late 1960s on, that view was challenged and replaced by the private interest view of regulation as a new regulatory paradigm leading to major changes in the banking industry in the 1970s and 1980s.

2.1.6.1 ***The public interest approach to banking regulation***

The public interest view of regulation is strongly connected with welfare economics. It holds that regulation provides corrective measures against various market failures, including natural monopolies and increasing returns of scale, information imperfections in market transactions, income and wealth distribution, effects under-provision of collective goods and externalities. It has been suggested that market failures may be more pronounced, and therefore the case for public regulation is stronger, in developing countries (Stiglitz 1971).

From this perspective, regulation is considered to promote public interest and increase social welfare. Accordingly, regulatory authorities are assumed to be concerned with efficiency alone. In this view, they are protected from the pressure of private interest groups, they do not pursue any private agenda and redistributive issues are left outside the scope of regulation, as an exclusive matter for politicians. In addition, regulators are assumed to be rational and perfectly informed, so that their decisions are not affected by either informational or computational limitations. This optimistic view of regulation motivated state intervention in a wide range of areas after the New Deal and World War II. Similar public interest rationales were thus used to justify state regulation in a wide array of industries, including public utilities, transportation and energy (Winston 1993). In the banking sector, from the 1930s to the 1970s, regulation focused on a mix of market structure regulations, restrictions on banking group structures, asset allocation rules, and interest rate ceilings. Issued after the Great Depression, such instruments are straightforward to justify on public interest grounds, as they are intended to deal with various kinds of market failures (Sophie & Laurence 2015). Thus not only do they provide a safeguard against the occurrence and severity of the negative externalities arising from major banking crises, they also aim to protect investors and consumers and provide the socially optimal amount of collective goods, including macroeconomic stability and a sound banking system. By reducing the risk-taking tendency of banks, they also strengthen their robustness and thereby dramatically reduce the probability of failure associated with excessive risk-taking. In addition, such statutory measures are also intended to solve market inefficiencies and welfare losses arising from imperfect competition in the banking industry. From this viewpoint, regulatory authorities are the

agents capable of rectifying market failures and restoring the market to a competitive equilibrium (Ibid 2015).

These rules and regulations operated until the 1970s. However, in the late 1960s, a critique of the public interest theory of regulation started to develop, pointing out the poor economic performance of most regulated markets and the difficulty in understanding some regulation from a welfare-maximizing point of view (Ibid 2015).

The critique left no field of state regulation unscathed. However, criticism was especially sharp in the banking sector, asserting that the regulations affecting the structure of the banking industry and the conduct of banks prevented financial intermediaries from functioning at their full capacity, thereby generating inefficiencies and welfare losses. Thus, as early as in the mid-1960s, some authors called for alternative regulation, pointing out that _many of the controls imposed on banking fail to achieve their purposes, impose costs that appear to exceed the benefits or create the problem that they are said to eliminate. It would seem desirable, therefore, to eliminate many of the existing controls and to replace them with a new set of institutional arrangements (Meltzer 1967). At the same time, regulations were accused of hindering competition and guaranteeing artificially high profitability for the banks. According to this view, entry restrictions protect banks from competition, portfolio restrictions hinder diversification, deposit insurance systems exacerbate moral hazard problems and geographic restrictions prevent expansion within a country or across national borders. Thus, commentators associated banking regulation in many countries with _financial repression‘. McKinnon(1973), seeing them as two sides of the same coin, since the policies causing financial repression include administered interest rates, high bank reserve requirements, capital controls, restrictions on market entry into the financial sector, credit ceilings or restrictions on the direction of credit allocation and government ownership or domination of banks. Eventually, at the end of the 1960s, a consensus seemed to emerge that the public interest approach to regulation fails to take into account the negative effects of most regulatory provisions in the banking industry. Challenging the public interest theory of regulation in the banking industry was part of a larger movement that helped make deregulation a respectable idea (Hagg 1997 &McGarity 1996)

2.1.6.2 ***The private interest approach to banking regulation***

At the end of the 1960s and the beginning of the 1970s, the critique of regulation was taken over by scholars about a new theory of regulation. Their standpoint, known as the private interest view of regulation, was much more pessimistic about the positive effects of regulatory intervention than the public interest approach. They focused on both the inefficiencies and distributional effects that stem from government regulation, such as the effect of the influence and pressure exerted by special interest groups on regulatory authorities.

The effectiveness of the interest groups depends on a number of factors. First, cohesive groups will find it easier to organize and overcome free-rider problems in lobbying for regulations that may benefit them. Producers of goods and services tend to be more compact and better organized than consumers, so there is a tendency for regulation, on net, to benefit producers more than consumers (Stigler 1971).

Second, groups tend to be more effective not only when the benefits are concentrated among group members but also when the costs of the regulation are relatively diffuse. A compact group of potential ―losers,‖ each of whom would experience high losses associated with the regulation, are likely to form a lobby that will try to counteract the original interest group‘s pressure. Interest groups most directly affected by the regulation may also attempt to build a broader coalition to lobby for or against the regulation. In the long legislative debate over the expansion of bank powers, securities firms, and insurance companies organized powerful lobbying organizations that focused much of their energy on battling each other (Kroszner&Stratmann 1998).

Third, in addition to the diffusion of costs across different groups, the level of the costs relative to the benefits obtained by the interest group plays an important role (Becker 1983). According to Becker (1983) deadweight loss is defined as precisely the difference between the ―winner‘s‖ benefit minus the loser‘s cost from the change in output generated by the regulation. Factors affecting the ―efficiency‖ of the regulatory or transfer mechanism thus may have an important

impact on political outcomes. As the deadweight loss grows, an interest group faces greater opposition to its protective regulation on the margin and hence it is less likely to be successful.

Along these lines, most regulation in the banking industry is thought to serve the private interests of banks and to organize the distribution of rents between them (Benston, 1998). As the financial sector is especially well funded and well organized, it appears powerful enough to influence regulation (Barkow, 2013 &Caprio, 2013). Following the special interest group theory, several historical studies re-interpret existing regulations as serving the vested interests of commercial banks and savings and loans (S&Ls) against external competitors, at the expense of consumer welfare, rather than being driven by public interest and social welfare considerations (Benston, 1989).

A fundamental assumption of this approach is that regulatory authorities are no longer expected to maximize social welfare but are rather self-interested. Theorists argue that individuals are essentially self-interested in or out of the public arena and it are necessary, therefore, to analyze the regulatory process as the product of relationships between different groups. This has been refined in the concept of ―regulatory capture‖, which involves the regulatory process becoming biased in favor of particular interests. In the extreme case, the regulatory capture literature concludes that regulation *always* leads to socially sub-optimal outcomes because of ―inefficient bargaining between interest groups over potential utility rents‖ (Laffont&Tirole 1990).

More generally, it is to be expected that both the process and outcomes of a regulatory regime will be determined by the specific institutional context of an economy, as reflected in its formal and informal rules of economic transacting. By setting the ―rules of the game‖, institutions impact on economic development (World Bank 2002). Economic development is seen not simply as a matter of amassing economic resources in the form of physical and human capital, but as a matter of ―institution building‖ so as to reduce information imperfections, maximize economic incentives and reduce transaction costs. Included in this institution building are the laws and political and social rules and conventions that are the basis for successful market production and exchange.

2.1.7 **Prudential theory of bank Regulation**

Prudential regulation refer to the financial soundness of financial service suppliers and aim to prevent the risk of suppliers not being able to meet their liabilities as they fall due. and also General Agreement on Trade in Services (GATS) adopts a seemingly broader definition (with a pro-regulation touch) by regarding as prudential those policies or measures adopted to protect consumers of financial services such as investors or depositors and to maintain the integrity and stability of the financial system (Panagiotis 2012). This indicates that prudential regulation of banks is intended to pursue two main goals: investor protection and financial stability. The theoretical justification of these goals hinges essentially upon three complementary arguments. First the nature of the banking business makes asymmetric information a severe problem to the relationship between banks and depositors. Secondly, since most deposits are callable either on demand or at a small cost, depositor‘s reactions to negative information about the solvency of a bank usually take the form of deposit withdrawals. Finally, given interbank lending and payment-related links among financial institutions, bank failures are likely to produce negative impact on the overall economy. Investor protection aims preserving externalities across the financial system and on the rest of economy giving raise to the so-called systemic risk of banking. In this context, investor protection aims preserving the liquidity and safety of deposits, whilst financial stability aims keeping systemic risk under control (Diamond &Dybvig 1983). Prudential rules typically relate to rules relating to capital adequacy, loan loss reserve requirements, minimum cash reserve and liquidity requirements or regulations on what constitutes an adequate level of diversification of risk. Prudential regulations can be discriminatory or may be applied in a discriminatory manner.

Before the crisis, micro-prudential regulation and supervision mainly involved a focus on individual financial institutions and their investors and how they managed balance sheet risks in a liberalized financial system where capital movements, interest rates and exchange rates were (and remain) deregulated. Although micro-prudential regulation had been utilized by many national regulators prior to the 1970s, it became a primary focus of bank per visors in the 1970s. The theory of micro-prudential regulation is, oftentimes, based on some reasoning. Banks finance themselves with government-insured deposits. It has been argued that deposit insurance

could effectively prevent runs (Diamond &Dybvig 1983). However, it could induce or create opportunities for bank managers to take excessive risks, knowing fully well that losses will be borne by the taxpayer. Interestingly, if the probability of the deposit insurer to bear losses is minimized to a considerable low level, micro-prudential regulation tends to have achieved its objective.

The micro-prudential approach to regulation and supervision has been predominantly concerned with the stability of individual financial institutions and their responses to exogenous risks (Adrian & Brunnermeier 2011). However, by focusing on individual institutions, such forms of regulation tend to ignore the impact of financial institutions risk-taking on the broader financial system. For example, the micro-prudential approach often failed to incorporate into regulatory assessments on the impact of a bank‘s size, degree of leverage and interconnectedness with the rest of the financial system. Moreover, bank supervisors generally assumed that banks were primarily exposed to exogenous risks, that is, risks that are generated externally to the bank‘s operations, and that any change, for example, in their credit or market risk exposures would require them to make balance sheet adjustments (i.e., by buying or selling assets) in a more or less similar manner. Although each bank individually might be adjusting their balance sheet risk in a prudent manner, the cumulative effect of all banks acting in the same manner would be to increase system-wide risks across the financial sector. This could have the effect of exacerbating a market upturn or downturn. Indeed, the Turner Review (2009) published in the aftermath of the crisis, argued that this sort of regulation mistakenly and fatally relied on an underlying philosophy and ill-placed faith in market prices as accurate indicators of risk, while financial innovation was viewed to be wholly beneficial. In seeking to regulate at the level of the individual institution, regulators failed to take account of a number of internal amplifying processes which perpetuate the failure of one financial institution through affecting other institutions balance sheets.

The financial crisis demonstrates the need to enhance the micro-prudential regulatory approach to include broader oversight of risks across the financial system and a concern for taking supervisory measures that support the stability of the financial system as a whole and account for the interconnectivity of financial institutions and their effects on the global economy in times of

crisis. Goodhart& Charles (2011) noted that Macro-prudential regulation consists of three main areas: 1) adjusting the application of regulatory rules to institutions according to developments in the broader economy (ie., countercyclical capital requirements). 2) Imposing economy-wide controls on the financial sector to limit aggregate risk-taking (ie., capital controls to limit foreign exchange risk or system-wide leverage limits) 3) prudential requirements for financial infrastructure or firms providing infrastructure services (ie., capital requirements for derivative clearing houses). An extensive literature has arisen analyzing these different areas of macro-prudential regulation.

The adequacy of both micro- and macro-prudential rules came to the forefront during the recent crisis. The current financial system failed in the micro-prudential supervision of financial service providers because it was concentrating on individual providers rather than the system as a whole. For instance, the main instrument for measuring risk, value at risk (VaR), can only capture the risk linked to an individual bank in isolation and thus may be important for micro-prudential regulation, but does nothing to identify systemic risk. The financial system also failed in macro-prudential supervision as demonstrated by insufficient capacity to supervise effectively and to assess macro-systemic risks of contagion of correlated horizontal shocks (Adrian &Brunnermeier 2011). In particular, the importance of macro-prudential regulation for the overall stability of the financial system was largely disregarded. Despite these different approaches, micro-prudential regulation and supervision and macro-prudential regulation and supervision are not mutually exclusive. Indeed, by recognizing the links between micro-prudential and macro-prudential regulation, a more coherent and effective framework can be developed for mitigating excessive risk-taking in financial regulation (Brunnermeier et al. 2009).

2.1.8 **Theory of bank profit**

Studies on the performance of banks started in the late 1970s/early 1980s with the application of two industrial organizations models: the Market Power and Efficiency Structure theories (Athanasoglou et al. 2006). The balanced portfolio theory has also added greater insight into the study of bank profitability (Nzongang & Atemnkeng 2006). Thus, each of the aforementioned theories is discussed in detail in this particular section as follows.

2.1.8.1 ***Market power theory***

As noted in Tregenna (2009) applied in banking the market power hypothesis posits that the performance of bank is influenced by the market structure of the industry. There are two distinct approaches within the market power theory; the Structure-Conduct-Performance (SCP) and the Relative Market Power (RMP) hypotheses. According to the SCP approach, the level of concentration in the banking market gives rise to potential market power by banks, which may raise their profitability. Banks in more concentrated markets are most likely to make abnormal profits' by their ability to lower deposits rates and to charge higher loan rates as a results of collusive (explicit or tacit) or monopolistic reasons, than firms operating in less concentrated markets, irrespective of their efficiency (Ibid 2009). Unlike the SCP, the RMP hypothesis posits that bank profitability is influenced by market share. It assumes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits (Ibid 2009).

2.1.8.2 ***Efficiency theory***

The efficiency hypothesis, on the other hand posits that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the efficiency; the X-efficiency and Scale–efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou et al. 2006). The scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and higher profits through economies of scale. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability (Ibid. 2006).

2.1.8.3 ***The balanced portfolio theory***

The portfolio theory approach is the most relevant and plays an important role in bank performance studies (Nzongang&Atemnkeng 2006). According to the Portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holder‘s portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets (Nzongang&Atemnkeng 2006)

2.1.8.4 ***Risk return trade off theory***

The balance sheet structure could also influence banks‟ profitability; in this context, the equity-to-asset ratio is an important balance sheet ratio that received much attention. For this ratio, theoretical explanations assume different signs of the relationship with profitability. According to the Modigliani & Miller theorem there exists no relationship between the capital structure (debt or equity financing) and the market value of a bank (Modigliani & Miller 1958). In this context, there is no relationship that exists between the equity-to-asset ratio and funding costs or profitability.

Financing theory suggest that increasing risks, by increasing leverage and thus lowering the equity-to-asset ratio (increasing leverage), leads to a higher expected return as entities will only take on more risks when expected returns will increase; otherwise, increasing risks have no benefits. This theoretical explanation is known as the risk-return trade off (Ommeren 2011). There are also theoretical explanations for the opposite relationship that a higher equity-to-asset ratio has a positive effect on profitability. These explanations are based on the signaling and bankruptcy cost hypotheses. The first hypothesis states that a higher equity ratio is a positive signal to the market of the value of a bank (Berger 1995b). Less profitable banks cannot achieve

such a signal since this will further deteriorate their earnings. In this way a lower leverage, indicates that banks perform better than their competitors who cannot raise their equity without further deteriorating the profitability. The latter hypothesis suggests that in a case where bankruptcy cost are unexpected high a bank hold more equity to avoid period of distress (Ibid 1995b).

2.1.9 **Effects of Banking Regulation**

Banking Regulation and Performance

Different studies on bank regulation provided the outcomes that relate bank regulation to bank performance and bank stability. Kremmling (2011) sought to find out if regulating financial institutions during financial crisis will influence bank performance by taking into account, deposit insurance schemes, capital regulation and activity restrictions. His results showed that capital requirements negatively influenced the level and change in loan loss provisions during financial crisis; as such, banks with high or low capital ratios still succumbed to bank runs during financial crisis. Activity restrictions raised the risk profile of banks severely during financial crisis; this is inevitable as banks with numerous activities from nonfinancial firms will try to gain returns from loan provisions which will be difficult to receive during financial crisis. Thus, Kremmling's(2011) findings asserted that banks' complexity can have adverse effect on regulation, which directly affects performance and stability.

Barth, (2004) tested bank regulation in a cross-country evaluation of banks by looking at the various regulatory indicators and variables that can possibly affect bank performance in different countries. These three researchers have studied bank regulation individually and co-authored books on bank regulation. Their seminal works have provided more empirical studies on bank regulation, bank performance, bank development and corporate governance based on cross - country emphasis.

In view of this, Barth empirically provided outcomes on bank regulation and supervision and how it affects bank development and performance. Based on their results from their studies, activity restriction was found to be negatively related to bank development and stability,

compared to banks with no activity restrictions. Capital regulations were found to be positively related with bank development, when bank regulation and supervision were controlled. As such, Barth (2004)concluded that government imposition of regulation will not improve bank performance and stability, and as such, market forces ought to be allowed to regulate bank performance and development through activity diversification, premium-induced deposit insurance schemes, and relaxed capital requirements on banking firms (Fatimah,2012).

Fernandez and Gonzalez *(2005)* provide evidence to suggest that in countries with low accounting and auditing requirements, more power on official supervisory authorities may reduce risk-taking behavior from managers' perspectives. On another side, higher restrictions on bank activities can diminish the probability of a banking crisis (Georgios et al., 2010).

Banking Regulation and Risk

Bank regulation and supervision has been the subject of much recent debate and attention, due in large part to the global financial crisis that started in the late 2000s. A number of studies have pointed to weaknesses in regulation and supervision as one of the factors leading to the crisis. Not only did the crisis raise important questions on the appropriateness of the regulatory and supervisory approaches pursued in the run-up to the crisis, but also it prompted regulators to consider important changes in regulation and supervision. There must be a clear and realistic account of what regulatory measures can achieve and how they promote the objective of the regulation, taking account of systemic effects. Restrictions on banks' activities can add risks and generate inefficiencies if they are not properly designed. For example, if banks are restricted to investments in a particular region, this limits their ability to reduce risk through diversification.

If reserves or equity capital are needed to satisfy regulatory requirements, they cannot actually serve as buffers (Goodhart, 2010). With capital regulation, this paradox generates a pro-cyclical mechanism where, after losses that reduce a bank's equity, assets are sold to maintain the required capital ratio, creating downward pressure on asset prices, with potentially negative effects on other banks. If regulation provides incentives for banks to shift risks to third parties, attention must be paid to the ability of counterparties to bear the risk. Overlooking this can give

an illusion that risks are gone when they are in fact lurking elsewhere in the system (Anat et al., 2011).Liquidity regulation should recognize that liquidity is not intrinsic to assets but may change abruptly. Treating all government bonds and even certain privately issued bonds as perfectly safe and liquid is problematic (Goodhart, 2010).

To summarize, good banking regulation focuses on promoting the public interest in financial stability, gives regulators cost effective tools, and creates an environment where regulators and supervisors have both the ability and the will to use the tools to implement and enforce the regulation (Anat et al., 2011).

2.2 **Empirical Review**

MishkinFrederic et al., (2009) The Net income provides information on how well the bank is doing but the constrain on using it is that it not adjusted for the size of the bank. This makes it difficult to compare how well bank's doing compared to one other. In this way a basic measure of bank profitability is the return on asset (ROA) which corrects for the size of the bank. It is true that ROA provides useful and necessary information on bank profitability but this is not on the major interest of the bank's owners (equity holders). They are more concerned about how much the bank is earning on their equity investment, an amount that is measured by the return on equity (ROE), the net income per currency of equity capital.

Rao and Somaiya (2006) investigated the impact of monetary policy on the profitability of banks in India between 1995 and 2000. The monetary variables were banks rate, lending rates, cash reserve ratio and statutory ratio, and each regressed on banks profitability independently. Lending rate was found to exact positive and significant influence on banks‟ profitability, which indicates a fall in lending rates will reduce the profitability of the banks. Also, bank rate, cash reserve ratio and statutory ratio were found to significantly affect profitability of banks negatively. Their findings were the same when lending rate, bank rate, cash reserve ratio and statutory ratio were pooled to explain the relationship between bank profitability and monetary policy instruments in the private sector.

Gul, Irshad and Zaman (2011) research was focused on **e**xamining the effect of bank specific and macroeconomic factors on bank profitability by using data of top 15 Pakistan commercial banks over the period 2005-2009. The Pooled Ordinary Least Square (POLS) method was used to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on profitability, measured through return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM). The results found evidence that both internal and external factors have a strong influence on profitability.

Samy& Mohammed (2008) also examine the influence of bank regulations, concentration, financial and institutional development on commercial bank margin and profitability across a broad menu of Middle East and North Africa (MENA) countries. They cover period from 1989

to 2005 and control for a wide array of macroeconomic, financial and bank characteristics. this study find the regulatory variable(reserve requirement and coverage to deposit to capital ratio) and institutional variable(concentration) seem to have an impact on bank performance as the results suggest that corruption increases the cost efficiency and net interest margins while an improvement of the law and order variable decreases the cost of efficiency without affecting performance. Correspondingly Tovar et al (2012) analyzed the effectiveness of reserve requirement (RR) system in selected Latin countries. Their conclusion is that RR influences real private bank credit growth and that RR is a useful policy tool to ―lean against the wind‖ and avoid the buildup of imbalances. However, using RR as a countercyclical tool has modest and short-lived effects on credit growth.

Fatima Abid(2015) research was focused on the impact of Changes in Reserve Requirement on Banks Profitability: A Case of Commercial Banks in Pakistan. This study examines the relationship between Reserve Requirement Ratio and Banks Profitability in Pakistan. It emphasizes on the effect of changes in CRR on commercial banking profitability and how it affects the ROE and ROA. The data collected for the research was secondary and quantitative time series data for the ten year period 2005-2014. Using correlation analysis followed by Linear Regression carries the empirical analysis of the study. The finding of study reveal that CRR taken as measure for Reserve Requirement has significant inverse relationship on banks' financial performance, which is measured by ROA and ROE.

Cekrezi (2015) carried a study to explore the factors that mostly affect financial performance of commercial banks which operate in Albania. The study population consisted of 16 commercial banks with domestic and foreign capital, during the period 2010 to 2013 with a total of 48 data. The investigation used cross sectional time series data which were collected from the Balance Sheet Annual Reports. The study concluded that bank size has a negative but statistically insignificant effect on banks profitability, capital adequacy was one of the bank specific factors that influence the level of bank profitability while liquidity was negatively related with profitability.

Karemera Jean Marie Vianney (2011) have study "the relationship between Regulation and Financial Performance of commercial banks in Rwanda". The study had three specific objectives of establishing how capital requirement ratio, liquidity ratio and management efficiency ratio affect financial performance of commercial banks in Rwanda. The study adopted a descriptive research design which assisted to examine the relationship between regulation and financial performance of commercial banks. The sample size as well as the population of the study was ten commercial banks. The overall finding and conclusion of the study was that all the measures of regulation used in this study are not significant indictors of financial performance of commercial banks in Rwanda.

Paul Munene Muiruri(2015) have studies "assess the effects of central bank regulatory requirements on financial performance of commercial banks in Kenya". In this study specifically focused on the effects of: corporate governance, capital requirement, liquidity management and credit risk management on financial performance of commercial banks. The study also assessed the moderating effect bank ownership had on the relationship between effects of central bank regulatory requirements and financial performance of commercial banks in Kenya. The study employed descriptive research design. Both primary data and secondary data were collected and that analyzed. For primary data collection, the study targeted 172 key bank officials who were randomly sampled and data were collected by use of a questionnaire. Secondary data was collected from most recent published annual financial statements and banks supervision records at the Central Bank of Kenya, from 2009 to 2013. The study results showed continuous growth CAMEL rating in all the key ratios over the years under review. This continuous growth CAMEL rating could be attributed to CBK regulatory requirements effects such as corporate governance, capital requirement, credit risk management and liquidity management (F=1.433; P value=0.77 with ROE and F=0.94; P value=0.442 with ROA). This confirms that CBK regulatory requirements are in factors that influence bank performance.

The findings further indicated that there was a strong and positive correlation between effects of CBK regulatory requirements and financial performance(R=0.794 with ROE and ROA).This confirms that these are part of the effects central bank regulatory requirements and are important. Further from study results it was evident that the Central Bank Regulatory requirements have positively contributed to financial performance of commercial banks in Kenya. There was great

variation on the financial performance of commercial banks due to changes in Corporate Governance, capital requirement, credit risk management and liquidity Management. This is an indication that central bank regulatory requirements had great effects on the financial performance of commercial banks. Finally the study found that bank ownership did not have moderating effect on the relationship between bank performance and central bank regulatory requirements in Kenya. The study concluded that corporate governance, capital requirement, credit risk Management and liquidity management influenced the profitability of commercial banks in Kenya.

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 (Yodit, 2012).

Eden (2014) carried a study to the impact of NBE regulations on private banks performance through the significant regulatory variables explaining the NBE directives, using bank-specific and macroeconomic variables as control variables. Balanced fixed effect panel regression was used for the data of six private commercial banks in the sample covered the period from 2004 to 2013. The results of panel data regression analysis showed that NBE Bill and Credit cap had negative and statistically significant impact on banks profitability but reserve requirement had negative and insignificant impact on profitability. While measuring banks cost of intermediation through Net Interest Margin three of the regulatory variables (i.e. NBE Bills, Reserve

requirement and credit cap) had negative and statistically significant effect on 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 (Shibru, 2014)

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 (Tesfaye, 2014).

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.

Shimels (2016) examine the impact of National Bank of Ethiopia directive: NBE bill purchase requirement on the performance and liquidity of private commercial banks. Balanced fixed effect panel regression was used for the data of eight private commercial banks in the sample covered the period from 2007 to 2014. The results of panel data regression analysis showed that purchasing NBE bill had a negative and significant impact of the profitability of private commercial banks in Ethiopia.

Addisu (2016) studied on the effect of National Bank Regulation on Banks profitability: Evidence from the Private commercial banks of Ethiopia". Start her study by the general objective of examine the effect of National Bank regulation on private banks profitability in Ethiopia. The conclusion of her study is that equity investment has negative and insignificant effect on banks profitability measured through Return on asset also change in reserve

requirement and capital adequacy ratio has negative and significant effect on the banks profitability and capital requirement are positive and significant effect of profitability.

2.3 **Literature gap**

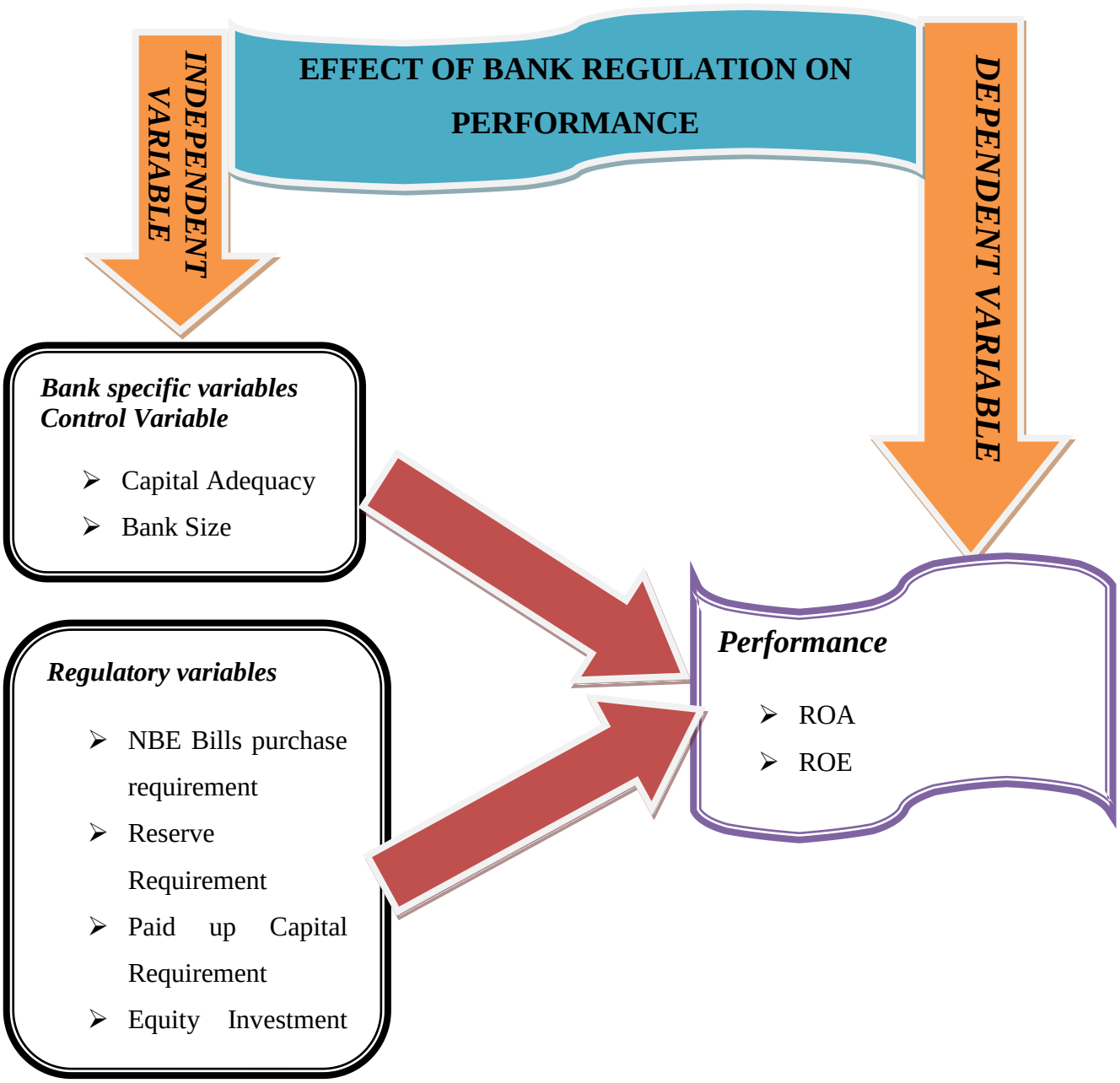
As per the theoretical and empirical review of literatures there are different rules and regulations which are imposed on banks activity and of course the regulations which exist in one country is not similar with that of the others even though there are international regulations in which all of the banks in every country should obey, each and every country have their own regulations which is issued by the central bank for the purpose of controlling the economic activity of the countries. The variable which is used to see the effect of regulatory measure on the profitability of private commercial banks other than the control variables is different from county to country.

In Ethiopia, there is no any empirical study which is conducted in this area by incorporating NBE bill purchase requirement, capital requirement, equity investment and legal reserve therefore this study is conducted to fill this knowledge gap by examining the effect of National bank regulation on the performance of private commercial bank in Ethiopia.

2.4 Conceptual Frame Work

From the theoretical and empirical literature reviews, the following conceptual framework of the study is developed by the researcher**.**

Figure 2.1 the conceptual framework or model of the study



Source: - Compiled by the researcher

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter deals with research methodology that used to carry out the research. The chapter is organized in eight sub sections. In its first part there is a research design, then after it presented subsequently about research approach, population, sample and sampling technique, data type, sources and instruments, data analysis and model specification. The final two parts presented variables selection and hypothesis developments. Finally, operationalizations of study variables are presented.

3.1 Research design

Cooper (2003) discussed that explanatory studies unlike descriptive studies, go beyond observing and describing the condition and tries to explain the reasons of the phenomenon. Thus, explanatory research design was used in this research because the study identifies the cause and effect of bank regulation and private commercial bank performance which is appropriate for the objective of the study.

3.2 Research approach

When conducting a research, there are different ways of approaching the problem. According to Creswell (2009), there are three approaches of research; quantitative, qualitative and mixed. The following discussions briefly presents the basic features of these research approaches. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). On the other hand, qualitative research approach is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem with intent of developing a theory or pattern inductively (Creswell, 2009). Finally, mixed methods approach is an approach in which the researchers emphasize the research problem and use all approaches available to understand the problem (Creswell, 2003).

Hence, based on the above discussions of the three research approaches and by considering the research problem and objective, this study used quantitative research approach. Quantitative research is a systematic and scientific investigation of quantitative properties, phenomena's and

their relationships by developing and employ mathematical models, theories and hypotheses pertaining to natural and/or social phenomena. Creswell, (2003).

This quantitative study, beyond mathematical and statistical models application, used econometrics application. Since, econometrics models are more comprehensive and scientific than both mathematical and statistical models in studying the relationship between variables. This type of study is in line with deductive approach which entails the development of a conceptual and theoretical structure prior to its testing through empirical observation (Gill & Johnson, 2002).According to Loose (1993), a quantitative (deductive) research entails the development of a conceptual and theoretical structure prior to its testing through empirical observation. Deductive or quantitative research conventionally commences by analyzing the literature to identify a single selected problem/knowledge gap leading to the isolation of the major research question(s) in which the existing knowledge may be inadequate (could be identified gaps between existing theories or evidence, contradictions to be explored, or new contexts for applying previous findings) (Sutrisna 2009).

3.3 Population of the Study

The study populations are all private commercial banks in Ethiopia. There are sixteen private commercial banks in Ethiopia that are; Awash Bank S.C, Dashen Bank S.C, Wegagen Bank S.C, Bank of Abyssinia S.C , United Bank S.C , Nib International Bank S.C ,Cooperative Bank of Oromia S.C, Lion International Bank S.C , Berehan International Bank S.C , Buna International Bank S.C , Oromia International Bank S.C , Zemen Bank S.C , Addis International Bank S.C , Abay Bank S.C, Enat Bank S.C and Debub Global Bank S.C.

3.4 Sample and Sampling Techniques

The total populations of the private commercial banks in Ethiopia are sixteen but for this study purpose the researcher used sample of ten private commercial banks. These banks were selected due to their market share. As per NBE (2015/16) annual report stated that these ten private commercial banks together accounted for 80% of the market share based on their number of

branch and capital held by all Ethiopian private commercial banks. In addition, according to their audited financial statements, sample of ten Ethiopian private commercial banks has covered 89% and 90% of total assets and profit within the total population respectively as calculated their average amount with in the period of six (6) years from 2011 to 2016. Based on these reasons, it is reasonable that sample of ten private commercial banks can properly refer the total number of the population.

Therefore the study covered a period of six (6) years from 2011-2016 and included all Ethiopian private commercial banks those who have six (6) and above establishment year as per NBE (2015/16). Due to this fact the sample of private commercial banks are Awash Bank S.C (AB),Dashen Bank S.C (DB), Wegagen Bank S.C (WB), Bank of Abyssinia S.C (BOA),United Bank S.C (UB), Nib International Bank S.C (NIB), Corporative bank of Oromia(CBO),Lion International Bank S.C (LIB),Oromia International Bank S.C (OIB) and Zemen Bank S.C (ZB). According to Suheyli (2015) as cited in Singh (2006) when the subjects used in the sample is homogeneous, using non probability purposive sampling technique is appropriate. Hence, the researcher employed purposive sampling technique to draw the sample from the population and meet the study objective. The matrix for the frame is 6*10 that includes 60 observations.

3.5 Data Type and Source

In order to carry out any research activity; information should be gathered from proper sources. Since, sufficient data can be obtained from secondary sources which help to achieve the study objective. This study was based only on panel secondary data. Conducting appropriate data gathering instruments support researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increase the credibility and value of research findings (Koul 2006). The secondary data was gathered from audited financial statement collected from NBE.

3.6 Data analysis

After the data is collected, the next step is to analyze the collected data to achieve the stated objective. In this study two types of analysis were used; these are descriptive statistics and multiple regression analysis. The descriptive analysis part deals with a simple description of variables. It includes mean, maximum, minimum and standard deviation of each variable. On the other hand, regression analysis, the most important part of the analysis, helps to identify the determining variables effect and draw relationship between dependent and independent variables. According to Brooks (2008) regression is concerned with describing and evaluating the relationship between a given variable (usually called the dependent variable) and one or more other variables (usually known as the independent variables). Thus, the researcher adopted panel data regression model to examine the effect of bank regulation on performance.

As stated by Brooks (2008) panel data is favored for situation often arises in financial modeling where we have data comprising both time series and cross-sectional elements. Therefore, the collected panel data is analyzed using descriptive statistics, correlations and multiple linear regression analysis. The rational for choosing Ordinary Least Square (OLS) is that, if the Classical Linear Regression Model (CLRM) assumptions hold true, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators (Brooks, 2008). Diagnostic checking is done to test whether the sample is consistent with the following assumptions. According to Brooks (2008), the assumptions of ordinary least squares are:

I. The errors have zero mean ($E(u_t) = 0$)
II. Variance of the errors is constant ($Var(u_t) = \sigma^2 < \infty$)
III. Covariance between the error terms over time is zero ($cov(u_i, u_j) = 0$ for $i \neq j$
IV. Test for Normality ($u_t \sim N(0, \sigma^2)$)
V. Multicollinearity Test

If all the above assumptions are consistent with the sample, E-view result will be accurate and reliable. The following tests are done in this research to test the above assumptions.

I. The errors have zero mean (E(ut) = 0)

Relay on Brooks (2008), 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.

II. Variance of the errors is constant (Var (ut) = σ2 <∞) (heteroscedasticity)

According to Brooks (2008), the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. If heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity. The hypothesis for the Heteroscedasticity test was formulated as follows;

H0: There is no Heteroscedasticity problem in the model.
H1: There is Heteroscedasticity problem in the model.
$\alpha = 0.05$
Decision Rule: Reject H0 if p-value is less than significance level. Otherwise, do not reject H0.

III. Covariance between the error terms over time is zero (cov (ui, uj) = 0 for i ≠ j (Autocorrelation)

According to Brooks (2008), when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis

testing, it may lead to misleading results on the significance of parameters in the model. Therefore, the study test for the existence of autocorrelation, the popular Durbin–Watson test and Breusch-Godfrey test were employed.

H0: There is no autocorrelation problem in the model.

H1: There is autocorrelation problem in the model.

$\alpha = 0.05$

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

VI. Normality ($u_t \sim N(0, \sigma^2)$)

As per Brooks (2008) normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study used JarqueBera Test (JB test) to find out whether the error term is normally distributed or not. The hypothesis for the normality test was formulated as follow:

H0: Error term is normally distributed

H1: Error term is not normally distributed

$\alpha = 0.05$

Decision Rule: Reject H0 if p-value of JB tests less than significance level. Otherwise, do not reject H0.

IV. Multicollinearity

According to Brooks (2008), Multicollinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicollinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. This study used high pair-wise correlation coefficients method to test the presence of multicollinearity problem in a regression model, because it shows the correlation of independent variables between each other one by one. Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75.

However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

3.7 Model specification

According to Brooks (2008), it is very easy to generalize the simple model to one with k repressors' (independent variables). Yi = β1 + β2x1i + β3x2i + · · · + βkxki + εi, i = (1, 2, . . . ,i). So, Where Yi is the ith observation of the dependent variable, X1i,…,Xki are the ith observation of the independent variables, β0,…,βk are the regression coefficients, εi is the ith observation of the stochastic error term.

Accordingly, to test the effect of bank regulation on performance, the researcher estimated a linear regression model in the following form.

ROAbt = α + β1NBPbt+β2LRRbt+ β3CRbt+ β4EIbt+ β5CARbt+β6BZbt+ ε …….(Model 1)

ROEbt = α + β1NBPt+β2LRRbt+ β3CRbt + β4EIbt + β5CARbt+β6BZbt+ ε ……. (Model 2)

Source: Developed by researcher

Where:

ROA= Return on asset

ROE= Return on equity

NBP= NBE bill purchase requirement

LRR= Legal reserve requirement

EI = Equity investment regulation

CR= Capital requirement

CA= Capital adequacy ratio

BS= Bank size

Є =is the error component for company b at time t assumed to have mean zero E [Є it] = 0

α = Constant

β= 1, 2, 3…6 are parameters to be estimate;

b = Commercial bank sb = 1. . . 10; and t = the index of time periods and t = 1. . . 6

3.8 Variables description

Thus, this section explained the variables used as dependent and independent (explanatory) variables in the study. The definitions and measurements that are used for these variables are described as follows. In addition to this, hypothesis is also developed that is derived from previous empirical evidences.

Dependent variable

As concluded by extensive Prior academic research, there are different accounting based measures for banks 'profitability. For instance, Return on Equity (ROE) used by (Goddard et al., 2004), Return on Assets (ROA) used by (Flamini et al., 2009), the Return on Equity (ROE) and Return on Assets (ROA) utilized by (Athanasoglou et al., 2006), Ommeren (2011) and Bashir (2003), ROE, ROA and Profit Earning Ratio (PER) applied by Moni (2008) and among others, Demirguc-Kunt and Huizinga (1999) uses the net interest margin (NIM) as proxy for banks' profitability. According to their investigation those accounting based measurements of bank profitability are nearer to accurate and proxies to measures profitability, even if, they have their own drawbacks

Return on asset (ROA)

Study examined by Flamini et al. (2009) proved that return on assets (ROA) as a measure of bank profitability. It defined as the banks 'after tax profit over total assets. In principle, ROA reflects the ability of a bank's management to generate profits from the bank's assets. In addition, ROA is the major ratio that indicates the profitability of a bank. According to Khrawish (2011) it is a ratio of net income to its total asset. This is probably the most important single ratio in comparing the efficiency and financial performance of commercial banks as it indicates the returns generated from the assets that bank owns. In addition, as stated by Ana-Maria et al. (2014), (Naceur and Orman, 2008) the return on total assets ratio represents one of the most used methods of quantifying financial performance. It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the

efficiency of the management of a company in generating net income from all the resources of the institution Khrawish (2011). Wen (2010), state that a higher ROA shows that the company is more efficient in using its resources.

Return on Equity (ROE)

Return on Equity are more concerned about how much the bank is earning on their equity investment, an amount that is measured by the return on equity (ROE), the net income per birr of equity capital and is calculated as the net income divided by total equity. According to Ommeren (2011) ROE reflects how effectively a bank management is using shareholders' funds. ROE indicates the return to shareholders on their equity and equals net income divided by total equity capital.ROE is an internal performance measure of shareholder value, and it is by far the most popular measure of performance, since: (i) it proposes a direct assessment of the financial return of a shareholder's investment; (ii) it is easily available for analysts, only relying upon public information; and (iii) it allows for comparison between different companies or different sectors of the economic. Recent events have shown that the most common measure for a bank's performance, i.e. ROE, is only part of the story, as a good level of ROE may either reflect a good level of profitability or more limited equity capital. In addition, although the "traditional" decomposition of the ROE measure(i.e. looking at banks' operational performance, risk profile and leverage) may have been useful to assess banks' performance during benign times, this approach has clearly not proven adequate in an environment of much higher volatility – such as during the global financial crisis, where ROE fluctuations have been caused entirely by operational performance, which does not aid our understanding of the potential trade-off between risk and return in performance. This may actually explain why some of the high-ROE firms have performed particularly poorly over the crisis, dragged down by a rapid leverage adjustment.

Independent variables

National Bank of Ethiopia Bill (NBE Bill)

The requirement on private commercial banks to purchase NBE bills equivalent to 27 percent of any new loans, the fact that the interest rate on the bills is 3 percent, while the rate of interest that

banks pay when they accept deposit is 5 percent which imply that banks offer loan for the NBE at a loss of 2 percent and measured by natural log of total NBE bill purchase amount. The researcher, thus, expects a negative relationship between NBE Bill and banks' performance.

H1: NBE Bill purchase requirement has negative and significant effect on performance of Private commercial banks in Ethiopia.

Legal Reserve Requirement

It is a portion of bank's asset in national bank of Ethiopia with no interest and it will be proxied by ratio of reserve account in NBE to total assets (Eden, 2014), (Addisu, 2016). Furthermore, high reserve requirements decrease loanable funds available for investment by reducing the fraction of given volumes of deposit rate and by reducing the equilibrium volume of deposits through decreasing the profit-maximizing deposit. Hence they are considered as a leakage in the intermediation process (James, 2002).

H2: legal reserve requirement has negative and significant effect on performance of Private commercial banks in Ethiopia.

Equity Investment

National bank of Ethiopia gave permission to private 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 was seen on the effect of amount invested on equity purchased and the bank's profitability (Addisu, 2016). Moreover, effect of bank regulation on profitability 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 Addisu, (2016), 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 profitability.

H3: Equity investment has positive and significant effect on performance of Private commercial banks in Ethiopia.

Capital Requirement

The minimum paid up capital requirement of national bank of Ethiopia are measured by natural log of total paid up capital amount. Capital serves as a buffer against losses and hence failure. Furthermore, with limited liability, the tendency for banks to engage in higher risk activities is curtailed with greater amounts of capital at risk. Capital adequacy requirements, especially with deposit insurance, play a crucial role in aligning the incentives of bank owners with depositors and other creditors Berger et al. (1995)

H4: Capital requirement has positive and significant effect on performance of Private commercial banks in Ethiopia

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 profitability determinants researchers used banks size as a control variable Michael et al. (2012), Eden (2014), Addisu (2016). In most finance literature, total assets of the banks are used as a proxy for bank size. Bank size is represented by natural logarithm of total asset. The effect of bank size on profitability is generally expected to be positive (Smirlock, 1985). Bank size accounts for the existence of economies or diseconomies of scale (Naceur&Goaied, 2008).The banking theory asserts that a firm enjoys economies of scale up to a certain level, beyond which diseconomies of scale set in. This implies that profitability increases with increase in size, and decreases as soon as there are diseconomies of scale. Thus, literature has shown that the relationship between the bank size and profitability can be positive or negative(Staikouras and Wood, 2004; Athanasoglou et al., 2005; Flamini et al., 2009; Dietrich and Wanzenrid, 2009).However, size could have a negative effect when banks become extremely large due to bureaucratic and other reasons Eden (2014).

3.9 Operationalization of study variables

The following table presented the summary of variables, their measurement and expected sign for the Effect of bank regulation (independent variables) on private commercial bank performance (dependent variable).

Table 3.1 Description of variables and their expected relationship

	Variables	***Measure***	***Notation***	***Expected sign***
Dependent Variable	Return on Asset	Net profit /total assets	ROA	
	Return on Equity	Net profit /total equity	ROE	
Independent Variable	NBE bill Purchase	Natural logarithm of total bill purchased	NBP	-
	Reserve Requirement	Reserve account in NBE/total asset	LRR	-
	Equity Investment	Natural log of total equity investment	EI	+
	Capital Requirement	Natural log of total paid up capital	CR	+
	Bank Size	Natural log Total asset	BS	
	Capital Adequacy	Equity to total Asset ratio	CAR	

Source: Compiled by the researcher

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

This chapter of the research paper presents the data analysis; the outcome of the results and reaches to the possible outcome in the effect of bank regulation on the performance of private 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 2011 up to 2016 and a cross section segment which considered ten private Ethiopian commercial Banks that are: AB, DB, WB, BOA, UB, NIB,CBO, LIB, OIB, and ZB. 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 are presented bellow. The dependent variable is bank performance measured by two alternative measures return on asset (Net income after tax/total asset) and return on equity (Net income after tax/total equity). The independent variables were classified in to two as control variables and the regulatory variables where NBE Bill, Legal reserve requirement, Equity Investment and capital requirement which were used to see the effect of NBE regulations on banks performance.

Table 4.1 Descriptive statistics of dependent and independent variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
ROA	0.028163	0.027379	0.052505	0.003291	0.008022	60
ROE	0.216963	0.207197	0.356703	0.028645	0.068961	60
NBP	7.209016	8.815918	9.235884	2.217334	2.776917	60
LRR	0.030177	0.032378	0.047913	0.008106	0.011027	60
EI	7.455518	7.764659	8.975950	0.000000	1.574576	60
CR	8.281841	8.860633	9.351044	2.176094	1.817480	60
BS	9.153442	9.952498	10.47142	3.292685	1.952853	60
CAR	0.137755	0.130970	0.195187	0.090788	0.026398	60

Source: - annual report of sample bank computed using E-views 8

ROA: Return on Asset, ROE: Return on equity, LRR: Legal Reserve Requirement, EI: Equity Investment, CR: Capital Requirement, BZ: Bank Size, CAR: Capital Adequacy Ratio.

Table 4.1 presents a summary of the descriptive statistics of the dependent and independent variables for ten Ethiopian private Commercial banks for a period of six(6) years from 2011-2016 with a total of 60 observations. Key figures, including mean, maximum, minimum and standard deviation value are reported.

Return on Asset (ROA):-It is measured using the ratio of the net income divided by total assets. As shown in table 4.1 above, on average banks in our sample have a return on assets (ROA) of 2.81% with minimum of 0.32% and maximum of 5.25% for the period 2011 to 2016, it means that the most profitable private commercial banks among the sample earned 5.25 cents of net income from a single birr of asset investment and the maximum losses incurred by some of the sample banks are a loss of 0.32 cents on each birr of asset investment. And also most the remaining banks from the sample earned an average of 2.83 cents from each birr invested by the bank. The standard deviation 0.80% showed that there was lowest variability in the data for the profitability measures.

Return on Equity (ROE):-It is measured using the ratio of the net income divided by equity. As Shown in table 4.1 above, shows that the return on equity of the sampled Ethiopian private commercial banks achieved21.69% on average profit over the last six years from 2011 to 2016. The maximum and minimum of the observed return on equity for the period was 35.67% and 2.86% respectively. It means that the most profitable private commercial banks among the sampled banks earned a maximum of 35.67 cents profit for a single birr (1.00) invested in the equity of the firm. On the other hand, the lower profitable private commercial banks earn2.86 cents of profit for each birr (1.00) invested in the equity of the firm. And also most the remaining banks from the sample earned an average of 21.69 cents from each birr invested by the bank and the value of return on equity deviate from its mean by 6.89%.

Exposure of private commercial banks in NBE bill is measured by natural logarithm of total bill purchased by private banks which are considered as a sample in the period under consideration.

With reference to table 4.1 the mean value of NBE bill purchased by private commercial banks was 7.20. The natural logarithm of total bill purchased by private commercial banks was maximum of 9.23 and the minimum of 2.21with standard deviation of 2.77. On the other hand the maximum value showed that one of the private banks is purchased higher amount of NBE bill within six years after the requirement (i.e Dashin Bank S.c).

The average value for legal reserve requirement as measured by reserve amount divided by total asset was 3.01% with standard deviation of1.10%, maximum of 4.91% and minimum of 0.81%. This means, most of the sample banks are reserving in national bank of Ethiopia account on average value is 3.01%.

The average value for equity investment as measured by natural log of total investment was 7.45 with standard deviation of 1.57, maximum of 8.97 and the minimum of zero. From the sample commercial banks maximum level of investment was 8.97% which implies the banks are almost investing up to the permitted percentage that is 10% of their net worth while the minimum value zero indicate most banks start equity investment in recent years.

The average value for paid up capital requirement (CR) was 8.28 with standard deviation of 1.81 maximum of 9.35 and minimum of 2.17. For paid up capital requirement the mean value implies banks deposit their money on NBE account.

Bank size measured by natural logarithm of total asset is a proxy for asset size of a bank having a mean value was 9.15.The standard deviation from the mean is 1.95, maximum of 10.47and minimum of 3.29. This showed that private commercial banks which are included in this research had a big variation in their total asset. The maximum and the minimum values were indicating AB and OIB respectively.

Capital adequacy refers to the sufficiency of funds available to absorb losses to protect depositors, creditors, etc. in the interest of maintaining financial system stability. As per Basel Committee on Banking Supervision (2001) revised framework and NBE requirement (NBE directive No. SBB/9/95) capital adequacy is measured by the ratio of regulatory capital to risk-

weighted assets and accordingly a minimum of 8% is required. However, the proxy for capital adequacy measurement used in this study was the ratio of total equity to total asset. The higher this ratio entails the capability of the bank to absorb losses from its own capital. As it is shown on table 4.1 above, the 13.77%average capital adequacy ratio of the studied banks were above the minimum requirement set by the NBE even if the measurement for capital adequacy is different is this study. The maximum CAR ratio observed is 19.51%, minimum 9.07% and the standard deviation from the mean is 2.63%.

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 Analysis of Variables

	ROA	NBP	LRR	EI	CR	BS	CAR
ROA	1.000000						
NBP	-0.083765	1.000000					
LRR	-0.204734	0.064928	1.000000				
EI	0.022561	0.124015	0.153968	1.000000			
CR	0.018125	0.222775	0.031110	-0.075919	1.000000		
BS	0.348373	-0.254008	0.122430	-0.029677	-0.118713	1.000000	
CAR	0.225647	0.431744	0.173900	0.097920	0.103058	-0.185426	1.000000

Source: - annual report of sample bank computed using E-views 8

The correlation result in Table 4.2 shows NBE Bill purchase and Legal reserve requirement have negative correlation with return on asset for measurement of Ethiopian private commercial banks performance. It refers that when these variables increases, performance of Ethiopian private commercial banks will be go down. However, Equity investment, Capital requirement, Bank size and Capital Adequacy has positive correlation with return on asset which indicates that while Equity investment, Capital requirement, Bank size and Capital Adequacy increase, at the same time performance of Ethiopian private commercial banks will be increase.

The coefficient estimate of correlation in the above table shows -0.083765 and– 0.204734for NBE bill purchase and Legal reserve requirement respectively. This implies that underwriting variables are highly negatively correlated with return on asset. However, equity investment, Capital requirement, Bank size and Capital adequacy has 0.022561, 0.018125, 0.348373 and 0.225647coefficient number respectively which is positive correlation with return on asset.

4.3 Regression model tests

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

4.3.1 Model Selection (Random Effect versus Fixed Effect Models)

As Brooks (2008) referring on his book, there are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models and random effects models. 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. Accordingly, in this study the number of cross section units is ten and the number of time series data is six which is more than the cross section unit and, the fixed effect model is more appropriate than the random effect model. Thus, to determine whether the fixed effects are

necessary or not this study run the Hausman specification test as recommended by Brooks (2008) and others. The hypothesis for the model selection test was formulated as follow;

H0: Random effects model is appropriate.

H1: Fixed effects model is appropriate.

$\alpha = 0.05$

Decision Rule: Reject H0 if P value is less than significant level 0.05. Otherwise, do not reject H0.

4.3.1.1Model 1 (ROA) test

Table 4.3 Hausman test of Model-1 (ROA)

Correlated Random Effects - Hausman Test

Equation: HANSUMTEST

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.114775	6	0.0412

Source: - annual report of sample bank computed using E-views 8

Reject H0 since the p-value is less than the significance level of 0.05 (5%). Therefore fixed effect model is preferable than random effect model.

4.3.1.2 Model 1 (ROE) test

Table 4.4 Hausman test of Model-2 (ROE)

Correlated Random Effects - Hausman Test

Equation: HANSUMTEST

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.411482	6	0.0053

Source: - annual report of sample bank computed using E-views 8

Reject H0 since the p-value is less than the significance level of 0.01 (1%). Therefore fixed effect model is preferable than random effect model.

According to Brooks (2008) it is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more reasonable when the entities in the sample effectively represent the entire population. Thus, the sample for this study was not selected randomly instead it selected rationally that can effectively represent the total number of population, due to this it is appropriate for fixed effect model selection.

4.3.2 Tests for the Classical Linear Regression Model (CLRM) assumptions

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

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

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 assumption for (var(ut) = σ2 <∞)

According to Brooks (2008), Heteroscedasticity means that error terms do not have a constant variance. If heteroscedasticity occurs, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, such as Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity..

H0: The variance of the error is homoscedasticity
H1: The variance of the error is heteroscedasticity

Table 4.5 Heteroskedasticity Test for ROA Model

Heteroskedasticity Test: White

F-statistic	1.841319	Prob. F(7,52)	0.0989
Obs*R-squared	11.91806	Prob. Chi-Square(7)	0.1033
Scaled explained SS	12.80805	Prob. Chi-Square(7)	0.0769

Source: - annual report of sample bank computed using E-views 8

Table 4.6 Hetroskedasticity test for ROE Model

Heteroskedasticity Test: White

F-statistic	0.284430	Prob. F(7,52)	0.9572
Obs*R-squared	2.212605	Prob. Chi-Square(7)	0.9471
Scaled explained SS	1.225290	Prob. Chi-Square(7)	0.9903

Source: - annual report of sample bank computed using E-views 8

As shown in table 4.5& 4.6, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no proof for the presence of heteroscedasticity. In this study for both models developed the p-values were significantly in excess of 0.05. The third version of the test statistic, Scaled explained SS also gave the same conclusion that there is no evidence for the presence of heteroscedasticity problem, since the p-value was considerably in excess of 0.05.

Therefore, the null hypothesis that the variance of the errors is constant (homoscedasticity) should not be rejected.

Test3: Covariance Between the Error Terms Over Time Zero cov(*ui , uj*) = 0 for *i* _ =

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.

Another test for the existence of autocorrelation is by using Breusch-Godfrey test.
H0: The errors are uncorrelated with one another
H1: The errors are correlated with one another

Table 4.7 Breusch-Godfrey Serial Correlation LM Test for ROA Model

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.456761	Prob. F(2,50)	0.0960
Obs*R-squared	5.368647	Prob. Chi-Square(2)	0.0683

Source: - annual report of sample bank computed using E-views 8

Table 4.8 Breusch-Godfrey Serial Correlation LM Test for ROE Model

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.569853	Prob. F(2,50)	0.0866
Obs*R-squared	5.592745	Prob. Chi-Square(2)	0.0610

Source: - annual report of sample bank computed using E-views 8

Both versions of the test; F- statistic and R-squared version of the test indicate that the two model ROA&ROE are the null hypothesis of no autocorrelation should not be rejected, since the p-values are considerably in excess of 0.05. The conclusion from both versions of the test described that the null hypothesis of no autocorrelation is not rejected.

Test4: Normality (errors are normally distributed (ut~ N (0, +2))

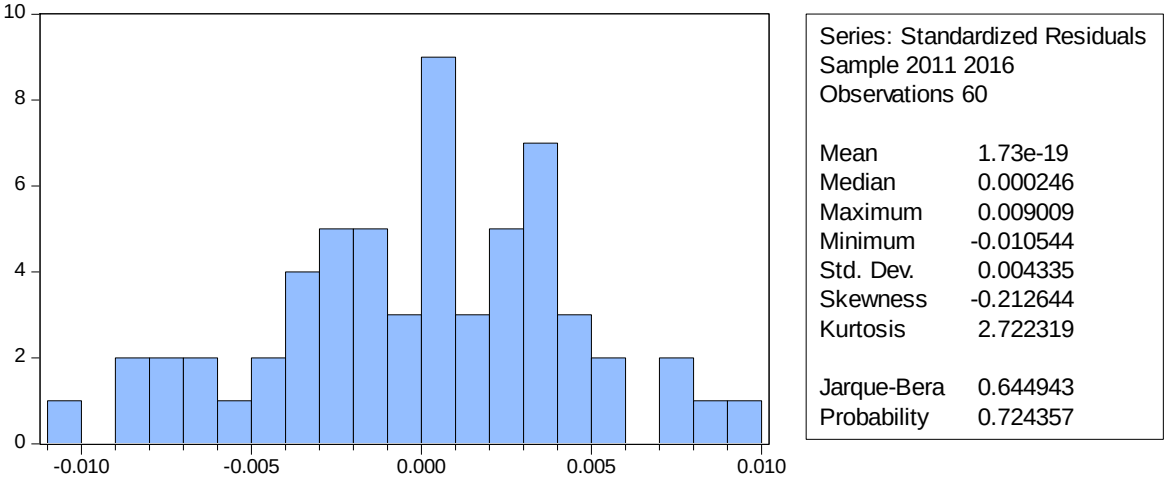
A normal distribution is not skewed and is defined to have a coefficient of kurtosis ≈ 3. JarqueBera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are ≈ 0 and ≈ 3 respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure.

If the JarqueBera 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).

In line with this, the study included two dummy variables (D714) to adjust the normality distribution. Thus, the figure below shows the result of normality by including one dummy variable.

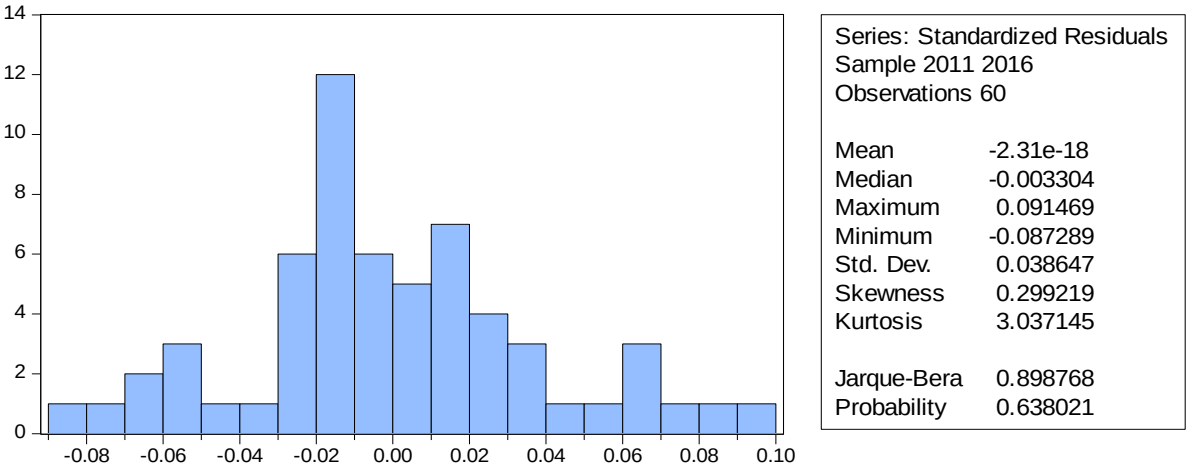
The hypothesis for the normality test was formulated as follow:
H0: Error term is normally distributed
H1: Error term is not normally distributed
The table below shows the result of normality by including dummy variables.

Figure 4.1 Normality Test Result for ROA Model



Source: - annual report of sample bank computed using E-views 8

Figure 4.2 Normality Test Result for ROE Model



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

As shown in the figure on 4.1& 4.2, the coefficient kurtosis for ROA model is (2.72) &ROE model is (3.03) with a P-value of 0.72 for ROA & 0.63 for ROE. Therefore, we can conclude that there was no evidence for the presence of abnormality in the data since the p-value is greater than 0.05. Thus, the null hypothesis that the data is normally distributed should not be rejected since the p-value was considerably in excess of 0.05 and the coefficient of kurtosis closer to 3.

Test5: Multicollinearity Test

According to Brooks (2008), multicollinearity occurs when some or all of the independent variables are highly correlated with one another. It shows that the regression model has difficulty in explaining which independent variables are affecting the dependent variable. If multicollinearity problem is too serious in a model, unimportant independent variable should be dropped. However, the maximum level of correlation causes multicollinearity is not clearly defined. Hair *et al* (2006) argue that correlation coefficient below 0.9 may not cause serious multicollinearity problem. Malhotra (2007) stated that multicollinearity problem exists when the correlation coefficient among variables is greater than 0.75 and 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 However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

Table 4.9 Test of Multicollinearity

	NBP	LRR	EI	CR	BS	CAR
NBP	1.000000					
LRR	0.064928	1.000000				
EI	0.124015	0.153968	1.000000			
CR	0.222775	0.031110	-0.075919	1.000000		
BS	-0.254008	0.122430	-0.029677	-0.118713	1.000000	
CAR	0.431744	0.173900	0.097920	0.103058	-0.185426	1.000000

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

The method used in this study to test the existence of multicollinearity was by checking the Pearson correlation between the independent variables. The correlations between the independent variables are shown in table 4.9 above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study.

4.4 Result of regression analysis

4.4.1 Regression analysis between ROA and explanatory variables

The first empirical model used in this study to identify the effect of bank regulation on the performance of private commercial banks in Ethiopia was:

$ROAb\boldsymbol{t} = \alpha + \beta 1NBPb\boldsymbol{t} + \beta 2LRRb\boldsymbol{t} + \beta 3CRb\boldsymbol{t} + \beta 4EIb\boldsymbol{t} + \beta 5CARb\boldsymbol{t} + \beta 6BZb\boldsymbol{t} + \varepsilon$ ……..*(Model 1)*

Table 4.10 Fixed effect panel model regression result of ROA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/04/18 Time: 00:41
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007543	0.013006	-0.579941	0.5650
NBP	-0.001683	0.000463	-3.631198	0.0007**
LRR	-0.327118	0.104525	-3.129585	0.0031**
EI	0.001212	0.000550	2.204094	0.0329*
CR	0.001629	0.000586	2.777720	0.0081**
CAR	0.111159	0.040159	2.767963	0.0083**
BS	0.002219	0.000920	2.412984	0.0202*
DUM716	-0.026378	0.005743	-4.593390	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.707885	Mean dependent var	0.028163
Adjusted R-squared	0.599191	S.D. dependent var	0.008022
S.E. of regression	0.005078	Akaike info criterion	-7.494124
Sum squared resid	0.001109	Schwarz criterion	-6.900726
Log likelihood	241.8237	Hannan-Quinn criter.	-7.262014
F-statistic	6.512642	Durbin-Watson stat	2.114145
Prob(F-statistic)	0.000000		

Source: - annual report of sample bank computed using E-views 8

N.B:- **and * indicate that significant at 1% and 5% significance level respectively.

Thus, based on the result in above Table, the following model was developed to examine the effect of bank regulation on return on asset of private commercial bank.

ROA=0.007543-0.001683NBP-0.327118LRR+0.001212EI+0.001629CR+0.111159CAR+0.002219BZ+ε

This section discusses in detail the analysis of the results for each explanatory variable and their effect on Ethiopian private commercial bank's performance. Furthermore, the discussion analyzed the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the interpretation on the fixed effects model regression results.

The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). The coefficient of determination in this model is given by R-squared of 70.78% and Adjusted R-squared of 59.91%, which means the changes in the independent variables (NBE bill purchase, legal reserve requirement, equity investment, capital requirement, capital adequacy ratio and bank size) collectively explain 59.91% of the changes in the dependent variable (ROA) and the remaining 40.09% of changes is explained by other factors which are not included in the model. Thus, these variables collectively are good explanatory variables to identify the effect of bank regulation on private commercials bank performance in Ethiopia. The value of F-statistics (6.512642) and the p-value of (0.000000) which is used to measure the overall significance of the mode. Hence the null hypothesis of F-statistic (the overall test of significance) that the R2 is equal to zero was rejected at 1% significance level (p-value =0.0). Thus it implies that the independent variables in the model were able to explain variations in the dependent variable and which enhanced the reliability and validity of the model.

The value of beta in regression model indicates that the level of each coefficient of explanatory variable influence on the dependent variable positively or negatively. Moreover the P-value of each explanatory variable indicates the percentage or precession level of each variable is significant or not.

The coefficient for NBP is -0.001683on ROA which indicates that the National banks bill purchase of private commercial banks had negative relationship with ROA and also the relationship is significant at 1% level of significant. And also, the coefficient for LRR is -0.327118on ROA which refers that Legal reserve requirement had negative relationship with ROA and also the relationship is significant at 1% level of significant. Next to this, the

coefficient for EI is 0.001212 on ROA which refers that Equity investment had positive and significant relation with ROA at 5% level of significant.

The coefficient for CR is 0.001629 on ROA indicates that the capital requirement of the banks had positive relationship with ROA and also the relationship is significant at 1% level of significant and the coefficient for BS 0.002219 on ROA which indicates that the positive relationship with ROA and also the relationship is significant at 5% level of significant. Finally, coefficient CAR 0.111159 which implies that Capital adequacy had positive relationship with ROA also the relationship is significant at 1% level of significant.

The negative relationships indicate that there is an inverse relationship between the two independent variables (NBP and LRR) and ROA. Thus, increasing of those variables will lead to a decrease in ROA of Ethiopian private commercial bank. On the other hand the positive relationships indicate that there is a direct relationship between the remaining four independent variables (EI, CR, and CAR& BS) and ROA. Decreasing of this variable will led to a decline in ROA of Ethiopian private commercial bank.

The following section provides a brief analysis of the results for each independent and control variable and their importance in examining the effect of bank regulation on commercial Banks in Ethiopia. Also the statistical findings of the study in relation to the previous empirical studies are discussed.

Discussion of Empirical result

NBE bill purchase (NBP)

H1: NBE Bill purchase requirement has negative and significant effect on ROA of Private commercial banks in Ethiopia.

According to Table 4.9 the regression result of National Bank bill purchase (NBP) has a negative relationship with return on asset of private commercial bank by a coefficient estimate of -0.001683. This means that holding other independent variables constant and when one percent increases in NBP, consequently it reduces return on asset (ROA) of Ethiopian private

commercial banks by 0.16% and the p value of National Bank bill purchase (NBP) is 0.0007 reveals that return on asset of private commercial bank in Ethiopia for the sample period. Thus, this outcome is consistent with prior study of Tesfaye (2014) and Eden in the same year and Shimels(2016) that point out the negative significant effect of NBP on performance.

Therefore, NBE bill highly affect interest income of private banks because the interest rate calculated on the bills (3%) is far less than the market lending rate which is 12.75% on average NBE (2015/16) having 9.75% difference and also incurred more cost (interest paid to depositors) on average 5.38. And the requirement of purchasing NBE bill creating maturity mismatches because private banks collect savings mostly at one to two-year maturity and even shorter in some cases and fulfilling the 27 percent requirement means that they have to freeze these resources for 5 years.

Legal reserve requirement

H2: legal reserve requirement has negative and significant effect on ROA of Private commercial banks in Ethiopia

According to Table 4.9 the regression result of legal reserve requirement (LRR) has a negative relationship with return on asset of private commercial bank by a coefficient estimate of -0.327118. This means that holding other independent variables constant and when one percent increases in LRR, consequently it decreases return on asset (ROA) of Ethiopian private commercial banks by 32.71% and the p value of LRR is 0.0031reveals that it is statistically significant at 1% level of significance. Accordingly, the result supported the working hypothesis that legal reserve requirement has negative and statistically significant effect on return on asset of private commercial bank in Ethiopia for the period of 2011 to 2016. This finding is consistent with previous studies of Roa & Somaiya(2006) and Addisu (2016)that indicated legal reserve requirement had negative and significant impact on profitability.

However, regarding the study results legal reserve requirement has inversely relationship with performance of private commercial banks in Ethiopia because, high reserve requirements decrease loan able funds available for investment by reducing the fraction of given volumes of

deposits rate and by reducing the equilibrium volume of deposits through decreasing the profit-maximizing of the firm and legal reserve do not generate any return since it doesn't bear any interest at all.

Equity investment

H3: Equity investment has positive and significant effect on ROA of Private commercial banks in Ethiopia

From the regression result of Table 4.9 equity investment (EI) has a positive relationship with return on asset of private commercial bank by a coefficient estimate of 0.001212. This means that keeping other independent variables constant and when one percent increases in equity investment, as a result it enhances return on asset (ROA) of Ethiopian private commercial banks by 0.12% and the p value of EI is 0.0329 reveals that it is statistically significant at 5% significance level and the result supported the workable hypothesis that equity investment has positive and statistically significant effect on return on asset of private commercial bank in Ethiopia for the period of 2011 to 2016. The result is consistent with prior studies of Francisco, G.(2010) and Eden (2014). However, it is contradict with Addisu (2016) result that it has negative and statistically insignificant effect on performance of private commercial banks.

The National Bank of Ethiopia had a regulation state that, banks 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). Even thought NBE allowed banks to invest10% of their net worth banks, it has other prior obligation that should fulfill. 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 are forced to purchase this bill. So banks give priorities on this obligation. Therefore most of the sample bank included in the research served more than ten years. Relaying on their service the banks have more fund available to invest in other non-banking business and they take higher risk on equity investment and raise their capital as NBE requires.

Capital requirement

H3: Capital requirement has positive and significant effect on ROA of Private commercial banks in Ethiopia

In accordance with the regression result of Table 4.9 capital requirement (CR) has a positive relationship with return on asset of private commercial bank by a coefficient estimate of 0.001629. This means that holding other independent variables constant and when one percent increases in capital requirement, as a result increase return on asset (ROA) of Ethiopian private commercial banks by 0.16% and the p value of CR is 0.0081 discloses that it is statistically significant at 1% level of significance and the result supported the working hypothesis that capital requirement has positive and statistically significant effect on performance of private commercial banks in Ethiopia for the period of 2011 to 2016.The result is consistent with prior studies of Addisu(2016).

As implied from the above finding paid up capital requirement have positive effect on the performance of private commercial banks during the sample period. Hence the possible reason that increasing in paid up capital serves as a buffer against losses and hence failure. Furthermore, the banks with limited liability so they don't paid higher interest for debaters because most of the funds covered by own investment and the banks pay for investor dividend and the tendency for banks to engage in higher risk activities is curtailed with greater amounts of capital at risk.

.

Bank size

As the result described in the same table, Size of the private commercial banks in Ethiopia has a positive and statistically significant impact on return on asset at 5% confidence level with coefficient of 0.002219 and it could be stated that all other variables holding constant, a 5% increase/decrease in bank size would lead to increase/decrease in return on asset (ROA) by 0.002219 units. This direct relationship between bank size and performance in return on asset, suggests that larger banks tend to earn higher profits. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability. In addition bank profitability is influenced by market share. It assumes that only large banks with different bank

products can influence in market and increase profitability. They are able to exercise market power and earn non-competitive profits Tregenna (2009). This result is also in line with the previous study carried out by (Flamini et al. 2009), Eden (2014). And Addisu (2016), Suggesting that exploiting the economies of scale for large banks than smaller banks. Therefore, the hypothesis developed bank size has significant positive effect on ROA of private commercial banks in Ethiopia is accepted.

Capital Adequacy

In line with regression result of capital adequacy ratio(CAR) has a positive relationship with return on asset of private commercial bank by a coefficient estimate of 0.111159. This means that holding other independent variables constant at their average value and when one percent increases in capital adequacy ratio, as a result it increase return on asset (ROA) of Ethiopian private commercial banks by 11.11% and the p value of CAR is 0.0083 reveals that it is statistically significant at 1% level of significance. The research used this variable as a control variable and predicts that capital adequacy had a positive and significant effect in performance.

A bank with a better capital adequacy is in the higher position to use advanced banking technologies and highly professionals' staffs which results is high efficiency and thus achieving higher profitability. As Athanasoglou et al. (2005) argue that, a bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability. This result stands in line with the empirical evidence of Dietrich and Wanzenrid (2009), Bourke (1989), Demirguc Kuntand Huizinga (1999), Goddard et al. (2004), Pasiouras and Kosmidou.(2007), Amdemikael (2012), Habtamu (2012) and Samuel (2015).

.

4.4.2 Regression analysis between ROE and explanatory variables

The first empirical model used in this study to identify the effect of NBE regulation on the performance of private commercial banks in Ethiopia was:

ROEbt = α + β1NBPt+β2LRRbt+ β3CRbt + β4EIbt + β5CARbt+β6BZbt+ ε …….(Model 2)

Table 4.11 Fixed effect panel model regression result of ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 01/04/18 Time: 00:40
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.066231	0.115937	-0.571265	0.5708
NBP	-0.014865	0.004132	-3.597947	0.0008**
LRR	-2.905191	0.931752	-3.117989	0.0032**
EI	0.011500	0.004901	2.346693	0.0236*
CR	0.014833	0.005226	2.838129	0.0069**
CAR	0.745708	0.357985	2.083071	0.0432*
BS	0.018644	0.008199	2.273822	0.0280*
DUM716	-0.236295	0.051190	-4.616036	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.685930	Mean dependent var		0.216963
Adjusted R-squared	0.569066	S.D. dependent var		0.068961
S.E. of regression	0.045270	Akaike info criterion		-3.118835
Sum squared resid	0.088122	Schwarz criterion		-2.525437
Log likelihood	110.5651	Hannan-Quinn criter.		-2.886725
F-statistic	5.869497	Durbin-Watson stat		2.300245
Prob(F-statistic)	0.000002			

Source: - annual report of sample bank computed using E-views 8

N.B:- **and * indicate that significant at 1% and 5% significance level respectively.

Thus, based on the result in the above Table, the following model was developed to examine the effect of bank regulation on return on equity of private commercial banks.

ROE=0.066231-0.014865NBP-2.905191LRR+0.011500EI+0.014833CR+0.745708CAR+0.018644BZ+ε

This section discusses in detail the analysis of the results for each explanatory variable and their effect on Ethiopian private commercial bank's performance. Furthermore, the discussion analyzed the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the interpretation on the fixed effects model regression results.

The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). The coefficient of determination in this model is given by R-squared of 68.59% and Adjusted R-squared of 56.90%, which means the changes in the independent variables (NBE bill purchase, legal reserve requirement, equity investment, capital requirement, capital adequacy ratio and bank size) collectively explain 68.59% of the changes in the dependent variable (ROE) and the remaining 31.41% of changes is explained by other factors which are not included in the model. Thus, these variables collectively are good explanatory variables to identify the effect of bank regulation on the ROE of private commercial bank in Ethiopia. The regression F-statistic (5.869497) 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 for NBP is -0.014865on ROE which indicates that the National banks bill purchase of private commercial banks had negative relationship with ROE and also the relationship is significant at 1% level of significant. And also, the coefficient for LRR is -2.905191on ROE which refers that Legal reserve requirement had negative and also the relationship is significant at 1% level of significant. Next to this, the coefficient for EI is 0.011500on ROE which refers that Equity investment had positive and significant relation with ROE at 5% level of significant.

The coefficient for CR is 0.014833 on ROE indicates that the capital requirement of the banks had positive relationship with ROE and also relationship is significant at 1% level of significant and also coefficient for BS 0.018644 on ROE which indicates that the positive relationship with ROE and significant effect at5% level of significant. Finally, coefficient CAR 0.745708 which

implies that Capital adequacy had positive relationship with ROE and significant effect at 5% level of significant.

The negative relationships indicate that there is an inverse relationship between the two independent variables (NBP and LRR) and ROE. Thus, increasing of those variables will lead to a decrease in ROE of Ethiopian private commercial bank. On the other hand the positive relationships indicate that there is a direct relationship between the remaining four independent variables (EI, CR, BS and CAR) and ROE. Decreasing of this variable will led to a decline in ROE Ethiopian private commercial bank.

The following section provides a brief analysis of the results for each independent and control variable and their importance in examining the effect of bank regulation on commercial Banks in Ethiopia. Also the statistical findings of the study in relation to the previous empirical studies are discussed.

NBE bill purchase (NBP)

H1: NBE Bill purchase requirement has negative and significant effect on ROE of Private commercial banks in Ethiopia.

According to Table 4.11 the regression result of National Bank bill purchase (NBP) has a negative relationship with return on equity of Ethiopian private commercial banks by a coefficient estimate of -0.014865. This means that holding other independent variables constant and when one percent increases in NBP, consequently it reduces return on equity (ROE) of Ethiopian private commercial banks by 1.48% and the p value of National Bank bill purchase (NBP) is 0.0008 reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that National Bank bill purchase has negative and statistically significant effect on return on equity of private commercial banks in Ethiopia for the sample period. Thus, this outcome is consistent with prior study of Eden(2014), Nahom(2015)and Shimels(2016) that point out the negative significant effect of NBP on performance.

Therefore, NBE bill highly affect interest income of private banks because the interest rate calculated on the bills (3%) is far less than the market lending rate which is 12.75% on average NBE (2015/16) having 9.75% difference and also incurred more cost (interest paid to depositors) on average 5.38. And the requirement of purchasing NBE bill creating maturity mismatches because Private Banks collect savings mostly at one to two-year maturity and even shorter in some cases and fulfilling the 27 percent requirement means that they have to freeze these resources for 5 years.

Legal reserve requirement

H2: legal reserve requirement has negative and significant effect on ROE of Private commercial banks in Ethiopia

According to the regression result of Table 4.11 legal reserve requirement (LRR) has a negative relationship with return on equity of Ethiopian private commercial banks by a coefficient estimate of -2.905191. This means that holding other independent variables constant and when one percent increases in legal reserve requirement, consequently it decreases return on equity (ROE) of Ethiopian private commercial banks by 2.90 and the p value of LRR is 0.0032 shows that it is statistically significant at 1% level of significance. So the result supported the working hypothesis that legal reserve requirement has a negative and significant effect on return on equity of Ethiopian private commercial banks. The implication of this result is that the increasing of legal reserve requirement leads to decreases performance. This finding is consistent with previous studies of Roa&Somaiya(2006) and Eden (2014)that indicated legal reserve requirement had insignificant impact on profitability.

Equity investment

H3: Equity investment has positive and significant effect on ROE of Private commercial banks in Ethiopia

As the regression result described in table 4.11of equity investment (EI) has a positive relationship with return on equity of Ethiopian private commercial banks by a coefficient estimate of 0.011500. This means that keeping other independent variables constant and when

one percent increases in equity investment, as a result it enhances return on asset (ROE) of Ethiopian private commercial banks by 1.15% and the p value of EI is 0.0236 reveals that it is statistically significant at 5% significance level and the result supported the workable hypothesis that equity investment has positive and statistically significant effect on return on equity of Ethiopian private commercial banks for the period of 2011 to 2016. The result is consistent with prior studies of Francisco, G.(2010) and Eden (2014).

Capital requirement

H3: Capital requirement has positive and significant effect on ROE of Private commercial banks in Ethiopia

In accordance with the regression result of Table 4.11 capital requirement (CR) has a positive relationship with return on equity of Ethiopian private commercial banks by a coefficient estimate of 0.014833. This means that holding other independent variables constant and when one percent increases in capital requirement, as a result it increase return on asset (ROE) of Ethiopian private commercial banks by 1.48% and the p value of CR is 0.0069 discloses that it is statistically significant at 1% level of significance and the result supported the working hypothesis that capital requirement has positive and statistically significant effect on return on equity of Ethiopian private commercial banks for the period of 2011 to 2016.

Bank size

As the result described in the same table, Size of the private commercial banks in Ethiopia has a positive and statistically significant effect on return on equity at 5% confidence level with coefficient of 0.018644 and the p value of BZ is 0.0280. It could be stated that all other variables holding constant, at 1% increase/decrease in bank size would lead to increase/decrease in return on equity of Ethiopian private commercial banks by 0.018644 units. This direct relationship between bank size and performance in return on equity, suggests that larger banks tend to earn higher profits. This is consistent with prior empirical evidence Eden (2014) and Addisu (2016), Suggesting that exploiting the economies of scale for large banks than smaller banks. Therefore, the hypothesis developed bank size has significant positive effect on credit risk is accepted.

Capital Adequacy

In accordance with the regression result of Table 4.11 capital adequacy had a negatively related with profitability with a coefficient estimate of 0.745708. This means holding other factors constant, a 1% increase in capital adequacy also increase ROE by 74.57% and the p value of CAR is 0.0432 reveals that it is statistically significant at 5% level of significance. The research used this variable as a control variable and predicts that capital adequacy had a positive and significant effect in performance.

Table 4.12 Comparison of test result with expectation

Independent Variables	Expected Relationships with ROA	Actual result	Expected Relationships with ROE	Actual result	Statistical Significance test ROA	Statistical Significance test ROE	Hypothesis Status
NBE bill purchase	-	-	-	-	at 1%	at 1%	Failed to Reject
Equity investment	+	+	+	+	at 1%	at 1%	Failed to Reject
Capital requirement	+	+	+	+	at 5%	at 5%	Failed to Reject
Legal reserve requirement	-	-	-	-	at 1%	at 1%	Failed to Reject
	Control variable						
Capital adequacy					at 1%	at 5%	
Bank size					at 5%	at 5%	

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

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

5.1 Summary of Findings

The major objective of the study was to examine the effect of bank regulation on the performance of private commercial banks in Ethiopia. In order to achieve the objective of the study, the two pure performance indicators (Return on Asset and Return on Equity) were regressed with various regulatory and control variables. The panel data were used for the sample of ten commercial banks in Ethiopia from 2011 to 2016 with a total of 60 observations. Data were presented by using descriptive statistics; balanced correlation and regression analysis for performance ratios were conducted. Before performing OLS regression the researcher uses model specification test to select the appropriate model for regression analysis. Based on the result of model specification test, the researcher had used the fixed effect model. Furthermore, the models were tested for the classical linear regression model assumptions and the results showed that all the tests are satisfactory in all regressions. The study used four independent variables were, NBE Bill, equity investment, legal reserve requirement and capital requirement. Capital adequacy and bank size was also taken into consideration as a control variable.

From the regression result both performance indicators (Return on Asset and Return on Equity) are shown as a result, NBE bill purchase and Legal reserve requirement had negative and significant effect on performance of private commercial banks and capital requirement, equity investment, capital adequacy and bank size had positive and significant effect on performance of private commercial banks in Ethiopia.

5.2 Conclusion

The study specifically examines the effect of bank regulation on performance of Ethiopia private commercial banks based on the following conclusions.

- The study finds that purchasing NBE bill has had a negative and significant effect on the performance of private commercial banks measured through both Return on Asset and return of equity because they have been offered very low interest rate (3%) by NBE which is less than cost of collecting saving on average 5.38% NBE (2015/16) from the public. This even makes private commercial banks to incur net loss of 2.38%. Not only incurring a net loss of 2.38% but also the interest rate calculated on the bills is far less than the market lending rate which is 12.75% on average NBE (2015/16) having 9.75% difference. This difference made private commercial banks to loss substantial amount of income.

- The result shows that legal reserve requirement had a negative and significant effect on the performance of private commercial banks. This implies that when banks increase the amount of legal reserve it decreases their performance. 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 and decreasing lonable fund of banks.

- Capital requirement has a positive and significant effect on the performance of private commercial banks. This implies that Paid up capital has direct relationship with performance. As banks increasing the Paid up capital, they show increasing their performance.

- Equity investment has positive and significant effect on the performance of private commercial banks. This implies that private commercial banks increase investment they increase performance of Ethiopian private commercial banks. This implies that the banks generate better profit from investing in other non-bank sector.

- Capital adequacy has a positive and significant effect on the performance of private commercial banks. This implies that an increase in capital adequacy ratio, certainly increasing in performance of Ethiopian private commercial banks.

- Bank size has a significant effect on the profitability of private commercial banks. This implies that bank size has a direct relationship with profitability. As banks increasing the size, they can earn higher profit

In general, NBE bill purchase and Legal reserve requirement show negative and significant association with performance of Ethiopian private commercial banks, where equity investment and capital requirement has positive and significant effect on performance.

5.3 Recommendations

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

For policy makers

- Even if the magnitude of the impact of NBE bill is not highly sever and a better profit after the application of the requirement, the result of this study also revealed that NBE bill had negative and significant impact on the performance (ROA& ROE) of private commercial banks in Ethiopia. This is an indicator that private commercial banks might be incurred a loss in long run. This in turn could induce banks to engage in riskier activities and /or to invest in ways to circumvent regulation and affect the financial system as whole. Therefore it is better for the policy makers to minimize either the percentage of the requirement to purchase the NBE bill from newly disbursed loans or increase the interest rate paid for the bill.

- The analysis indicated that legal reserve requirement were significant related to performance of banks. NBE should follow on this requirement in order to enhance private liquidity issue of commercial banks but negatively affect the performance of private

commercial banks. Therefore it is better for the policy makers to calculate either minimum percentage of interest on the reserved amount or give a permission to invest in other profitable financial or non-financial sector by calculating liquidity issue.

For private commercial banks

- Private commercial banks until NBE taking corrective action and making big deal with fixed time depositors to extend the maturity date instead of making aggressive competition by paying higher interest for shortly maturing fixed time deposit because this create maturity mismatch between their asset and liability. The researcher also recommends private commercial banks to use different mechanisms such as improve and aggressively work on interest free banking.
- Furthermore Ethiopian Private commercial banks should focus on branch expansion to mobilize funds from the unbanked society. As many literatures supports financial intermediation in Ethiopia is still in its early stages even by the standards of other low-income countries: more than 90 percent of the population is unbanked (versus an average of 60-70 percent elsewhere in Africa); and many other metrics such as the total number of banks, banks contribution to GDP, bank accounts per person, branches per person, and bank credit per person are lower in Ethiopia compared to other African countries. Thus, private commercial banks should focus to reach this unmet demand of finance by adjusting their strategy with the government regulation.

Further research

The study is reflected the historical impact of bank regulation on the performance of private commercial banks in Ethiopia and focused on private commercial banks which are operated more than ten years. Hence, for future research, this study can be extended using unbalanced panel data to cover all private commercial banks in Ethiopia and to measure its long run impact on the performance of private commercial banks in Ethiopia.

REFERENCES

Adam, J. A. 2005, "Bank regulation, risk assets and income of banks in Nigeria". NDICQuarterly, Retrieved 20 November, 2013 available at http://www.ndic-ng.com/j,df/adam.p4f.

AddisuAnagaw ,(2016) The effect of banks regulation on the profitability of private commercial bank. Unpublished Master's Thesis, Addis Ababa University.

Adrian, T. &Brunnermeier, M. 2011, _CoVaR. National Bureau of Economic Research' Working Papers 17454.

Allen N, Iftekhar H, Iikka K, Mingming(2010). Does Diversification Increase and Decrease Bank Risk and Performance?Evidence on diversification and the Risk- Return Tradeoff.Journal of Social Science.

Athanasoglou, P.P., Brissimis, S.N. and M.D. Delis (2005)."Bank-specific industry specific and macroeconomics determinants of bank profitability."Bank of Greece Working Paper 25, June.

Athanasoglou, PP, Delis, MD &Staikouras, CK 2006, _Determinants of bank profitability in the South Eastern European region', *Journal of Financial Decision Making*, vol. 2, pp. 1-17.

Barkow, R 2013, _Explaining and curbing capture'.*North Carolina Banking Institute Journal*, vol.18, 17–25.

Barth, J. R, Caprio, G, & Levine, R 2004, _Bank regulation and supervision: what works best?' Journal of Financial Intermediation, 13, 205–248.

Barth, James R., Gerard Caprio and Ross Levine, 2006, "Rethinking Banking Regulation: till Angels Govern", Cambridge University Press, Cambridge.

Becker, G 1983, _A Theory of competition among pressure groups for political influence', *Quarterly Journal of Economics*, V.98, pp. 371-400.

Benston, G.J 1998, *„Regulating financial markets: A Critique and some proposals"*, Institute of Economic Affairs, Hobart Paper no. 135.

Berger, A. N, Herring, R. J &Szegö, G. P 1995. The Role of Capital in Financial Institutions, Journal of Banking and Finance 19, 257-276.

Bonn (2005).An Increasing Role for Competition. In The Regulation Of Banks International Competition Network Antitrust Enforcement In Regulated Sectors Subgroup.

Bonn (2005).An Increasing Role For Competition. In The Regulation Of Banks International Competition Network Antitrust Enforcement In Regulated Sectors Subgroup 1.

Brooks. C. (2008). Introductory Econometrics of Finance, 2nd ed., the ICMA Center,

Brunnermeier, Markus, Andrew, D. Crockett, Charles, A. E, Goodhart, Avinash, D, Persaud& Hyun S 2009, The Fundamental principles of financial regulation', Geneva Reports on the World Economy No. 11.

Caprio, G. Jr 2013, ' Regulatory capture: Why it occurs, how to minimize it', North Carolina Banking Institute Journal, vol. 18, 39–50.

Chen, J., 2003. Capital Adequacy of Chinese Banks: evaluation and enhancement. Journal of International Banking Regulations, [Online] 4(4), pp. 320-327. Available at: https://www.springer.com (Accessed 16 Jul 2016.

Cooper, D & Schindler, P. (2003).Business Research Methods.8th edn, McGraw-Hill, New York.

Creswell, W. (2003).Research design, qualitative, quantitative and mixed methods approaches, 2nd edn, Sage Publications, California.

Creswell, W. (2009). Research design: quantitative, qualitative and mixed methods approaches, 3rd edn. Sage Publications, California.

Dewatripont, M. &Tirole,J 1994, The Prudential regulation of banks, Cambridge: MIT Press.

Eden Kebede, (2014). The impact of national bank regulation on banks performance: evidence from the private banks of Ethiopia. Unpublished Master's Thesis, Addis Ababa University.

Faten, B. (2013). The effects of supervision on banking performance: European evidence, International conference "Governance & Control in Finance & Banking, 1-24.

Fatimah Omotayo Salami,2012, "Banking regulation in Nigeria", International Islamic University Malaysia (hUM), Kulliyah of Economics and Management Sciences, Retrieved02 October, 2013 available at http://ssrn.com/abstract=199 1306.

Flamini, V., McDonald, C. and Schumacher, L. (2009).The Determinants of Commercial Ban profitability in Sub-Saharan Africa.*IMF working paper*, (09/15).

FotiosPasiouras, SaileshTanna, ConstantinZopounidis, 2008, "Banking regulations, costand profit efficiency", Cross country evidence, Retrieved 13 December, 2013 available athttp://ssrn.comlabstract=1 103436

Georgios E. Chortareas, Claudia Girardoneand Alexia Ventouri, 2010, "Bank Supervision,Regulation and Efficiency: Evidence from the European Union".

Gonzalez F., 2005, "Bank regulation and risk-taking incentives: An internationalcomparison of bank risk". Journal of Banking and Finance 29.

Goodhart Charles, 2010, "How should we regulate bank capital and financial products? What role for 'living wills'?" The Future of Finance, The LSE Report.

Habtamu 2012, determinants of bank profitability: an empirical study on Ethiopian private commercial banks, MSc project paper, Addis Ababa University.

Hagg, P.G 1997, _Theories on the economics of regulation: a survey of the literature from a European perspective', *European Journal of Law and Economics*, vol. 4, 337–70.

Jalilian, H., Kirkpatrick, C., and D. Parker, "The Impact of Regulation on Economic Growth in Developing Countries: A Cross-Country Analysis", World Development, 35(1), pp. 87-103.

James R. Barth, Gerard, Cprio, Jr. and Levine, R (2002). Bank regulation and supervision: What Works Best?,,, National Bureau of Economic research , Working Paper 9323.

James R. Barth, Gerard Caprio, Jr., **Ross** Levine, 2012, "The Evolution and Impact of Bank Regulations", The World Bank Development Research Group Finance and Private Sector Development Team, Policy Research Working Paper 6288.

Kanwal, S. &Nadeem, M. (2013).The Impact of Macroeconomic Variableson the Profitability of Listed Commercial Banks in Pakistan.*EuropeanJournal of Business and Social Sciences*, *Vol. 2*, No.9, Pp 186-201.

Kenneth Spong(2000), Banking Regulation its Purpose, Implementation and Effects, fifth edition.

Khrawish, H.A. (2011). Determinants of Commercial Banks Performance: Evidence from Jordan. Zarqa University, 5(5), 19-45.

Kiganda E. O. (2014). Effects of macroeconomic factors on Commercial Banks, profitability in Kenya: Case of Equity Bank Limited. *Journal of Economic and Sustainable Development, 5(2):* 46-56

Kosmidou K. (2008). Measurement of Bank Performance in Greece.South Eastern Europe Journal of Economic.

Koul, L 2006, *Method of educational research,* 5thedn.,Vikas publishing House, New Delhi.

Kremmling M.D., 2011, "The Influence of Financial Sector Regulation on BankPerformance: A study of bank performance during the world financial crisis". ThesisDissertation.Retrieved 11 September, 2013 available athttp://pure.au.dklportal/files/3 9955708/The Influence of Financial SectorRegulation on Bank Performance.p4f.

Kroszner R.S. &Strahan, P.E, 1999, _What drives deregulation? Economics and politics of the relaxation of bank branching restrictions', *Quarterly Journal of Economics*, vol. 114, 1437–67.

Lessig Lawrence, 2011, "Republic, Lost: How Money Corrupts Congress - and a Plan toStop" Twelve.

Llewellyn, D., (1999), "The Economic Rational for Financial Regulation", *FSA Occasional Papers in Financial Regulation,* Occasional Paper Series 1.

Loose, J 1993, A *Historical introduction to the philosophy of science*. 3rd ed., Opus: Oxford.

Malhotra, N. (2007). Marketing Research: An applied orientation, 5th ed., PHI, New Delhi.

Marcia M. Corneffa, Hassan Tehranian, 2004, "An overview of commercial banks:performance, regulation, and market value." Review of Financial Economics 13.

Martin A. D., and Mauer L. J. (2003), "Exchange Rate Exposures of US Banks: A cashFlow-based methodology,*Journal of Banking and Finance*, 27(5), pp.851-65.

McGarity, T.O 1996. _The expanded debate over the future of the regulatory state‘, University of Chicago Law Review, vol. 63, no. 4, 1463–532.

McKinnon, R.I 1973, *Money and capital in economic development* ,Washington D. C.: Brookings Institution.

Meltzer A.H. 1967, _ Major issues in the regulation of financial institutions‘, *Journal of Political Economy*, vol. 75, no. 4, 482–501

Naceur, S. and Mohammed, O. (2008). The effect of bank regulations, competition and financial reforms on MENA banks profitability Working Paper Series No. 449.

Nafis, A. (2012). The Impact of Regulatory and Supervisory Structures on Bank Risk and Efficiency: Evidence from Dual Banking System. Asian Journal of Finance & Accounting 4 (1), 216-244.

National Bank of Ethiopia (NBE) bills market directives no. MFA/NBEBILLS/001/2011.

National Bank of Ethiopia 2011, _Licensing and supervision of banking business: Minimum capital requirement of banks, Directive No.SSB/24/1999, Ethiopia.

National Bank of Ethiopia 2011, _Licensing and supervision of banking business: Minimum capital requirement of banks, Directive No.SSB/50/2011, Ethiopia.

National Bank of Ethiopia 1996 , _Licensing and supervision of banking business : Limitation on Investment of Banks‘, Directive No. SSB /12/1996, Ethiopia.

National bank of Ethiopia, 2007.Licensing and supervision of Banking business,limitation on investment of Banks, directive No SBB/60/2015.

National bank of Ethiopia, 2007.Licensing and supervision of Banking business, reserve requirement, directives NO.SBB/37/2004.

National bank of Ethiopia, 2007.Licensing and supervision of Banking business, reserve requirement, 3th Replacement, directives NO.SBB/42/2007.

National bank of Ethiopia, 2008.Licensing and supervision of Banking business, reserve requirement, 4th Replacement, directives NO.SBB/45/2008.

National bank of Ethiopia, 2012.Licensing and supervision of Banking business, Reserve requirement, 5th Replacement, directives NO.SBB/46/2012.

National bank of Ethiopia, 2013.Licensing and supervision of banking business, Reserve requirement, 6th replacement, directives NO.SBB/55/2013, Ethiopia.

Nzongang, T &Atemnkeng, JT 2006, _Market structure and profitability performance in the banking industry of CFA countries: the case of commercial banks in Cameroon', working paper.

Ommeren, S. (2011). An examination of the Determinants of Banks' Profitability in the European Banking sector. Unpublished Master's thesis, Erasmus University, school of Economics, departments of Finance, Rotterdam

Ongore, V.O. (2011). The relationship between ownership structure and firm performance: An empirical analysis of listed companies in Kenya.*African Journal of Business Management*, 5(6), 2120-2128.

Ongore, V.O and Kusa.G.B (2013). Determinants of Financial Performance of *Proceedings of 13 - 14 January, 2014, Taj Hotel, Cape Town, South Africa, ISBN: 978-1-922069-42-9*

Otuori, O.H., 2013. Influence of exchange rate determinants on the performance of commercial banks in Kenya. European Journal of Management Sciences and Economics, 1(2): 86-98.

Panagiotis.D 2012, _Financial innovation and prudential regulation – The Impact of the new Basel III rules', Working Paper No 2012/25| April 2012.

Rao, K. Rama, and TekesteBerhanuLakew. 2012. Determinants of profitability of commercial banks in adeveloping country: Evidence from Ethiopia. International Journal of Accounting and Financial ManagementResearch 2: 1–20.

Samuel (2015), Determinants Of Commercial Banks Profitability: The Case of Ethiopian Commercial Banks.

Samy, B.N & Mohammed, O 2008, _The effects of bank regulations, Competition and financial reforms on MENA banks' profitability', Working Paper No. 449.

ShibiruAmsalu ,(2014) Assessing the Implication of Regulatory Policy on the Development of Private Commercial Banks in Ethiopia, the cash of NBE bill purchase directive. Unpublished Master's Thesis, Addis Ababa University.

Shimels, Y. (2016). The impact of national bank of Ethiopia directives on the profitability and liquidity of private banks: the case of national bank of Ethiopia bill purchase requirement. Unpublished Master's Thesis, Addis Ababa University.

Smirlock (1985), "Evidence on the (non) Relationship between Concentration and Profitability in Banking", Journal of Money, Credit, and Banking, Vol.17No 1.

Smirlock, M. (1985) Evidence of the relationship between Concentration and Profitability in Banking. Journal of Money, Credit and Banking 17(1): pp69-83.

Sophie. H & Laurence. S 2015,‘ The influence of the economic approaches to regulation on banking regulations: a short history of banking regulations‘, *Cambridge Journal of Economics 2015, 1 of 26.*

Stigler, G 1971. ‗The theory of economic regulation.‖ *The Bell Journal of Economics and Management Science ,no.*11, pp. 3–21.

Sutrisna, M 2009, Research methodology in doctoral research: Understanding the meaning of conducting qualitative Research. *Working Paper presented in ARCOM Doctoral Workshop.* Liverpool: John Moores University.

TesfayeBoruLelissa(2014). The Impact of Policy Measures on Ethiopian Private Banks Performance: the Case of Government Bill Purchase. Published master’s Thesis. University of South Africa.

Tseganesh T 2012 ‗Determinant of banks liquidity and their impact on financial performance: empirical evidence study on commercial banks in Ethiopia‘ Msc thesis, Addis Ababa University.

Velibor M. (2012). Use and Limitations of the Reserve Requirement Policy in Montenegro, Journal of Central Banking Theory and Practice, 2, 5-20.

Winston, C. 1993. Economic deregulation: days of reckoning for micro-economists, *Journal of Economic Literature*, vol. 31, no. 3, 1263–89

YoditKassa (2012).“Implication of NBE Directive of Bill Purchase on performance of private commercial banks in Ethiopian.Published master’s thesis.Addis Ababa University, Ethiopia.

.

APPENDICES

Appendix 1:-Descriptive Analysis

	ROA	ROE	NBP	LRR	EI	CR	BS	CAR
Mean	0.028163	0.216963	7.209016	0.030177	7.455518	8.281841	9.153442	0.137755
Median	0.027379	0.207197	8.815918	0.032378	7.764659	8.860633	9.952498	0.130970
Maximum	0.052505	0.356703	9.235884	0.047913	8.975950	9.351044	10.47142	0.195187
Minimum	0.003291	0.028645	2.217334	0.008106	0.000000	2.176094	3.292685	0.090788
Std. Dev.	0.008022	0.068961	2.776917	0.011027	1.574576	1.817480	1.952853	0.026398
Skewness	0.122755	0.168882	-1.064211	-0.360184	-3.582821	-2.694734	-2.048606	0.416069
Kurtosis	4.474568	2.762181	2.198912	2.198922	17.48591	8.617360	5.770152	2.197467
Jarque-Bera	5.586565	0.426607	12.92982	2.901640	652.9698	151.5027	61.15221	3.341283
Probability	0.061220	0.807911	0.001557	0.234378	0.000000	0.000000	0.000000	0.188126
Sum	1.689805	13.01776	432.5409	1.810627	447.3311	496.9105	549.2065	8.265271
Sum Sq. Dev.	0.003796	0.280580	454.9649	0.007174	146.2780	194.8908	225.0046	0.041114
Observations	60	60	60	60	60	60	60	60

Appendix 2:-Hausman Test for ROA

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	13.114775	6	0.0412

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
NBP	-0.001685	-0.000751	0.000000	0.0207
LRR	-0.359419	-0.253555	0.008045	0.2379
EI	0.001267	0.000612	0.000000	0.0747
CR	0.001531	0.000646	0.000000	0.0665
CAR	0.124187	0.128660	0.000846	0.8778
BS	0.001265	0.001657	0.000001	0.6758

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/04/18 Time: 00:39
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000344	0.015560	0.022093	0.9825
NBP	-0.001685	0.000559	-3.011401	0.0043
LRR	-0.359419	0.125873	-2.855404	0.0065
EI	0.001267	0.000663	1.910324	0.0626
CR	0.001531	0.000707	2.164897	0.0359
CAR	0.124187	0.048350	2.568500	0.0137
BS	0.001265	0.001081	1.169346	0.2486

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.564550	Mean dependent var	0.028163
Adjusted R-squared	0.416101	S.D. dependent var	0.008022
S.E. of regression	0.006130	Akaike info criterion	-7.128225
Sum squared resid	0.001653	Schwarz criterion	-6.569733
Log likelihood	229.8467	Hannan-Quinn criter.	-6.909768
F-statistic	3.802993	Durbin-Watson stat	2.092136
Prob(F-statistic)	0.000272		

Appendix 2:-Hausman Test for ROE

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	18.411482	6	0.0053

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
NBP	-0.014880	-0.006806	0.000013	0.0268
LRR	-3.194543	-2.639867	0.657449	0.4939
EI	0.011998	0.005852	0.000011	0.0643
CR	0.013959	0.006127	0.000019	0.0725
CAR	0.862419	0.266652	0.069679	0.0240
BS	0.010090	0.003472	0.000071	0.4327

Cross-section random effects test equation:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 01/04/18 Time: 00:40
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004417	0.138935	0.031792	0.9748
NBP	-0.014880	0.004995	-2.979025	0.0047
LRR	-3.194543	1.123882	-2.842419	0.0068
EI	0.011998	0.005923	2.025618	0.0489
CR	0.013959	0.006314	2.210706	0.0323
CAR	0.862419	0.431702	1.997718	0.0520
BS	0.010090	0.009656	1.044934	0.3018

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.530298	Mean dependent var	0.216963
Adjusted R-squared	0.370173	S.D. dependent var	0.068961
S.E. of regression	0.054728	Akaike info criterion	-2.749688
Sum squared resid	0.131789	Schwarz criterion	-2.191196
Log likelihood	98.49063	Hannan-Quinn criter.	-2.531231
F-statistic	3.311764	Durbin-Watson stat	2.061504
Prob(F-statistic)	0.000994		

Appendix 3:-Test of Heteroskedasticity for ROA

Heteroskedasticity Test: White

F-statistic	1.841319	Prob. F(7,52)	0.0989
Obs*R-squared	11.91806	Prob. Chi-Square(7)	0.1033
Scaled explained SS	12.80805	Prob. Chi-Square(7)	0.0769

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/04/18 Time: 00:52
Sample: 1 60
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.73E-06	5.24E-05	0.052007	0.9587
NBP^2	2.48E-07	2.76E-07	0.897352	0.3737
LRR^2	0.004742	0.012891	0.367840	0.7145
EI^2	5.68E-07	5.11E-07	1.111021	0.2717
CR^2	-9.46E-07	3.63E-07	-2.603711	0.0120
BS^2	3.95E-07	2.82E-07	1.399213	0.1677
CAR^2	0.000720	0.001153	0.623950	0.5354
DUM716^2	-3.19E-05	6.19E-05	-0.515529	0.6084

R-squared	0.198634	Mean dependent var	3.56E-05
Adjusted R-squared	0.090758	S.D. dependent var	6.07E-05
S.E. of regression	5.78E-05	Akaike info criterion	-16.55398
Sum squared resid	1.74E-07	Schwarz criterion	-16.27474
Log likelihood	504.6195	Hannan-Quinn criter.	-16.44475
F-statistic	1.841319	Durbin-Watson stat	2.135999
Prob(F-statistic)	0.098909		

Appendix 4:-Test of Heteroskedasticity for ROE

Heteroskedasticity Test: White

F-statistic	0.284430	Prob. F(7,52)	0.9572
Obs*R-squared	2.212605	Prob. Chi-Square(7)	0.9471
Scaled explained SS	1.225290	Prob. Chi-Square(7)	0.9903

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/04/18 Time: 00:53
Sample: 1 60
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003924	0.003888	1.009112	0.3176
NBP^2	1.17E-05	2.05E-05	0.573485	0.5688
LRR^2	0.081903	0.956343	0.085642	0.9321
EI^2	2.18E-05	3.79E-05	0.573696	0.5686
CR^2	-4.80E-06	2.70E-05	-0.178107	0.8593
BS^2	-1.21E-05	2.09E-05	-0.576950	0.5665
CAR^2	-0.058706	0.085555	-0.686180	0.4956
DUM716^2	-0.003661	0.004596	-0.796575	0.4293

R-squared	0.036877	Mean dependent var	0.003352
Adjusted R-squared	-0.092774	S.D. dependent var	0.004105
S.E. of regression	0.004291	Akaike info criterion	-7.940809
Sum squared resid	0.000958	Schwarz criterion	-7.661563
Log likelihood	246.2243	Hannan-Quinn criter.	-7.831581
F-statistic	0.284430	Durbin-Watson stat	1.550608
Prob(F-statistic)	0.957240		

Appendix 5:- Test of Autocorrelation for ROA

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.456761	Prob. F(2,50)	0.0960
Obs*R-squared	5.368647	Prob. Chi-Square(2)	0.0683

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 01/04/18 Time: 00:53
Sample: 1 60
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001527	0.008377	0.182326	0.8561
NBP	2.80E-05	0.000349	0.080396	0.9362
LRR	0.014055	0.078712	0.178565	0.8590
EI	-0.000143	0.000544	-0.262701	0.7939
CR	9.41E-05	0.000471	0.199910	0.8424
BS	-2.47E-05	0.000441	-0.055942	0.9556
CAR	-0.011675	0.036203	-0.322479	0.7484
DUM716	-0.001551	0.006912	-0.224467	0.8233
RESID(-1)	0.319587	0.144299	2.214762	0.0314
RESID(-2)	-0.069008	0.156315	-0.441468	0.6608

R-squared	0.089477	Mean dependent var	-2.34E-18
Adjusted R-squared	-0.074417	S.D. dependent var	0.006014
S.E. of regression	0.006233	Akaike info criterion	-7.166754
Sum squared resid	0.001943	Schwarz criterion	-6.817696
Log likelihood	225.0026	Hannan-Quinn criter.	-7.030218
F-statistic	0.545947	Durbin-Watson stat	1.977548
Prob(F-statistic)	0.833722		

Appendix 6: - Test of Autocorrelation for ROE

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.569853	Prob. F(2,50)	0.0866
Obs*R-squared	5.592745	Prob. Chi-Square(2)	0.0610

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 01/04/18 Time: 00:54
Sample: 1 60
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.030072	0.083513	-0.360082	0.7203
NBP	-0.001104	0.003371	-0.327608	0.7446
LRR	0.100847	0.763279	0.132124	0.8954
EI	0.001136	0.005203	0.218342	0.8281
CR	0.000880	0.004565	0.192847	0.8479
BS	1.26E-05	0.004289	0.002947	0.9977
CAR	0.137331	0.348610	0.393939	0.6953
DUM716	-0.004290	0.066485	-0.064528	0.9488
RESID(-1)	0.328415	0.145665	2.254595	0.0286
RESID(-2)	-0.047597	0.152449	-0.312214	0.7562

R-squared	0.093212	Mean dependent var	3.20E-17
Adjusted R-squared	-0.070009	S.D. dependent var	0.058389
S.E. of regression	0.060398	Akaike info criterion	-2.624704
Sum squared resid	0.182397	Schwarz criterion	-2.275647
Log likelihood	88.74113	Hannan-Quinn criter.	-2.488169
F-statistic	0.571078	Durbin-Watson stat	1.912909
Prob(F-statistic)	0.814165		

Appendix 7: - Regration result for ROA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 01/04/18 Time: 00:41
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007543	0.013006	-0.579941	0.5650
NBP	-0.001683	0.000463	-3.631198	0.0007
LRR	-0.327118	0.104525	-3.129585	0.0031
EI	0.001212	0.000550	2.204094	0.0329
CR	0.001629	0.000586	2.777720	0.0081
CAR	0.111159	0.040159	2.767963	0.0083
BS	0.002219	0.000920	2.412984	0.0202
DUM716	-0.026378	0.005743	-4.593390	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.707885	Mean dependent var	0.028163
Adjusted R-squared	0.599191	S.D. dependent var	0.008022
S.E. of regression	0.005078	Akaike info criterion	-7.494124
Sum squared resid	0.001109	Schwarz criterion	-6.900726
Log likelihood	241.8237	Hannan-Quinn criter.	-7.262014
F-statistic	6.512642	Durbin-Watson stat	2.114145
Prob(F-statistic)	0.000000		

Appendix 8: - Regration result for ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 01/04/18 Time: 00:40
Sample: 2011 2016
Periods included: 6
Cross-sections included: 10
Total panel (balanced) observations: 60

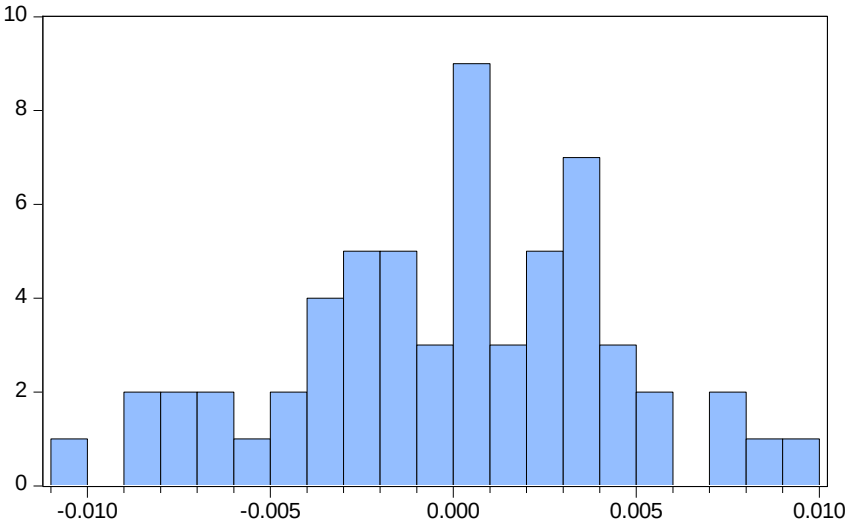
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.066231	0.115937	-0.571265	0.5708
NBP	-0.014865	0.004132	-3.597947	0.0008
LRR	-2.905191	0.931752	-3.117989	0.0032
EI	0.011500	0.004901	2.346693	0.0236
CR	0.014833	0.005226	2.838129	0.0069
CAR	0.745708	0.357985	2.083071	0.0432
BS	0.018644	0.008199	2.273822	0.0280
DUM716	-0.236295	0.051190	-4.616036	0.0000

Effects Specification

Cross-section fixed (dummy variables)

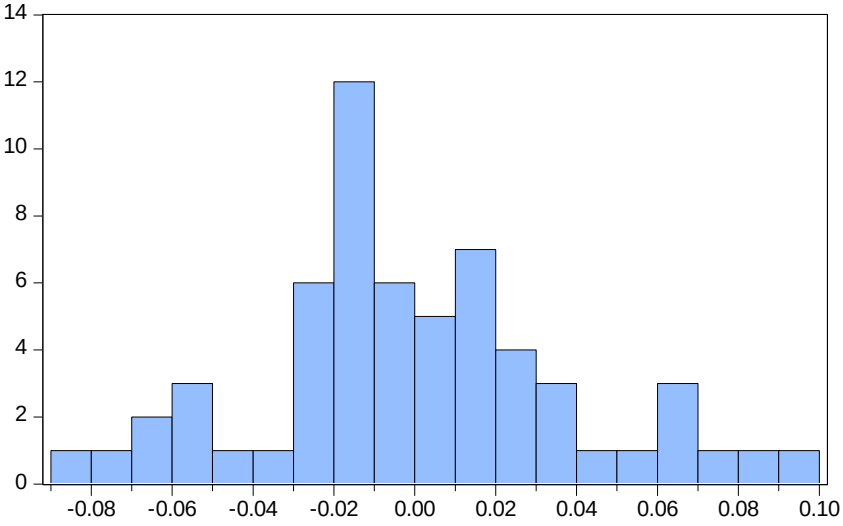
R-squared	0.685930	Mean dependent var	0.216963
Adjusted R-squared	0.569066	S.D. dependent var	0.068961
S.E. of regression	0.045270	Akaike info criterion	-3.118835
Sum squared resid	0.088122	Schwarz criterion	-2.525437
Log likelihood	110.5651	Hannan-Quinn criter.	-2.886725
F-statistic	5.869497	Durbin-Watson stat	2.300245
Prob(F-statistic)	0.000002		

Appendix 9: - Normality for ROA



Series: Standardized Residuals	
Sample 2011 2016	
Observations 60	
Mean	1.73e-19
Median	0.000246
Maximum	0.009009
Minimum	-0.010544
Std. Dev.	0.004335
Skewness	-0.212644
Kurtosis	2.722319
Jarque-Bera	0.644943
Probability	0.724357

Appendix 10: - Normality for ROE



Series: Standardized Residuals	
Sample 2011 2016	
Observations 60	
Mean	-2.31e-18
Median	-0.003304
Maximum	0.091469
Minimum	-0.087289
Std. Dev.	0.038647
Skewness	0.299219
Kurtosis	3.037145
Jarque-Bera	0.898768
Probability	0.638021

Appendix 11: - Correlation Analysis for ROA

	ROA	NBP	LRR	EI	CR	BS	CAR
ROA	1.000000	-0.083765	-0.204734	0.022561	0.018125	0.348373	0.225647
NBP	-0.083765	1.000000	0.064928	0.124015	0.222775	-0.254008	0.431744
LRR	-0.204734	0.064928	1.000000	0.153968	0.031110	0.122430	0.173900
EI	0.022561	0.124015	0.153968	1.000000	-0.075919	-0.029677	0.097920
CR	0.018125	0.222775	0.031110	-0.075919	1.000000	-0.118713	0.103058
BS	0.348373	-0.254008	0.122430	-0.029677	-0.118713	1.000000	-0.185426
CAR	0.225647	0.431744	0.173900	0.097920	0.103058	-0.185426	1.000000

Appendix 12: - Correlation Analysis for ROE

	ROE	NBP	LRR	EI	CR	BS	CAR
ROE	1.000000	-0.183676	-0.394346	-0.007002	0.030552	0.064493	-0.137026
NBP	-0.183676	1.000000	0.064928	0.124015	0.222775	-0.254008	0.431744
LRR	-0.394346	0.064928	1.000000	0.153968	0.031110	0.122430	0.173900
EI	-0.007002	0.124015	0.153968	1.000000	-0.075919	-0.029677	0.097920
CR	0.030552	0.222775	0.031110	-0.075919	1.000000	-0.118713	0.103058
BS	0.064493	-0.254008	0.122430	-0.029677	-0.118713	1.000000	-0.185426
CAR	-0.137026	0.431744	0.173900	0.097920	0.103058	-0.185426	1.000000

Appendix 13: - Multicorrelation Analysis for ROA & ROE

	NBP	LRR	EI	CR	BS	CAR
NBP	1.000000	0.064928	0.124015	0.222775	-0.254008	0.431744
LRR	0.064928	1.000000	0.153968	0.031110	0.122430	0.173900
EI	0.124015	0.153968	1.000000	-0.075919	-0.029677	0.097920
CR	0.222775	0.031110	-0.075919	1.000000	-0.118713	0.103058
BS	-0.254008	0.122430	-0.029677	-0.118713	1.000000	-0.185426
CAR	0.431744	0.173900	0.097920	0.103058	-0.185426	1.000000