The Effect of National Bank Regulation on Banks Financial Performance: *Evidence from commercial Banks of Ethiopia.*

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CERTIFICATE

This is to certify that the thesis entities "The Effect of National Bank Regulation on Banks financial Performance: Evidence from commercial Banks of Ethiopia, Submitted to Jimma University for the award of the Degree of Master in Banking and Finance and is a record of bona fide research work carried out by Mr. Abraham Kifetew, under our guidance and supervision.Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree of diploma.

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Declaration

I hereby declare that this thesis entitled *"The Effect of National Bank Regulation on Banks financial Performance: Evidence from commercial Banks of Ethiopia'' has been carried out by me under the guideline and supervision of Mr.TadeleMengesha (MSc.) and MesfinTesfaye (MSc).*

The thesis is original work and it has no submitted *for the award of any degree of diploma to any university and institutions.*

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Table of Contents

Contents

List of table

List of figure

LIST OF ACRONYMS/ABBREVATIONS

AIB= Awash International Bank

BOA= Bank of Abyssinia

CA= capital adequacy

CBO= Cooperative Bank of Oromia

CBA= Cost and Benefit Analysis

CLRM =Classical Linear Regression Model

CR= Capital requirement

DB=Dashen Bank

DB= Deposit Fund

EI= Equity investment

NBE= National Bank of Ethiopia

NIM =Net Interest Margin

NPL= Non Performing Loan

PRTL= Provision to Total Loan

ROA= Return on Asset

ROE =Return on Equity.

Abstract

This study examines the effects of national bank regulation on financial performance of commercial banks in Ethiopia by using panel data of banks over the period 2011-2020 (for ten years). Since the data is secondary in nature, the quantitative approach of research was applied. The fixed effect model was applied in this research based on the hausman specification test. Under this study, return on Asset (ROA) and net interest margin (NIM) was used as dependent variable and explanatory variable includes minimum startup capital requirement, interest rate, legal reserve requirement, capital adequacy and equity investment. The main findings shows from five explanatory variable; three of them (Interest rate, Legal reserve required and limited Equity investment) are statistically significant with P-value less than 0.05 and two of them (minimum start-up capital requirement and capital adequacy) are statistically insignificant with P value greater than 0.05. The sign of coefficients reveals Interest rate (IR) have positively statistically significant effect on both ROA and NIM. Legal reserve requirement rate (LRR) has negative effect on ROA but it has positively effect on NIM. Equity investment (EIR) has positively statistically significant effect ROA but it has negatively statistically significant effect on (NIM).Based on this finding the major recommendations are forwarded to national bank and to commercial banks; theresearcher recommended to National Bank of Ethiopia to set legal reserve requirement that could be in-line to economic conditions of country and it could enhance commercial banks financial performance. Since legal reserve Required have negative effect on ROA, commercial banks to be alert about the effect of legal reserve requirement on their financial performance and they could be proactive towards adjustments by the National Bank of Ethiopia, Regarding to an interest rate as a major regulatory variable national bank should determine based up on the macro-economic conditions of the country to improve commercial banks financial performance in line with county economic growth because it is directly related with investment decision of firms and borrowers. Finally it is recommendable to raise the rate of Equity investment because it has positive significant effect on commercial banks financial performance (ROA).

Keywords: *financial Performance, ROA, capital requirement, interest rate, equity investment.*

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CHAPTER ONE

1. BACKGROUND OF THE STUDY

Banks are a vital parts of a nation's economy. In their traditional role as financial intermediaries, banks ensure the transmission of funds from surplus to deficit units and serve to meet the demand of those who need funding. Banks facilitate spending and investment, which fuel growth in the economy. However, despite their important role in the economy, banks are nevertheless susceptible to failure. Banks, like any other business, can go bankrupt. However, unlike most other businesses, the failure of banks, especially very large ones, can have far-reaching implications. As we saw during the great depression and most recently, during the global financial crisis and the ensuing recession, the health of the bank system (or lack thereof) can trigger economic calamities affecting millions of people. Consequently, it is imperative that banks operate in a safe and sound manner to avoid failure. One way to ensure this is for governments to provide diligent regulation of banks. Yet, with the advent of globalization, banking activities are no longer confined to the borders of any individual country. With cross-border banking activities rapidly increasing, the need for international cooperation in bank regulation has likewise increased (Larson, 2011)**.**

National Bank of Ethiopia exercises control over the banking sector through issuance of directives pertaining formation and operation of a banking business. Most of the directives on operation aim at reducing risk of liquidity and solvency in the banking system. 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. The banking sector in Ethiopia is regulated by the central bank, the National Bank of Ethiopia, with the aim of ensuring the health of the financial sector and improving the efficiency of service provision. In addition to need for high capital requirement to get banking licenses, the current banking system of Ethiopia is highly regulated and protected by regulations like minimum capital requirement, interest rate, legal reserve requirement, capital adequacy and equity investment (lelisa& khuhil,2018).

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).

Micro prudential and the macro prudential theories suggested that there is a correlation between regulations and financial performance in financial institutions. These theories state that regulations must be put in place and enforced even though this may cause a bank to shrink its assets or seek fresh capital from the stock market (Hanson et al., 2011). The theories aim at achieving economic stability and protecting tax payers' interests. This may have the effect of slowing down the financial performance of commercial banks (Hanson et al., 2011).

Regulations for banks are being rewritten in response to the global financial crisis; their implementation requires complex steps depending on each country "policies and they could have very different effects on bank financial 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). Thus, the concern of this study is to examine the effect of national bank regulation on financial performance of commercial banks in Ethiopia.

1.2 Statement of the problem

National bank of Ethiopia is established to control the financial system and monetary policy of the country. This monetary policy refers to a bundle of actions and regulatory stances taken by the central bank including; setting minimum interest rates on deposits or the rediscount rate charged to Commercial banks, borrowing reserves, setting reserve requirements on various classes of deposits, increasing or decreasing commercial bank reserves through open market purchases or sales of government securities (Tesfaye L, 2018).

Various directives of regulations in most countries delineate the permitted activities of banks and provide shape and substance to deposit insurance schemes and the nature and timing of the information that banks must disclose to regulators and the public. There are daunting challenges

associated with acquiring data on all of the laws, regulations, and practices that apply to banks in countries and then aggregating this information into useful statistics that capture different and important aspects of regulatory regimes (R. Barth et.al 2002).

National Bank of Ethiopia exercises control over the banking sector through issuance of directives pertaining formation and operation of a banking business. Most of the directives on operation aim at reducing risk of liquidity and solvency 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 it's the minimum capital required to establish a new bank. The bank rose from Birr 10 million in 1994 to birr 75 million in 1999 and to Birr 500 million in 2011.in this year the minimum paid-up capital required to obtain banking business license shall be Birr 5 billion (five billion birr) which shall be fully paid in cash and deposited in a bank(s) by the name of the bank under formation. It can be argued that although these directives and proclamations are enacted to strengthen the capacity of existing banks, they have seemingly become a barrier as to why the number of operating banks did not flourish in the banking system of the country. For instance, from 1996-1999 five new private banks were operational in the country while after 2000 only two banks joined the banking system (Lelissa TB, Kuhil AM (2018)

In accordance with national bank of Ethiopia article 55 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 performance.

Another study made by Lelissa TB, Kuhil AM (2018)on regulatory measures the influence on bank performances monetary stabilization policy requirement, and the reserve requirement has also established a positive and insignificant relationship with both price and profit models. Direction of relationship however is unexpected in view of the downward effects of a high

reserve requirement on intermediation business via holding the loan able fund of commercial banks into non-interest bearing assets. This factor along with banks has not exposed banks to feel the pain from high reserve holding requirements.

From the review of the above relevant literature relating to the determinants of bank performance and the effect of bank regulation on bank performance it's possible to see the existence of knowledge gap. Even though studies were undertaken by Belayneh (2011), Amdemikael (2012), Birhanu (2012), Habtamu (2012) &Mohana et al. (2012), on the determinants of commercial banks financial performance in Ethiopian and they all fails to include the important variables like equity investment, capital requirement, interest rate, capital adequacy, reserve requirement regulations collectively. And the other studies were undertaken byEden (2014), The Impact of National Bank Regulation on Banks Performance and she used credit cap, NBE bill purchase and legal reserve as explanatory variables Yodit (2012), Tesfaye (2014) &Shibiru, (2014) Investigate the implication of NBE bill Purchase on performance of private commercial banks in Ethiopia.However, it's not shown the general effect of NBE regulations by taking separately the NBE bill Purchase as indicator of regulation as result it need further comprehensive research in this area by incorporating Legal reserve requirement, minimum capital requirement, capital adequacy, interest rate and Limitation of Equity Investment.But the researcher fails to include the replaced variables likeNBE bill purchase and credit cap. Thus, these crucial bank regulation variables collectively is what motivated the researcher to put his own role to examine how financial performance of commercial banks are been affected by NBE regulation.

1.3. Research Questions

1. What is the effect of legal reserve requirement regulation on financial performance of commercial banks in Ethiopia?
2. What is the effect of capital requirement regulation on financial performance of Ethiopian commercial banks**?**
3. What is the effect of equity investment regulationoncommercial banks financial performance in Ethiopia?
4. What is the effect of capital adequacy regulation oncommercial banks financial performance in Ethiopia?
5. What is the effect of interest rate regulation oncommercial banks financial performance?

1.4. Objectives of the study

1.4.1 General Objective

The general objective of the study was investigating the effects of national bank regulation on commercial banks financial performance in Ethiopia.

1.4.2 Specific Objectives

The specific objectives of the research includes:-

- To examine the effect of capital requirement on financial performance of commercial banks in Ethiopia.
- To investigate regulation of interest rate determination on commercial banks in Ethiopia.
- To examine the effect of legal reserve requirement regulation on commercial banks financial performance in Ethiopia.
- To identify the effects of capital adequacy regulation on commercial banks financial performance in Ethiopia.
- To examine the effect of equity investment on financial performance of commercial banks in Ethiopia.

1.5. Research Hypothesis

The following hypotheses are developed to break down the above research questions.

Therefore, this study attempted to test the following hypotheses in the case of commercial banks in Ethiopia.

H_1: Capital requirement have a negative and significant effect on banks financial performance.

H_2: Reserve requirement has a negative and significant effect on banks financial performance.

H_3: capital adequacy has a negative and significant effect on banks financial performance.

H_4: Interest rate has a negative and significant effect on banks financial performance.

H5: Equity investment has a negative and significant effect on banks financial performance.

1.6. Significance of the study

For the researcher, the finding of this study initiate for further research. Moreover, this study initiate the commercial Banks managers and executives to give due emphasis on the management of identified variables and provides them with understanding of activities that enhance their banks performance. The investment advisors and analysts use the research outcome to advise their clients on the future prospects and sustainability of investments in commercial banks. Finally, the finding of the study canbe used as a reference by other researchers; thus, it can minimize the literature gap in the area of the study especially in Ethiopia.

1.7. Scope of the Study

This research mainly concentrated on the effect of national bank regulation on financial performance of commercial banks in Ethiopian. The researcher includes both state owned and private commercial banks established in Ethiopia. The study had taken in to account the performance of commercial banks by using panel data for the last 10 years that is from 2011 to 2020. As a result, the research included commercial banks in Ethiopia those are started their operation on and before 2009/10, which are 12 selected commercial banks those are operating in Ethiopia.

The study used five variables i.e. equity investment, legal reserve requirement, minimum capital requirement, interest rate and capital adequacy. As a result, these variables could explain the topic properly by referring previous empirical works.

1.8. Organization of the study

This research report was organized in five chapters. Chapter one provides the general introduction about the whole report. Chapter two was described the review of related literatures. Chapter three provide detail description of the methodology employed by the research. Chapter four contains data presentation, analysis and interpretation. Finally, the last chapter was concluded the total work of the research and gives relevant recommendations based on the findings.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Theoretical Literature

Regulation is defined as the public administrative policing of private activities based on a set of rules that were developed in the public interest. Thus the process consists of intentional restrictions over a subjects choice courses of operations by count it y not directly involved in that activity. When the definite ion is applied to the financial system, it is termed financial regulation and refers to a process in which there is a monitoring of the financial institutions by a body that is directed by the government in an effort to achieve macroeconomic goals through monetary policies as well as other measures permissible by law. Thus regulations are concerned they must be extensively considered and skillfully administered because in appropriate or ineffective regulatory measures results in catastrophic economic problems (Greenidge and Browne, 2000). Regulation refers to the set of laws and rules applicable to banking, and supervision is defined as the monitoring by authorities of banks activities and the enforcement of banking regulations (Yago 2003).

2.1.1. Regulation and Supervision of Banks

Who Supervises Banks?

Banking crises, rapid structural change, and the continuing globalization of banking have led national and multilateral policy makers to focus increased attention on the crucial role of banking supervision. This focus is reinforced by the fact that "…one of the important [international] trends has been, and continues to be, a move away from regulation and towards supervision." Policy discussions specifically focus on several issues that must be addressed in establishing and maintaining effective supervision, including who should supervise banks, i.e., the "structure" of bank supervision. Three issues for policy makers to address with respect to the structure of bank supervision are whether there should be a single bank supervisory authority, or multiple bank supervisors; whether the central bank should play a role in bank supervision; and whether the

supervisor responsible for the banking industry should also have responsibility for other financial services, in particular the securities and insurance industries. How these issues are addressed is important because policies that fail to provide for an appropriate bank supervisory framework may undermine bank performance and even lead to full-scale banking crises (Barth, 2008).

Bank Supervisory Role of the Central Bank Countries must also decide whether to assign responsibility for bank supervision to the central bank. As with the issue of single or multiple bank supervisors, the conceptual literature is split on the relative advantages and disadvantages of the central bank being a bank supervisor. Perhaps the most strongly emphasized argument in favor of assigning supervisory responsibility to the central bank is that as a bank supervisor, the central bank will have first-hand knowledge of the condition and performance of banks. This in turn can help it identify and respond to the emergence of a systemic problem in a timely manner. Those pointing to the disadvantages of assigning bank supervision to the central bank stress the inherent conflict of interest between supervisory responsibilities and responsibility y for monetary policy (Barth, 2008).

2.1.2. The financial regulations

Financial regulation can be classified into groups according to their aims and functions. The three most common classification ions are the following; which are outlined in (Williams, 1996).

- Structural regulations: - are boundaries placed on commercial banks determining the activities in which they can participate from those from which they are debarred. Licensing of commercial banks and prohibitions from engaging in commercial activities, are examples of structural regulations used.
- Prudential regulation: - emphasizes the control of systematic risk through principally balance sheet constraint such as capital adequacy and permissible bank concentration (share of banks asset held by a particular body or individual) ratios; and it establishes guidelines to banks with the intension of maintaining safety and soundness of the banking system and protecting the users of financial services. E.g. Placing limits on loan to a single borrowers or groups.
- Monetary regulation: - is the process of setting monetary policy directives designed to bring about predetermined macroeconomic outcomes by focusing on interest rates, credit

controls and primary and secondary reserve requirements. It impacts on the deposit taking and lending activities of commercial banks through adjustments in price, volume, portfolio change and risk taking.

2.1.3. The impact of regulatory measures

Regulations impact on the very structure of the banking system since they present the stipulations and restrict ions that must be considered in the banks entire series of operations. But in terms of optimality, it remains to be answered whether all the restrict ions in place are necessary. Bhattachyra (2008) had some notable conclusions when he set out to survey modern literature on bank regulation, exploring the implications for optimal regulation. Among the conclusions were:

I.   Imposing restrictions on banks investment may limit the liability y of the deposit insurance fund, affecting the optimal configuration of banking and may reduce charter values as a result.

II.   Risk sensitive capital requirements and risk calibrated deposit insurance premia are potentially useful regulatory tools in coping with moral hazard.

III.   If bank closure policy is improved and discipline brought to bear, it could attenuate the moral hazard problems related to deposit insurance.

IV.   Increasing banks charter values can also help to dampen the risk-taking propensities of the insured banks.

V.   If universal banking is permitted it facilitates reusability of information and stimulates investments.

2.1.4. Banking Regulation: The Risk of Bank Runs and of Moral Hazard in Banking and their Effects on the Economy

As cited in Bonn (2005). It is widely accepted that in the absence of market failures, open and competitive markets yield strong incentives to efficiently meet the demands of consumers and to adapt to changing demands and technology over time. With very few exceptions, in the absence of a market failure there is no economic justification for regulation.

The most important rationale for regulation in banking is to address concerns over the safety and stability of financial institutions, the financial sector as a whole, or the payments system. The descript ion and the evaluation that follows necessarily reflect the views of competition authorities. With only one exception, no bank regulator has reviewed this report, which therefore, does not necessarily reflect the posit ions and the opinions of bank regulators.

The risk of bank runs

All banks operate in conditions of fractional liquidity reserve. The great majority of banks liabilities are very liquid deposits redeemable on demand. The great majority of their assets are instead much more illiquid loans. This situation leads to the problem that if all depositors demanded their deposits back at the same time, any bank (even if perfectly solvent) would face serious problems in meeting its obligations Vis à visit's depositors.

A single bank might obtain refinancing on the financial market but the problem would severely persist in cases of low liquidity on the market or if the issue concerned a big portion of the banking sector. It is well known in the literature that whenever depositors start fearing the insolvency of their bank, their first most common react ion is to go and withdraw their deposits creating serious problems to the banks. Such behavior is normally referred to as a bank run.

The risk of excessive risk taking (moral hazard) in banking

Banks grant loans normally financed by the deposits they received. This is by itself a powerful incentive for banks to grant credit in a not sufficiently prudent way and to take in too much risk. In fact, it is well known in the literature that with debt financing, while the risk of failure of the financed investment is mostly carried out by the bank depositors, in the case of success profits accrue mostly to the bank. A good example of this deviating behavior is the Asian financial crisis

of 2005 that is mentioned further below. In general, however, this incentive is somehow mitigated by the possibility that the market, both via depositors and via other banks, could monitor the risks assumed by the bank's management. The main purpose of regulation is to avoid the highly negative consequences for the economy of widespread bank failures. There are two main strands of arguments for banking regulation. The first focuses on the systemic dangers of bank failures, while the second on the need for security and stability in the payments system.

Systemic dangers of a bank failure

The main argument for bank regulation focuses on the possibility of systemic or System-wide consequences of a bank failure i.e. the possibility that the failure of one institution could lead to the failure of others. This argument is summarized by Feldstein as follows: The banking system as a whole is a public good that benefits the nation over and above the profits that is earns for the banks shareholders. Systemic risks to the banking system are risks for the nation as a whole. Although the management and shareholders of individual institutions are, of course, eager to protect the solvency of their own institutions, they do not adequately take into account the adverse effects to the nation of systemic failure. Banks left to them will accept more risk than is optimal from a systemic point of view. That is the basic case for government regulation of banking activity and the establishment of capital requirements.

It is possible to distinguish two mechanisms by which the failure of one bank could Lead to the failure of other banks or other non-bank firms:

(a) The failure of one bank leading to a decline in the value of the assets sufficient to induce the failure of another bank (consequent failure) and

(b) The failure of one bank leading to the failure of another fully solvent bank, through some contagion mechanism (contagion failure).

2.1.5. Supervisory policies and performance

Given the interconnectedness of the banking industry and the reliance that the national and global economy hold on banks, it is important for regulatory agencies to maintain control over the standardized practices of these institutions, government regulation and supervision of banks

promotes their safety and soundness in order to protect the payments system from bank runs that contract bank lending and threaten macroeconomic stability. Protecting the payments system frequently involves deposit insurance. To the extent that the insurance is credible, it reduces depositor's incentive to run banks when they fear banks solvency. Consequently, it reduces banks liquidity risk and, to the extent it is underpriced, gives banks the incentive to take additional risk for higher expected return (R. Barth, 2008).

2.1.6. Theoretical and policy debates

As cited Bonn (2005) this sect ion discusses seven policy issues. For each issue, the researcher: (1) stress the conflicting theoretical predict ions 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 bank activities and banking commerce links. First, conflicts of interest may arise when banks engage in such diverse activities as securities underwriting, insurance underwriting, and real estate investment. Such banks, for example, may attempt to dump securities on ill-informed investors to assist firms with outstanding loans. Second, to the extent that moral hazard encourages riskier behavior, banks will have more opportunities to increase risk if allowed to engage in a broader range of activities. Third, complex banks are difficult to monitor. Fourth, such banks may become so politically and economically powerful that they become too big to discipline. Finally, large financial conglomerates may reduce competition and efficiency. According to these arguments, governments can improve banking by restricting bank activities.

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 restrict ions 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.

Regulations on domestic and foreign bank entry

Economic theory provides conflicting views on the need for and the effect of regulations on entry into banking. Some argue that effective screening of bank entry can promote stability. Others stress that banks with monopolistic power possess greater franchise value, which enhances prudent risk-taking behavior Others, of course, disagree, stressing the beneficial effects of competition and the harmful effects of restricting entry.

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 depositor attempts 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.

2.1.7. Supervision

Some theoretical models stress the advantages of granting broad powers to supervisors. The reasons are as follows. First, banks are costly and difficult to monitor. This leads to too little

monitoring of banks, which implies sub-optimal performance and stability. Official supervision can ameliorate this market failure. Second, because of informational asymmetries, banks are prone to contagious and socially costly bank runs. Supervision in such a situation serves a socially efficient role. Third, many countries choose to adopt deposit insurance schemes. This situation (1) creates incentives for excessive risk-taking by banks, and (2) reduces the incentives for Depositors to monitor banks. Strong, official supervision under such circumstances can help prevent banks from engaging in excessive risk-taking behavior and thus improve bank development, performance and stability. Alternatively, powerful supervisors may exert a negative influence on bank performance. Powerful supervisors may use their powers to benefit favored constituents, attract campaign donations, and extract bribes. Under these circumstances, powerful supervision will be positively related to corruption and will not improve bank development, performance and stability. From different perspective Kane (2005) and Boot and Thakor (2007) focus on the agency problem between taxpayers and bank supervisors. In particular, rather than focusing on political influence, Boot and Thakor (2007) model the behavior of a self-interested bank supervisor when there is uncertainty y about the supervisor's ability to monitor banks. Under these conditions, they show that supervisors may undertake socially sub-optimal actions. Thus, depending on the incentives facing bank supervisors and the ability of taxpayers to monitor supervision, greater supervisory power could hinder bank operations.

Regulations on private sector monitoring of banks

There are disagreements about the role of the private sector in monitoring banks. Some advocate more reliance on private sector monitoring, expressing misgivings with official supervision of banks. Recently, for instance, the Shleifer and Vishny(2005) view of government regulations specifically holds that banks will pressure politicians who, in turn, can unduly influence supervisory oversight. Furthermore, in some countries, supervisors are not well compensated and hence quickly move into banking, resulting in a situation in which they may face mixed incentives when it comes to strictly enforcing the rules. Since supervisors do not have their own wealth invested in banks, they also have different incentives than private creditors insofar as monitoring and disciplining banks.

There are countervailing arguments, however. Countries with poorly developed capital markets, accounting standards, and legal systems may not be able to rely effectively on private monitoring.

Furthermore, the complexity and opacity of banks may make private sector monitoring difficult even in the most developed economies. From this perspective, therefore, excessively heavy reliance on private monitoring may lead to the exploitation of depositors and poor bank performance.

Government ownership of banks

Economists hold different views about the impact of government ownership of banks. One view holds that governments help overcome capital-market failures, exploit externalities, and invest in strategically important projects. According to this view, governments have adequate information and incentives to promote socially desirable investments. Shleifer and Vishny (2004), in contrast, argue that governments do not have sufficient incentives to ensure socially desirable investments. Government ownership instead politicizes resource allocation, softens budget constraints, and hinders economic efficiency. Thus; government ownership facilitates the financing of politically attractive projects, not economically efficient ones.

2.2. Empirical Literature

In this section empirical studies that have been made regarding the impact of central bank regulations on aspects of banks performance such as profitability, efficiency, liquidity, and risk taking across countries will be presented.

There is substantial heterogeneity of bank regulatory and supervisory policies across countries. And, although there has been some convergence over the last dozen years for some types of banking sector policies, bank regulatory and supervisory policies remain impressively diverse in 2011. This diversity in regulatory regimes provides enormous scope for research examining both the causes of these policy differences and the impacts of banking policies on the performance of banks, and the associated ramifications for the overall financial sector and real economy (Barth, Caprio, and Levine 2013). Georgios et al (2009) have studied "Bank supervision, regulation, and efficiency:

Evidence from the European Union." by taking for a sample of 22 EU countries, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Nether-lands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and UK over 2000–2006.

They have used non-parametric Data Envelopment Analysis (DEA) technique to capture information about banks" efficiency, In addition to the traditional approach. They have employed generalized linear models and a truncated regression model combined with bootstrapped confidence intervals using a recently developed econometric framework by Simar and Wilson (2007). Also they have conducted a sensitivity analysis using fractional logit estimator to crosscheck the results. Their evidence suggests that there is a strong link between various forms of banking regulation and supervision and bank efficiency.

The effect on bank efficiency appears to change with the type of regulation, indicating that strengthening official supervisory power or increasing capital requirements can have a discernible positive impact on bank efficiency while restrictions on bank activities and excessive private monitoring can adversely affect the efficient operation

of banks. Where the level of bank performance was measured by two accounting ratios namely costs of intermediation (proxied by net interest margins) and cost effectiveness (the cost-to-income ratio). The regulatory and supervision variables used are CAPRQ, is an index of capital requirements accounting for both overall and initial capital stringency. The official supervisory power variable, SPOWER, measures the ability of supervisory authorities to take specific act ion in banking decisions to prevent and correct problems. ACTRS, measures the degree to which banks may engage in real estate investments, insurance underwriting and selling, brokering and dealing in securities and all aspects of the mutual fund industry, and the variable PRMONIT measures the degree of information that is released to officials and the public, auditing related requirements and whether credit ratings are required.

The bank specific variables were including three key bank-specific variables: size, measured as the natural logarithm of banks" total assets (LNTA); liquidity, that is captured by a crude ratio between total loans and total deposits (LIQ); and finally capitalization, proxied by the equity to assets ratio (EQAS). The vector of control variables contains measures of risk, market and

economic conditions, and institutional environment. The probability of risk of insolvency is proxy by the Z score; higher values of the Z-score are associated with lower probabilities of failure. Thus, the more volatile the asset returns, the lower the Z-score.

To account for market condition used as structural indicator, the Herfindahl index, which is measured as the sum of squared market shares (in terms of total assets) of each bank in the sample Since the macroeconomic environment is also likely to impact on banks" efficiency levels, they also include the average annual growth rate of GDP per capita (GDPGR). They have found that there is a strong link between various forms of banking regulation and supervision and bank efficiency. The effect on bank efficiency appears to change with the type of regulation, indicating that strengthening official supervisory power or increasing capital requirements can have a discernible positive impact on bank efficiency while restrictions on bank activities and excessive private monitoring can adversely affect the efficient operation of banks.

The main studies on the determinants of bank performance in emerging countries were carried out in Colombia (Barajas et al., 2007), Brazil (Afanasieff et al., 2009), Malaysia (Guru et al.2007) and Tunisia (Ben Naceur and Goaied, 2004). Barajas et al. (2009) document significant effects of financial liberalization on bank interest margins in Colombia. Although the overall spread has not declined after financial reform, the relevance of the different factors behind the bank spreads were affected by such measures. Another change linked with the liberalization process was the increase of the coefficient of loan quality after the liberalization. Afanasieffetal; (2007) makes use of panel data techniques to uncover the main determinants of the bank interest spreads in Brazil. A two-step approach due to Ho and Saunders (2008) is used to measure the relative impact of the micro and macro factors. The results suggest that macroeconomic variables are the most relevant elements to explain bank interest spread in Brazil. Ben Naceur and Goaied(2010) investigate the determinants of the Tunisian bank performances during the 2004-2008periods.

They indicate that the best performing banks are those who have struggled to improve labor and capital productivity, those who have maintained a high level of deposit accounts relative to their assets and finally, those who have been able to reinforce their equity. Guru et al. (2013) attempt to identify the determinants of successful deposit banks in order to provide practical guides for

improved profitability performance of these institutions. The study is based on a sample of seventeen Malaysian commercial banks over the 2003-2010 periods. The profitability determinants were divided in two main categories, namely the internal determinants (liquidity, capital adequacy and expenses management) and the external determinants (ownership, firm size and external economic conditions). The findings of this study revealed that efficient expenses management was one of the most significant in explaining high bank profitability. Among the macro indicators, high interest ratio was associated with low bank profitability and inflation was found to have a positive effect on bank performance. Noor and Ahmad (2013) have studied "Determinants of Profitability & Efficiency of World Islamic Banks" by taking a sample of 78 banks data for period of 2002-2011, where Profitability is measured using ROA, and they found that the ratio of Operating

Expenses to Total Assets (OE/TA), which is used to provide information on bank's efficiency of managing operating costs against asset have, exhibit positive relationship with bank profitability. Bank size has found to be positively related with profitability larger banks enjoy higher profit than smaller banks by exploiting economies of scale. Referring to the impact of capitalization, it was found that EQUITY/TA exhibits positive relationship with profitability.

Providing support to the argument that well capitalized banks face lower costs of going bankrupt thus lowers their funding cost, or that they have lower needs for external funding resulting in higher profitability. Nevertheless, strong capital structure is essential for banks in emerging economies since it provides additional strength to withstand financial crises and increased safety for depositors during unstable macroeconomic conditions. But the model fails to include it risk exposure factors as determinants of efficiency and profitability.

MENA (Middle East and North Africa) Naceur and Omran (2009) conducted a research on the tit le "The Effects of Bank Regulations, Competition and Financial Reforms on MENA Banks" Profitability" by using 173 banks from 10 countries, (Tunisia, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Saudi Arabia and United Arab Emirates) from 2003-2008 periods. The parameters of the model are estimated using the unbalanced panel data regression. Because of many reasons the researchers used combinations of cross-sect ion and time-series data. To estimate the regressions, they have indicated measurement of variables as follows:

(1) Bank performance indicators are cost of intermediation means (NIM) which equals interest income minus interest expense divided by interest -bearing assets, operating performance mean total operating costs divided by the sum of total earning assets and total deposits. profitability is measured by the return on assets (ROA) and is calculated as the net income divided by average total assets., (2) bank-specific characteristics as Bank size is equal to the logarithm of total bank assets, Bank equity: it refers to the book value of equity divided by total assets and Bank risk: is proxied by the ratio of net loans to total loans, (3) bank concentration equals the fraction of bank assets held by the three largest commercial banks in the country, (4) regulatory policies Reserve requirement is proxied by the ratio of non-interest earning assets divided by total assets, (5) variables to control for cross-country differences in the macroeconomic environment and (6) financial structure and development indicators market -based indicators(stock market capitalization divided by GDP) and bank-based indicators(the size of the ratio of credit

to the private sector as a percentage of the GDP), and (7) indicators of institutional development (three indicators are used 1. real per capita GDP 2law and order (LAW) index and 3. the corruption(COR) index).

The coefficients on the lagged dependent variables take a value of approximately 0.56 for NIM, 0.44 for cost efficiency and 0.31 for ROA, which means that the departure from a perfectly competitive market system in the MENA banking sector is larger for net interest margins than for profits and the efforts to instill competition should be focused on further freeing interest rates. Turning to the other explanatory variables, they focus in the following sect ions on bank specific effects (bank characteristics), macroeconomics and financial sector environment, and regulatory, institutional and concentration settings. The positive and highly significant impact of bank capitalization on net interest margin cost of efficiency and profit s. The macro country characteristics, inflation and economic growth, have different impact on bank margins efficiency and profits. They found that reserve does have positive and significant effect on cost of intermediation. Sub-Sahara Africa Ahokpossi(2014) in his study Determinants of Bank Interest Margins in Sub-Saharan Africa through taking a sample of 456 banks in 41 sub-Saharan African countries in 2005–2013 investigated the role of bank-specific factors (Credit risk, measured as the ratio of loans/deposits and short-term funding, liquidity risk as the ratio liquid assets/deposits and short -term funding., Equity as measured by equity/total assets and overhead/average assets

as a proxy for operational inefficiency), market structure (proxied by market share and structure), and macroeconomic factors(GDP and inflation) in determining interest rate margins.

They found that Bank liquidity risk, equity, and inefficiency all matter for the determination of interest margins. The liquidity ratio negatively and significantly affects interest margins, reflecting the possible need for less liquid banks (i.e., banks with high liquidity risk) to borrow emergency funds at a high cost. The result s also highlights the importance of credit risk for the determination of interest margins, because credit risk is positively and significantly associated with net interest margins. The coefficient on equity is also positive and significant implying that banks in SSA charge a premium to account for the pressure of solvency regulations on lending activities. Bank inefficiency is associated with high interest margins.

Inefficient banks pass their high costs on to their customers, raising their lending rates and lowering their deposit rates. Inflation is positive and significant; On the other hand, the coefficient on GDP growth is insignificant. The author has failed to consider the size difference and its effect on net interest margin and that of regulatory issues which are varying among countries of sub Saharan countries. Among the macroeconomic variables, inflation (INF) is found to be positively and significantly related to both ROA and NIM in this study. This implies that, with inflation, bank income increases more than bank costs. The results are parallel to Demirgüç-Kunt and Huizinga (2004), Kaya (2006) and Abreu and Mendes (2006) that reported positive relationships between inflation and NIM and ROA. Kenya Tarus, Chekol and Mutwol, in their study "Determinants of Net Interest Margins of Commercial Banks in Kenya: A Panel Study have used bank specific factors(operating expense & credit risk), industry specific factor (concentration) and macroeconomic factors(GDP and inflation) as determinants of cost of intermediation (net interest margin), based on fixed effect model. Major findings include, operating expense (which is measured as the ratio of operating expense to total assets), has positive relationship with the net interest margin among the commercial banks in Kenya. It is shown that banks that bear higher average operating expenses may out for higher margins to offset their higher transformation costs. Credit risk also tends to be positively associated with net interest margin.

They justify this as Banks that make risky loans may also be obliged to hold a higher amount of provisions. In turn, this may force them to charge higher margins in order to compensate for the higher risk of default, leading to a positive relationship of the macro economic variables inflation is found to have a positive relationship between inflation and the net interest margin. But Economic growth is found to be negatively related. This is evidence that the lower the economic growth the higher is the net interest margins. But they have used limited number of determinant factors.

2.3. Conclusions on the literature review and knowledge gaps

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 variables which are used to see the impact of central bank regulation on banks performance other than the control variables (bank specific and macroeconomic) is different from count y to country. The review of the literature discussed in this chapter reveals the existence of gaps of knowledge on the effects of national banks regulation by incorporating all major regulatory variables in to consideration and the related literatures are too few when compared to in the context of Ethiopia. In order to measure the impact level of National Bank regulations (Legal reserve, Capital requirement, Capital Adequacy, and Limitation of Equity Investment) on profitability and liquidity of commercial banks in Ethiopia it necessitates study in each country since we cannot describe the impact level from the scratch or simple from the theory. To my knowledge the above mentioned issue has not been adequately investigated in Ethiopia.

Eden (2014) studied on The Impact of National Bank Regulation on Banks Performance and she used credit cap, NBE bill purchase and legal reserve as explanatory variables without incorporate capital requirement, Capital Adequacy and equity investment limitation and also the performance proxy was ROA & NIM but the NBE regulations effect better in addition to see on liquidity of the bank.

Yodit (2012), Tesfaye (2014) and Shibiru, (2014) investigate the implication of NBE bill Purchase on performance of private commercial banks in Ethiopia. However, it's not shown the general effect of NBE regulations by taking separately the NBE bill Purchase as indicator of regulation as result it need further comprehensive research in this area by incorporating Legal reserve, Capital requirement, NBE bill purchase requirement, Capital Adequacy and Limitation of Equity Investment. Therefore, this study was conduct to fill this knowledge gap by examining the effect of National bank regulation on Commercial financial banks performance& liquidity in Ethiopia. So this area, therefore this study is conducted to fill this knowledge gap by examining the impact of National bank regulation on banks performance.

2.3. Conceptual framework

The conceptual schema of the relation between the independent variables and dependent variables distilled from the literature review is shown on figure 2.1 below. It assumes that the relationship between that the independent variables and dependent variables is linear.

Independent Variable

-Reserve requirement

-Interest rate

-Capital requirement

-Capital adequacy

-Equity Investment

Dependent Variables

Banks performance

- ROA &NIM
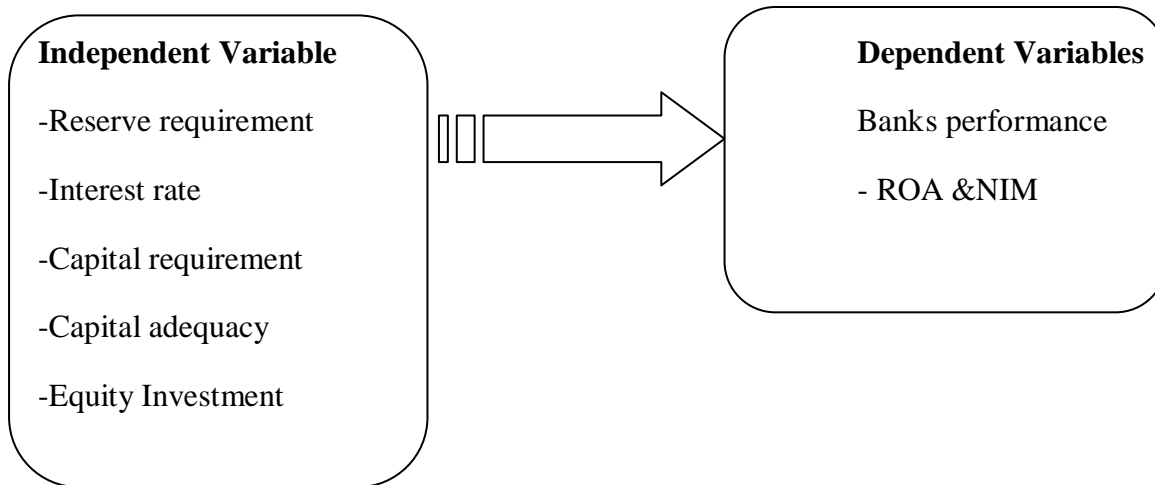
CHAPTER THREE

3. RESEARCH METHODOLOGY

INTRODUCTION

The purpose of this chapter is to present the general methodologies of research applied in this research which includes research design, model specification, hypotheses and research approach that are used in the study.

3.1. Research Design

A research design is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the research problem. To achieve the objective of this study, Explanatory research design was adopted. Besides, this study used quantitative research approach to examine a stated objective. Because quantitative research is the systematic and scientific investigation of quantitative properties and phenomena and how effect is dependent variables by independent variables, mean explained by numeric and to construct an empirical model in order to measure theeffect of bank regulation on performance of commercial banks in Ethiopian. Specifically (Abiy, 2009).

Under this study, panel data from the year 2011- 2020 was used. This is because panel data has the advantage of giving more informative data as it consists of both the cross sectional information, which captures individual variability, and the time series information, that captures dynamic adjustment. The use of regressions considers the simultaneous relationships among the multiple numbers of independent and dependent variables found across the regression model, therefore it was found suitable for such a study. Regressions were further utilized to examine the associative relationships between variables in terms of the relative importance of the independent variables and predicted values of the dependent variables.

3.2. Source and Type of Data

The research used bank level data which are secondary data. According to Stewart and Kamins (1993) cited in Li Yuqi (2007), secondary data have its ownadvantages. Compared to primary data, secondary data gives higher quality data, the feasibility to conduct longitudinal studies and the permanent of data which means secondary data generally provide a source of data that is both permanent and available in a form that may be checked relatively easily by others. Therefore, increases the dependability of the data. The data on banks are taken from the National Bank of Ethiopia from Bank Supervision Directorate. The type of data used is a secondary data from including the balance sheet and income statement of each selected banks, journals and publications of NBE and MoFED data from 2011 to 2020 (ten years data). All data was collected on annual base.

3.3. Target population and sampling technique

This study includes all banks operating in Ethiopia as a population of the study. However, a bank that operates less than ten years was not taken since those banks have no data for ten years. Due to this, from 19 banks operating in Ethiopia of which two are state owned and the rest are private banks, were taken by using purposive sampling technique. This study took twelve banks namely, Commercial Bank of Ethiopia, Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank, Nib International Bank, Cooperative Bank of Oromia, Lion International Bank, Oromia International Bank, Zemen Bank and Bunna International Bank those were registered by NBE before 2009/10 and those have organized financial statement data to measure their performance. Among these banks commercial bank of Ethiopia are state owned bank. Since these banks have experienced banks, it's possible to make generalization from sample to population. Consequently, this study used panel data of twelve commercial banks for ten years (12*10=120 observations).

3.4. Methods of data analysis

The nature of data used in this research enabled to use panel data model which was considered to have advantages over cross sectional and time series data. Panel data involves the pooling of observations on the cross-sectional over several time periods. The issue that may arise from the

use of panel data is whether the individual effect is considered to be fixed or random. The choice between both approaches was done by running a Hausmanspecification test. To achieve the stated objectives of this study the researcher used panel data of twelve banks for ten years. The researcher used panel data because by combining time series data and cross section observations, panel data give more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency (Gujarati, 2004). By using STATA version14 software, the collected panel data was analyzed using the descriptive statistics, correlation matrix and multiple regressions. In case of the descriptive statistics, the mean, standard deviation, maximum and minimum values were used to analyze the trends of the data while the correlation matrix was used to show the relationship exist between the variables used in the study. Moreover, the diagnostic tests were undertaken in order to check the validity of the model and fulfill the assumption of the Classical Linear Regression Model. To this end, the study used the fixed effects modelbased on the Hausman specification test to choose the appropriate model for panel data.

3.5. Model Specification and Variable Description

3.5.1. Model Specification

The main objective of this study is to investigate the effect of national bank regulation on financial performance of commercial banks in Ethiopia. Therefore, to see the effect of regulatory measures on banks financial performance, the significant factors affecting banks financial performance were used as the representatives for the variation in performance. This study used explanatory variable like minimum Capital required, Interest rate, Equity investment, Capital Adequacy, legal Reserve requirement while the dependent variables are ROA& NIM. In this study, panel data was used. As noted in Brooks (2008), a panel keeps the same individuals or objects and measures some quantity about them overtime. The regression model for the panel data is described in the following equation as adopted from Brooks (2008):

$Yit = \beta_0 + \beta_1 x_{it} + \beta_2 x_{it} + \beta_3 X_{it} + \beta_4 X_{it} + \beta_5 X_{it} + \varepsilon_{it}$

Where:

Yit =is the dependent variable

β_0=is the intercept term

β_i =is a Kx 1 vector of parameters to be estimated on the explanatory variables

X_{it}=is a1xK vector of observations on the explanatory variables, t=l ...T;i=l, ... N.

e_{it} =the normal error term.

The General model for this research is

$$ROA = \beta_0 + \beta_1 CR + \beta_2 IR + \beta_3 RR + \beta_4 CA + \beta_5 EI + \varepsilon$$

$$NIM = \beta_0 + \beta_1 CR + \beta_2 IR + \beta_3 RR + \beta_4 CA + \beta_5 EI + \varepsilon$$

Source: Developed by researcher

Where:-

ROA= return on asset

NIM it=Net Interest Margin

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$=represent estimated coefficient for specific bank

CR= Capital requirement

IR=Interest rate

RR= reserve requirement

CA= Capital Adequacy

EI= equity investment

3.6. Variables description and Hypothesis development

Dependent variable

This study examined financial performance of banks by using return on asset (ROA) and net interest margin (NIM) as a dependent variable. Studies that employed ROA and NIM as major performance measure includes; Tan et al. (2012), Gul et al. (2011), Ezra (2013), Okoth et al.(2013),Kosmidou et al. (2006).

Return on asset (ROA): This is dependent variable measured by the ratio of net income divided by total assets. The higher ROA, the higher the profitability will be. Bank profitability can be seen as indicator of the efficiency of the banking system (Naceur and Orman, 2008). In addition, ROA is the major ratio that indicates the profitability of a bank. It is a ratio of net income to its total asset Khrawish (2011). 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.

Net interest margin (NIM)

Net Interest Margin is defined as the difference between the interest income less interest expense divided by total loan and advances. According to Okoth et al. (2013), NIM reflects the cost of banks intermediation services and the efficiency of the bank. The higher the net interest margin, the higher the profit earned by the bank and the more stable the bank is. However, according to Okoth et al. (2013), a higher NIM could reflect riskier lending practices associated with substantial loan loss provisions.

Independent variables

Capital Requirement (Minimum Entry Capital requirement): The minimum paid up capital of national bank of Ethiopia and it measured by natural logarithm of total paid up capital amount. Capital serves as a buffer against losses and 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).

Interest rate regulation: Financial liberalization is closely related with interest rate deregulation and has been the agenda of various scholars of private interest view and the World Bank. On the other hand scholars of the public interest view recommend interest rate control as the main instrument of financial regulation for the following reasons:

1. Charging high interest rate on lending and low interest rate on saving is considered as exploitation therefore, according to the scholars of the public interest view, government should protect borrowers and depositors by setting a ceiling and floor on interest rates.

2. National Bank must also implement interest rate controls to obtain cheap funds to finance their projects that are beneficial for the general public. On the other hand National Bank also control interest rates on the assumption interest rate controls can stimulate investment; this argument is based on the Keynesians notation that investment demand is decreasing if the interest rates increase. But this argument does not take into consideration where lower interest rates, can decrease the availability of funds for investment by decrease savings (Ngumo, 2012).

Regarding this the National Bank of Ethiopia is in favor of the interest regulation. Initially the government puts in to action both deposit and lending rate controls but after a time due to various pressures from the WB and IMF it lifts the lending rate and only limits the minimum deposit rate. But this interest rate is too low to attract private savers in time of high inflation experienced in the country. Similarly the NBE in its regulation also noted that in the scenario of rising interest rate, when liabilities re-price faster than assets, interest spread would fall and hence profitability of the bank would be adversely affected therefore to protect banks interest rate regulation is very important (Mekonen K. and Melese A., 2014)

Required Reserve: 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). Furthermore, 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).

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 lower the risk 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).

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

CHAPTER FOUR

4. DATA ANALYSIS AND PRESENTATION

This chapter deals with the analysis and presentation of the results of the study. The data were analyzed by using STATA software version 14. The descriptive statistics and the correlation analysis were discussed. Followed by the diagnostic test, which is necessary to fulfill the assumption of the classical linear regression model. Then, econometric analysis and discussion of the main finding of the study were presented. Finally, the results of the regression analysis were discussed by supporting empirical evidence.

4.1. Descriptive statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sample banks.

Table 1: Summary of descriptive statistics

Dependent variables	Observation	Mean	Standard deviation	Minimum	Maximum
ROA	120	2.68	0.89	0.18	5.22
NIM	120	5.64	2.10	1.68	12.65
Independent variables	Observation	Mean	Standard deviation	Minimum	Maximum
Capital requirement	120	19.15	2.3	16.1181	22.3327
Interest rate	120	5.5	1.767	3	7
reserve requirement	120	0.16	0.08	0.01	0.35
Capital Adequacy	120	0.27	0.066	0.15	0.35
equity investment	120	0.28	0.05	0.20	0.35

Source: computed from the financial statement of commercial banks in Ethiopia and from NBE report (2021).

The dependent variables used in the study were ROA& NIM; while the independent variables were major national bank regulatory instruments those including: Capital requirement, Interest rate, reserve requirement, Capital Adequacy and equity investment. Thus the total observation for each dependent and explanatory variable was 120 (panel data of 12 commercial banks for 10 years). Table 4.1 demonstrates the mean, standard deviation, minimum and maximum values for the dependent and independent variables for sample banks over the year 2011to 2020.

Return on Asset (ROA) is dependent variable which is measured by the ratio of Net Income to Total Asset. The mean value of ROA was 2.68 percent which indicates that the sample banks on average earns a Net Income of Birr 0.268cent for one Birr investment. Since ROA indicates the efficiency of the management of a company in generating Net Income from all the resources of the institutions, the higher ROA shows that the company is more efficient in using its resources. The maximum value of ROA was 5.22 and minimum value of 0.18. That means, the most profitable bank among the sampled banks earned 0.522 cents of net income for a single birr invested in the assets of the firm. On the other hand, the least profitable bank of the sampled banks incurred 0.18 cents of profit for each birr investment in the assets of the firm. Thus, this causes poor performance. This means that, the higher costs of operation negatively affect bank performance.

The NIM which is measured by the net interest income divided by the total loan and advances has a mean value of 5.64 percent. This implies that, the sample banks on average earn Birr0.564 net interest income of the loan and advances for one birr loan and advance. Since NIM reflects the cost of bank's intermediation services and the efficiency of the bank, the higher the NIM the higher the bank's profit and the more stable the bank is. Accordingly, during the study period the sample commercial banks in Ethiopia had relatively good performance which is measured byNIM when it's compared with the ROA.

Regarding the independent variables, the minimum Capital requirement which was measured by the natural logarithm of minimum capital determined by NBE to join banking industry; has a mean value of 19.15348 with a maximum and minimumvalue of 22.3 and 16.1 percent respectively. In addition, the standard deviation of the Capital requirement was 2.3 percent. This

implies that in the study period the sample commercial banks have a small variation in minimum capital requirement determined by NBE to engage in banking industry at different time.

The other independent variable used in the study was the Interest rate which represents the minimum interest rate determined by NBE for deposit. The average (mean) interest rate determined by NBE is 5.5 percent with a standard deviation of 1.767 percent. This indicates that NBE determines on average 5.5 percent of interest rate at different period for every one birr deposit in commercial banks. The minimum interest rate was 3 percent and the maximum interest rate was 7 percent. The standard deviation of 1.767 percent shows that in the study periods the NBE determined interest rate with average variation of 1.767 percent at different consecutive years.

On the other hand, the legal reserverequired is a portion of bank's asset in National Bank of Ethiopia with no interest and it will be represented by ratio of Reserve Account in NBE. The mean value of legal required reserve is 0.16 that shows for ever one Birr deposit received Banks are supposed to deposit in national on average 0.16 cent. The minimum and maximum the value of required reserve were, 0.01 and 0.35 percent respectively with a standard deviation of 0.08. This indicates that in the study periods the NBE determined minimum legal required reserve rate of 0.01 percent and maximum of 0.35 percent.

Another important variables used in this study was capital adequacy. The mean value of capital adequacy is 27 percent which indicates; banks are mandated to hold on average additional 0.27 cents for every as a buffer against unexpected or unusual losses. The minimum value and maximum value of credit concentration of commercial banks which are allowed by NBE are 0.15 and 0.35 respectively with a standard deviation of 0.066. Moreover the standard deviation of 0.066 shows that there was very low variation among the sample commercial banks credit concentration during different time.

Regarding to the equity investment, it is measured by the total amount of investment on insurance company share and other share companies stock. Moreover, effect of bank regulation on profitability of commercial banks was equity investment made by banks to other non-banking businesses. The average (mean) equity investment determined by NBE are 0.28 percent which represents that banks are allowed to invest on equity on average 28% of their total asset. The

minimum and maximum values of equity investment are 0.01 and 0.35 percent respectively with standard deviation of 0.05 percent.

4.2. Correlation analysis

In this section the correlation analysis between the dependent and independent variables were presented. The ROA reflects the ability of a bank's management to generate profits from the bank's assets and this profitability measure is correlated with other explanatory variables either positively or negatively. In table 2 below, the correlation analysis was undertaken between ROA and explanatory variables; Minimum Capital requirement, Interest rate, reserve requirement, capital adequacy and equity investment. This correlation clearly shows that, all explanatory variables except Capital adequacy; are significant correlated with ROA, Interest rate and equity investment are correlated positively significant with Pearson correlation value of 0.517 and 0.217 respectively were as Minimum Capital requirement and legal reserve requirement were is negatively correlated with ROA. All variables are perfectly correlated with themselves but there is no perfect correlation with each other.

Table 2: correlation analysis between the dependent and independent variables

		ROA	I R	LRR	C A	EIR	InCR
R O A	Pearson Cor	1	.517	-.390	-.168	.217	-.424
	Sig. (2-tailed)		.000	.000	.067	.017	.000
I R	Pearson Cor	.517	1	-.068	.008	.141	-.038
	Sig. (2-tailed)	.000		.458	.935	.124	.678
L R R	Pearson Cor	-.390	-.068	1	.000	-.126	.362
	Sig. (2-tailed)	.000	.458		1.000	.170	.000
C A	Pearson Cor	-.168	.008	.000	1	-.478	.001
	Sig. (2-tailed)	.067	.935	1.000		.000	.992
E I R	Pearson Cor	.217	.141	-.126	-.478	1	-.335
	Sig. (2-tailed)	.017	.124	.170	.000		.000
InCR	Pearson Cor	-.424	-.038	.362	.001	-.335	1
	Sig. (2-tailed)	.000	.678	.000	.992	.000	

Source: Own computation by STATA V. 14

In table 2 below, the correlation analysis was undertaken between NIM and explanatory variables; Minimum Capital requirement, Interest rate, reserve requirement, capital adequacy and equity investment. This correlation shows thatLegal Required Reserve and minimum start-up Capital requirement have positively significant correlation to NIM with Pearson correlation value of 0.353 and 0.399 respectively, were as required reserve is negatively correlated with NIM. All variables are perfectly correlated with it but there is no perfect correlation with each other.

Table 3: correlation between NIM and independent variables

C o r r e l a t i o n s		NIM	I R	L R R	P R	EIR	ln CR
NIM	Pearson Cor	1	-.150	.353	.039	-.140	.399
	Sig. (2-tailed)		.102	.000	.670	.127	.000
I R	Pearson Cor	-.150	1	-.068	.008	.141	-.038
	Sig. (2-tailed)	.102		.458	.935	.124	.678
L R R	Pearson Cor	.353	-.068	1	.000	-.126	.362
	Sig. (2-tailed)	.000	.458		1.000	.170	.000
C A	Pearson Cor	.039	.008	.000	1	-.478	.001
	Sig. (2-tailed)	.670	.935	1.000		.000	.992
E I R	Pearson Cor	-.140	.141	-.126	-.478	1	-.335
	Sig. (2-tailed)	.127	.124	.170	.000		.000
ln CR	Pearson Cor	.399	-.038	.362	.001	-.335	1
	Sig. (2-tailed)	.000	.678	.000	.992	.000	

Source: own survey 2021

4.3. CLRM assumptions and Diagnostic tests

The diagnostic tests were undertaken to ensure that the data fits the basic assumption of the classical linear regression model. Test of the classical linear regression model assumptions were presented as follows.

4.3.1. Multi-collinearity Test

Multi-collinearity means that there is linear relationship between explanatory variables which may cause the regression model biased. Multi-collinearity exists when the independent variables were highly correlated each other. Variance Inflation Factors were used to detect collinearity or multi-collinearity among predictors in regression model. On the other hand, variance inflation factor (VIF) methods are used to test for the existence of multi-collinearity among NBE regulatory variables. VIF values greater than 10 may indicate that the presence of multi-co llinearity which influence the regression results. The average value of VIF was 1.23 which represents absence of multi-collinearity problem among explanatory variables.

Table 4: Variance inflation factor for multi-collinearity test

```
. vif

        Variable |        VIF        1/VIF
-----------------+----------------------------
             EIR |       1.41      0.709702
            lnCR |       1.35      0.742908
              CA |       1.20      0.830553
             LRR |       1.17      0.857853
              IR |       1.04      0.961426
-----------------+----------------------------
        Mean VIF |       1.23
```

Source: own survey

4.3.2. Heteroskedasticity Test

Heteroskedasticity problems occurred when the variance of errors are not constant. Heteroskedasticity makes ordinary least square estimators not efficient, the estimated variances and covariance of the coefficients (β_i) were biased and inconsistent and the tests of hypotheses were no longer valid. Breusch-pagan test result, value (Prob> chi2 = 0.3103) implied that the absence of heteroskedasticity problem in study variables since, p value is greater than 5 percent significance level which leads us to reject Ho that assumes there is Heteroskedasticity.

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


        chi2(1)      =      1.03
        Prob > chi2  =   0.3103
```

4.3.3. Normality Test

Normality test of data is applied to determine whether a data is well modeled by a normal distribution or not and to compute how likely an underlying random variable is to be normally distributed. The normality test was checked by using histogram. Based on graph below the bell-shaped line on the histograms represents almost all normality of data.

Figure 1: normality
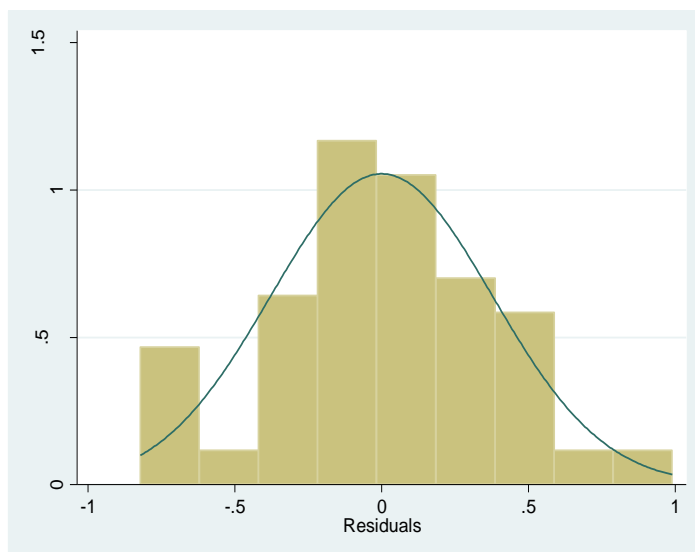
Source: own survey

The graph shows the normality of data because mean of error term is zero.

Not only histogram but also other tests were conducted to check normality of the data like skewness and kurtosis test and Shapiro-wilk test. The skewness and kurtosis test result indicates

normality of data because p value is greater than 0.05 which suggests us to reject Ho: there is no normal distribution of random term at 5 percent significance level.

```
                   Skewness/Kurtosis tests for Normality
                                                    ——— joint ———
   Variable |      Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)   Prob>chi2
------------+---------------------------------------------------------------
          r |      120     0.3656        0.4774        1.35        0.5097

. mvtest norm r

Test for multivariate normality

    Doornik-Hansen                  chi2(2) =    1.341   Prob>chi2 =  0.5115
```

4.4. Model selection; Random Effect (RE) Versus Fixed Effect (FE) Models

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models (FEM) and random effects models (REM) (Brooks, 2008). The choice between both approaches is done by running a Hausman test. The hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results (Li Yuqi, 2007).According to Brooks (2008), if the p-value for the hausman test is less than 1%, this shows that the fixed effects model is appropriate and that the random effects model is not preferred. In the Table 5 and table 6 the Hausman specification tests shows that both ROA and NIM model has a Prob>chi2 = 0.000 which indicates the fixed effect model is appropriate to analyze the effects of independent variables(Capital requirement, Interest rate, reserve requirement, Capital adequacy and equity investment) on commercial banks financial performance(ROA and NIM).

Table 5: Hausman Test

```
. hausman re fe

                 ──── Coefficients ────
                  (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                  re           fe          Difference          S.E.
   ─────────────────────────────────────────────────────────────────────
     lnCR        .3102104     .3974913     -.0872809             .
       IR       -.1633481      .31447       -.477818         .1347264
      LRR        6.782854     -4.01434      10.79719          2.46142
       CA        1.806144     2.715447     -.9093036         1.887864
      EIR       -1.055275     3.801101     -4.856376         2.986869
   ─────────────────────────────────────────────────────────────────────

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

      Test:  Ho:  difference in coefficients not systematic

                chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =       39.51
              Prob>chi2 =      0.0000
              (V_b-V_B is not positive definite)
```

4.5. Panel data Regression analysis

This section presents the overall results of the regression analysis on the effect of national bank regulation variables on commercial bank financial performance. In this study ROA and NIM was used as a main performance measure. The reason for using ROA and NIM as the measurement of banks financial performance was because the ability of a bank's management to generate profits from the bank's assets and also indicates how effectively the bank's assets are managed to generate revenues from interest. Moreover, performance is best measured by ROA and NIM (Tan et aI., 2012).The table 5 and table 6: presents the empirical findings from the regression results on effects of national bank regulation variables on commercial banks financial performance.

Table 6: Estimated result of fixed effect model for ROA

```
. xtreg ROA lnCR IR LRR CA EIR ,fe

Fixed-effects (within) regression              Number of obs      =         120
Group variable: Year                           Number of groups   =          10

R-sq:                                          Obs per group:
    within  = 0.4868                                        min =          11
    between = 0.7578                                        avg =        12.0
    overall = 0.0002                                        max =          13

                                               F(5,105)           =       19.92
corr(u_i, Xb)  = -0.8155                        Prob > F           =      0.0000
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lnCR	.429025	.324355	1.32	0.189	-.2141111	1.072161
IR	.3047081	.0423134	7.20	0.000	.2208083	.3886078
LRR	-3.817228	.8121713	-4.70	0.000	-5.427614	-2.206842
CA	2.626864	1.928346	1.36	0.176	-1.196689	6.450417
EIR	3.433966	1.10008	3.12	0.002	1.25271	5.615222
_cons	-8.302984	6.731271	-1.23	0.220	-21.64985	5.043882

sigma_u	1.1371483					
sigma_e	.53624352					
rho	.81807822	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(9, 105) = 2.64                    Prob > F = 0.0084
```

Table 7: Estimated result of fixed effect model for NIM

```
. xtreg NIM lnCR IR LRR CA EIR , fe

Fixed-effects (within) regression              Number of obs      =         120
Group variable: Year                           Number of groups   =          10

R-sq:                                          Obs per group:
    within  = 0.2305                                        min =          11
    between = 0.1667                                        avg =        12.0
    overall = 0.2068                                        max =          13

                                               F(5,105)           =        6.29
corr(u_i, Xb)  = -0.3032                       Prob > F           =      0.0000
```

NIM	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lnCR	-.1215193	1.00547	-0.12	0.904	-2.11518	1.872141
IR	.6080198	.1311677	4.64	0.000	.3479385	.868101
LRR	6.499805	2.517654	2.58	0.011	1.507762	11.49185
CA	2.518528	5.977688	0.42	0.674	-9.334123	14.37118
EIR	-8.833485	3.410144	-2.59	0.011	-15.59517	-2.0718
_cons	5.151236	20.8663	0.25	0.805	-36.22278	46.52526
sigma_u	.44813363					
sigma_e	1.662304					
rho	.06775251	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(9, 105) = 0.43                      Prob > F = 0.9184
```

Where: ROA=Return on Asset

   NIM= Net interest margin

LnCR= Natural logarithm of minimum capital requirement

IR= Interest rate

LRR= Legal required reserve

CA= capital Adequacy

EIR= Equity investment Rate

Based on fixed effect regression result the model was developed as follow:

ROA = -8.30+0.431lnCR+0.305IR-3.821LRR+2.672CA+3.434EIR+e_i

NIM = 5.15-0.121lnCR+0.608IR+6.492LRR+2.52CA-8.833EIR+e_i

The values of R- square within and between provide some insight for the model. The definition of each of R-squared value is below:

Interpretation of values of R- square for model one (ROA)

WithinR- square: How much of the variation in the dependent variable within similar observation is captured by the model (i.e., how well the explanatory variables account for changes in dependent variable within each of the observations over time). From the ROA model within R^2 represents 48.68 percent of variation in the dependent variable (ROA) within similar observation (with in one bank at different time) was caused by the variation of independent variables in the model (National bank directives).

BetweenR- square: How much of the variation in the dependent variable between study population is captured by the variation of independent variables in the model (i.e., how well the explanatory variables account for variation in ROA between banks in the study). From the model 75.78% of variation in ROA between banks in the study is captured by the variation of independent variables.

Interpretation of values of R- square for model two (NIM)

Within: How much of the variation in the dependent variable within similar observation is captured by the model (i.e., how well the explanatory variables account for changes in dependent variable within each of the observations over time). From the NIM model within R2 represents 23 percent of variation in the dependent variable (NIM) within similar observation (with in one bank at different time) was caused by the variation of independent variables in the model (National bank directives).

Between: How much of the variation in the dependent variable between study population is captured by the variation of independent variables in the model (i.e., how well the explanatory variables account for variation in NIM between banks in the study). From the model 16.67% of

variation in NIM between banks in the study is captured by the variation of independent variables.

The fixed effect regression model result for model one (ROA) in the table6 shows us Interest rate (IR) and equity investment (EIR) have positively statistically significant effect on Banks performance(ROA) were as legal reserve requirement rate (LRR) have negatively statistically significant effect on Banks performance(ROA)with P value less than 5%. The remaining two variables (natural logarithm of Capital requirement and capital adequacy) have nostatistically significant effect on Banks performance (ROA) with P value greater than 5%.

The fixed effect regression model result for model two (NIM) in the table7 shows us Interest rate (IR) and legal reserve requirement rate (LRR) have positively statistically significant effect on Banks performance(NIM) were as equity investment (EIR) have negative statistically significant effect on Banks performance(NIM)with P value less than 5%. The remaining two variables (natural logarithm of Capital requirement and capital adequacy) have nostatistically significant effect on Banks performance (NIM)with P value greater than 5%.

4.5. Discussion of the regression results for statistically significant variables

The following section provides a brief analysis of the results for eachstatistically significant independent variables effect on dependent variable and their importance in examining the effect of bank regulation on commercial Banks in Ethiopia.

Interpretation of coefficients of statistical significant variables

Interest rate

The results of fixed effect regression model reveal that there is positive statistical significant effect of interest rate on commercial banks performance (ROA) and NIM at 5% significance level; with P value of 0.000 and coefficient of 0.3047 for ROA and coefficient of 0.608 for NIM. This result reveals that when interest rate increases by one percent; ROA increases by 30.47 percent while keeping other things constantan when interest rate increases by one percent NIM increases by 60.8 percent. This result was in-line with (Hayes, 2013) finding that loan yields are generally from market interest rate. Higher rates at a measured pace are generally a positive for banks given the uplift to asset yield, deposit margin, along with generally improving macro conditions. Interest rates impact bank earnings through net interest margins/ net interest income which are a key factor driving bank earnings and stock performance. Interest rates are also a key driver of loan yields (Hayes, 2013).

Legal Reserve Requirement

The results of fixed effect regression model in table6 and table7 reveal that there is negative statistical significant effect of Legal Reserve Requirement on commercial banks performance (ROA) and positive statistical significant effect on NIM at 5% significance level; with P value of 0.000 and coefficient of -3.827 for RON and coefficient of 6.4921 for NIM. This result reveals that when Legal Reserve Requirement increases by one percent; ROA decreases by 3.827 percent while keeping other things constant and when Legal Reserve Requirement increases by one percent NIM increases by 6.4921 percent. However, regarding the study results legal reserve requirement has inversely relationship with ROA 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. But the positive effect of Legal Reserve Requirement on NIM indicates that high reserve requirements decrease loan able funds which results high net interest margin since NIM is the ratio of interest income to total loan. The increase in Legal Reserve Requirement causes total loan to decrease; that means holding other factors constant if the denominator of any fraction decreases the value of the variable increases. The finding of this paper is in line with GemechuAbdissa‟s (2016) who also concluded that reserve requirement has a negative and significant effect on banks‟ profitability (ROA). Similarly Fatima Abid et.al

(2015) concluded that reserve requirement has an inverse effect on banks" profitability (ROA). In contrary to the above studies, the findings of this paper are in opposite to that of UREMADU"s (2012) conclusions. UREMADU (2012) concludes that there exists a positive relationship between reserve requirement and banks" profitability when the profitability is measured in terms of net interest margin. On the other hand, Eden Kebede (2014) argued that the effect of reserve requirement on banks' profitability is insignificant.

Equity investment

The results of fixed effect regression model in table 6 and table7 reveal that there is positive statistical significant effect of equity investment rate on commercial banks performance (ROA) and negative statistical significant effect on NIM at 5% significance level; with P value less than 5% and coefficient of 3.434 for ROA and coefficient of -8.833 for NIM. This result reveals that when equity investment rate increases by one percent; ROA increases by 3.434 percent while keeping other things constant and when equity investment rate increases by one percent NIM decreases by 8.833 percent. However, regarding to the study results equity investment rate has direct relationship with ROA because the high rate of equity investment yields high return on asset, but the negative effect of equity investment rate on NIM indicates that the increase in the investment of equity results low interest income; since NIM is the ratio of interest income to total loan.

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).Prior studies made in other country are consistent with this finding they conclude that equity investment had a positive and significant effect in banks profitability (ROA) (Francisco 2012). In contrast the study of Tewdros A. (2017) found that Equity investment had negative but insignificant effect on profitability of commercial banks.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

This Chapter deals with the conclusions and recommendations provided based on the findings of the study. Accordingly, this chapter is organized into two subsections. Based on the finding of the study conclusions were drawn and possible recommendations were forwarded.

5.1. CONCLUSION

The main objective of this study was to examine the effect of national bank regulations measures on the financial performance of commercial banks in Ethiopia. For this study five major regulation variables that are affecting commercial banks performance were chosen and analyzed. The panel data was used for the sample of twelve commercial banks including commercial bank of Ethiopia. Ten years data was collected from twelve sample commercial banks starting from the year 2011 to 2020. The dependent variable in this study was ROA and NIM which shows the financial performance of commercial banks. The major explanatory variables in this research are the major regulation variables of national banks including; capital requirement, Interest rate, Legal reserve required, capital adequacy and Equity investment Rate. Data was presented by using descriptive statistics such as mean, standard deviation, minimum and maximum values. Additionally regression model was used to see the effect of NBE regulation on the financial performance of commercial Banks in Ethiopia. Before performing regression model the data were tested for the classical regression model assumptions such as multi-collinearity test, Heteroscedasticity test, normality test and autocorrelation test by using STATA version14 and the model fulfill all assumptions of the CLRM. Fixed effect model/FEM was used based on Hauseman test results.

The main findings of this study based on Fixed effect panel data regression model result for financial performance indicators (ROA and NIM); from five major regulatory variables included in the model three of them (Interest rate, Legal required reserve and Equity investment Rate)are statistically significant with P-value less than 0.05 and two of them (capital requirement and capital adequacy) are statistically insignificant with P value greater than 0.05.

The sign of coefficients reveals Interest rate (IR) have positively statistically significant effect on both ROA and NIM. Legal reserve requirement rate (LRR) has negatively statistically significant effect on ROA but it has positive statistically significant effect on NIM. Equity investment (EIR) has positively statistically significant effect ROA but it has negatively statistically significant effect on (NIM).

5.2. RECOMMENDATIONS

Based on the result of the regression analysis, the study forwarded the following recommendations.

Since the result of fixed effect panel data regression model shows positive statistically significant effect of interest rate on commercial banks financial performance; so that it is advisable to national bank of Ethiopia to use an interest rate as a major regulatory variable based up on the macro-economic conditions of the country to improve commercial banks financial performance.

The analysis indicated that legal reserve requirement have negative significantly significant effect on financial performance of commercial banks (ROA). So it is recommendable to National Bank of Ethiopia to set minimum reserve requirement that could be balanced to banks performance and economic condition in order to enhance commercial banks financial performance and to improve economic growth by setting low reserve requirement which helps commercial banks to give more loans to investors and to publics.

Equity investment Rate has a statistically significant positive effect on the performance of commercial banks. This implies that Equity investment Rate has a positive statistically significant effect on commercial banks financial performance (ROA). As banks Equity investment Rate increases, they can earn higher income and can also increase their market share. Hence; based on this finding the researcher recommended to NBE to increase the rate of Equity investment so as to increase their financial performance (ROA).

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