

The Impact of National Bank supervision and Regulation on Banks Performance of Private Banks of Ethiopia.

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A THESIS SUBMITTED TO SCHOOL OF POSTGRADUATE IN PARTIAL FULFILLMENT OF THE REQUIRMENT FOR THE DEGREE OF MASTERS OF SCIENCE (MSC) IN BANKING AND FINANCE.

Jimma University, Jimma, Ethiopia

June. 2020

Statement of Declaration

I declare that this research is my work and all sources of materials used for this research have been fully acknowledged. This thesis has been submitted in partial fulfillment of the requirement for the degree of masters' science (MSC) in field of banking and finance.

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Abstract

This thesis assesses the impact of Banking Regulation on the Performance of Private Banks. Quantitative Analysis was used to confirm the opinions obtained using their financial statements and ratios using a panel data for nineteen years. The "Reserve Requirement" directives are said to support the profitability of banks, while the " The panel data econometric model implies that the "Reserve Requirement, , and Credit cap negatively affected performance and management efficiency ,capital adequacy and asset quality had a positive but weak impact on ROA and NIM by have a statistically significant effect . In general the banker's general opinion was skewed towards a negative attitude and the Banking industry is found to be highly regulated and some regulations are having negative impact on the performance of private banks. NBE should therefore revise some of the directives and shall focus on strengthening the private banks.

Key Words. *Banking Regulation, private commercial bank, Performance.*

Acknowledgement

First of all, I would like to greatly express my utmost gratitude to my main advisor **Ganfure Tarekegn (MSC)** and co-advisor **Semere Getahun(MSC)**for their invaluable comments, encouragements and guidance in accomplishing this thesis and make it successful. Besides, I extend my gratitude to the staff members and management body of Commercial Banks' head office and National Bank of Ethiopia for their cooperation with me via providing necessarily data. My immense gratitude also go to my Friends for their immeasurable assistance while doing this thesis.

Furthermore, my indebted gratitude expressed to all of my families for their encouragement in completing this research paper.

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LIST OF ACRONYMS

AIB- Awash International Bank S.C

BoA- Bank of Abyssinia S.C

BRSA - Banking Regulatory and Supervisory Authority

CAP- Capital Adequacy Ratio

CBN- Central Bank of Nigeria

DB- Dashen Bank S.C

FIS- Financial Institution Supervision

LIQ- Liquidity Ratio

NBE- National Bank of Ethiopia S.C

NIB- Nib International Bank S.C

NIM- Net Interest Margin

OIB- Oromia International Bank S.C

RoA-Return on Asset

RoE- Return on Equity

SBB- Supervision of Banking Business

UB- United Bank S.C

WB- Wegagen Bank S.C

ZB-Zemen Bank S.C

CHAPTER ONE

1. INTRODUCTION

This chapter begins with discussing background of the study that gives some insight on the issues of *The Impact of National Bank supervision and Regulation on Banks Performance of Private Banks of Ethiopia*. After giving some insight on the issues statement of the problem part that shows the direction of the study, justifies the reason to carry out this study. Following this, both general and specific objectives of the study, the research hypothesis those tested against the econometric results are presented. Lastly, the subsequent section presents significance of the study, scope and limitation of the study, and organization of the paper, and ethical issues respectively.

1.1 Background of the Study

In most countries, commercial banking is one of the most heavily regulated industries. Even though banks are usually for-profit institutions and bankers have free reign with respect to daily operations, the banking industry is commonly regarded as a matter of public concern.

As Barth, James, Gerard and Ross (2006) exhaustively stated, the banking sector is probably the most intensely regulated sector throughout the world. This is hardly surprising. If we try to assess the reasons behind government regulation, there are several rationales that justify government intervention from the perspective of enhancing market and economic efficiencies as well as minimizing contagious effects. But the same is true if we think government intervention is driven by political and electoral interests, rather than by the desire to address market inefficiencies. The two views of government interventions obviously differ in their implications: the first one predicts a positive effect of government regulation, while the second a negative one (Luigi et al., 2007). In addition to statutory and administrative regulatory provisions, the banking sector has been subject to widespread "informal" regulation, i.e., the government's use of its discretion, outside formalized legislation, to influence banking sector outcomes (Bonn, 2005). An efficient financial system has been regarded as a necessary pre-condition for higher growth. Propelled by this ruling paradigm, several developing countries undertook programmes for reforming

their financial system. The cost of financial system and macroeconomic instability to the general public and the government is significant. It is essential to ensure safety, soundness and stability of the banking system by having a comprehensive law for the licensing and supervision of the banking business. In Ethiopia, the National bank of Ethiopia (NBE) implements monetary policies to insure safety, soundness and stability of the banking system. Following the Monetary and Banking Proclamation of 1994 the private banking industry has been expanding in Ethiopia and a number of private banks have been established. The NBE reveals that banks increased in number from 3 in 1991 to 19 banks in 2013 both government and private banks (NBE, 2013).

NBE has taken some bold measures by issuing different regulation that could affect the banking sector. Pertinent to the rampant inflation NBE takes a measure to reduce the credit expansion of banks by issuing different directives at different times. In doing so it raised the reserve requirement on commercial banks from 5% (Directive No. SBB/37/2004) to 10% effective July 2007 (Directive No. SBB/42/2007) and further to 15% effective April 2008 (Directive No. SBB/45/2008). In addition to this On 4 April 2011, NBE issued a directive requiring all private commercial banks to invest 27% of their every new loan disbursements on NBE bills purchase for five years at a very low interest rate (Directive No. MFA/NBE Bills/001/2011). This act of NBE was defended by the authority on mobilizing resources for strategic and priority sector investments which the private banking sector seldom grant a loan. Credit cap was the other measure taken by NBE. It has set the maximum amount of credit that the bank should make since March 2009 to March 2011.

Although banking regulation is vital to any country, the level of regulation has been debatable among bankers and researchers alike. Since both excessive regulation as well as inadequate regulation have their own concomitant costs, determining the optimal amount of regulation is crucial in the regulatory framework. In fact, it can be said that the crux of banking regulation is striking the balance and finding out the optimal level of regulation. In Ethiopia, banks mostly feel that there is a high degree of regulation in the country than the optimal one. Whereas others, including the NBE, repeatedly argue the importance of the level of regulation prevailing in the country is both to the safety of the banks themselves and to the country at large. Even though the need for regulation is out of question, examining some of the regulations and affecting their impacts, if any, on the banks will be a value adding process to the banking industry. This research therefore,

assesses some of the regulations, attitude toward those regulations especially by bankers in the private banks and examine the impact of regulation on the financial performance.

1.2 Statement of the Problem

It is obvious that the operation of the financial sector does have a key impact on the economic growth and the stability of an economy. It affects long-term economic growth through its effect on the efficiency of intermediation between the savers and final borrowers of funds; through the extent to which it allows for monitoring of the users of external funds, affecting thereby the productivity of the capital employed; and through its implications on the volume of saving, which influences the future income-generating capacity of the economy. It affects the stability of the economy because of the high degree of leverage of its activities and its pivotal role in the settlement of all transactions in the economy, so that any failure in one segment risks undermining the stability of the whole system (Anteneh Sebsibe 2014).

Banks play an important role in economic development through mobilization of funds from within and outside the country and channeling such funds to various sectors of the economy. Banks have reached to a point of time where, individual, company or country, cannot live without the other. This is because of their role in each step of the way and their role in government development policy through monetary actions. The business of banking has a number of attributes which, if not managed properly, has the potential to generate financial system and macroeconomic instability. Banks in almost all countries are regulated by the Central bank even though its role varies from country to country (Larson, 2011).

Banking in Ethiopia has one hundred years of history and modern banking has started around forty years back. Currently the banking industry is composed of sixteen (16) private and Two (2) government banks with the NBE being the Central bank. Many experts in the sector agree that the banking industry in Ethiopia is highly regulated with arguments in both sides, which some say it is an opportunity for the banks in the country to be stronger and more profitable while the others say its side effects outweigh its benefits since it has an impact in their growth, making them weaker in the international market. In the Ethiopian banking business, the NBE issues circulars and directives which are assumed to maintain stable rate of price and exchange, foster a healthy financial

system and it also undertakes such other related activities as are conducive to rapid economic development of the country (Sheik-Rahim, 2005).

From time to time, the banks, especially the private banks, are arguing that their capacity and strength is declining from the banking regulations that are put in place while the Central bank claims that it is lack of good governance on the part of the private banks, and the performance of the banking industry in the country, in aggregate, is increasing. In addition the Central bank strongly advises the banks to make themselves ready for the entry of international banks, which the Central bank believes has been an opportunity to the existing banks to strengthen themselves in every aspect instead of rent seeking and short sightedness. If both the Central bank and the Commercial banks agree on the importance of the banking regulation in general, their difference could only come from the level, timing, perceived or real discriminatory nature, and significance of some of the regulations, and the implementation strategies of the regulations. Therefore, to reach at a judicious conclusion, it is worthwhile to take some regulations and check the validity of both arguments. Other researchers have tried to show impact of a specific directive either on profitability and were not as such conclusive to reach the level of regulation in Ethiopia. Needless to mention unless the major directives are included in the analysis, it would be very wrong to conclude the impact since one can offset the effect of the other.

In this study, therefore, attempts were made to assess selected banking sector regulations and examine their impact on bank Performance. The research is basically concentrated on the data available in financial statements of banks and other documents data in relation to the selected variables kept by NBE, the banks themselves and Ministry of Finance and Economic Development (MoFED) covering the period of 2000-2018.

1.3. Objectives of the Study

The study has the following general and specific objectives.

1.3.1 General Objective

The general objective of this research is to examine the impact of banking regulation on the performance of private commercial banks.

1.3.2 The specific objectives are as follows:

- Evaluate the effect of setting up of reserve requirement on bank profitability.

- To determine the impact of capital adequacy on the profitability of private commercial bank.
- To examine the significance of asset quality on private commercial banks profitability
- To explore the impact of managerial efficiency on private commercial banks profitability

1.4. Hypothesis of the study

Based on the empirical evidence, reviewed on chapter two, the following testable hypothesis is formulated:-

H1: Capital Adequacy has a positive and significant effect on banks performance.

H2: Asset quality has a positive and significant effect on banks performance.

H3: management efficiency has a positive and significant effect on banks performance.

H4: reserve requirement has a negative and significant effect on banks performance.

H5: Credit cap has a negative and significant effect on performance

1.5 Significance of the Study

The study is believed to have the following significances.

1. Help the private banks to effectively and efficiently realize and utilize the opportunities that are entailed in the banking regulation;
2. Aid the private banks to tackle the challenges that arise from the banking regulations;
3. Give some ideas to the regulatory body so as to achieve both its supervisory role without adversely affecting the growth and performance of private banks; and
4. Serve as a reference material for those who are interested to conduct further study in the area.

1.6 Scope of the Study

The scope of this research is delimited to private banks. Even though private and state-owned Banks are governed by the same NBE, because of the differences in their ownership structure and problem handling mechanisms, government banks are excluded. In addition, since some directives explicitly exclude some government banks, such situations make it difficult to put all banks in the same page for comparison, which are applied by the National Bank of Ethiopia, observed for nineteen consecutive years: 2000-2018 by including variable ,Capital Adequacy, Asset quality, management efficiency ,Credit cap and: reserve requirement.

1.7 Limitation of the Study

The study is limited to evaluate the impact of the regulatory variables on banks performance, which are applied by the National Bank of Ethiopia, observed for nineteen consecutive years: 2000-2018. The limitation that is faced by the researcher is lack of necessary audited data of 2019 and literature in National bank regulations and its impact on banks performance in Ethiopia.

1.8 Ethical Issue

Almost all the financial institutions have strict policy implications on the confidentiality of their data. They can pay the ultimate price for the breach of this duty of confidentiality. Disclosing of information by employees to a third party can expose the institution to potential legal conflict. Due to this ethical issue, they are fearful in disclosure of such information. However, this fear was addressed by explaining the core of the study to the information providing agents with the assurance that the data will be handled professionally through formal letter. Therefore, before data collection, permission is obtained from the management body of all the selected national banks through formal letter. The formal letter was taken from Jimma University specifically from the research and graduate studies office of business and economics collage and then given to those bank managements and all other concerned office to undertake the tasks freely and confidentially.

1.9. Organization of the study

This research report comprises five chapters. The first chapter contains the background of the study, statement of the problem and objectives of the study, significance of the study, scope, Ethical Issues and limitation of the study. The second chapter reveals a gap in the literature pertaining to banking regulations in the international context. The third chapter offers a detailed description of design of the study, population and sampling techniques, the type of data, the tools/instruments of data collection employed the procedures of data collection and the methods of data analysis used. The fourth chapter deals with the presentation of data, interpretation and analysis. The last chapter comprises three sections, which include summary of findings, conclusions, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

In this chapter related literatures will be reviewed about what banking regulation is, its relevance, its types, its principles, its characteristics, its impact on profitability and liquidity. And finally empirical evidences in the matter are presented.

Theoretical Literature

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

2.1 Definition of Banking Regulation

Banking regulation in its strictest sense refers to the framework of laws and rules under which banks operate. Kenneth, (2000) defines it as: the banking agencies' monitoring of financial conditions at banks under their jurisdiction and to the ongoing enforcement of banking regulation and policies. Bonn,(2005) stated that banking regulation originates from microeconomic concerns over the ability of bank creditors (depositors) to monitor the risks originating on the lending side and from micro and macroeconomic concerns over the stability of the banking system in the case of a bank crisis. Adam, (2005) argued that in addition to statutory and administrative regulatory provisions, the banking sector has been subject to widespread "informal" regulation, i.e., the government's use of its discretion, outside formalized legislation, to influence banking sector outcomes, for example to bail out insolvent banks, decide on bank mergers or maintain significant state ownership. When we look at regulation and supervision, bank regulation typically refers to the rules that govern the behavior of banks, whereas supervision is the oversight that takes place to ensure that banks comply with those rules (Georgios Ct al., 2010).

2.2 Why Regulation?

Although banks are operated for profit and bankers are free to make many decisions in their daily operations, banking is commonly treated as a matter of public interest. Banking laws and regulations extend to many aspects of the activities of banking, including who can open banks, what products can be offered, and how banks can expand (Kenneth, 2000). Banking regulation is favored so as to provide stability in the banking system and meet up to its requirements of a high solvency and liquidity level (Adam, 2005; Fatimah, 2012). The most basic reason for regulation of banking is depositor protection. (Marcia et al. 2004).

Another area in bank regulation is capital requirements. Capital requirements or regulation can be regarded as the increment of capital requirements to banking firms which will positively improve bank performance and stability. Low capital requirements could very likely lead to bank runs or failures. While increasing capital requirements might aid bank performance, opposing views have stressed on the impact of high capital requirements leading to moral hazard and high risk to banks (Fatimah, 2012).

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

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

Another goal of banking regulation is to protect consumer interests in various aspects of a banking relationship. The aforementioned regulatory objectives serve to protect consumers in a

number of ways, most notably through safeguarding their deposits and promoting competitive banking services. In addition to their responsibilities for depositor protection and monetary stability, bank regulatory agencies are also responsible for promoting an efficient, competitive banking environment and preventing monopolization of banking markets (Kenneth, 2000).

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

2.3 Types of Banking Regulations

There are no defined types of banking regulations that are acceptable by all literature but various researchers have come up with their own definitions and categories. Banks in one form or another have been subject to the following non exhaustive list of regulatory provisions:

1. Restrictions on branching and new entry; (Marcia et al. 2004; Bonn, 2005; James et al., 2012)
2. Restrictions on pricing (interest rate controls and other controls on prices or fees) and Competition; (Fatimah, 2012 ; Kenneth, 2000)
3. line-of-business restrictions and regulations on ownership linkages among financial Institutions; (Bonn, 2005; Fatimah, 2012 ; James et al., 2012)
4. Restrictions on the portfolio of assets that banks can hold (such as requirements to hold certain types of securities or requirements and/or not to hold other securities, including requirements not to hold the control of nonfinancial companies); (Bonn, 2005; Fatimah,2012)
5. Compulsory deposit insurance (or informal deposit insurance, in the form of an expectation that government will bail out depositors in the event of insolvency); (Marcia et al. 2004; Bonn, 2005 ; Kenneth, 2000 ; Fatimah,2012 ; James et al., 2012)
6. capital-adequacy requirements; (Kenneth, 2000; Fatimah,2012 ;James et al., 2012)
7. Reserve requirements (requirements to hold a certain quantity of the liabilities of the central bank);(Kenneth, 2000 ; Fatimah,2012)
8. Requirements to direct credit to favored sectors or enterprises (in the form of either formal rules, or informal government pressure); (Bonn, 2005 ; Marcia et al. 2004)
9. Expectations that, in the event of difficulty, banks will receive assistance in the form of "lender of last resort"; (Bonn, 2005)

10. Special rules concerning mergers (not always subject to a competition standard) or failing banks (e.g., liquidation, winding up, insolvency, composition or analogous proceedings in the banking sector); (Marcia et al. 2004 ; Fatimah,2012).

11. Other rules affecting cooperation within the banking sector (e.g., with respect to payment systems). (Bonn, 2005)

12. External auditing requirements (James et al., 2012)

13. Internal management/organizational requirements (James et al., 2012)

14. Provisioning & accounting/information disclosure requirements (James et al., 2012) Thus regulating banks can take different forms, such as deposit insurance scheme, capital requirements, activities restriction, mixing banking firms with nonbanking firms and many other regulatory methods. The most common methods/structures that have been studied are deposit insurance systems, activities restriction and capital requirements (Fatimah,20 12). However, we can group these regulations in to six broader types to enhance the performance and value of commercial banks and thus maintain the viability of the banking industry. These include:

(1) Entry regulations,

(2) Safety and soundness regulations,

(3) Credit allocation regulations,

(4) Consumer protection regulations,

(5) Monetary policy regulations. And

(6) Efficiency and competition regulations

2.3.1 Entry Regulations

Increasing or decreasing the cost of entry into a financial sector affects the performance and market value of firms already competing in that industry. Thus, the industries heavily protected against new entrants by high direct costs (e.g., through capital contribution) and high indirect costs (e.g., by restricting individuals who can establish commercial banks) of entry produce bigger profits for existing firms than those in which entry is relatively easy (Marcia et al., 2004).

2.3.2 Safety and Soundness Regulations

The most basic reason for regulation of banking is depositor protection because bank depositors may have more difficulty protecting their interests than customers of other types of businesses (Fatimah, 2012). To protect depositors and borrowers against the risk of commercial bank failure, regulators have developed layers of protective mechanisms. These mechanisms are intended to ensure the safety and soundness of the commercial banks and thus to maintain the credibility of the bank in the eyes of its borrowers and lenders (Bonn, 2005).

The first layer of protection is requirements encouraging commercial banks to diversify their assets. For example, banks are required not to make loans exceeding 10 percent of their own equity capital funds to any one company or borrower. The second layer of protection concerns the minimum level of capital or equity funds that the owners of a commercial bank need to contribute to the funding of its operations (Kenneth, 2000). The higher the proportion of capital contributed by owners, the greater the protection against insolvency risk to outside liability claimholders such as depositors.

The third layer of protection is the provision of guaranty funds. By protecting claimholders, when a commercial bank collapses and owners' equity or net worth is wiped out, these funds create a demand for regulation of the insured institutions to protect the funds' resource (James et al., 2012).

The fourth layer of regulation is monitoring and surveillance itself (Marcia et a. 2004). This involves on-site examination as well as a bank's production of accounting statements and reports on a timely basis for off-site evaluation (James et al., 2012).

While safety and soundness regulations help ensure that the performance and market value of a commercial bank is sufficient to maintain its viability as an ongoing concern, these regulations are not without costs for commercial banks. For example, regulators may require banks to have more equity capital than private owners believe is in their own best interests, thus, decreasing the market value of the bank. Similarly, producing the information requested by regulators is costly for commercial banks because it involves the time of managers, lawyers, and accountants. Again, the incurrence of these costs is sure to decrease the overall performance of the commercial banks or profitability (Fatimah, 2012). Pressure for such regulations arose as the public began making financial transactions through banks, and as businesses and individuals began holding a significant portion of their funds in banks. While depositors could conceivably make general judgments about the condition of banks, the task would still be difficult, costly, and occasionally prone to error. These facts, especially when combined with the history of depositor losses before

federal deposit insurance, explain much of the public pressure for banking regulation to protect depositors (Kenneth, 2000).

Banks are comprised of functions which are based on the terms of the balance sheet items - assets (loans) and liabilities (depositors). The banks gain assets by providing and issuing bank assets to borrowers and balancing the assets through liabilities provided by depositors. The depositors provide funds that are used for issuing loans to borrowers; as such, the stakeholders of the banks are the depositors. However, when a bank run or bank failure happens, the depositors lose their funds due to insolvency of the banks, thus, one of the regulatory structure is to provide deposit insurance to depositors (Marcia et al., 2004). Deposit insurance schemes or systems have been measured as a regulatory instrument for banks as it does ensure bank performance and development (Fatimah, 2012).

2.3.3 Credit Allocation Regulations

Credit allocation regulations support lending by the commercial bank to socially important sectors such as housing, farming and small businesses. These regulations may require a commercial bank to hold a minimum amount of assets in one particular sector of the economy or, alternatively, to set maximum interest rates, prices, or fees to subsidize certain sectors (Marcia et al., 2004). In few countries, central banks require banks to direct credit to favored sectors or enterprises in the form of either formal rules, or informal government pressure (Bonn, 2005).

2.3.4 Consumer Protection Regulations

Consumer protection regulations are intended to prevent discrimination and other unfair practices in lending. Consumer protection regulations are especially concerned about the assessment of unnecessary or unfair fees and charges for bank services as well as discrimination against commercial bank customers on the basis of age, race, sex, or income (Marcia et al., 2004).

The above mentioned regulatory objectives serve to protect consumers in a number of ways, most notably through safeguarding their deposits and promoting competitive banking services. However, there are many other ways consumers are protected in their banking activities. Kenneth, (2000) included additional forms of protection that have been implemented through a series of legislative acts passed over the past few decades. Several basic purposes can be found in this legislation. The first is to require financial institutions to provide their customers with a meaningful disclosure of deposit and credit terms. The main intent behind such disclosures is to give customers a basis for comparing and making informed choices among different institutions and financial instruments. The

disclosure acts also serve to protect borrowers from abusive practices and make them more aware of the costs and commitments in financial contracts. A second purpose of consumer protection legislation is to ensure equal treatment and equal access to credit among all financial customers. The equal treatment acts can be viewed as the financial industry's counterpart to civil rights legislation aimed at ensuring equal treatment in such areas as housing, employment, and education. Other purposes associated with consumer protection include promoting financial privacy and preventing problems and abusive practices during credit transactions, debt collections, and reporting of personal credit histories (James et al., 2012).

Fatimah (2012) argues that consumer protection objectives are generally consistent with good banking principles. In fact, credit and deposit disclosures and informed customers should be of most benefit to bankers offering competitive services. Likewise, equal and nondiscriminatory treatment of borrowers is necessary for any banker aiming to maximize profits.

2.3.5 Monetary Policy Regulations

Another motivation for regulation concerns the special role banks play in the transmission of monetary policy from the central bank to the rest of the economy. The problem is that the central bank directly controls only the quantity of notes and coins in the economy whereas the bulk of the money supply consists of deposits. In theory, a central bank can vary the quantity of cash or outside money and directly affect a bank's reserve position as well as the amount of loans and deposits it can create without formally regulating the bank's portfolio (Kenneth, 2000).

Apart from just being concerned about individual depositors, banking regulation must also seek to provide a stable framework for making payments. With the vast volume of transactions conducted every day by individuals and businesses, a safe and acceptable means of payment is critical to the health of an economy. In fact, it is hard to envision how a complex economic system could function and avoid serious disruptions if the multitude of daily transactions could not be completed with a high degree of certainty and safety. Ideally, bank regulation should thus keep fluctuations in business activity and problems at individual banks from interrupting the flow of transactions across the economy and threatening public confidence in the banking system (Kenneth, 2000).

Although deposit insurance has not been without cost or risk, it has provided stability in the payments system and given bank regulators greater flexibility in resolving individual bank problems. This role is further acknowledged through specific laws and regulations determining which institutions can offer deposit accounts, the level of reserves that must be held against these accounts,

and the various deposit reports that must be filed. Another policy aspect of monetary stability is supervision and regulation of the banking system (Bonn, 2005).

To provide stability, banking regulation should foster the development of strong banks with adequate liquidity and should discourage banking practices that might harm depositors and disrupt the payments system (Fatimah, 2012).

2.3.6 Efficiency, Competition and Restriction Regulations

Another aspect of a good banking system is that customers are provided quality services at competitive prices. One of the purposes of bank regulation, therefore, is to create a regulatory framework that encourages efficiency and competition and ensures an adequate level of banking services throughout the economy (Bonn, 2005).

Efficiency and competition are closely linked together. In a competitive banking system, banks must operate efficiently and utilize their resources wisely if they are to keep their customers and remain in business. Without such competition, individual banks might attempt to gain higher prices for their services by restricting output or colluding with other banks. Competition is also a driving force in keeping banks innovative in their operations and in designing new services for customers (Kenneth, 2000).

A further consideration is that for resources throughout the economy to flow to activities and places where they are of greatest value, competitive standards should not differ significantly across banking markets or between banking and other industries. Thus it is imperative that the rigorous concern for the pursuit of competition policies that has been a key element of past policies toward the financial services industry be continued. Basic principles of competition policy should be applied in financial services as should competition law, subject only to clearly justified exceptions needed for prudential reasons or other overriding public policy objectives (Bonn, 2005).

The promotion of an efficient and competitive banking system carries a number of implications for regulation. Competition and efficiency depend on the number of banks operating in a market, the freedom of other banks to enter and compete, and the ability of banks to achieve an appropriate size for serving their customers. Banking regulation must also take an approach that does not needlessly restrict activities of commercial banks, place them at a competitive disadvantage with less regulated firms, or hinder the ability of banks to serve their customers' financial needs. Finally, regulation should foster a banking system that can adapt and evolve in response to changing economic conditions and technological advances (Kenneth, 2000).

Another bank regulation issue is activity restrictions. Kremmling (2011) explained that there are four fundamental areas of activity restrictions, which are: securities dealings, insurance business, real estate, and non-financial firms dealing. Theoretically, when banking firms deal with nonbanking activities, it will aid the regulatory framework of the bank by providing more transparency and as such, banks will not be able to take high risk, compared to banks with activity restrictions. However, most studies have found that banking firms with less activity restrictions are not transparent in their dealings and sometimes, do not aid bank performance (Kremmling, 2011).

Moreover, during the recent financial crisis in 2008, banks with activity restrictions were unable to have high risk profile compared to banking firms with dealings from real estate, securitization and Insurance firms (Fatimah, 2012).

Yet the special role that banks play in the economic system implies that banks should be regulated and supervised not only to protect investors and consumers but also to ensure systemic stability. More specifically, bank regulations exist for safeguarding the industry against systemic risk, protecting consumers from excessive prices or opportunistic behavior and finally to achieve some social objectives, including stability (Llewellyn, 1999). Last but not least, regulation is important for the efficiency of the banking industry. In this respect, it is noticeable that whenever regulation is implemented with the aim of restricting or limiting banking activities, the banks' conduct of business and the efficiency with which they operate will be affected. This in turn could induce banks to engage in riskier activities and try to invest in ways to circumvent regulation. According to some studies, it could even ultimately affect economic growth (Georgios et al., 2010).

2.4 Principles for Banking Regulation

A striking feature of banking regulation has been the mixing up of conflicting objectives. Concerns for the safety and soundness of the system are often diluted by attempts to mobilize bank funding for worthy purposes, concern for the global competitiveness of a nation's banks, and the desire to use the industry's professional risk management. Such mixing has led to flawed regulation. There has also been a lack of clarity about what regulation is actually doing, and whether it is cost effective in addressing its objectives. The main concepts in the principles involve price stability, protection of small investors and prevention of market misconduct (Kenneth, 2000). Just to summarize the various theoretical aspects in the principles of good banking regulation, four points are raised hereafter.

2.4.1 Safety and Soundness Focus

Banking regulation should have an unambiguous objective to safeguard the safety and soundness of the financial system in the public's best interest. The rationale for regulating banks and other financial institutions is that their failures can have a significant negative impact on the rest of the financial system and on the overall economy. One institution's problems can spill over to other institutions, for example through contractual links, through fire sales that cause asset prices to go sharply down, through information contagion taking one institution's problems as an indicator of the future of others (Fatimah, 2012). If a significant part of the banking system is affected, the financial infrastructure of the overall economy may collapse, with potentially disastrous consequences for economic activity. The worst consequences may be avoided through government intervention, but this can be extremely costly to taxpayers. These considerations indicate that the public interest in bank safety goes significantly beyond any interests banks themselves have in managing their risk. The sometimes high quality of bank risk management must not divert attention from recognizing the fact that the public and private interests regarding bank safety are not the same, and might be even in conflict.

One of the studies justifying the actual Basel III "numbers" (Basel, 2010) states: "The regulatory minimum is the amount of capital needed to be regarded as a viable going concern by creditors and counterparties." By this criterion, capital regulation would not be necessary: A bank that fails this criterion would not be viable because creditors and counterparties would refuse to deal with it. Good regulation should focus on the negative impact that undercapitalized banks impose on the rest of the financial system and on society when they are distressed. It is this external or "polluting" impact that the regulation should seek to limit (Anat et al., 2011).

2.4.2 Cost Effectiveness

Regulation should focus on measures that are cost effective and that do not require that supervisors know more than is feasible for them to know. This principle militates against regulations that interfere in the details of what banks do. Since supervisors are not sufficiently steeped in these details, such interference would be ineffective and costly. However, structural changes meant to reduce the size and complexity of large global banks without interfering in day to day activities can be useful for achieving the regulatory objectives (Onaran, 2011).

Cost-effectiveness considerations strongly favor capital requirements relative to other approaches.

While liquidity and reserve requirements can help banks satisfy sudden withdrawals of funds by short-term creditors, they have a significant opportunity cost because they prevent funds from being used for lending. Moreover, a bank with a lot of equity that can absorb losses is likely to avert liquidity and funding difficulties, because short-term creditors have more confidence in its solvency. If solvency is not a concern, providing occasional liquidity support does not impose much cost on taxpayers. Bankers and others argue against capital regulation claiming that "equity is expensive." From the perspective of regulation, however, this objection is invalid (Kenneth, 2000).

Increases in equity funding would raise the banks' private funding costs only because government subsidies to debt would be reduced (Admati et al., 2010). Such subsidies are due to explicit or implicit guarantees and to the preferential tax treatment of debt. The private costs to the banks from reducing these subsidies would be matched and surpassed by benefits to the taxpayers and the economy. Better capitalized banks are able to absorb more losses without needing additional funds and without contracting their lending due to financial distress and debt overhang. Debt overhang also colors bankers' reaction to demands for recapitalization and to higher equity requirements. If recapitalization makes a bank's debt safer, this comes partly at the expense of existing shareholders, who might see the loss of subsidies or the need to bear more downside risks (rather than leave them to creditors or taxpayers) reflected in a lower stock price. This cost to shareholders, however, is outmatched by the benefits to debt holders, taxpayers, and the economy (Anat et al., 2011).

An inability to raise equity in private markets can flag a solvency concern. In this case authorities should consider whether the bank is viable or a "zombie" that should go into resolution (Onaran, 2011).

2.4.3 Addressing Distorted Incentives

It is desirable to reduce the conflict of interests between bank managers and the public with respect to risk taking by banks. Bankers seldom, if ever, face significant negative consequences when they take excessive risks that endanger the bank and the broader economy. When compensation and bonuses depend on short term performance and on measures that encourage risk taking, bankers tend to stick to ways and means that would maximize their compensation even if the bank and the economy suffer losses as a result of their investments (James et al., 2012). Regulating pay structures so that cash bonus payments are deferred and can be clawed back if losses occur is a minimum. Tax subsidies of debt encourage excessive borrowing, which creates an additional conflict between banks' preferences regarding their funding and what is good for the public. This interferes with good banking regulation. It would be highly desirable that tax codes change to equalize the treatment of

equity relative to debt funding, or even encourage more equity at least for financial institutions (Anat et al., 2011).

2.5 Characteristics of Good Banking Regulation

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

2.5.1 Banking Regulations and Government Policies Discrimination

Discriminatory intervention in banking regulation, except in cases of obvious distortions, is not desirable for several reasons. In a free society, market forces should be free to allocate credit and resources. Rules that interfere with the market are inconsistent with this principle and may have unforeseen side effects (Marcia et al., 2004). Any such intervention in banking is often likely to be futile, or nearly so, since borrowers and other customers can frequently shift their business into "favored" areas or switch to less regulated entities. Consequently, banking regulation must be evenhanded in its effects on various groups. Regulation should not give preferential treatment or discriminate financial institutions or to their customers, and it should not favor one size or type of financial institution over another. For example, banks should not be protected from the competition of other institutions nor other institutions from bank competition. In the interest of a competitive and efficient banking system, good bank regulation should have minimal effects on credit and resource allocation decisions and should not encourage costly efforts at circumvention (Kenneth, 2000).

For good regulation to be enacted, policy makers must know what it looks like and be willing to go through the requisite political process. However, good regulation has been elusive, partly because banks and governments have developed "corruptive dependencies" (Lessig, 2011). When political considerations enter the implementation of beneficial regulation improperly, the promotion of the public interest is compromised. To avoid this outcome, it is desirable that banking supervision should be immune from interference by the government. Subordination of supervision to the government has traditionally been justified on the grounds that taxpayer must foot the bill if banks run into difficulties. However, the symbiosis of banks and government with banks funding government favored projects and governments bailing out banks corrupts the governance of both. Supervisory independence could perhaps break the nexus. Even then, capture of regulators or supervisors by revolving-door recruitment or by the greater sophistication and information of bank managers remains a serious concern (Lessig, 2011).

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

2.5.2 Banking Regulation Must Keep Banks From Failing

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

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

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

2.5.3 Bank Regulations Substitute Government Decisions

Kenneth, (2000) argues that bank regulations are partly the substitute of the political environment and should be in place carefully so as not to put too much burden in the industry. When bank examiners identify problems at banks, they may offer advice on how the problems could be corrected. The examiner is not in a position, however, to determine policy at a bank or to establish particular lending and investment practices. Bank supervisors can often judge a banker's decisions only in retrospect. Credit decisions, for instance, might be based partly on characteristics of individual borrowers that only the lending officer understands. Also, a bank supervisor or examiner who spends only a few days or weeks in a bank cannot gather all the information available to the banker or fully comprehend all the policy decisions made in the bank. In meeting their own objectives, bank examiners and regulators must therefore be careful not to hinder banks as they serve the needs of their customers and the overall economy (Fotios et al., 2008).

2.6 Effects of Banking Regulation

2.6.1 Banking Regulation and Performance

Different studies on bank regulation provided the outcomes that relate bank regulation to bank performance and bank stability. Kremmling (2011) sought to find out if regulating financial institutions during financial crisis will influence bank performance by taking into account, deposit insurance schemes, capital regulation and activity restrictions. His results showed that capital requirements negatively influenced the level and change in loan loss provisions during financial crisis; as such, banks with high or low capital ratios still succumbed to bank runs during financial crisis. Activity restrictions raised the risk profile of banks severely during financial crisis; this is inevitable as banks with numerous activities from nonfinancial firms will try to gain returns from loan provisions which will be difficult to receive during financial crisis. Thus, Kremmling's (2011) findings asserted that banks' complexity can have adverse effect on regulation, which directly affects performance and stability. Barth, (2004) tested bank regulation in a cross-country evaluation of banks by looking at the various regulatory indicators and variables that can possibly affect bank performance in different countries. These three researchers have studied bank regulation individually and co-authored books on bank regulation. Their seminal works have provided more empirical studies on bank regulation, bank performance, bank development and corporate governance based on cross s - country emphasis. In view of this, Barth empirically provided outcomes on bank regulation and supervision and how it affects bank development and performance. Based on their results from their studies, activity restriction was found to be negatively related to bank development and

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

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

2.6.2 Banking Regulation and Risk

Bank regulation and supervision has been the subject of much recent debate and attention, due in large part to the global financial crisis that started in the late 2000s. A number of studies have pointed to weaknesses in regulation and supervision as one of the factors leading to the crisis. Not only did the crisis raise important questions on the appropriateness of the regulatory and supervisory approaches pursued in the run-up to the crisis, but also it prompted regulators to consider important changes in regulation and supervision. There must be a clear and realistic account of what regulatory measures can achieve and how they promote the objective of the regulation, taking account of systemic effects. Restrictions on banks' activities can add risks and generate inefficiencies if they are not properly designed. For example, if banks are restricted to investments in a particular region, this limits their ability to reduce risk through diversification. If reserves or equity capital are needed to satisfy regulatory requirements, they cannot actually serve as buffers (Goodhart, 2010). With capital regulation, this paradox generates a pro-cyclical mechanism where, after losses that reduce a bank's equity, assets are sold to maintain the required capital ratio, creating downward pressure on asset prices, with potentially negative effects on other banks. If regulation provides incentives for banks to shift risks to third parties, attention must be paid to the ability of counterparties to bear the risk. Overlooking this can give an illusion that risks are gone when they are in fact lurking elsewhere in the system (Anat et al., 2011).

Liquidity regulation should recognize that liquidity is not intrinsic to assets but may change abruptly. Treating all government bonds and even certain privately issued bonds as perfectly safe and liquid is

problematic (Goodhart, 2010). To summarize, good banking regulation focuses on promoting the public interest in financial stability, gives regulators cost effective tools, and creates an environment where regulators and supervisors have both the ability and the will to use the tools to implement and enforce the regulation (Anat et al., 2011).

2.7 Review of Empirical Literature

2.7.1 Banking Regulation and Bank Performance

While most analysts would argue for the need to enforce regulations, the question remains: What is the right benchmark to enforce regulations without jeopardizing the ability of banks to service the economy? To properly address this question, it has become necessary to thoroughly analyze the effect of banking regulations on performance.

Impact of Banking Regulation on Banks Performance in Ghana

By common consent, Ghana's banking sector had performed poorly in the past, but from the late

1980s various reforms (institutional, legal and policy reforms) have been introduced which were intended to strengthen the sector. The financial sector reforms have largely succeeded in terms of enhancing financial development and the expansion in size and diversity of the banking sector. The enactment of the new Banking Law brought more discipline to the banking sector. The Bank of Ghana with its greater power has improved its regulatory activities as compared with the pre-financial reform period. Nevertheless, studies found some uneasiness in the banking sector about the Bank of Ghana's tardiness in reacting to specific breaches of the law by some financial institutions.

Since the introduction of the financial sector reforms, banks have derived considerable profit from their investments in government securities and Bank of Ghana securities. The share of private sector deposits in the banking sector portfolio declined between the two periods. The performance of the state-owned banks was found to be below that of the private banks in terms of profitability, intermediation and operations.

It is also revealed that specific policy reforms which enhanced bank performance were interest-rate liberalization, decontrol of credit allocation and the removal of non-performing assets to the Non- Performing Assets Recovery Trust. The banks identified the major measures that depressed their performance as the unified cash reserve requirement on deposits and the generally high level of reserve requirements. This tight stance was part of the fight against inflation which was a serious problem in the 1990-96 periods. On

the whole, bankers felt that the reforms had created a better environment for the development of the banking sector (Antwi-Asare and Addison, 2000).

Impact of Banking Regulation on Banks Performance in Turkey

Turkish banking industry has an oligopolistic structure with strictly limited entry and exit. These restrictions make the banking sector more prone to crises. Banks fragility increases with a regulator that aims to control the industry more strictly in order to eliminate the negative consequences of recent crises. The Turkish experience is exemplary in this connection. BRSA limits entry into the market and impose very strict restrictions on banks in some respects.

In this respect, regulatory structure that increases commitment and sees regulations as a contract between the state and players, both banks and consumers, may contribute positively to banking performance and increase efficiency. The regulator binds itself by its laws and should not change them abruptly at its discretion. To this end, both the regulator and banks should provide accurate information about their activities. Regulatory commitment encourage player in the market to turn to market instead of the regulator in order to solve their problems. Opening the door to private litigation increases efficiency in the industry.

2.7.2 B a n k i n g Regulation a n d Liquidity Risk

Liquidity regulations for banks can be justified, like solvency regulations, by two different motives: one is to limit the risk and the extent of individual bank failures, the other is to limit the need for massive liquidity injections by the Central Bank in case of a macroeconomic shock. In normal times, the pool of marketable securities that can provide liquidity to the banks is substantial (Jean-Charles, 2008). Challenge. Similarly, some form of cost-benefit analysis of lender of last resort interventions would be useful in order to evaluate the exact costs of liquidity provision by the Central Bank, and the social cost of excessive liquidity (Jean-Charles, 2008).

Impact of Banking Regulation on Banks Liquidity in Nigeria

A key activity of the CBN is liquidity management. According to the CBN Act of 1958 and its subsequent amendments, the CBN is responsible for implementing restrictive or expansionary monetary policies in order to achieve price stability, influence interest rates, manage the growth in credit to the domestic economy and maintain the international

value of the local currency. It manages Banking Sector liquidity by supplying or withdrawing liquidity from the Banking Sector which it deems to be consistent with a desired level of short-term interest rates or reserve money. It relies on the daily assessment of the liquidity conditions in the banking system, so as to determine its liquidity needs and thus, the volume of liquidity to inject or withdraw from the economy (Yesuf, 2010). A well-funded Banking Sector is essential in order to maintain financial system stability and confidence in the economy. In Nigerian Banking Sector only liquidity ratio, monetary policy rate and lagged loan-to-deposit ratio are significant for predicting Banking Sector liquidity. Results suggest that during periods of economic or financial crises, deposit money banks are significantly illiquid relative to benchmarks, and getting liquidity monetary policies right during these periods is crucial in ensuring the survival of the Banking Sector (Samuel, 2011). Taking the above theoretical and empirical literatures presented this study examines Banking Regulation in Ethiopia and its impacts on Profitability and Liquidity gathering bankers' opinion as well as using panel data econometric model.

Impact of Banking Regulation on Banks Liquidity in 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 opt 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.

EMPERICAL STUDY IN ETHIOAN

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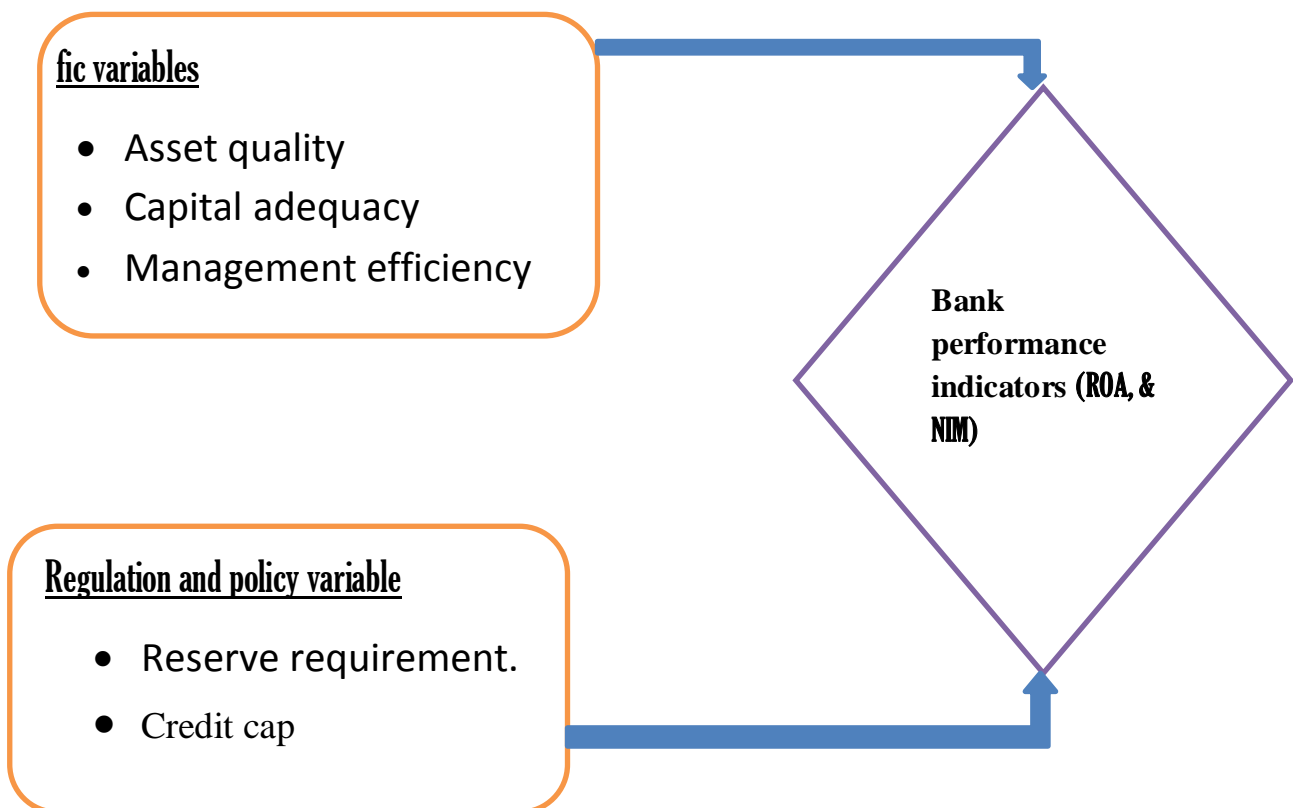
Analyze the effect of regulatory actions taken by the National Bank of Ethiopia on the profitability of six private commercial banks in Ethiopia. For our case at hand three regulatory variables affecting banks performance were chosen and analyzed. The panel data was used for a sample of six private commercial banks in Ethiopia from 2001 to 2014 and though the credit cap was already removed the result from the regression shows it had a negative impact performance of private banks. Because such regulatory variables increase cost of intermediation which creates the ultimate burden on customers, NBE has to consider the effect of such policy on banks profitability and their overall performance. On the other hand banks need to increase operating efficiency to trade off such effects and to serve their customers as usual to create long-lasting relationship when such kinds of regulations are imposed (Meron Tekalign 2017).

The impact of regulatory actions taken by the National Bank of Ethiopia on the private commercial banks. Three regulatory variables affecting banks performance were chosen and analyzed. The panel data was used for a sample of six private commercial banks in Ethiopia from 2004 to 2013 and Regulatory bodies need to consider the far-reaching effect of increase in cost of intermediation as a result of such frequent regulatory changes. Because, banks tend to transfer such costs to their customer which in turn increases cost of getting finance. The higher the cost of finance, the higher its effect on investment would be. Due to this the country at large would be affected. If investment becomes worse because of increase in cost of finance, production and employment opportunity will be affected negatively (Eden Kebede 2014).

2.8. Conceptual Framework

The conceptual frame work which describes the relationship between bank liquidity with bank Specific and macroeconomic determinants based on the theoretical and empirical perspectives were formulated as follows:

Fig. 2.1 Relation between bank performance and regulation



Source: National Bank of Ethiopia and MoFED

CHAPTER THREE: RESEARCH METHODOLOGY

3. Introduction

In this chapter, researcher would brief about the research design and methodology. The researcher adapts secondary data from different resources. The data are collected from annual reports of each bank for regulation factors of National Bank of Ethiopia. Method employed to carry out this research project were E-view 9. This chapter consists of six sections that include: research design, data collection method, data analysis, and data processing.

3.1. Research Design

A research design is a plan or a blueprint of how to design conducting the research. The major purpose of this research is to assess the impacts of national bank supervision and private banks. This is mainly an explanatory study attempting to determine the effect of regulation on bank performance. The quantitative information will be gathered from the selected banks to asses which are opportunities and which are challenges and to provide possible recommendations, the researcher will be used secondary data as a source of data collection. The quantitative approach will be applied to evaluate the financial position of banks specially those parts that are affected by the banking regulations.

3.2 Data Collection Methods

The researcher was review journal articles and annual reports pertaining to the commercial banks in Ethiopia. Data collect from secondary resources. The secondary data that use in this paper includes nineteen years annual reports of six private commercial banks from year 2000 to year 2018 periods from National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development/ MOFEC/.

3.3. Target Population

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

3.3. Sample size and Sampling Techniques

Scholars do not agree on the exact proportion of the accessible population that should form the sample size. Studies suggest that in descriptive studies ten percent of the survey population is representative enough to generalize the characteristics being observed (Lelisa, 2015). In this study however 6 private banks that are over 38 percent of the accessible population (private banks) constituted the sample size .

The sampling for the quantitative analysis will be used is purposive since the researcher will be used cross-sectional and at the same time balanced panel data for the private banks using the peers. That is all the first six private banks will be selected while three were selected from the second peer. The third peer group which includes the newly opened banks is excluded due to inadequate data availability.

Figure3.1 private bank age

No	Name of modern commercial banks in Ethiopia	Year of established	Age
1	Awash International Bank	1994	23
2	Dashen Bank	1995	22
3	Bank of Abyssinia	1996	21
4	Wegagen Bank	1997	20
6	United Bank	1998	19
6	Nib International Bank	1999	18

3.4. Sources of Data

The researcher was used secondary data as a source of data. Secondary data was collected from annual reports and publications of the banks. The secondary data is used to obtain a verification of the attitudes whether the banking regulations and supervision had a positive or negative impact.

3.5. Methods of Data Analysis

After the data were collected, it was organized and financial ratios were computed for each bank of each bank specific variables. And then, the next step was analyzing and interpreting them accordingly to achieve the stated objectives. In this study two type of statistical analysis was used to test the proposed hypotheses. These are descriptive statistics and inferential statistics/multiple regression analysis to see the effect (relationship) of explanatory or independent variables on the dependent variable. The descriptive statistics of both dependent and independent variables were calculated over the sampled periods. This helps to convert the raw data in to a more meaning full form which enables the researcher to understand the ideas clearly. And then interpret with statistical description including standard deviation, mean, and minimum & maximum. Then, correlation analyses between dependent and independent variables were made and finally a multiple linear regression and t-test analysis was used to determine the relative importance of each independent variable in influencing performance of private commercial banks in Ethiopia. To conduct this, the researcher uses statistical tools E-views 9 software. The researcher has also performed diagnostic tests to ensure whether the assumptions of the classical linear regression model (CLRM) are violated or not.

3.6. Variable Definition

This study is focused on to identifying the impact of national bank regulation on performance of private commercial bank in Ethiopia, through testing the hypotheses regarding to the relationships between performance of banks and bank specific, regulation and macroeconomic factors affecting it. It is apparent that the most significant task is to select the appropriate explanatory variables. As it was discussed in the literature review part, some determinant factors which have positive relation with performance of bank in one country may have negative relation with other country and some determinant factors which have significant impact on performance of bank in one country may not have significant impact on performance of bank in another country. Though various bank specific, and regulation variables were conducted in the previous studies made worldwide, in this study some variables (bank specific, & regulation and)were included.

3.6.1. Dependent Variable

Return on Asset (ROA)

As the study of Golin (2001) the ROA has emerged as key ratio for the evaluation of bank financial performances and has become the most common measure of bank profitability. (Yuqi Li (2006), Abebaw and Depaack (2011), Berger (1995), IndranarainRamlall (2009), Imad. (2011), Tobias and Themba (2011), Belayneh (2011), and Athanasoglou et al. (2008)) are some researchers who used ROA as the measurements of banks financial performance. The ability of a bank's management to generate profits from the bank's assets can be reflected by ROA. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues, although it might be biased due to off-balance-sheet activities. Average assets were used in this study, in order to capture any differences that occurred in assets during the fiscal year. ROA can be calculated as:

$$\text{Return on Assets} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

This is probably the most important single ratio in comparing the efficiency and operating performance of banks as it indicates the returns generated from the assets that bank owns.

Net Interest Margin (NIM):

Another commonly watched measure of bank profitability is Net Interest Margin. It is described as a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders (for example, depositors), relative to the amount of their (interest earning) assets (Ongore&Kussa, 2013). If a bank manager has done a good job of asset and liability managementsuch that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. It is usually expressed as a percentage of what the financial institution earns on loans in a specific time period minus the interest paid on borrowed funds divided by the amount of total loans and advances.

$$\text{Net Interest Margin} = \frac{\text{Net Interest Income}}{\text{Total Loans and Advance}}$$

However, there are divergent views among scholars on the superiority of one indicator over the others as a good measure of profitability. Depending on the aforementioned facts Return on Assets (ROA) was used in this study.

3.6.2 Independent variabl

A. Bank specific variables

As explained above, the internal factors are bank specific variables which influence the profitability of specific bank. These factors are within the scope of the bank to manipulate them and that they differ from bank to bank. These include capital size, size of deposit liabilities, size and composition of credit portfolio, interest rate policy, labor productivity, and state of information technology, risk level, management quality, bank size, ownership and the like.

Capital Adequacy of Banks (CA)

Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Capital of a bank includes paid up capital, undistributed profit (retained earnings), legal reserve or other reserves and surplus fund which are kept aside for contingencies. Regulators in most countries define and monitor CAP to protect depositors, thereby maintaining confidence in the banking system. Though capital adequacy ratio is measured by the ratio of total capital to risk weight asset, in some literatures it can be also measured by the ratio of capital to total asset and then in this study, the proxy for capital adequacy is the ratio of total capital of the bank to total asset of the bank. This ratio measures how much of bank's asset are funded with owner's funds and is a proxy for the capital adequacy of a bank by estimating the ability to absorb losses. As it is discussed in the literature review part, there are two opposing theoretical views regarding to the relationship between banks liquidity and capital adequacy. Some previous studies such as the "financial fragility-crowding out" theories predicts that higher capital reduces liquidity creation (Diamond and Rajan (2000, 2001) and hence, there is negative relationship between capital adequacy and bank liquidity whereas, Al-Khouri (2012) found that, bank capital increases bank liquidity through its ability to absorb risk and thus the higher is the bank's capital ratio, the higher is its liquidity creation. This study considered there is a positive relationship between capital adequacy & liquidity and draws the following hypothesis.

H₁: Capital adequacy has positive effect on commercial banks performance.

Total operating expense (TOE) or management efficiency.

Management Efficiency is one of the key internal factors that determine the bank profitability. It is represented by different financial ratios like total asset growth, loan growth rate and earnings growth rate. Yet, it is one of the complexes subject to capture with financial ratios. Moreover, operational efficiency in managing the operating expenses is another dimension for management quality. The performance of management is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems,

quality of staff, and others. Yet, some financial ratios of the financial statements act as a proxy for management efficiency. The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios. One of this ratios used to measure management quality is operating profit to income ratio (Rahman et al. in Ilhomovich, 2009; Sangmi and Nazir, 2010). The higher the operating profits to total income (revenue) the more the efficient management is in terms of operational efficiency and income generation. The other important ratio is that proxy management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. Management quality in this regard, determines the level of operating expenses and in turn affects profitability (Athanasoglou et al. 2005).

H2. *Total operating expense has positive effect on commercial banks performance.*

Asset Quality

Asset Quality is taken as one of the influencing factors of banks performance. It determines the quality of bank loans. Good asset quality is essential for the build-up of bank performance as this enhances the banks' capability to fulfill its obligations on the liability side in a time us manner. The study of Assfaw (2018) and Melese (2015) measured it by the ratio of provisions of a loan to total loan provided and the lower the loan loss provision to total loan ratio indicate the quality of the asset of the bank is relatively better than the other banks. In the study of Sudirman (2015), asset quality has a positive effect on liquidity of banks, i.e. the greater asset quality ratio is, the greater performance ratio is or the worse asset quality of a bankis the more liquid the bank will be. But, there is a negative relationship between asset qualitymeasured by non-performing loan/total loan and performance. This means the growth of nonperforming loan reduces the level of Performance of banks (Mazreku, Morina, Misiri,Spiteri,&Grima, 2019; Tibebu, 2019).

H3: *Asset quality has positive impact on commercial banks performance.*

Regulatory variables

Required reserve (RR)

Is a portion of bank's asset in National Bank of Ethiopia with no interest and it will be proxies by ratio of Reserve Account in NBE to total asset The researcher expects that it will have a negative effect on performance.

H4: Required reserve has negative and significant impact on bank's performance.

Credit Cap:

This refers a credit ceiling set by NBE. Since it is difficult to quantify the researcher has try to see its effect on performance through considering as dummy variable. (1 for time periods where credit cap was enforced 0 otherwise). The researcher expects that its effect will be similar with Reserve Requirement and NBE

H5: credit cap has a negative and significant effect on performance

Table: 3.2. Name of the variables, measurement, Symbol and their expected relationship

Variables	Measurement	Expected sign
Dependent		
Return on asset	etProfitAfterTaxTotalAssets	NA
Net interest margin	NetInterestIncome TO TotalLoansandAdvance	NA
Independent		
Capital Adequacy of Banks (CAP)	Share of equity on total asset	+
Management efficiency	operating profit to income ratio	+
Asset Quality	loan losses provisions to total loans ratio	+
Credit cap	log of investment in total loan	-
Required reserve	ratio of Reserve Account in NBE to total asset	-

3.7. Econometric models

The quantitative methods of analysis involved were descriptive and inferential statistical analysis. These techniques describe variables in the model and also to examine the relationships between regulation and bank performance. In addition, before running panel data model, appropriate diagnostic tests were conducted. the impact of regulatory measures on banks performance, the significant factors affecting banks performance were used as the

representatives for the variation in performance. Therefore, the following regression models were used to see the effect of regulatory variables, while controlling bank specific, regulation and macroeconomic variables on banks performance. Thus, the general panel regression model was as follows:

$$I_{it} = \alpha + \beta_1 B_{it} + \beta_2 S_{it} + \beta_3 M_{it} + \epsilon_{it}$$

Where the subscripts i and t represent: respectively individual banks, and the time variable α is a constant term, β is coefficients for the respective variables, the dependent variable I represents bank interest return on asset, and margins, B , S , and M are respectively vectors of bank-specific variables, market structure variables and macroeconomic variables; ϵ represents the residuals (error term). Accordingly, the detail model is specified below.

Model 1 $ROA = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 MGE + \beta_4 CC + \beta_5 RR + \epsilon$

Model 3 $NIM = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 MGE + \beta_4 CC + \beta_5 RR + \epsilon$

Where;

- ROA is return on assets
- NIM is net interest margin
- RR is reserve requirement
- CA is capital adequacy ratio
- AQ Asset Quality
- MGE management efficiency
- CC Credit cap
- ROA, and NIM, to measure bank performance.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

To meet the broad research objective and to test research hypotheses the researcher used the methodologies discussed in the preceding chapter. In this chapter the collected data were presented and important findings of correlation and regression analysis were discussed. The current chapter has five sections. Under the first section (section 4.1.) the descriptive statistics of the dependent and independent variables were presented followed by correlation analysis under section 4.2. Section 4.3 presents the test for the classical liner regression model/CLRM. Then, the results of the regression analysis were presented under section 4.4. Finally, discussions for the results of the regression analysis were made under section 4.5.

4.1 Descriptive statistics

This section reports mean, maximum, minimum, standard deviation and number of observations for each variable used in this study. The banks that are included in this study were all commercial banks those operate before 2000. The data for this study was drawn from Six private commercial banks for 2000 to 2018 periods. To this end, 114 observations were analyzed to examine Impact of National Bank supervision and Regulation on Banks Performance of Private Banks of Ethiopia.

The descriptive statistics for the dependent and independent variables are presented below. The dependent variables are Banks Performance measured by Return on asset (ROA) net income to total assets ratio and net interest margin (NIM) **NetInterestIncome** to **TotalLoansandAdvancemeasured**. Table 4.1 below present the descriptive statistics of return on assets (ROA), Net Interest income (NIM), management efficiency ratio (MGE), capital adequacy ratio (CA), asset quality(AQ),reserve requirement(RR),and Credit cap(CC)..

Table 4.1 Descriptive statistics of the dependent and independent variables.

variable	observation	mean	Standard Deviation	Minimum	Maximum
ROA	114	0.2	0.07	0.08	0.36
NIM	114	0.08	0.02	0.04	0.12
RR	114	0.33	0.37	-0.1	2.6
MGE	114	0.03	0.18	0.0	0.09

CA	114	0.15	0.04	0.06	0.3
CC	114	8.3	1.32	4.9	10.4
AQ	114	0.03	0.01	0.01	0.04

Source: own computation from NBE via Eview.9

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables. The profitability and cost of intermediation measurements ROA and NIM indicates that the Ethiopian private commercial banks have an average positive profit over past decade. From the total of 114 observations the mean of ROA and NIM equals 0.2 and 0.08 with a minimum of 0.08 and 0.36 respectively, that means the most profitable bank of the sample banks earned 0.36 cents of net income from a single birr of asset investment in line with this have the margin of 0.08 and the maximum earn of 0.12 margin and 0.4 cents on each birr of asset investment. And also the above table reveals that ROA and NIM are distributed around the mean, the variation of ROA and NIM is very low.

Another policy measure used by the NBE to control inflation pressure as well as money circulation in the banking system is the reserve requirement. The average primary reserve requirement during the study period is around 0.33 with a notable variation depending on the inflation pressure. The reserve requirement historically goes to 2.6 of the deposit and remained above -0.1 in all period considered. The primary reserve is not withdraw able and attracts nil interest payments. Trend wise, the reserve requirement is mostly stable but sometimes the variation appears significant.

As description of Managerial efficiency has the moderate mean value of 0.03, and the maximum of 0.09 which shows the lowest variability, the standard deviation value of 0.00 which is the lowest variability as compared to other explanatory variables. The mean value indicates that private commercial banks are efficient because their operating expense per unit of operating return is low, which means for 0.03 birr operating expense there is one birr operating income.

As description Capital adequacy also measured by total equity divided by total assets presents a minimum of 0.03 and maximum of 0.3 with a mean value and standard deviation of 0.04 and respectively. This indicates that CAP for the sample commercial banks in Ethiopia during study period was above the minimum requirement, which is 8%. The standard deviation for CAP was

0.03 revealing the level of dispersion towards the mean among banks in Ethiopia. For the Credit Cap the mean is 8.3, maximum 10.4, minimum 4.9 and standard deviation is 1.32.

As description the above table, the average (mean) value asset quality (AQ) was 0.03 while the maximum value of asset quality was 0.04 while the minimum was 0.01 it has a standard deviation of 0.01.

4.2. Correlation analysis

Table 4.2 Correlation matrix among the dependent and independent variables.

	ROA	NIM	RR	MGE	CA	CC	AQ
ROA	1		-0.049	0.46	0.043	-0.56	0.077
NIM		1	-0.25	0.31	0.24	-0.77	0.29

Source: own computation from NBE via Eview.9

According to Brooks (2008), if y and x are correlated, it means that y and x are being treated in a completely symmetrical manner. Thus, it is not implied that changes in x cause changes in y , or indeed that changes in y cause changes in x rather, it is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient. Output of correlation analysis (Table 4.2) represented in matrix of pair-wise correlation. This study has calculated correlation of dependent variables with regulatory variables. It was found that ROA is negatively correlated with reserve requirement, , and credit cap with a correlation coefficient of -0.049 and -0.56 respectively. Table 4.2 also shows that Net Interest Margin (NIM) is negatively correlated with, reserve requirement, and credit cap, with a correlation coefficient of -0.25, and-0.77 respectively. Nevertheless, the relationship among most explanatory variables is significant to provide confidence that there is a genuine relationship between the variables in the model. For instance reserve requirement and credit cap has a significant negative relationship with net interest margin and the left positively related with the ROA and NIM. Therefore, an increase in reserve requirement and credit cap which decrease ROA and NIM rather positive relation management efficiency, capital adequacy and asset quality with ROA&NIM. These mean when management efficiency, capital adequacy and asset quality increase the same time increase ROA &NIM.

4.3. Testing assumptions of classical linear regression model (CLRM)

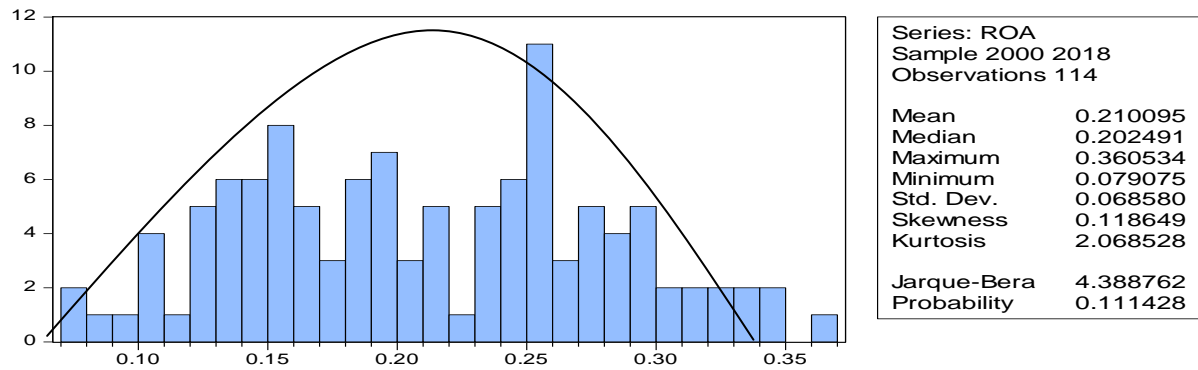
In the descriptive statistics part, the study shows the mean, standard deviation, minimum and maximum values of the dependent and explanatory variables including the number of observation

for each variable during the period under consideration, that is from 2000-2018. However, this section provides tests for the classical linear regression model (CLRM) assumptions such as normality, heteroscedasticity, autocorrelation and multicollinearity tests. The linearity of the parameter is assumed since the model applies linear ordinary least square (OLS). The objective of the model is to predict the strength and direction of association among the dependent and independent variables. Thus, in order to maintain the validity and robustness of the regression result of the research in CLRM, it is better to satisfy basic assumptions of CLRM. As noted by Brooks (2008), when these assumptions are satisfied, it is considered as all available information is used in the model. However, if these assumptions are violated, there will be data that left out of the model. Accordingly, before applying the model for testing the significance of the slopes and analyzing the regressed result, normality, multicollinearity, autocorrelation and heteroscedasticity tests are made for identifying misspecification of data if any so as to fulfill research quality.

4.3.1 Normality test: Bera-Jarque (BJ) test

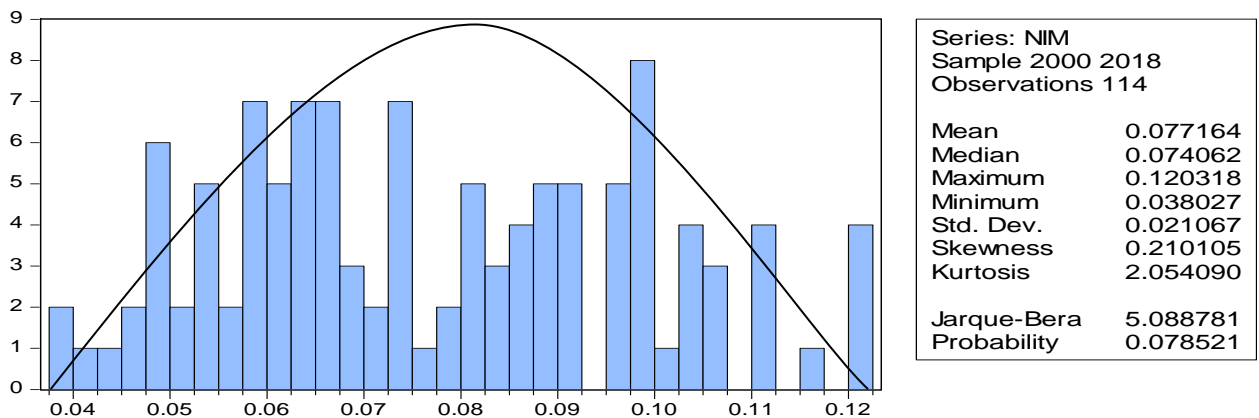
Normality test helps to know whether the residuals are normally distributed or not. (Chris book, 2008) argued on one of the commonly applied tests in test of normality is the Jarque-Bera test. Jarque-Bera uses the property of normally distributed random variable that the entire distribution is defined by the first two moments, the mean and the variations. If the residuals are normally distributed the histogram should be bell-shaped and the Jarque-Bera statistic would not be significant or should be more than significance level and the null hypothesis should not be rejected and the p-value of the normality test should be more than 0.05 or 5 percent of significance level. If the p-value is less than the significance level the null hypothesis is rejected and the alternative hypothesis is accepted and the residuals are not normally distributed. As stated by Kebete (2014), a normal distribution is not skewed and is defined to have a coefficient of Kurtosis of 3. Skewness measures the extent to which a distribution is not symmetric about its mean value while Kurtosis measures how far the tails of a distribution are (Brooks 2008). The Jarque-Bera probability statistic (p-value) is also expected not to be significant even at 10% (Kebete 2014). The normality test shows that the coefficient of Kurtosis (2) mean less than 3 or, and the Jarque-Bera statistic is not significant even at 10% level of significance (P-value = 0.11 greater than 0.05), and skewness=0.11 on ROA and (P-value = 0.07 greater than 0.05), and skewness=0.2 on NIM. So the conclusion is therefore that the data is normally distributed.

Table 4 .3 Normality test ROA



Source: own computation from NBE via Eview.9

Table 4 .3.1 Normality test NIM



Source: own computation from NBE via Eview.9

Table 4.3. Summary of Bera-Jarque statistics result for the regression models

	LIQ	NIM
Probability Jarque-Bera statistic	0.11	0.07

Source: E-views output from NBE financial statements

4.3.2 Heteroscedasticity Test

Under this unit the residual was tested to identify whether it was heteroskedastic or homoscedastic or whether the null hypothesis is accepted or rejected. The null hypothesis was accepted only if the p-value of observed R-squared were more than the significance level of 5 percent or 0.05 unless it was rejected and the alternative hypothesis was accepted. The null hypothesis of heteroskedasticity test is residual is

not heteroskedastic or the residual is homoscedastic and the alternative hypothesis was residual is heteroskedastic or residual is not homoscedastic. In the classical linear regression model, one of the basic assumptions is Homoscedasticity assumption that states as the probability distribution of the disturbance term remains same for all observations. That is the variance of each u_i is the same for all values of the explanatory variable. However, if the disturbance terms do not have the same variance, this condition of non-constant variance or non-homogeneity of variance is known as heteroscedasticity (Seid, 2015). Accordingly, in order to detect the heteroscedasticity problems, Breusch-Pagan test was utilized in this study. This test states that if the p-value is significant at 95 confidence intervals, the data has heteroscedasticity problem, whereas if the value is insignificant (greater than 0.05), the data has no heteroscedasticity problem. Thus, as shown in table below there is no heteroscedasticity problem for this study hence the p value is 1.7% or (0.17) showing insignificant value.

Table 4:4 -Heteroscedasticity Test: Breusch-Pagan-Godfrey (Summary)

Dependent Variable: ROA			
Method: Panel EGLS (Cross-section weights)			
Date: 06/27/20		Time: 10:39	
Sample: 2000 2018			
Periods included: 19			
Cross-sections included: 6			
Total panel (balanced) observations: 114			
Test	Statistic	d.f.	Prob.
Breusch-Pagan	2.245142	3.209264	5.454406

Source: own computation from NBE via Eview.9

4.3.3 Autocorrelation Test

(Chris books, 2008) argued that the CLRM's error terms which are zero in cross sectional type errors are uncorrelated with one another. In addition he said that if the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated. This means they are auto correlated or they are serially correlated. To test this assumption the Durbin–Watson (DW) statistical test was applied. If the p-value of the auto correlation test is greater than the significance level of 5 percent the null hypothesis is accepted and the residual is serially correlated or auto correlated. If the p-value is less than 5 percent the null hypothesis is rejected and the alternative hypothesis is accepted and the residuals are not serially correlated or not auto correlated. Therefore, the residuals are serially correlated or auto correlated. Furthermore, the researcher tested the autocorrelation assumptions that imply zero covariance of error terms over time. That means errors associated with one observation are

uncorrelated with the errors of any other observation. As noted by Gujarati (2004), the best renowned test for detecting serial correlation is Durbin Watson test. Accordingly, if the computed nearest to (2) in application, it is assumed that there is no autocorrelation problem. Thus, as shown in table (4.5) the computed below in this study was 1.6 which is nearest to 2 implying the absence of autocorrelation problem. Thus, this implies that error terms are not correlated with one another for different observation in this study.

Table 4.5 Autocorrelation Test summary.

Date: 06/27/20 Time: 10:39				
Sample: 2000 2018				
Periods included: 19				
Cross-sections included: 6				
Total panel (balanced) observations: 114				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
	-0.084860	0.061716	-1.375014	0.1722
R-squared	0.699235			
Durbin-Watson stat	1.672926			

Source: own computation from NBE via Eview.9

4.3.4 Multicollinearity Test

Multicollinearity test was used to know the relationship existed in explanatory variables. If an explanatory variables were an exact linear combination of other explanatory variables then, we can say that the models suffers from perfect colinearity and it cannot be estimated by OLS Chris books,(2008). Multicollinearity condition exists when there is high but not perfect correlation between two or more explanatory variables. Cameron and Thrived,(2009) and Wooldridge,(2006). According to Churchill and Lacobucci,(2005), when there is multicollinearity among the explanatory variables the amount of information about the effect of independent variables on dependent variable decreases. Gujarti, (2004) argues that the standard of statistical method for testing data for multicollinearity is analyzing the explanatory variables correlation coefficient (CC), condition index (CI), and variance inflation factors (VIF). Therefore, in this study correlation matrix for seven independent variables shown in below table 4.6 had been estimated. The results of the following correlation matrix show that the highest correlation was 0.4 which is between asset quality and Credit cap spread. Since there is no

correlation above 0.7, and 0.75, according to Kennedy,(2008), Malhotra, (2007) and Hair et al, (2006) respectively, we can be concluded that there is no the problems of multicollinearity in this study.

Table 4. 6. The results of Multicollinearity test

	RR	MGE	CA	CC	AQ
RR	1				
MGE	-0.28	1			
CA	0.08	-0.41	1		
BIP	-0.42	-0.12	-0.10	1	
AQ	-0.11	-0.08	0.24	0.40	1

Source: own computation from NBE via Eview.9

4.3.5 Model Selection

Random Effect versus Fixed Effect Models

Econometrics model used to examine the impact of requirement reserve(RR), inflection (INF) ,gross domestic product(GDP), capital adequacy ratio(CA) ,asset quality(AQ) ,bank size(ASZ),and management efficiency MGE),on performance of private commercial banks in Ethiopia was panel data regression model which is either fixed-effects or random-effect model. The appropriate test used to decide whether fixed effect or random effect model is appropriate was Hausman Specification Test. Thus, Hausman Specification Test identifies whether fixed-effects or random-effect model is most appropriate under the null hypothesis that unobservable individual effects (ui) are uncorrelated with one or more of explanatory variables (X_i).As noted by Gujarati (2004), fixed effect model is most appropriate when null hypothesis is rejected whereas random effect is appropriate when null hypothesis is not rejected.

For Hausman test, the null and alternative hypotheses are as follows:

H_0 : ui is not correlated with X_i (random- effects model appropriate)

H_1 : ui is correlated with X_i (fixed-effects model appropriate)

Thus, to test the null hypothesis, it requires comparing the estimates from the random-effects and the fixed-effects estimator. Random-effect estimator is consistent under the null hypothesis, but inconsistent under the alternative hypothesis whereas fixed-effect estimator is consistent under both

the null and alternative hypothesis. If the estimates for the random-effects estimators are not significantly different from the estimates for the fixed-effects estimator, then the null hypothesis is accepted and concludes that ui is not correlated with X_i , and therefore the random-effect model is the appropriate model. If the estimates for the random effect estimator are significantly differ from the estimates for the fixed-effect estimator, the null is rejected and conclude that ui is correlated with X_i , and therefore the fixed-effect model is the appropriate model for the study. Besides, if the number of year is exceeds number of cross section, fixed effect model is appropriate which is true for this study. Accordingly, table below demonstrates the Hausman Specification Test that used to decide the best model for this study. The decision rule, for Hausman Specification test is rejecting the null hypothesis when the p-value is significant. Thus, as shown in table show, the Hausman specification test for this study has a p-value of 0.0025** for the regression models. This indicates that p-value is significant and then the null hypothesis is rejected justifying as fixed effect model is appropriate for the given data set in this study.

Table 4.7 Fixed Effect Models

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.963253	(5,100)	0.0025

Source: own computation from NBE via Eview.9

4.4. Results of the regression analysis

On the regression outputs the beta coefficient may be negative or positive; beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. R2 values indicate the explanatory power of the model and in this study adjusted R2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. Under this part of the study Regression analysis for the performance of banks measures have been discussed to understand the relationship between banks ability to have covetable asset in short period time measures and independent variables. a regression analyses were done to know the relationship between bank performance measures and those independent variables like, requirement reserve(RR), capital adequacy ratio(CA) ,asset quality(AQ) ,credit cap (CC) and management efficiency MGE).

4.4.1 The analysis of regression between ROA and explanatory variables.

To analysis the relationship between private commercial banks performance measures and others independent variables two regression analyses were undertaken. The first one was examining the relationship between return on asset and explanatory variables. The model of regression was applied as follow:

Table 4.8

Dependent Variable: ROA
 Method: Panel EGLS (Cross-section weights)
 Date: 06/27/20 Time: 10:39
 Sample: 2000 2018
 Periods included: 19
 Cross-sections included: 6
 Total panel (balanced) observations: 114
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.404869	0.051289	7.893937	0.0000
RR	-0.040726	0.013708	-2.970893	0.0037*
MGE	1.776183	0.360941	4.920983	0.0000*
CA	0.068649	0.134924	0.508795	0.6120
CC	-0.033852	0.004242	-7.980268	0.0000*
AQ	1.252226	0.590156	2.121854	0.0362**

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.628695	Mean dependent var	0.218514
Adjusted R-squared	0.592646	S.D. dependent var	0.078931
S.E. of regression	0.045364	Sum squared resid	0.211959
F-statistic	17.44000	Durbin-Watson stat	1.463550
Prob(F-statistic)	0.000000		

*****Significant at 10%**

****Significant at 5%**

***Significant at 1%**

Source: own computation from NBE via Eview.9

As the result indicated in above table requirement reserve (RR), management efficiency MGE), and, credit cap statically significant at 1% and asset quality (AQ) statically significant at 5% with ROA. Which means requirement reserve (RR), management efficiency MGE), and, credit cap and asset quality (AQ) have a great impact to improve the financial performances of private commercial banks. Management efficiency MGE), and asset quality (AQ) has positive

relationship with return on asset which is positive 1.776183, and 1.252226 respectively. This means increase in management efficiency, and asset quality (AQ) directly related with the growth of performance of bank, as the capital of the bank increase the ability of the bank to provide loan to borrowers also increase this leads the bank to get more return and having strong financial performance. Or Increase 1% in management efficiency, and asset quality (AQ) is increase financial performance of bank by 1.7 and 1.2 units respectively.

Requirement reserve (RR), and, credit cap(CC),have negative relationship with return on asset. This means as Requirement reserve (RR), and, credit cap(CC),variables become increased the financial performances of the private commercial banks become poor or decrease Or 1% increase in Requirement reserve (RR), and, credit cap(CC),,is decrease financial performance of bank by -0.040726,and -0.033852.

R-squared is measured the goodness and the fitness of independent variable in explaining the variations in private banks financial performance measures of return on asset. As the result indicated in the above table 4.8 R-squared values for the model of regression was 0.628. This result tells us as all variables in this study jointly explain about (63) percent of the variation in the private bank's performance measure of ROA. The remaining (37) percent of the variation in the performances of private commercial banks in Ethiopia were explained by other variables which is not included in the study.

The F-statistic p-value showed 0.000*%. This means that the panel regression result is statistically significant at the 5% level because it is lower than 5%. The Durbin Watson value of 1.4 showing that there is an evidence of positive serial correlation. The Durbin Watson statistics indicates the presence of serial correlation of the residuals in the model. Therefore, those independent variables together are good explanatory variable of performances of private commercial banks in Ethiopia. The model is well fitted at 5%percent significant level.

$$ROA=0.4C-0.04RR+1.7MGE+0.06CA-0.03CC+1.2AQ----- (1)$$

4.4.1 The analysis of regression between NIM and explanatory variables.

To analysis the relationship between private commercial banks performance measures and others independent variables two regression analyses were undertaken. The first one was examining the relationship between Net interest margin and explanatory variables. The model of regression was applied as follow:

Table 4.9

Dependent Variable: NIM
Method: Panel Least Squares

Date: 06/27/20 Time: 10:55
Sample: 2000 2018
Periods included: 19
Cross-sections included: 6
Total panel (balanced) observations: 114

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.036497	0.011463	-3.183812	0.0019
RR	0.001561	0.003197	0.488370	0.6263
MGE	0.230429	0.078317	-2.942266	0.0040*
CA	0.076559	0.031855	2.403367	0.0180*
CC	-0.013952	0.000993	14.04995	0.0000*
AQ	0.264653	0.136764	-1.935109	0.0557***

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.785656	Mean dependent var	0.077164
Adjusted R-squared	0.764846	S.D. dependent var	0.021067
S.E. of regression	0.010216	Akaike info criterion	-6.238210
Sum squared resid	0.010750	Schwarz criterion	-5.974191
Log likelihood	366.5780	Hannan-Quinn criter.	-6.131060
F-statistic	37.75365	Durbin-Watson stat	1.482120
Prob(F-statistic)	0.000000		

***Significant at 10%

**Significant at 5%

*Significant at 1%

Source: own computation from NBE via Eview.9

As the result indicated in above table management efficiency MGE), capital adequacy (CA) Credit cap (CC) statically significant at 1% and asset quality (AQ) statically significant at 5% with NIM. Which means management efficiency MGE), capital adequacy (CA) and, Credit cap (CC) have a great impact to improve the financial performances of private commercial banks. Capital adequacy ratio (CA) management efficiency MGE), and Asset quality (AQ), has positive relationship with net interest margin which is positive 0.076559, 0.230429 and 0.264653 respectively. This means increase in capital adequacy ratio (CA) management efficiency MGE), and Asset quality (AQ), directly related with the growth of performance of bank, as the capital of the bank increase the ability of the bank to provide loan to borrowers also increase this leads the bank to get more return and having strong financial performance. Or Increase 1% in capital adequacy ratio (CA) management efficiency MGE), and Asset quality (AQ), is increase financial performance of bank by 0.076559, 0.230429 and 0.264653 Unit

respectively.

Credit cap (CC) has negative relationship with net interest margin. This means as Credit cap (CC) become increased the financial performances of the private commercial banks become poor or decrease or 1% increase in Credit cap (CC) decrease financial performance of bank by - 0.01 percent. So to enhance performance of private bank national bank emphasize on MGE), capital adequacy (CA) Credit cap (CC) and Asset Quality (AQ).

R-squared is measured the goodness and the fitness of independent variable in explaining the variations in private banks financial performance measures of Net interest margin. As the result indicated in the above table 4.9 R-squared values for the model of regression was 0.78. This result tells us as all variables in this study jointly explain about (78) percent of the variation in the private bank's performance measure of NIM. The remaining (22) percent of the variation in the performances of private commercial banks in Ethiopia were explained by other variables which is not included in the study.

The F-statistic p-value showed 0.000*%. This means that the panel regression result is statistically significant at the 5% level because it is lower than 5%. The Durbin Watson value of 1.4 showing that there is an evidence of positive serial correlation. The Durbin Watson statistics indicates the presence of serial correlation of the residuals in the model. Therefore, those independent variables together are good explanatory variable of performances of private commercial banks in Ethiopia. The model is well fitted at 5%percent significant level.

$$NIM = -0.03C + 0.001RR + 0.2MGE + 0.07CA - 0.01CC + 0.02A \text{-----} (2)$$

4.5 Test of Hypothesis

In order to investigate whether or not each research hypothesis presented above hold in context of Ethiopian private commercial banks, this topic tries to present the analysis respectively. The analysis under this chapter mainly focuses on selected bank factors like requirement reserve(RR), capital adequacy ratio(CA),asset quality(AQ),Credit cap (CC) and management efficiency MGE) each variable were tested as follow:

Reserve Requirement with profitability and cost of intermediation (ROA&NIM).

Theoretically we expect a negative relationship between required reserve and banks profitability. Because required reserve is a non interest bearing deposit of some of the proportion of deposit of customers at the National Bank of Ethiopia. The banks would have earned an interest rate income if they were allowed to lend or invest the equivalent amount of money on interest bearing investment. According to table 4.8 reserve requirement had negative

statistically significant at 1% impact on banks performance measured by ROA. The coefficient estimate and the p value were -0.04 and insignificant on NIM. Reserve requirement in this equation was the same to hypothesis (4). Since the coefficient was statistically significant we could say it show negative impact on banks profitability, the result form the regression shows there is statistically significant relationship between required reserves and profitability of banks in Ethiopia and in line with the findings of Nature and Orman (2008).

Management efficiency

Management efficiency is found to be positively and statistically significant at a significance level of 1% with ROA and NIM. These results are consistent with the findings of Naceur (2008) among others. The third bank specific factor was equity (portion of bank's asset financed by stockholders). It is positively and statistically significant at 1% level of confidence with ROA, and NIM. The effect of equity on ROA and NIM is consistent with the findings of Naceur (2008). Operational efficiency or MGE in managing the operating expenses for management quality, so this study tells us operating expenses of private commercial bank in Ethiopia have affect some amount on performance of banks.

Capital Adequacy Ratio (CA)

Capital Adequacy Ratio is found to be positively and statistically significant at 1% with NIM.. This indicates that holding other independent variables constant at their average value, when Capital adequacy ratio increased by one percent, performance of sampled private commercial banks would be increase. Therefore, the researcher failed to rejects the null hypothesis that capital adequacy ratio has a positive impact on performance but significance statistically. This means, there is sufficient evidence to support the positive relationship between capital adequacy ratio and performance of bank. This result is supported by the prior findings of (Bouvatier&Lepetit, 2007), (Djiopap&Ngomsi, 2012), Imran and Nishat (2012) and Ajayi (2007).

The basic argument of these researchers for the positive relationship between bank capitalization and profitability ability is that banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore, increasing banks equity enhances the banks' capacity to increase performance. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for longer term loans. But the result is in contrary to the finding of Ehrmann et al. (2003) who finds that there is no relationship between capitalization level of European banks and supply of loan. In addition to the finding inconsistency among the researcher, opinion differs among experts in banking and

finance as to what constitutes adequate capital. Because, high levels of capital allow banks to can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans. According to Nwankwo (1991) adequate capital is that quantum of funds which a bank should have or plan to maintain in order to conduct its business in a prudent manner.

The possible reason for the positive relationship between capital adequacy ratio and commercial bank performance in Ethiopia could be the fact that the main source of fund for lending is shareholder contribution in the form of equity and customers deposit. As far as the indirect effect of capital adequacy concerned, adequate capital in banking is a confidence booster. It provides the customer, the public and the regulatory authority with confidence in the continued financial viability of the bank. Confidence to the depositor that his/her money is safe enhances the deposit of the banks as well as solvency of the banks. The improvement in the solvency of the commercial banks enables the banks to extend more performance.

Credit Cap and Profitability

The result from the estimation of the model shows that there exist a negative and statistically significant relationship between credit cap and net interest margin and return on asset with the coefficient estimates of -0.01 and -0.03 and the p value was 0.00 which was highly significant at 1% level significance. Holding other factors constant, during the credit cap period the profitability of banks has decreased by 1-3%. The reason for the indirect relationship between profitability of banks and credit cap is, during regulation taken by the National Bank of Ethiopia not to give loan above credit ceiling this has hampered interest income inflow from loans. However, the banks will pay an interest expense of the same amount before the credit cap policy for the depositors regardless of their interest income. This result was consistent with our expectation

Asset quality

Depending on regression results of above asset quality have positive relationship with ROA and NIM by have coefficient of 1.2 and 0.2 which is significant because of its p-value is 0.03 and 0.05 than its significance level. The result indicates that asset quality has positive relationship with ROA and NIM by significant for the study. Therefore, asset quality can be taken as one of the major

factors of affecting banks liquidity in Ethiopia. This means when asset quality increases the ROA and NIM also increase.

Table 4.10. Summary of actual and expected signs of explanatory variables on the dependent Variables

Explanatory variables	Expected impact on ROA/NIM	Actual impacts ROA	Actual impacts NIM	significance		Insignificance		decision
				ROA	NIM	ROA	NIM	
RR	-	-	+	√			√	Accept
MGE	+	+	+	√	√			Accept
CC	-	-	-	√	√			Accept
CA	+	+	+		√	√		Reject
AQ	+	+	+	√	√			Accept

This chapter discussed the analysis of the results of multiple linear regressions model. To summarize the above data analysis Ethiopian banks Performance is highly affected by bank-specific (internal) factors and micro factor. That means except that of all variable because variable (+ve and -ve significant) all variables included in this study are proved as they were the major effect of performance of Ethiopian private commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The study established to analyze the effect of regulatory actions taken by the National Bank of Ethiopia on the profitability of six private commercial banks in Ethiopia. during the period from 2000-2018 G.C. Findings indicated that bank performance are influenced by reserve requirement(RR),management efficiency (MGE) ,Capital Adequacy (CA),Credit cap(CC) and, Asset quality (AQ). This chapter outlines the summary and conclusions of the study in accordance with the study results. It also gives an insight on the policy recommendations as well as suggestions for future studies.

5.2. Summary of the Study

The thrust of the study was in identifying the bank regulation factors affecting bank performance in selected private commercial banks operating in Ethiopia. An explanatory research design adopted to explain the casual relationships between the variables. The study employed quantitative methods on secondary data sourced from financial statements of banks. Banks should remain performance at all times to prevent falling into crisis, which cause distress among the stakeholders and tremor in the overall economy. Thus, this study attempts to identify the bank regulation factors affecting performance of selected private commercial banks in Ethiopia. This research also provides summary of previous studies on similar topics. Five variables affecting the selected commercial banks performance were chosen and analyzed. Panel data was used for the sample of six private commercial banks in Ethiopia from the year 2000 to 2018 G.C and estimate using fixed effect model (FEM). Data was presented by using descriptive statistics. The balanced correlation and regression analysis for performance conducted. Before performing OLS regression the models were tested for the classical linear regression model assumptions. Fixed effect model/FEM used based on convenience. Analysis made for five factors affecting selected private commercial banks performance. From the list of possible explanatory variables, almost all of them proved to be statistically significant. Based on the results from the regression analysis estimated by fixed effect regression model the following conclusion was made.

5.3. Conclusions

➤ The objective of this paper was to analyze the effect of regulatory actions taken by the National Bank of Ethiopia on the profitability of six private commercial banks in Ethiopia. The regression analysis suggests that, controlling for management efficiency (MGE) Capital Adequacy (CAR) and Asset quality (AQ) positively affects bank performance impact on ROA/NIM and Credit cap (CC) negatively affect bank performance ROA/NIM.

- Reserve requirements the portion of bank's asset in National Bank of Ethiopia with no interest and it will be peroxide by ratio of Reserve Account in NBE to total assets. So in these study result show that Reserve requirement negatively impact on performance of private of commercial bank in Ethiopia. These mean when Reserve requirement is increase performance of bank is decrease.
- Management efficiency measure of how the bank is managing operating costs; it will be measured as the ratio of operating expenses to total assets. The result of the study shows that Management efficiency positively affects Performance of private commercial bank in Ethiopia. These mean when Management efficiency increase on other hand operational cost of the bank increased, generally when Management efficiency increased performance of private commercial bank is decrease.
- Capital adequacy is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Capital of a bank includes paid up capital, undistributed profit (retained earnings), legal reserve or other reserves and surplus fund which are kept aside for contingencies. Regulators in most countries define and monitor CAP to protect depositors, thereby maintaining confidence in the banking system. Though capital adequacy ratio is measured by the ratio of total capital to risk weight asset, in some literatures it can be also measured by the ratio of capital to total asset and then in this study, the proxy for capital adequacy is the ratio of total capital of the bank to total asset of the bank. This ratio measures how much of bank's asset are funded with owner's funds and is a proxy for the capital adequacy of a bank by estimating the ability to absorb losses. The result of study show that Capital adequacy is positively affects private commercial bank in Ethiopia. These mean when Capital adequacy increase the bank ability to absorb losses is also increase.

- Credit cap has negative and statistically significant effect on banks performance measured through both Return on Asset and Net Interest Margin. The researcher concludes that credit cap has a negative impact on banks performance and this is due to since there was credit ceiling any bank cannot give the amount of loan above that ceiling so the interest income generated from loans will decrease but the bank will pay an interest expense for the depositors no matter what amount the banks get an interest income from the loan.
- Asset quality was positive relation with effect on banks performance measured through both Return on Asset and Net Interest Margin statically significant for that matter, asset quality can be taken as the major factors of banks regulation in this study finding of the study suggests that the asset quality can be the factors of regulation of private commercial banks in Ethiopian.

5.4 Recommendation

The findings of the study showed that management efficiency (MGE) Capital Adequacy (CAR) and Asset quality (AQ) positively affects bank performance impact on ROA/NIM and Credit cap (CC) negatively affects bank performance ROA/NIM, Were the significant drivers of factors of regulation of private commercial banks in Ethiopian During 2000 to 2018. Hence, focusing and taking the necessary action on these indicators could reduce the performance private commercial banks in Ethiopia. Based on the findings of the study the following possible recommendations are forwarded:

- Though the credit cap was already removed the result from the regression shows it had a negative impact performance of private banks. Because such regulatory variables increase cost of intermediation which creates the ultimate burden on customers, NBE has to consider the effect of such policy on banks profitability and their overall performance. On the other hand banks need to increase operating efficiency to trade off such effects and to serve their customers as usual to create long-lasting relationship when such kinds of regulations are imposed.
- Management efficiency measure of how the bank is managing operating costs; it will be measured as the ratio of operating expenses to total assets. The result of the study shows that Management efficiency positively affects Performance of private commercial bank in Ethiopia. These mean when Management efficiency increase on other hand performance of the bank increased, generally when Management efficiency increased

.Due to this the country at large would be affected. If investment becomes worse because of increase in cost of finance, production and employment opportunity will be affected so the regulatory bodies need to consider the Management efficiency as major factor.

- Reserve requirements the portion of bank's asset in National Bank of Ethiopia with no interest and it will be peroxide by ratio of Reserve Account in NBE to total assets. Regulatory bodies need to consider the far-reaching effect of increase in cost of intermediation as a result of such frequent regulatory changes. Because, banks tend to transfer such costs to their customer which in turn increases cost of getting finance. The higher the cost of finance, the higher its effect on investment would be. Due to this the country at large would be affected. If investment becomes worse because of increase in cost of finance, production and employment opportunity will be affected negatively.
- Capital adequacy: While issuing new directives or amending the existing policies, NBE take into account that the increase of capital and statutory reserve requirements policy has stood pressure on the banks performance since capital adequacy have positive and significant impact on banks performance.
- Asset quality was positive relation with bank performance statically significant for that matter, asset quality can be taken as the major factors of banks performance in this study finding of the study suggests that the asset quality can be the factors of performance of private commercial banks in Ethiopia.

5.5. Suggestions for future studies

The prime focus of this research was on identifying factors affecting bank performance in the case of selected private commercial banks in Ethiopia using selected variables. However, there might be variables that were not included in this study. Thus, future researchers are recommended to undertake similar study by considering additional variables on the same banks which will be useful to validate findings of the current study. Furthermore, it is suggested that researchers consider the newly emerging banks in doing the same research

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APPENDIXES

1. Raw Data

BANK	YEAR	ROA	NIM	RR	MGE	AQ	BIP	CA
AIB	2000	0.14	0.04	1.04	0.02	0.02	6.58	0.17
AIB	2001	0.27	0.06	0.32	0.03	0.02	6.80	0.16
AIB	2002	0.32	0.06	-0.03	0.06	0.00	7.04	0.12
AIB	2003	0.33	0.05	0.21	0.08	0.00	7.20	0.11
AIB	2004	0.33	0.08	0.19	0.08	0.03	7.37	0.12
AIB	2005	0.24	0.06	0.28	0.05	0.03	7.63	0.12
AIB	2006	0.11	0.07	0.59	0.03	0.03	7.95	0.14
AIB	2007	0.17	0.07	0.17	0.05	0.02	8.13	0.14
AIB	2008	0.15	0.06	0.22	0.09	0.00	8.36	0.10
AIB	2009	0.26	0.08	-0.04	0.10	0.02	8.61	0.11
AIB	2010	0.22	0.06	0.16	0.07	0.02	8.75	0.12
AIB	2011	0.22	0.09	0.05	0.03	0.03	8.89	0.12
AIB	2012	0.20	0.10	0.18	0.03	0.03	9.02	0.14
AIB	2013	0.12	0.08	0.21	0.02	0.02	9.22	0.13
AIB	2014	0.15	0.11	0.08	0.02	0.04	9.33	0.18
AIB	2015	0.18	0.11	0.17	0.02	0.02	9.52	0.15
AIB	2016	0.09	0.10	0.36	0.01	0.02	9.73	0.15
AIB	2017	0.08	0.10	0.76	0.01	0.03	10.14	0.15
AIB	2018	0.15	0.09	0.21	0.03	0.02	8.89	0.13
DB	2000	0.25	0.06	0.77	0.03	0.01	6.76	0.09
DB	2001	0.24	0.06	0.34	0.03	0.02	7.00	0.08
DB	2002	0.27	0.06	0.22	0.03	0.02	7.30	0.08
DB	2003	0.26	0.05	0.45	0.04	0.02	7.60	0.06
DB	2004	0.24	0.05	0.33	0.04	0.02	7.89	0.06
DB	2005	0.18	0.05	0.32	0.03	0.02	8.14	0.07
DB	2006	0.15	0.06	0.42	0.03	0.03	8.42	0.08
DB	2007	0.13	0.06	0.26	0.02	0.04	8.71	0.12
DB	2008	0.15	0.07	0.10	0.02	0.03	8.97	0.12
DB	2009	0.13	0.07	0.02	0.02	0.03	9.18	0.12
DB	2010	0.17	0.07	0.13	0.02	0.03	9.42	0.12
DB	2011	0.13	0.07	0.23	0.02	0.03	9.59	0.13
DB	2012	0.20	0.08	0.31	0.02	0.04	9.77	0.14
DB	2013	0.19	0.08	0.09	0.02	0.03	9.89	0.13
DB	2014	0.18	0.09	0.06	0.02	0.03	10.00	0.15
DB	2015	0.13	0.09	0.22	0.02	0.03	10.12	0.15
DB	2016	0.14	0.09	0.10	0.02	0.03	10.26	0.14
DB	2017	0.11	0.09	0.42	0.02	0.02	10.45	0.14

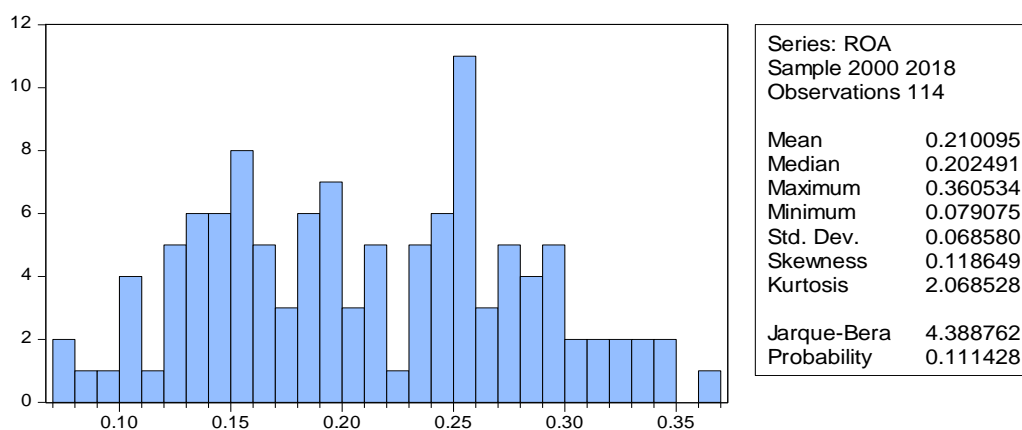
DB	2018	0.20	0.09	0.22	0.02	0.03	10.00	0.13
BOA	2000	0.20	0.04	0.00	0.00	0.01	5.06	0.25
BOA	2001	0.14	0.07	2.56	0.00	0.03	5.82	0.18
BOA	2002	0.30	0.06	0.54	0.01	0.03	6.28	0.19
BOA	2003	0.23	0.05	0.70	0.04	0.02	6.79	0.14
BOA	2004	0.29	0.05	0.43	0.04	0.03	7.13	0.14
BOA	2005	0.21	0.05	0.44	0.04	0.03	7.46	0.13
BOA	2006	0.25	0.05	0.30	0.04	0.03	7.61	0.14
BOA	2007	0.23	0.06	0.23	0.03	0.03	7.87	0.17
BOA	2008	0.17	0.07	0.16	0.04	0.04	8.20	0.17
BOA	2009	0.30	0.09	0.05	0.05	0.04	8.48	0.16
BOA	2010	0.25	0.08	0.15	0.04	0.04	8.69	0.16
BOA	2011	0.28	0.10	0.09	0.04	0.04	8.87	0.17
BOA	2012	0.26	0.09	0.34	0.03	0.04	9.02	0.19
BOA	2013	0.19	0.10	0.22	0.03	0.03	9.12	0.19
BOA	2014	0.18	0.08	0.19	0.02	0.03	9.28	0.19
BOA	2015	0.16	0.10	0.27	0.02	0.03	9.49	0.17
BOA	2016	0.18	0.12	0.09	0.02	0.03	9.67	0.17
BOA	2017	0.16	0.12	0.43	0.02	0.03	9.95	0.14
BOA	2018	0.16	0.10	0.27	0.02	0.03	9.49	0.19
WB	2000	0.29	0.06	1.38	0.01	0.03	4.96	0.28
WB	2001	0.32	0.07	0.52	0.01	0.03	5.37	0.29
WB	2002	0.33	0.07	0.22	0.01	0.02	5.75	0.28
WB	2003	0.25	0.04	0.78	0.02	0.01	6.15	0.19
WB	2004	0.36	0.05	0.32	0.04	0.01	6.51	0.14
WB	2005	0.33	0.06	0.54	0.04	0.04	6.98	0.12
WB	2006	0.19	0.05	0.69	0.03	0.03	7.38	0.12
WB	2007	0.28	0.06	0.40	0.03	0.03	7.69	0.19
WB	2008	0.25	0.07	0.32	0.03	0.03	8.09	0.17
WB	2009	0.25	0.07	0.16	0.03	0.02	8.44	0.13
WB	2010	0.26	0.07	0.21	0.04	0.03	8.68	0.14
WB	2011	0.19	0.08	0.25	0.03	0.03	8.95	0.15
WB	2012	0.23	0.10	0.25	0.02	0.04	9.08	0.16
WB	2013	0.16	0.10	0.15	0.02	0.02	9.21	0.14
WB	2014	0.13	0.11	0.08	0.01	0.02	9.38	0.15
WB	2015	0.15	0.11	0.35	0.01	0.02	9.57	0.14
WB	2016	0.12	0.10	0.24	0.01	0.02	9.76	0.14
WB	2017	0.10	0.10	0.41	0.01	0.02	9.99	0.13
WB	2018	0.16	0.10	0.08	0.01	0.04	9.38	0.14
UB	2000	0.34	0.06	0.34	0.03	0.01	6.24	0.10
UB	2001	0.29	0.07	0.31	0.04	0.01	6.37	0.10
UB	2002	0.25	0.06	0.18	0.05	0.01	6.47	0.10

UB	2003	0.29	0.05	0.41	0.05	0.01	6.79	0.10
UB	2004	0.28	0.07	0.29	0.06	0.03	7.04	0.11
UB	2005	0.35	0.06	0.36	0.05	0.03	7.39	0.11
UB	2006	0.22	0.06	0.59	0.05	0.04	7.72	0.11
UB	2007	0.29	0.07	0.35	0.04	0.04	8.15	0.15
UB	2008	0.23	0.07	0.09	0.06	0.04	8.32	0.18
UB	2009	0.20	0.09	-0.10	0.06	0.04	8.54	0.20
UB	2010	0.26	0.08	0.17	0.04	0.04	8.66	0.22
UB	2011	0.28	0.09	0.18	0.05	0.03	8.99	0.21
UB	2012	0.27	0.10	0.23	0.02	0.04	9.03	0.23
UB	2013	0.17	0.10	0.32	0.02	0.04	9.25	0.21
UB	2014	0.12	0.12	-0.02	0.02	0.03	9.33	0.22
UB	2015	0.08	0.11	0.32	0.02	0.03	9.53	0.20
UB	2016	0.12	0.11	0.24	0.02	0.03	9.69	0.20
UB	2017	0.10	0.11	0.36	0.01	0.03	9.95	0.17
UB	2018	0.12	0.09	0.17	0.05	0.04	9.25	0.22
NIB	2000	0.10	0.04	0.00	0.00	0.01	5.06	0.25
NIB	2001	0.14	0.07	2.56	0.00	0.02	5.82	0.18
NIB	2002	0.30	0.06	0.54	0.01	0.03	6.28	0.19
NIB	2003	0.23	0.05	0.70	0.04	0.02	6.79	0.14
NIB	2004	0.29	0.05	0.43	0.04	0.03	7.13	0.14
NIB	2005	0.21	0.05	0.44	0.04	0.03	7.46	0.13
NIB	2006	0.25	0.05	0.30	0.04	0.03	7.61	0.14
NIB	2007	0.23	0.06	0.23	0.03	0.03	7.87	0.17
NIB	2008	0.17	0.07	0.16	0.04	0.04	8.20	0.17
NIB	2009	0.30	0.09	0.05	0.05	0.04	8.48	0.16
NIB	2010	0.25	0.08	0.15	0.04	0.04	8.69	0.16
NIB	2011	0.28	0.10	0.09	0.04	0.04	8.87	0.17
NIB	2012	0.26	0.09	0.34	0.03	0.04	9.02	0.19
NIB	2013	0.19	0.10	0.22	0.03	0.03	9.12	0.19
NIB	2014	0.18	0.08	0.19	0.02	0.03	9.28	0.19
NIB	2015	0.16	0.10	0.27	0.02	0.03	9.49	0.17
NIB	2016	0.18	0.12	0.09	0.02	0.03	9.67	0.17
NIB	2017	0.16	0.12	0.43	0.02	0.03	9.95	0.14
NIB	2018	0.16	0.10	0.27	0.02	0.03	9.49	0.19

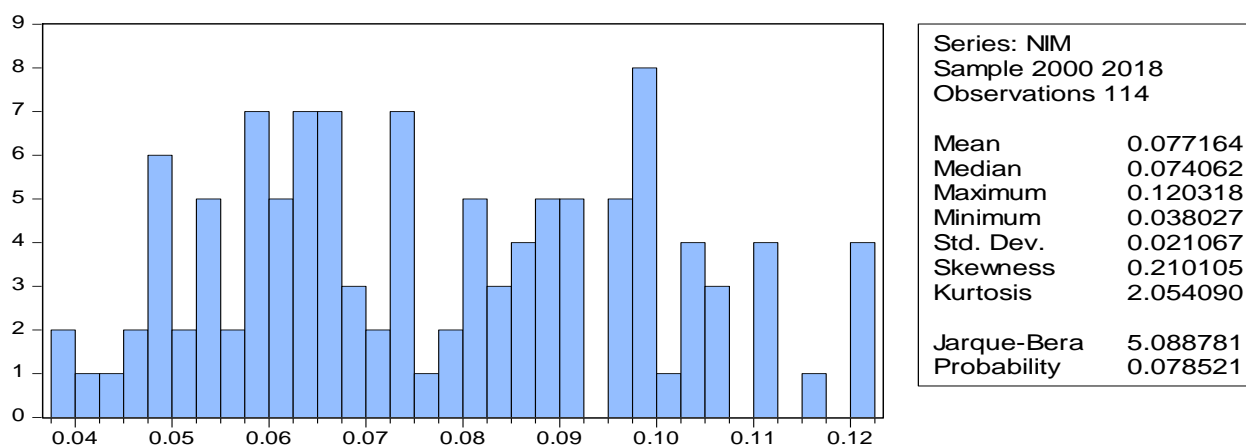
1. DESCRIPTIVE

	ROA	NIM	RR	MGE	CA	CC	AQ
Mean	0.210095	0.077164	0.326637	0.030332	0.154167	8.291574	0.027758
Median	0.202491	0.074062	0.245379	0.026633	0.144813	8.631897	0.029002
Maximum	0.360534	0.120318	2.559322	0.098273	0.294393	10.45230	0.041804
Minimum	0.079075	0.038027	-0.099880	0.000000	0.064251	4.962845	0.001963
Std. Dev.	0.068580	0.021067	0.370355	0.017611	0.043368	1.325629	0.008698
Skewness	0.118649	0.210105	4.137413	1.167060	0.676512	-0.602710	-0.848771
Kurtosis	2.068528	2.054090	24.46545	5.112307	3.967525	2.502048	3.287719
Jarque-Bera	4.388762	5.088781	2513.882	47.07228	13.14221	8.079707	14.08104
Probability	0.111428	0.078521	0.000000	0.000000	0.001400	0.017600	0.000876
Sum	23.95086	8.796695	37.23666	3.457808	17.57503	945.2395	3.164366
Sum Sq. Dev.	0.531464	0.050152	15.49941	0.035045	0.212527	198.5740	0.008549
Observations	114	114	114	114	114	114	114

2. NORMALITY TEST ON ROA



NORMALITY TEST ON NIM



3. CORELATION ON ROA &NIM

	ROA	NIM	RR	MGE	CA	CC	AQ
ROA	1	0.43332343798 03189	0.04974750689 879587	0.46548209444 95579	0.04314814181 614009	0.56816392669 4789	0.07736569805 739788
NIM	0.43332343798 03189	1	0.25699082175 37651	0.31299453790 18226	0.24159406871 1723	0.77280793060 3473	0.29816487724 50374
RR	0.04974750689 879587	0.25699082175 37651	1	0.28320105238 60274	0.08129563928 490241	0.42647544946 41844	0.11151775651 53623
MGE	0.46548209444 95579	0.31299453790 18226	0.28320105238 60274	1	0.41222888288 65666	0.12933551463 77707	0.08849717932 965352
CA	0.04314814181 614009	0.24159406871 1723	0.08129563928 490241	0.41222888288 65666	1	0.10842137894 34982	0.24016195739 44419
BIP	0.56816392669 4789	0.77280793060 3473	0.42647544946 41844	0.12933551463 77707	0.10842137894 34982	1	0.40414920475 89388
AQ	0.07736569805 739788	0.29816487724 50374	0.11151775651 53623	0.08849717932 965352	0.24016195739 44419	0.40414920475 89388	1

4.HETROCEDACCITY

Dependent Variable: ROA			
Method: Panel EGLS (Cross-section weights)			
Date: 06/27/20		Time: 10:39	
Sample: 2000 2018			
Periods included: 19			
Cross-sections included: 6			
Total panel (balanced) observations: 114			
Test	Statistic	d.f.	Prob.
Breusch-Pagan	2.245142	3.209264	5.454406

5. AUTOCORRELATION

Kao Residual Cointegration Test
 Series: ROA RR NIM MGE INF GDP CA BS AQ
 Date: 05/02/20 Time: 07:01
 Sample: 2000 2018
 Included observations: 114
 Null Hypothesis: No cointegration
 Trend assumption: No deterministic trend
 User-specified lag length: 1
 Newey-West fixed bandwidth and Bartlett kernel

	t-Statistic	Prob.
ADF	-3.455266	0.32
Residual variance	0.2434	
HAC variance	0.1134	

6. MULTICOLENARITY

	RR	MGE	CA	CC	AQ
RR	1	0.28320105238 60274	0.08129563928 490241	0.42647544946 41844	0.11151775651 53623
MGE	0.28320105238 60274	1	0.41222888288 65666	0.12933551463 77707	0.08849717932 965352
CA	0.08129563928 490241	0.41222888288 65666	1	0.10842137894 34982	0.24016195739 44419
BIP	0.42647544946 41844	0.12933551463 77707	0.10842137894 34982	1	0.40414920475 89388
AQ	0.11151775651 53623	0.08849717932 965352	0.24016195739 44419	0.40414920475 89388	1

4.4. Results of the regression analysis

Dependent Variable: ROA
 Method: Panel EGLS (Cross-section weights)
 Date: 06/27/20 Time: 10:39
 Sample: 2000 2018
 Periods included: 19
 Cross-sections included: 6
 Total panel (balanced) observations: 114
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.404869	0.051289	7.893937	0.0000
RR	-0.040726	0.013708	-2.970893	0.0037
MGE	1.776183	0.360941	4.920983	0.0000
CA	0.068649	0.134924	0.508795	0.6120
CC	-0.033852	0.004242	-7.980268	0.0000

AQ	1.252226	0.590156	2.121854	0.0362
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Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.628695	Mean dependent var	0.218514
Adjusted R-squared	0.592646	S.D. dependent var	0.078931
S.E. of regression	0.045364	Sum squared resid	0.211959
F-statistic	17.44000	Durbin-Watson stat	1.463550
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.592558	Mean dependent var	0.210095
Sum squared resid	0.216541	Durbin-Watson stat	1.446476

Dependent Variable: NIM

Method: Panel EGLS (Cross-section weights)

Date: 06/27/20 Time: 10:48

Sample: 2000 2018

Periods included: 19

Cross-sections included: 6

Total panel (balanced) observations: 114

Linear estimation after one-step weighting matrix

Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.054899	0.012000	-4.574911	0.0000
RR	0.003068	0.003463	0.885933	0.3776
MGE	0.085705	0.074449	-1.151194	0.2522
CA	0.164412	0.028790	5.710685	0.0000
CC	-0.014274	0.001046	13.65067	0.0000
AQ	0.351255	0.136458	-2.574080	0.0114

Weighted Statistics

R-squared	0.738910	Mean dependent var	0.078224
Adjusted R-squared	0.726822	S.D. dependent var	0.023174
S.E. of regression	0.011240	Sum squared resid	0.013645
F-statistic	61.12998	Durbin-Watson stat	1.216929
Prob(F-statistic)	0.000000		

Unweighted Statistics

Dependent Variable: NIM

Method: Panel Least Squares

Date: 06/27/20 Time: 10:55

Sample: 2000 2018

Periods included: 19

Cross-sections included: 6

Total panel (balanced) observations: 114

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	-0.036497	0.011463	-3.183812	0.0019
RR	0.001561	0.003197	0.488370	0.6263
MGE	0.230429	0.078317	-2.942266	0.0040
CA	0.076559	0.031855	2.403367	0.0180
CC	-0.013952	0.000993	14.04995	0.0000
AQ	0.264653	0.136764	-1.935109	0.0557

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.785656	Mean dependent var	0.077164
Adjusted R-squared	0.764846	S.D. dependent var	0.021067
S.E. of regression	0.010216	Akaike info criterion	-6.238210
Sum squared resid	0.010750	Schwarz criterion	-5.974191
Log likelihood	366.5780	Hannan-Quinn criter.	-6.131060
F-statistic	37.75365	Durbin-Watson stat	1.482120
Prob(F-statistic)	0.000000		