ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

THE IMPACT OF REGULATIONS ON THE PERFORMANCE OF ETHIOPIAN PRIVATE BANKS: THE CASE OF 27% NBE BILL PURCHASE REQUIREMENT

BY
TSIGEMARIAM LEGESSE G/YOHANNIS
ID No. SGS/0238/2005

JUNE, 2015

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES, SAINT MARY'S UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Degefe Duressa. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

_____	_____
Name	**Signature and Date**

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

_____ _____

Advisor **Signature & Date**

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LIST OF ACRONYMS/ABBREVATIONS

NPL	Non Performing Loan
NBE	National Bank of Ethiopia
ADLI	Agricultural Development Led Industrialization
GTP	Growth and Transformation Plan
IMF	International Monetary Fund
LIQ	Liquidity Position
CAP	Capital Adequacy Ratio
ROE	Return on Equity
IRL	Interest rate on Lending
IRM	Difference between interest rate on loans and interest rate on deposit
NIM	Net Interest Margin
ROA	Return on Asset
PRTL	Provision to Total Loan
LNTA	Loan to Total Asset
FRTA	Foreign Bank Deposit to Total Asset
LADP	Loan to Deposit Ratio
DEA	Development Envelopment Analysis

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Abstract

The study has taken one of the top regulatory issues; the requirement to purchase 27% bill, and analyzed its impact on bank performance. The general objective of the study was to assess the relationship between regulations and the performance of private banks in Ethiopia. Whereas the specific objectives of the study are to assess the impact of the captioned regulatory measure on the profitability and liquidity of private commercial banks. Panel data from 2007-2014 of eight private banks which were operational on and before 2006 were used in analyzing the impact. These Eight private banks were selected using cluster sampling technique and the cluster is selected using purposive sampling considering the experience of banks in the industry. To draw feasible conclusion and recommendation, primary data were also collected from 16 top executives of private banks using unstructured interview. Multiple linear regression method, correlation, mean and standard deviation was used to analyze secondary data and the primary data was presented in narration. Accordingly, the finding indicated that exposure to government bills has weak negative association with performance. Nevertheless, the magnitude is not severe. Moreover, the pre and post policy periods comparison revealed a relatively better profitability record for private banks during times of policy restrictions. Therefore, the bill seems contributed positively to performance via moping the excess liquidity holding of banks or to invest excess funds in earning government securities than the customary practice of holding liquid asset in zero earning accounts at the NBE. In general, the result of the study shows that the effect of the policy measure is mitigated by the excess liquidity standing of banks during the policy formulation, the likely possibility to expand to other fee generating services, stable liability prices and banks discretion to adjust their asset prices. Nevertheless, the decline trend in the share of loans from the total asset could have negative effect on the long run which in fact to some extent will be moderated by the maturity of part (but significant sum) of the bills in few years' time. Considering the output of the research, widening of income basis, introduction of new products to reach unbanked society and branch expansion so as to mobilize deposit, revision of government policy imposed on private banks and further exploration on the long run impact of the requirement is recommended.

Keywords: *NBE Bill, Bank Performance, ROA, Bank Liquidity*

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

It is a widely held view that despite recent trends of financial disintermediation and growth in market-based finance, the role of banks is essential to the performance and operation of modern economies (Rasidah and Mohd, 2011). The fundamental role of banks is to make the community's surplus deposits and investments useful by lending it to people who need money for various investment purposes (Geletta, 2011).The literature on the bank-lending channel has pointed out for long that a great deal of economic activity would be seriously hampered if the most prominent agents in the credit markets, the commercial banks, did not execute their functions properly.

There has been variety of regulatory measures imposed upon commercial banks in the effort to achieve the macroeconomic goal such as financial stability, promoting sound financial structure, credit control, portfolio concentrations and management of NPL. These functions suggests that the national bank of Ethiopia, as the name also indicates, takes the national view, and doesn't operate at the expense of consumers or to the harm the viability of banking system in the country.

The legal reserve requirement for commercial banks was introduced in 1994 by the national bank of Ethiopia and accordingly, commercial banks are required to transfer 25% of their annual profit to their legal reserve account until the amount equals the capital of the bank and thereafter, 10% of annual profit will be transferred to legal reserve account (NBE, 1995). Bankers Association, especially after the 27% bill purchase requirement, often raised issues of using 50% legal reserve in light of the liquidity problem they faced (IMF, 2012)

The use of credit control by the National Bank of Ethiopia has been extensive. Back in 2009, all private commercial banks were restricted to advance loan within a limit. They were limited to extend loan to their customers to the extent of the ceilings imposed on each bank by the regulatory body. This restriction was imposed as a direct monetary instrument to curb the higher level of inflation by the time. After the National Bank of Ethiopia managed to cut down the yearly average inflation, NBE announced that it removed the credit ceiling in 2011.

However, NBE introduced another requirement in 2011 (same year the loan ceiling was lifted). The new regulation required all commercial banks owned by private investors to purchase government treasury bonds amounting to 27% of their loan disbursement each time. These bonds pay 3% annual rate while the banks pay 5% on deposit. In other words, the current interest rate of bills is arbitrary as it does not reflect the cost of doing business (MFA, 2011).

It is in 2013 that the National bank of Ethiopia imposed another regulation on private commercial banks regarding limit on portfolio share of short term loans. Since the proclamation of such directive, private commercial banks were prohibited from extending medium/long term loans above 60% of their total outstanding loans. In other word, of the total outstanding loans and advances, private banks are expected to maintain a minimum of 40% short term loans and advances (MFA, 2013). This requirement is directly related to the 27% bill purchase requirement, aimed at keeping the frequency of loan disbursement not to decrease.

All in all, the aim of this study is to assess the implication of regulatory measures on the performance of private commercial banks; the case of 27% NBE bill purchase requirement.

1.2. Statement of the problem

It is undeniably true that the overall development strategy of Ethiopia is guided by the Agriculture Development Led Industrialization (ADLI) which is seen in light of ending poverty. And recently, the Government has prepared a five-year Growth and Transformation Plan (GTP 2010/11-2014/15). The major points of this strategy include: sustaining rapid and equitable economic growth, maintaining agriculture as major source of economic growth, creating conditions for the industry to play key role in the economy, enhancing expansion and quality of infrastructure development; enhancing expansion and quality of social development; etc. (FDRE, 2010).

For the realization of these government objectives and mainly to finance massive projects like the construction of the renaissance dam, the roles and a greater extent participation of the private sector, non-government and the public at large are considered as important facilitators. Therefore, the National Bank of Ethiopia (NBE), since April 01,2011, has issued NBE bills purchase Directives, subsequent to a lifting of lending caps which has been applied for about two consecutive years (from year 2009-2011). It mainly pertains to purchase of Bonds (the great renaissance dam saving bond) only by privately owned commercial banks from NBE (which later transferred to the Development Bank of Ethiopia) equivalent to 27% of new loan disbursement issued at a concessionary rate of three-percent (NBE, 2011).

Subsequent to such requirement, all privately owned commercial banks exhibited declining return on asset figure in the year 2011 and 2012 with the exception of Dashen Bank and Cooperative Bank of Oromia (NBE annual Report 2011/12). On one hand, the Directive is confronted by Ethiopian bankers association as it assumed to bring formidable challenges on the activity of privately owned commercial banks. In addition, its retroactive application and subsequent expansion of the exposure to bills is claimed to create tight liquidity position. On

the other hand, the regulatory bodies argue that there is no or little impact on the performance of private banks.

There have been no published researches undertaken on the impact of this regulation on performance of private banks by jointly taking profitability and liquidity position as a measure of performance. Therefore, the research will try to assess such knowledge gap as new perspective and assess the issue of 27% NBE bill purchase requirement by taking profitability and liquidity as a measure of bank performance.

1.3. Basic Research Questions

The study will be undertaken to assess the impact of regulations on the performance of Ethiopian private commercial banks; the case of 27% NBE Bill purchase requirement. More specifically, the study will provide possible answers to the following basic research questions:

- What is the impact of 27% NBE bill purchase requirement on profitability of the private commercial banks?
- Is there a relationship between 27% NBE bill purchase requirement and the liquidity of private commercial banks?
- What can be recommended to withstand this issue?

1.4. Objectives of the Study

1.4.1. General objective

The general objective of the study is to examine the relationship between regulatory measures and the performance of private commercial banks in relation to the 27% NBE bill purchase requirement.

1.4.2. Specific Objective

More specifically the study will address the under mentioned specific objectives;

- To evaluate the impact of 27% NBE bill purchase requirement on the profitability of private commercial banks
- To assess the impact of 27% NBE bill purchase requirement on the liquidity of private commercial banks
- To identify the trend of private bank's performance before& after 27% bill purchase requirement and measure the impact of the requirement accordingly.

1.5. Definition of Terms

The following words and phrases have the under mentioned meaning throughout my research report;

Disbursement of Loans and Advances: the release of funds in the form of loans and advances for a specified period of time by the bank to a borrower.

NBE Bill: means the long term obligation of National Bank of Ethiopia payable within 5 year period which is purchased by private commercial banks to the extent of 27% of their loans advanced to each customer

Nonperforming Loan: loans and advances whose credit quality has deteriorated so that the full principal and interest collection as per the contractual agreement becomes in question.

Long term loan_ in the context of this research, long term loans are loans extended to borrowers with maturity period of 5 to 10 years.

Medium term Loan_ loans extended by banks to finance working capital need or fixed investment need of the borrower having maturity period between one and five year

Regulation: is the rule/directive designed by the national bank of Ethiopia to govern the activities of banks

Short term loan_ loans extended by the banks to finance the working capital need of borrowers with a maturity period of one year.

1.6. Significance of the Study

There are several arguments on the impact of current bill purchase requirement. The regulators argue that there is no or little impact on performance of private banks while the representatives of private banks including the bankers association were raising their concerns and at time bitter lamentations. Therefore, the study tries to empirically examine the impact of this controversial provision on the performance of private banks. Apart from that, the study will help the regulatory bodies by providing insight to examine its policy measures in banking supervision pertaining to private banks.

1.7. Scope of the Study

The study will focus on some selected Ethiopian private banks by analyzing the financial statements starting from 2007 to 2014 fiscal years. Hence, the study will comprise all private commercial banks that started operation on and before 2006 excluding government owned commercial banks. This is argued on the fact that the banks have been operating long enough to give academic insight on what the study seeks to offer. As a result out of 16 private commercial banks in Ethiopia, the study will cover only eight banks that started operation on and before 2006 namely Dashen Bank, Awash International Bank, Wegagen Bank, Bank of Abyssinia, United Bank, Nib International Bank, Lion International Bank and Cooperative bank of Oromia.

And finally, of the various performance measures in the banking industry, only profitability and liquidity will be considered for this study.

1.8. Limitation of the Study

The study took, from among the private commercial banks, only those that were established in or before 2006 in the interest of data availability. The impact of such bills on smaller and younger commercial banks is not captured. With respect to primary data, though the respondents were carefully selected, the information is limited to the opinion and observation of the respondents in the sample. In addition, of the various regulatory measures of government, only 27% NBE bill purchase requirement is considered in the study.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

A comprehensive review of published and unpublished works in the areas of regulations and the performance of banks is made to develop and identify the problem, to develop research questions and so as to come up with appropriate research methods. It also comprises various researchers point of view on related research works from the context of various countries. Therefore, the literature review is organized and presented in two sections. The first section 2.1 discusses the theoretical literature about regulatory measures and the performance of banks from different perspectives and the second section 2.2 presented empirical literature on studies made at similar level.

2.1. Theoretical Literature

2.1.1. Regulations and Supervision

2.1.1.1. Definition

Harvey (2012) defines regulation as the formulation and issuance by authorized agencies of specific rules or regulations, under governing law, for the conduct and structure of banking. Given inter-connectedness of banking industry and the reliance that the national economy hold on banks, it is important for regulatory agencies to maintain control over the standardized practices of banking institutions.

Regulations also refers to a process in which there is a monitoring of financial institutions by a body that is directed by a government in an effort to achieve macroeconomic goals through monetary policies as well as other measures permissible by law (Vittas, 1992)

2.1.1.2. Types of Financial Regulations

Financial regulations can be categorized based on their aims and functions. As Williams (1996) outlines, regulations can be classified as structural, prudential and monetary.

- **Structural Regulation-** is regulations that place boundary to commercial banks determining the activity in which they can participate from those they can debarred. For example licensing of commercial banks and prohibition from engaging in other commercial activities (NBE, 1996).

- **Prudential Regulation-** is part of regulation that emphasizes on the control of systematic risk principally balance sheet constraints such as capital adequacy and permissible bank concentration ratios. For example NBE set single borrower limit to 25% of the bank paid up capital and reserve (NBE, 2002).

- **Monetary Regulation-** is the process of setting monetary directive designed to bring the desired macroeconomic outcome by focusing on interest rate, credit control and reserve requirements. It impact on deposit taking, and lending activities of commercial banks. For example 27% NBE bill purchase requirement on each loan disbursed (NBE, 2013).

2.1.1.3. Why Regulate Banks?

Spong 2000, stated that 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 extended to many aspects of banking, including who can open banks, what products can be offered, and how banks can expand.

The following sections focus on several of the more commonly accepted goals of bank regulation. Also, because of the potential for conflict among regulatory goals, special attention is given to what banking regulation should not do.

2.1.1.3.1. Protection of Depositors

The most basic reason for regulation of banking is deposit or protection. Pressure for such regulation arose as the public began making financial transactions through banks, and as businesses and individuals began holding a significant portion of their funds in banks.

Bank depositors may have more difficulty protecting their interests than customers of other types of businesses. 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 (Spong 2000).

2.1.1.3.2. Monetary and Financial Stability

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

banks from interrupting the flow of transactions across the economy and threatening public confidence in the banking system (Spong 2000).

2.1.1.3.3. Efficient and Competitive Financial System

Another aspect of a good banking system is that customers are provided quality services at competitive prices. One of the purposes of bank regulation, therefore, is to create a regulatory framework that encourages efficiency and competition and ensures an adequate level of banking services throughout the economy. 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 (Spong 2000).

2.1.1.3.4. Consumer Protection

Another goal of banking regulation is to protect consumer interests in various aspects of a banking relationship. The previous regulatory objectives serve to protect consumers in a number of ways, most notably through safeguarding their deposits and promoting competitive banking services. However, there are many other ways consumers are protected in their banking activities. 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 (Spong 2000).

2.2. Empirical Literature

2.2.1. NBE Bill Market

According to the assessment of IMF as presented in their 2012 country report, the 27% bill Purchase requirement has the potential to ultimately reduce funds available for on lending by private banks. The report presents potential impact on available funds as presented in table 2.1 below. IMF also concludes that the bill purchase requirement brings about Maturity mismatch (IMF, 2012).

Table 2.1 Impact of 27 percent bill purchase requirement on banks' lending

Years	1	2	3	4	5
Lending by private sector	1,000,000	864,645	753,990	663,827	590,677
Stock to NBE Bill	270,000	503,454	707,032	886,265	1,045,748

Source: IMF report 2012

The report also revealed that, the 27 percent requirement has potential impact o the maturity mismatches. That is, private banks mostly collect savings at two or three years maturity and even shorter in some cases. Therefore, fulfilling the 27 percent requirement means that they have to freeze these resources for five years, creating a clear maturity mismatch. (IMF country report No. 12/287, 2012)

2.2.2. Regulations and Bank Performance

Banking regulations have attracted both theoretical and empirical interest, and several studies attempt to assess whether and how the regulatory framework influences the performance and behavior of banks. In the following sub sections various literatures that examine the impact of certain regulations on bank activities are reviewed. However, it should be emphasized that in view of the general lack of empirical evidence on the impact of regulation and the mixed

result of literatures that considers various measure of performance, the anticipated impact of regulations (NBE bill purchase requirement) on performance can be ambiguous.

Various empirical studies on banks market over different time horizons, pointed out that Central Bank's adopted monetary policy of a country has implications on bank performance. Ikhide and Alawode (2001) indicated that central banks measures in Nigeria such as setting ceilings on interest rates and credit expansion, selective allocation of credit, and high reserve requirements could result in financial repression which distorts the well-functioning of domestic financial markets.

Aryeetey et al (1997) elucidate that excessive intervention by government (in Ghana, Malawi, Nigeria and Tanzania) as manifested by control of interest on loans and deposits rates tend to raise the demand for and depress the supply of funds. This creates unsatisfied demand for investible funds which forces financial intermediaries to ration credit by means other than the interest rate while an informal market develops at uncontrolled rates. The other feature of financial repression in the literatures is large differential between lending and deposit interest rates and implicit taxation (Aryeetey, 1997), (Chirwa, 2001). Seck and El Nil (1993) argued that the high spread between lending and deposit rates can be viewed as an implicit tax through high reserve requirements on the banking sector by the monetary authorities.

Capital requirements

The profitability of banks is related to the transformation of inputs like deposits to outputs like loans, capital requirements may affect productivity through various channels. The first channel is through the impact of capital requirements on bank lending, which is generally supported by various theoretical literature. For instance, Kopecky and Van Hoose (2005) argued that capital requirement influence bank decision-making in terms of both the quantity of lending and the quality of the loans granted. As their theoretical model illustrates that the

introduction of binding regulatory capital requirements on a previously unregulated banking system reduces aggregate lending, while loan quality may either improve or worsen. The analysis of Thakor (1996), in US covering the period 1989-93, also indicates that aggregate lending declines as a result of capital requirements influence. To come up with his findings, Thakor used market-model event study method. However, Van Hoose (2007) suggests that, in the long-term, capital regulation will increase capital ratios, which may or may not be accompanied by an increase in total lending. As regards the quality of loans and since screening and monitoring is costly, additional resources (i.e. inputs) will be required both in monetary and labor terms to ensure that banks operate within the desired level of risk.

The second channel works through the impact of capital requirements on the decision of banks as for the assets in which they invest (lend). Van Hoose (2007) reviews the literature and suggests that in light of stricter capital standards, banks may decide to substitute loans with alternative forms of assets. Thus, banks will switch from relatively risky assets to those with lower risk weighting, such as residential mortgages, short-term interbank exposures, or government securities. For example, Thakor (1996) argues that in a competitive environment, an increase in the minimum capital requirement for banks will result in higher loan-funding cost and lower profit from lending, since the bank is unable to pass this cost to borrowers. Thus, lending will be less attractive relative to investing in government securities, which do not require capital to be held against them. However, the mix of assets can have a substantial impact on productivity, if banks are not equally efficient in managing various categories of assets.

Various literatures, (for example Kopecky and Van Hoose (2005); Thakor (1996); Santos (2001)), argued that productivity can also be influenced through the impact of capital requirements on the liability side of banks' balance sheets. This is based on the fact that deposits and equity may be alternative sources of funds for banks. However, because capital is more expensive than deposits, banks will generally choose to operate with the minimum

capital level specified by regulators (Santos, 2000). Nevertheless, banks may be forced to substitute equity for deposits and issue new equity to meet capital adequacy requirements. Indeed, Santos (2001) in his research findings the case of Switzerland points out that even though an increase in capital standards may improve bank stability, it may not be desirable since it decreases deposits. Obviously, this decrease in the level of deposits can have an impact on productivity.

The empirical evidence on the influence of capital on bank efficiency provides some guidance as to whether solvency influences features of bank productivity. Hughes et al. (2001) find that when capital is included in cost functions to derive scale economies, this generally has a positive influence in terms of generating returns to scale (constant returns tend to be found when capital is excluded from their cost function estimates). Others, such as Altunbas et al. (2007) also find that capital can significantly influence bank cost and profit efficiency measures. Altunbas et al. (2007) in their cross-country study of European banks for the period between 1992-2000, for instance, find that relatively inefficient banks appear to hold more capital, while evidence from the other literature is mixed.

Related empirical research that focuses on other aspects of banks' performance also seems to generate mixed findings. Pasiouras et al. (2006) find a negative relationship between capital requirements and banks' soundness as measured by Fitch ratings. To come up with the captioned findings, Pasiouras used a sample of 715 banks from 95 countries using a two stage data envelopment analysis (DEA). In contrast, Pasiouras (2008) on his study reported a positive association between technical efficiency and capital requirements, although this is not statistically significant in all cases.

Supervisory Involvement

Under the official supervision approach, private agents may lack the incentives and capabilities to monitor powerful banks. However, Stigler, 1971 stated that, powerful official supervision can improve the corporate governance of banks. Based on the data obtained from more than 2500 corporations over 37 countries, Beck et al. (2004) suggested that a supervisor that has the power to monitor and discipline banks could enhance their corporate governance, reduce corruption in bank lending and improve the functioning of banks as financial intermediaries. Obviously, when banks are forced under the threat of a non-compliant discipline to direct their credit to politically connected firms, they cannot use risk-return criteria (Beck et al., 2004).

The empirical results are yet again mixed. Barth et al. (2004) indicate that there is no strong association between bank development and performance and official supervisory power. The results of Pasiouras et al. (2006) also indicate a negative relationship between supervisory power and overall bank soundness (i.e. credit ratings). In contrast, after controlling for accounting and auditing requirements, Fernandez and Gonzalez (2005) report that in countries with low accounting and auditing requirements a more stringent disciplinary capacity of supervisors over management action appears to be useful in reducing risk-taking. Furthermore, Pasiouras (2008) finds a positive and statistically significant impact of supervisory power on technical efficiency in most of his specifications.

On the basis of the above discussion, it seems likely that the productivity of banks will be influenced by the power of the official supervisors, although, like in the case of capital regulation, it is again difficult to predict the precise direction of this relationship.

Market discipline

According to the private monitoring approach, regulations and incentives that promote private monitoring will result in better outcomes for the banking sector. For instance, this can be achieved by requirements related to the disclosure of accurate information to the public that will allow private agents to overcome information and transaction costs and monitor banks more effectively (Hay and Shleifer, 1998). Furthermore, the existence or not of an explicit deposit insurance scheme and requirements to maintain subordinated debt finance are expected to have an impact on private monitoring. The private monitoring approach also argues that corruption of bank officials will be less of a constraint on corporate finance (Beck et al., 2004).

Thus, under the private monitoring empowerment view, we would expect that improved private governance of banks will boost their functioning (Barth et al., 2004) and their productivity. Furthermore, Barth et al. (2004) also find that regulations that encourage and facilitate private monitoring of banks are associated with greater bank development and lower net interest margins and non-performing loans. However, requirements for increased disclosures can also have a negative impact on productivity. As Duarte et al. (2006) mention, disclosures are costly for managers due to direct costs of making additional disclosures, additional time, effort to prepare formal disclosure documents, and the costs of maintaining investor relations departments. Furthermore, Duarte et al. (2006) point out that broad disclosure may result in the release of sensitive information to competitors. Others for example Pasiouras (2008) find a robust positive and significant relationship between disclosure requirements and technical efficiency.

Reserve Requirement

Ikhide and Alawode (2001) indicated that central bank's measures such as setting ceilings on interest rates and credit expansion, selective allocation of credit, and high reserve requirements could result in financial repression which distorts the well-functioning of domestic financial markets. Further, Seck and El Nil (1993) argued that the high spread between lending and deposit rates can be viewed as an implicit tax through high reserve requirements on the banking sector by the monetary authorities. There is a tendency for the monetary authorities to set high reserve requirements in less developed countries. For instance, the reserve requirement for Ghana in the early 1980s was as high as 80 percent (Aryeetey, 1997).Moreover, governments often used banking institution as a source of implicit taxation by imposing high reserve requirement and financing operating losses (Parastatals, Collier and Gunnings 1991 as cited in (Aryeetey, 1997). Besides, the proponents of financial repression concluded that less involvement of the government in the financial sector can support economic growth (McKinnon, Shaw 1973)

Restrictions on bank activities

Barth et al. (2004) outlined several reasons for restricting bank activities as well as reasons for allowing banks to participate in a broader range of activities. On the one hand, allowing a wide range of financial activities may lead to increased risk exposure of banks, or to the establishment of complex and powerful banks that will be difficult to monitor and discipline. Furthermore, the creation of large financial conglomerates may reduce competition and efficiency. Barth et al. (2004) find a negative association between restrictions on bank activities and banking sector development and stability. Barth et al. (2001) also confirm that greater regulatory restrictions on bank activities are associated with higher probability of suffering a major banking crisis, as well as lower banking sector efficiency. Finally, Pasiouras (2008) finds no significant association of restrictions on activities with technical efficiency.

2.2.3. Summary

Various researchers studied the impact of regulations on bank performance. To mention some, Ikhide and Alawode (2001), Kopecky and Van Hoose (2005), Altunbas et al. (2007) and Aryeetey et al (1997), indicated that central banks measures such as setting ceilings on interest rates and credit expansion, selective allocation of credit, and high capital requirements could result in financial repression. Thakor (1996) and Van Hoose (2007) concluded that lending declines as a result of capital requirements influence. Pasiouras et al. (2006) also concluded that a negative relationship between capital requirements and banks soundness. In contrast, Santos (2001) concluded that an increase in capital standards may improve bank stability. Pasiouras (2008) also reported a positive association between technical efficiency and capital requirements. Furthermore, Barth et al. (2004) also find that regulations that encourage and facilitate private monitoring of banks are associated with greater bank development and lower net interest margins and non-performing loans.

Barth et al. (2001) confirmed in his research that greater regulatory restrictions on bank activities are associated with higher probability of suffering a major banking crisis, as well as lower banking sector efficiency. Pasiouras (2008) on the other hand concluded that there is no significant association of restrictions on activities with technical efficiency.

The requirement of 27% NBE bill purchase was first introduced in April 2011with the aim of assisting the capital investment of the great renaissance dam. Since then, the Ethiopian bankers association claimed the requirement has the potential to reduce the fund available for lending by private banks. As the IMF calculations indicated that one million fund available in year one of operation will be reduced to 590,677 at the end of fifth year due to the 27% bill purchase requirement. Due to this fact, the bankers association claimed the requirement hampered the banks liquidity position. In contrast, the NBE officials indicated that there is no or little potential impact on private commercial banks in this regard.

Given the impact reported in the majority of the studies and that of controversial issues between the private banks and regulatory bodies, bank performance is expected to be influenced by government regulations, although the extent and direction of this influence is difficult to predict.

All in all, there is no published empirical study on the impact of the 27% bill purchase requirement the concomitant requirement on the loan duration. This study specifically tried to measure the impact of tying up capital by the requirement on performance factors by taking profitability and liquidity as principal indicators.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This chapter discusses the research design and methodology. The chapter is organized in five sections. The first section 3.1 discusses the research design. Sampling design is presented in section 3.2. Data source and methods of data collection and analysis are presented in section 3.3 and 3.4 respectively. In addition, Model Specification and Variable was presented in section 3.5.

3.1. Research Design

According to Kotzar et al., (2005), research design is a plan and structure of investigation and the way in which studies are put together. Cooper et al. (2003) also define research design as the process of focusing on the researcher's perspective for the purpose of a particular study. Leedy and Ormrod (2005) define a research methodology as a means to extract the meaning of data.

As the objective of the study reveals, the very purpose of this research was to find out the relationship between regulatory measures and the performance of private commercial banks. For this reason, the research is more of **causal type.** In order to benefit from the advantage of quantitative and qualitative research approach; the mixed method was used for this study.

3.2. Population and Sampling Techniques

According to Diamantopoulos (2004), a population is a group of items that a sample will be drawn from. A sample, on the other hand, refers to a set of individuals/companies/ selected from an identified population with the intent of generalizing the findings to the entire population. A sample is drawn as a result of constraints that make it difficult to cover the

entire research population (Leedy and Ormord, 2005). Therefore the under mentioned paragraphs discuss issues pertaining to sample frame, sample size and sampling techniques respectively.

For this research the population was all 16 privately owned commercial banks registered by the National Bank of Ethiopia (NBE).In line with this 16 banks will fall in the sample frame.

Further, a representative sample was selected from among the banks. Selection of sample was based on cluster sampling technique. Therefore banks that start operation on and before 2006 were grouped in Cluster 1 and those that start operation after 2006 were grouped in cluster 2. And accordingly, Dashen Bank, Awash International Bank, Wegagen Bank, Bank of Abyssinia, United Bank, Nib International Bank, Lion International Bank and Cooperative bank of Oromia fall under cluster 1 and on the other hand, Addis International Bank, Buna international Bank, Abay Bank, Enat Bank, Birhan International Bank, Oromia International bank, Zemen Bank, and Debub Global bank fall under cluster 2.

To answer the research questions and thereby to address the objectives of the study, cluster 1 was selected based on purposive sampling technique. These judgmental sampling was used considering the years of experience of the banks and so as to make comparative performance analysis between the period before and after the 27% bill purchase requirement.

For the purpose of primary data collected to augment the findings of quantitative data, 16 respondents were selected on the basis of position they held in the bank purposely. These respondents constitute 50% of the total population of top management staff involved in credit related activities in the selected banks. The respondents were selected on random basis from among management staffs in credit related activities

3.3. Data Source and Method of Collection

In order to carry out any research activity; information should be gathered from proper sources (Geoffery, 2005). The study used both primary and secondary data. Panel data from 2007- 2014 of eight privately owned commercial banks was collected from bank's monthly and annual reports and financial statements. Expert opinions were gathered through interview so as to come up with better conclusion and recommendations.

3.4. Method of Data Analysis

For the purpose of analyzing this study, both descriptive statistics and multiple regression analysis were used. The variables used in the multiple repression analysis were described in the following section.

Mean, minimum, maximum and standard deviation values will be used to analyze the general trends of documentary analysis from 2007 to 2014 for the variables which were included in the study. And finally, the data collected through interview are described with narration so as to come up with valid conclusion and recommendations.

3.5. Model Specification and Variable Definition

According to Creswell (2009), the variables need to be specified in quantitative researches so that it is clear to readers what groups are receiving the experimental treatment and what outcomes are being measured. Bank profitability is usually measured by the return on average assets, return on equity, and net interest margin which are expressed as a function of internal and external determinants. For the purpose of this study, return on asset is taken as a profitability measure.

All in all, the dependent and the independent variable of the research are discussed in the following sub sections.

3.5.1. Dependent variables

Bank performance is the dependent variable. In the context of this study, bank performance is measured by liquidity and profitability.

3.5.1.1. Bank Liquidity

Effective liquidity management seeks to ensure that, even under adverse conditions, a bank will have access to the funds necessary to fulfill customer needs, maturing liabilities and capital requirements for operational purposes. Without the required liquidity and funding to meet short-term obligations, a bank may fail.

For the purpose of this research, liquidity positions of private commercial banks are used as a measure of bank performance. And hence, the following liquidity ratio was used;

LIQ= Total Loan/Total Deposit

The liquidity ratio should give us information about the general liquidity shock absorption capacity of the bank. As a general rule, the higher the total loan in the banks deposit the lower the banks capacity to absorb liquidity shock, given that market liquidity is the same for all banks in the sample. Nevertheless, lower value of this ratio may also be interpreted as inefficiency; since liquid asset yield lower income liquidity bears higher opportunity cost for the bank. It is necessary to optimize the relation between liquidity and profitability.

Therefore, for each liquidity ratio, the following equation is used;

$$LIQ_{it} = \beta_j + \beta_1 Bill + \beta_k \Sigma X^K_{jt} + B_z DUM + \varepsilon_{jt}$$

Where $L_{it}$is the dependent variable (which is latter explained as bank liquidity) explaining performance of bank i at time t, with i= 1….N; t=1…T, β_j is a constant term, $X_{jt}$are k explanatory variables and ε_{jt} is the disturbance term. A Dummy variable is added to the model to classify the periods in to two: before and after the bill purchase policy. A variable 1 is assigned to represent the period after the bill purchase policy and 0, otherwise.

It is evident that the most important task is to choose the appropriate explanatory variables. The selection of the variable is made based on the study undertaken by Vodava 2009 on determinants of commercial banks liquidity.

Therefore, the econometric model can be expressed incorporating the identified variables as follows:

$$LIQ_{it} = Bill_{it} + CAP_{it} + LNTA_{it} + ROE_{it} + IRL_{it} + IRM_{it} + DUM_t + \varepsilon_{jt}$$

See Table 3.1 for description of variables

Table 3.1 Description of Variables: Bank Liquidity Position

Variables	Definition
LIQ	Measure of bank liquidity
BILL	27% NBE bill purchased to finance the renaissance dam
CAP	The share of own capital on total asset of the bank
ROE	Return on equity: the share of net profit on banks own capital
IRL	Interest rate on loans
LNTA	Loan to total Asset
IRM	Difference between interest rate on loans and interest rate on deposit
DUM	Dummy variables 0, or 1

3.5.1.2. Bank Profitability

Profitability can be measured by the ratio of the Return on Average Assets (ROA) and Net Interest Margin (NIM). The profitability measures included in the study is ROA which is described as follows;

- **Return on Assets (ROA)**

ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues. The following authors also used ROA as a measure of bank profitability (Li (2006), Abebaw and Depaack (2011), Indranarain (2009), Olweny and Shipho(2011) and Belayneh (2011)) ROA can be calculated as:

$ReturnonAsset\ (ROA) = \boldsymbol{NetProfitAfterTax\ /TotalAssets}$

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.

Therefore, as indicated in the method of data analysis part of the study, a multiple linear regression model that link the relationship between regulations related to banking sector with banks performance is to be used which can be stated as:

$$\mathbf{Perf_{it} = (Regulations_{it}, control\ variables_{it})}$$

The regulation specifically, as the interest of this study, is the 27 percent bill purchase requirement. Hence, the model can be reformulated as:

$$\mathbf{Perf_{it} = (bill_{it}, control\ variables_{it})}$$

Therefore, the bill effect on performance mathematically can be expressed as:

$$\mathbf{Perf_{jt} = \beta_j + \beta_1\ Bill + \beta_k \Sigma X^K_{jt} + B_z\ DUM + \varepsilon_{jt}}$$

Where $Perf_{jt}$ is the dependent variable explaining performance of bank i at time t, with i= 1….N; t=1…T, βj is a constant term, Xjt are k explanatory variables and εjt is the disturbance term. A Dummy variable is added to the model to classify the periods in to two: before and after the bill purchase policy. A variable 1 is assigned to represent the period after the bill purchase policy and 0, otherwise.

Here the selection of the variable was made based on the study undertaken by Lelissa 2014, regulatory measures and performance of private banks. And hence, the econometric model can be expressed incorporating the identified variables as follows:

$$ROA_{it} = \mathbf{Bill_{it} + NIM_{it} + PRTL_{it} + LNTA_{it} + FRTA_{it} + LNDP_{it} + DUM_t + \varepsilon_{jt}}$$

See Table 3.2 for description of variables

Table 3.2 Descriptions of Variables: ROA

Variables	Definition
ROA	Net Profit after Tax/Total Asset_ Measure of profitability
BILL	27% NBE bill used to finance the renaissance dam
PRTL	Provision/Total Loan_ measure of credit risk level of banks
NIM	Net Interest Income/Total Asset_ level of earning from loans and advances
LNTA	Loan/Total Asset _ measure of core earning source of banks
FRTA	Foreign Bank Deposit/Total Asset_ Exposure level of non-interest income source
LNDP	Liquid Asset / Total Deposit_ Liquidity level of Banks
DUM	Dummy variables 0, or 1

Table 3.2 Descriptions of Variables

3.5.2. Independent Variable

As the research topic indicates, the independent variable is loan related regulations. As to the scope of the study, 27% NBE bill purchase requirement will be the independent variable.

- **27% NBE Bill Purchase Requirement** _in this regard, historical data of NBE bill purchased by banks for the period between 2011and 2014 will be considered. It can be calculated as;

= Total loan disbursement * 27%

In addition, the impact of NBE bill purchased on the profitability of banks will be considered.

3.6. Qualitative aspects of the research

To augment the gap that might not be captured by the quantitative survey and to obtain deeper understanding of the impact of regulatory measures that would determine the performance of banks, unstructured interviews were conducted with senior bank officials in the industry. According to Gray (2004), interviewing is an ideal method to obtain data relating to people's views, knowledge and attitudes.

Accordingly, sixteen experienced bankers who were assumed to have a deeper understanding of credit dynamics in the Ethiopian financial industry were interviewed. These were from all banks and experts from the NBE. The researcher followed same interview protocol. As the information obtained were qualitative in nature and a detailed analysis was not made rather the qualitative data were organized thematically and content analysis was carried out.

3.7. Validity, reliability and ethical issues

Validity and reliability of the research measurement instruments influence, first the extent that one can learn from the phenomena of the study. Second the probability that one will obtain statistical significance in data analysis and third the extent to which one can bring meaningful conclusion from the collected data. Most ethical issues in research fall into one of the four categories: protection from harm, informal consent, right to privacy and honesty with professional colleagues (Leedy and Ormrod, 2005).

3.7.1. Validity

According to Leedy et al (2005), validity is the ability of an instrument used to measure what it is designed to measure. They further explained two basic questions: does the study have sufficient control to ensure that the conclusions the researcher draw are truly warranted by the data and can the researcher use what he/she has observed in the research situation to make generalization to the population beyond that specific situation? The answers to these two questions address the issues of the content validity, internal validity and external validity.

3.7.1.1. Content validity

In order to check content validity for the descriptive survey studies, Leedy et al., (2005) suggests three tactics: using multiple sources of evidence, establishing chain evidence and having key informants reviewing draft of the study report. To ensure content validity the target groups included in sample represented were those who know better about the issue being investigated.

3.7.1.2. Internal validity

The internal validity of a research study is the extent to which its design and the data it yields allow the researcher to draw accurate conclusions about the relationships within the data. In this case, it's less likely that there will be a Hawthorne effect since the respondents have professional background and knowledge about bank lending and credit management and those who were involved in the interview were not expected to change their behavior during interview. They were also asked to give their consent and they were given all the right not to answer any questions if they did not wish to.

3.7.1.3. External validity

External validity is related to the extent to which the findings from one research can be applied to other similar situations. In other words, how the conclusions drawn can be generalized to other contexts (Leedy et al., 2005). According to Leedy et al, these three strategies are: a real life setting, a representative sample and replication in different settings Leedy et al (2005). To ensure face validity the researcher performed multi method approach i.e. two or more different characteristics measured using two or more different approaches.

3.7.2. Reliability

According to Leedy and Ormrod (2005) reliability of a measurement instrument is the extent to which it yields consistent results when the characteristic being measured has not been changed. They further stated that in order to increase reliability, the researcher should use the same template as far as possible and use static methods. To ensure the reliability of measurement instrument the researcher performed first standardize the instrument from one person or situation to another.

Besides, the researcher also believes that this study is reliable since the respondents were selected based on their past experience on credit management and their answers were expected to be credible. Given the credibility of selected respondents, the same answers would probably be given to another independent researcher. Furthermore, ambiguous terms were not used in interviews to avoid confusion.

3.7.3. Ethical Issues

Due consideration was given to obtain consent from each participant about their participation in the study. It was strictly conducted on voluntary basis. The researcher tried to respect participants' right and privacy. The findings of the research were presented without any deviation from the outcome of the research. In addition, the researcher gave full acknowledgements to all the reference materials used in the study.

3.8. Summary

This chapter has presented the research design along with the research questions. Discussion of the research approach was also made with a special emphasis on the approach to be employed for this study. The types of instruments used to collect data and analysis method conducted thereof was also discussed.

Issues pertaining to validity, reliability and ethical matter were also presented. The next chapter presents the research result.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

This chapter deals with the results of study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, and regression analysis for ROA profitability measures and for liquidity measure; Total Loan/Total Deposit and discussion of results. Secondary data analysis was done by using SPSS software. Beside secondary data analysis, primary data collected from the managers of private commercial banks using interview are presented, analyzed and discussed in this chapter.

4.1. Findings of the Study

4.1.1. Bank Performance before Bill Purchase Requirement

4.1.1.1. Return on Asset and descriptive statistics of Variables

In this section shows descriptive statistics for the dependent variable; Return on Asset (ROA) and explanatory variables involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in table 4.1 below. These figures give overall description about data used in the regression models.

Table 4.1 Descriptive Statistics of Variables

Dependent Variable	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ROA	.18	5.50	2.4016	1.33001
Independent Variables	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
NIM	2.88	7.66	5.1225	1.39664
PRTL	.21	10.10	3.8411	2.68468
LNTA	35.10	66.00	49.3048	8.70459
FRTA	2.90	19.00	8.8403	4.17908
LNTD	33.10	78.10	57.7144	9.06882

Source: SPSS output from private banks financial statements

Table 4.1 shows descriptive statistics for all dependent and independent variables. Accordingly, ROA has a positive mean value of 2.4% and even escalate to the maximum of 5.5% and minimum value of 0.18%. The standard deviation 1.3 showed that there is lower variability from the mean.

Values for the explanatory variables are also shown along with that of ROA. The Variables are; NIM, PRTL, LNTA, FRTA and LNTD which have assumed to have different characteristics. In the pre bill purchase period, NIM has positive mean value of 5.1and 1.39 standard deviation which is the lowest variability from the mean as compared with other explanatory variables. It can be interpreted as almost all private commercial banks are applying relatively consistent interest rate on all kinds of finances and few variations were observed in NIM.

The measure of bank credit risk exposure as measured by PRTL exhibited mean value of 3.84 and standard deviation of 2.68. The mean value indicated that the overall risk exposure of banks exhibited below the industry threshold set by the national bank of Ethiopia which is 5%.

LNTA which is the measure of core earning source of the banks exhibited mean and standard deviation value of 49.3 and 8.7 respectively. This figure indicated that out of the total asset of private banks, 49% earning is obtained from loan. The minimum and maximum value is 35.1% and 66% respectively.

The exposure level of non-interest income as calculated by foreign bank deposit to total asset indicates mean value of 8.84%and standard deviation of 4.1% which indicates high degree of variability from the mean within the range of 21.9.

And finally, the mean value of LNTD as measured by loan to deposit ratio was 57.7, and the range of 111.2 which is the highest variability among variables. The standard deviation value of the variable is 9.07, which is the highest deviation as compared to other explanatory

variables. The mean value of LNTD shows that the Ethiopian private commercial banks was very liquid before the bill purchase regulatory measure, two times more than the minimum statutory liquidity ratio of 20 percent set by National Bank of Ethiopia (NBE) in January 2012.

4.1.1.2. Correlation Analysis between Study Variables

In this section the correlation between profitability measures; ROA and explanatory variables; NIM, PRTL, LNTA, FRTA and LNTD have been presented and analyzed. A correlation matrix used to ensure the correlation between explanatory variables. Cooper & Schindler (2009) suggested that a correlation coefficient above 0.8 between explanatory variables should be corrected for because it is a sign for multi-colinearity problem. Mashotra (2007) argued that the correlation coefficients can be0.75. Lastly, Hair et al. (2006) argued that also correlation coefficient below0.9 may not cause serious multicolinary problem. Therefore, in the case of this study, all explanatory variables' correlation coefficients are below 0.8 and thus the regression models have no multicolinearity problem.

4.1.1.2.1. Correlation analysis between ROA and explanatory variables

The ROA reflects the ability of a bank's management to generate profits from the bank's assets and this profitability measure is correlated with other explanatory variables either positively or negatively. In table 4.2 below, the correlation analysis was undertaken between ROA and explanatory variables; NIM, PRTL, LNTA, FRTA and LNTD.

As it can be seen from the table below, there was a positive correlation between ROA and NIM, PRTL, and FRTA. The result also exhibited a negative correlation between ROA and LNTD. That means the more the ratio of LNTD of banks and LNTA, the less the ROA of

private commercial banks in Ethiopia. This relationship support the statement given by Hempel et al, (1994) a high liquidity ratio indicates a less risky and less profitable bank.

Table 4.2 Correlation Matrix: ROA

	ROA	NIM	PRTL	LNTA	FRTA	LNTD
ROA	1					
NIM	.205	1				
PRTL	.024	.366**	1			
LNTA	.396**	.216	.122	1		
FRTA	.380**	-.103	-.196	-.420**	1	
LNTD	-.487**	-.115	-.064	.038	-.367**	1

Source: SPSS output from private banks financial statements

In table 4.2 above, the correlation coefficient between ROA and NIM was 0.21which is the smallest positive coefficient next to PRTL compared to other variables, this means that private commercial banks NIM has moderate association with profitability. But, FRTL, LNTA and ROA have exhibited the highest positive correlation coefficient which is 0.380 and 0.39 respectively. This result shows that the FRTL & LNTA of private commercial banks which is measured by the ratio of foreign bank deposit to total asset and total loan to total asset have significant relationship with the profitability measured; ROA. In addition, the correlation coefficient between ROA and PRTL exhibited 0.02 which was the smallest coefficient as compared with other explanatory variables this means that private commercial banks profitability has small association with PRTL. On the other hand, LNTD has exhibited negative association with ROA.

4.1.1.2.2. Correlation analysis among explanatory variables

The correlation between explanatory variables; NIM, PRTL, LNTA, FRTA and LNTD included in this study are presented and analyzed.

As reported in table 4.3 below, NIM of private commercial bank with PRTL and LNTA is highly correlated as compared to other explanatory variables included in this study with the coefficient of 0.37 and 0.22 respectively. Since their coefficient is less than 0.70 we can concluded there is no series multicolinarity problem as supported with empirical evidence; Mashotra (2007), Cooper & Schindler (2009) and Hair et al. (2006).

As presented in table 4.3 below, LNTA has a positive correlation coefficient with liquidity (LNTD). But, it has a negative correlation coefficient value of -0.42 with FRTA. NIM has a negative correlation coefficient value with all explanatory variables except with PRTL and LNTA.

Table 4.3 Correlation Matrix among Explanatory Variables

	NIM	PRTL	LNTA	FRTA	LNTD
NIM	1				
PRTL	.366**	1			
LNTA	.216	.122	1		
FRTA	-.103	-.196	-.420**	1	
LNTD	-.115	-.064	.038	-.367**	1

Source: SPSS output from private banks financial statements

4.1.1.3. Bank Liquidity Position and descriptive statistics of Variables

4.1.1.3.1. Descriptive statistics of variables

In this section descriptive statistics for the second dependent variable; Bank Liquidity (LNTD) and explanatory variables; CAP, PRTL, ROE, IRL, LNTA and IRM (difference between IRL and interest rate on deposit) involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in the table below. These figures give overall description about data used in the regression models.

Table 4.4 Descriptive Statistics of Variables

	Minimum	Maximum	Mean	Std. Deviation
LNTD	32.80	78.20	63.3492	11.84800
CAP	1.20	43.95	14.1827	6.30202
PRTL	.21	10.10	3.8411	2.68468
ROE	0.00	235.00	30.9255	30.99309
LNTA	35.10	66.00	49.3048	8.70459
IRL	10.50	12.25	11.6250	.72375
IRM	7.50	8.25	7.8750	.37796

Source: SPSS output from private banks financial statements

Table 4.4 above shows descriptive statistics for all dependent and independent variables. Bank Liquidity has a positive mean value of 63.35 and even escalate to the maximum of 78.2 and minimum value of 32.8. The standard deviation 11.3 showed that there is moderate variability from the mean.

Six explanatory variables also shown in table 4.4which are expected to determine the liquidity of private commercial banks and assumed to have different characteristics. CAP which is measured by the share of own capital over total asset has exhibited positive mean value of 14.18 and 6.3 standard deviation. As indicated in the table above, this independent variable

exhibited higher degree of variability from the mean. The capital adequacy mean value results suggest that about 14% of the total assets of private commercial banks were financed by shareholders funds while the remaining 86% was financed by deposit liabilities.

The measure of credit risk exposure as measured by PRTL exhibited mean value of 3.84 and standard deviation of 2.68. LNTA which is the measure of core earning source of the banks exhibited mean and standard deviation value of 49.3 and 8.7 respectively. This figure indicated that out of the total asset of private banks, 49% earning is obtained from loan. The minimum and maximum value is 35.1% and 66% respectively.

ROE shows positive mean value of 30.92 and standard deviation 30.99. There is greater variation in the data set of Return on Equity, because some banks are employed more capital, which increases the overall bank's ROE.

Interest Rate on Loans (IRL) exhibited mean value of 11.6 and standard deviation 0.72 whereas the IRM which is measured by the difference between lending rate and deposit rate exhibited mean value and standard deviation of 7.87 and 0.38 respectively. This indicated that, the smallest variation is exhibited in both variables as compared with other explanatory variables.

4.1.1.3.2. Correlation analysis among study variables

In this section the correlation between profitability measure; return on asset and explanatory variables; NBE Bill, Capital adequacy, Provision to total loan, ROE, IRL (Interest on Loans), LNTA and IRM (difference between IRL and interest rate on deposit) have been presented and analyzed. A correlation matrix used to ensure the correlation between explanatory variables. As stated earlier, correlation coefficient below 0.9 may not cause serious multicolinary problem. Thus, one of explanatory variables, Interest rate on Loans have been more than 0.8 correlation coefficient with IRM (the difference between interest rate on loans

and lending rate), the variable was excluded from the regression model to control multicolinearity problem.

4.1.1.3.3. Correlation analysis between return on asset and explanatory variables

The LNTD reflects liquidity shock absorption capacity of the bank and this bank liquidity measure is correlated with other explanatory variables either positively or negatively. In table 4.5 below, the correlation analysis was under taken between liquidity measure; total loan to total deposit and explanatory variables; Capital adequacy, Provision to total loan, ROE, (Interest on Loans), LNTA and IRM (difference between IRL and interest rate on deposit).

As it can be seen from the table 4.5 below, there was a positive correlation between bank liquidity and IRM, PRTL, and ROE. Whereas, there is a negative correlation between private commercial banks liquidity measure; LNTA, and capital adequacy ratio and LNTA (portion of earning source from total asset). That means the more the capital adequacy ratio and LNTA, the less the liquidity of private commercial banks in Ethiopia.

Table 4.5 Correlation Matrix: Liquidity Position

	LNTD	CAP	PRTL	ROE	LNTA	IRM
LNTD	1					
CAP	-.271*	1				
PRTL	-.161	-.122	1			
ROE	.029	.048	.104	1		
LNTA	-.558**	.159	.122	-.176	1	
IRM	.256*	-.097	.079	.127	-.511**	1

Source: SPSS output from private banks financial statements

As per the table 4.5 above, the correlation coefficient between bank liquidity and capital adequacy was -0.27which is the smallest negative coefficient next to LNTA as compared to other explanatory variables, this means that when private commercial banks capital

requirement increases the bank liquidity position will decline. In addition there is a negative association i.e. -.56 between bank liquidity and loan to total asset ratio which is a measure of earning source from total asset. This indicated that the more the portion of loan from total asset, the less the bank liquidity position will be. Lastly, the smallest negative association was exhibited between bank liquidity and provision to total asset figure. This shows that when the risk exposure of banks increases the liquidity of banks declines.

On the other hand, positive association between net gain on lending interest rate and private banks liquidity which is 0.26. This means that the more net gain on lending, the more bank liquidity ratio will be. The second positive association is observed between bank liquidity and return on equity which is the smallest positive association as compared with net gain on interest rate.

4.1.1.3.4. Correlation Analysis between Explanatory Variables

The correlation between explanatory variables; Capital adequacy, Provision to total loan, ROE, (Interest on Loans), LNTA and IRM (difference between IRL and interest rate on deposit) included in this study are presented and analyzed.

The table below shows that there is a negative correlation between capital adequacy and provision to total loan and that of net lending rate gain which is -0.12 and -0.1 respectively.

Table 4.6 Correlation Matrix between Explanatory Variables

	CAP	PRTL	ROE	LNTA	IRM
CAP	1				
PRTL	-.122	1			
ROE	.048	.104	1		
LNTA	.159	.122	-.176	1	
IRM	-.097	.079	.127	-.511**	1

Source: SPSS output from private banks financial statements

The table above indicated that there is a positive association between the measure of bank risk exposure and that of ROE, LNTA and IRM which have correlation coefficient of 0.1, 0.12 and 0.08 respectively. The figure indicted that, IRM exhibited the least association with bank liquidity as compared with other explanatory variables. From the figure indicated above we can understand that LNTA which is the measure of earning source from total asset have the highest positive association with bank liquidity whereas ROE exhibited moderate association.

Return on equity has negative association with LNTA which is -0.18 whereas a positive association was exhibited between net lending gain and that of return on equity which is explained by 0.13 correlation coefficients. In addition, net lending gain has positive association with LNTA i.e. -0.51.

4.1.2. Bank Performance after NBE Bill Purchase Requirement

4.1.2.1. Return on asset and descriptive statistics of variables

In this section descriptive statistics for the dependent; Return on Asset (ROA) and explanatory variables involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in the table below. These figures give overall description about data used in the regression models.

Table 4.7 Descriptive Statistics of Variables

Dependent Variable	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ROA	2.91	1.80	4.71	3.5410	.69778
Independent Variable	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
BILL	48.5	.5	49.0	17.085	8.4048
NIM	9.45	2.71	12.16	5.3368	2.26478
PRTL	6.21	1.10	7.31	2.8802	1.01949
LNTA	25.90	26.10	52.00	42.8429	5.48235
FRTA	17.90	1.90	19.80	10.1608	3.72245
LNTD	364.80	36.20	401.00	66.5976	56.11667

Source: SPSS output from private banks financial statements

Table 4.7 above shows descriptive statistics for all dependent and independent variables. Return on Asset has a positive mean value of 3.54 and even escalate to the maximum of 4.71 and minimum value of 1.8. The standard deviation 0.69 showed that there is lower variability from the mean within the range of 2.91.

Explanatory variables also displayed in table 4.1above and six explanatory variables which are expected to determine the profitability of private commercial banks are exhibited; NBE Bill, Net Interest margin, Credit Risk Exposure (PRTL), Measure of Portion of Core Earning source from total asset (LNTA), Non-Interest Income (FRTA) and Bank Liquidity (LNDP) have different characteristics.

As opposed to the previous analysis, this analysis covers the period between 2011 and 2014 where NBE bill purchase regulatory measure is introduced. Therefore, in this part of the analysis, NBE bill purchase is included as an explanatory variable which is measured by Bill purchased over total loan.

Therefore, Bill has a positive mean value of 17.1 with high degree of variability which is 8.4 within the range of 48.5. Net interest margin which is measured by loan interest income to total bank revenue has positive mean value of 5.3 and 2.3 standard deviation. Despite the fact that the mean value increased as compared with the pre bill purchase requirement, the degree of variability from the mean has also increased dramatically.

The measure of credit risk exposure as measured by total provision to total asset ratio (PRTL) exhibited mean value of 2.8 and standard deviation of 1.02.This indicated that in the post bill purchaser equipment, the risk exposure of private banks declined and the variability from the mean is also declined. Therefore, in relation with this variable, private banks are doing better in the post bill purchase requirement period.

Loan to total asset which is the measure of core earning source of the banks exhibited mean and standard deviation value of 42.8 and 5.48 respectively. This figure indicated that out of the total asset of private banks, 43% earning is obtained from loan. The minimum and maximum value is 26.1% and 52% respectively. As the figure indicates, the portion of loan from total asset is declined in the post bill purchase requirement with lower degree of variability.

The exposure level of non-interest income as calculated by foreign bank deposit to total asset indicates mean value of 10.16% and standard deviation of 3.7% which indicates high degree of variability from the mean within the range of 17.9. The figure shows that the non-interest income portion of profitability has increased in the post bill purchase requirement period. By comparing this result with the result of previous paragraph, private banks divert their operational concentration to non-interest income in the post bill purchase requirement which thereby boost the ROA figure in the same period under consideration.

And Finally, The mean value of liquidity of private banks was 66.59, and the range of 364 which is the highest variability among variables. The standard deviation value of the variable is 56.1, which is highest deviation as compare to other explanatory variables. The mean value of liquidity shows that the Ethiopian private commercial banks liquidity position is declining in the post bill purchase requirement.

4.1.2.2. Correlation analysis between study variables

In this section the correlation between profitability measures; return on asset and explanatory variables; NBE Bill, NIM, PRTL, LNTA, FRTA and LNTD have been presented and analyzed. The correlation matrix is used to ensure the correlation between explanatory variables. According to, [stated earlier in this chapter] Cooper & Schindler (2009),Mashotra (2007),and Hair et al. (2006) argument, the regression model adapted has no multicolinearity problem.

4.1.2.2.1. Correlation analysis between ROA and explanatory variables

The ROA reflects the ability of bank's management to generate profits from the bank's assets and this profitability measure is correlated with other explanatory variables either positively or negatively. In table 4.8 below, the correlation analysis was undertaken between profitability measure; return on asset and explanatory variables; NBE Bill, Net Interest margin, Credit Risk Exposure (PRTL), Measure of Portion of Core Earning source from total asset (LNTA), Non-Interest Income (FRTA) and Bank Liquidity (LNDP).

As it can be seen from the table below, there was appositive correlation between return on asset and FRTA, LNTD and NBE Bill. Whereas, there is a negative correlation between private commercial banks profitability measure; return on asset, and net interest margin, provision to total loan and loan to total asset. That means the more the ratio of loan NIM, PRTL and LNTA of banks, the less the ROA of private commercial banks in Ethiopia.

Table 4.8 Correlation Matrix: ROA

	ROA	BILL	NIM	PRTL	LNTA	FRTA	LNTD
ROA	1						
BILL	.002	1					
NIM	.232	-.083	1				
PRTL	-.062	.121	-.170	1			
LNTA	.171	.046	.101	.205	1		
FRTA	.611**	.040	-.560**	.148	-.465**	1	
LNTD	.062	-.117	-.108	-.081	.136	.060	1

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output from private banks financial statements

As per the table 4.8 above, the correlation coefficient between return on asset and bill was 0.002 which is the smallest positive coefficient as compared to other variables, this mean that

private commercial banks bill purchased has the least positive association with profitability. But FRTA exhibited the highest positive correlation coefficient which is 0.611.This result shows that the FRTA of private commercial banks which is measured by the ratio of foreign bank deposit to total asset have significant relationship with the profitability measured by return on asset. This indicated that FRTA becomes the major earning source in the post bill purchase requirement.

The above table also indicated that, the correlation coefficient between ROA and NIM, and LNTA was0.23, and 0.17 respectively. This means that private commercial banks profitability has positive association between NIM and LNTA. In addition, negative relationship was also exhibited with PRTL.

4.1.2.2.2. Correlation analysis between explanatory variables

The correlation between explanatory variables; NBE Bill, Net Interest margin, Credit Risk Exposure (PRTL), Measure of Portion of Core Earning source from total asset (LNTA), Non-Interest Income (FRTA) and Bank Liquidity (LNDP) included in this study are presented and analyzed.

As indicated in the table below, bill has negative association with NIM and LNTD which are -0.08 and 0.12 respectively. This means when the bill purchased by private banks increase, the net interest margin earned by banks declined. In addition, the increase in bill amount purchased by private banks results decline in the liquidity position figure. Therefore, this results support the claim raised by the bankers association in relation with the bill purchase requirement regulatory measure.

According to Table 4.9, bill has a positive association with PRTL, LNTA and FRTL which is 0.12, 0.05 and 0.04 respectively. Primarily, bill requirement increased the banks risk exposure which is measured by provision to total loan. In other words, bill purchase regulatory measure

increased the private banks risk exposure. Secondly, the higher the amount of bill purchased the increase in LNTA. This indicated that when the portion of loan from total asset increased, the amount of bill purchased by private banks obviously increased. Lastly, bill and FRTL has positive association. This can be understood that the bill purchase requirement regulatory measure forced private banks to divert their attention on non-interest income operations.

Net interest margin has a negative association with PRTL, FRTA and LNTD whereas it has a positive association with LNTA. This means that when the risk exposure of banks increases, NIM declines. The same is true for FRTA and LNTD. LNTA which is explained as the portion of loan over total asset has positive association with net interest income.

Bank risk exposure which is measured by provision to total loan has negative association with LNTD (liquidity position) whereas LNTA and FRTA have positive association with the bank risk exposure. On the other hand, LNTA has a negative association with FRTA whereas it has a positive association with LNTD. The same was true for LNTD and FRTA.

Table 4.9 Correlation Matrix between Explanatory Variables

	BILL	NIM	PRTL	LNTA	FRTA	LNTD
BILL	1					
NIM	-.083	1				
PRTL	.121	-.170	1			
LNTA	.046	.101	.205	1		
FRTA	.040	-.560**	.148	-.465**	1	
LNTD	-.117	-.108	-.081	.136	.060	1

Source: SPSS output from private banks financial statements

4.1.2.2.3. Liquidity position and Descriptive statistics of Variables

In this section descriptive statistics for the second dependent variable; Bank Liquidity (LNTD) and explanatory variables; NBE Bill, Capital adequacy, Provision to total loan, ROE, IRL (Interest on Loans), LNTA and IRM (difference between IRL and interest rate on deposit) involved in the regression model are presented. Mean, maximum, minimum and standard deviation values are included in the table below. These figures give overall description about data used in the regression models.

Table 4.10 Descriptive Statistics of Variables

Dependent Variable	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
LNTD	56.52	21.30	77.82	46.4853	15.35683
Independent Variable	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
BILL	48.5	.5	49.0	16.895	8.4759
CAP	9.90	9.40	19.30	14.1583	3.10440
PRTL	44.21	1.10	45.31	3.5431	5.39930
ROE	55.53	15.97	71.50	31.5959	13.75265
LNTA	25.90	26.10	52.00	42.6578	5.63653
IRL	.45	11.80	12.25	12.0450	.20858
IRM	.70	6.80	7.50	7.1700	.33383

Source: SPSS output from private banks financial statements

The table 4.10 above shows descriptive statistics for all dependent and independent variables. Bank Liquidity has a positive mean value of 46.48 and even escalate to the maximum of 77.8 and minimum value of 21.3. The standard deviation 15.36 showed that there is higher variability from the mean. This indicated that the total deposit of banks has increased in relation to total loan advanced to customers in the post bill purchase requirement period. However, the figure indicated that even though the deposit mobilized by private banks

increased, the loan advanced to customers has decreased due to the 27% bill purchase requirement.

NBE bill has positive mean value of 16.9 and even goes to the maximum of 49 percent and to the minimum of 0.5 percent with high degree of variability i.e. 8.5.

Capital Adequacy which is measured by the share of own capital over total asset has exhibited positive mean value of 14.16 and 3.1 standard deviation. As indicated in the table above, this independent variable exhibited almost the same mean value with the pre bill purchase requirement period but the degree of variability from the mean is very lower in the post bill purchase requirement period. The capital adequacy mean value results suggest that about 14% of the total assets of private commercial banks were financed by shareholders funds while the remaining 86% was financed by deposit liabilities.

The measure of credit risk exposure as measured by total provision to total asset ratio (PRTL) exhibited mean value of 3.54 and standard deviation of 5.4. As compared with the pre bill purchase requirement period, the risk exposure of private banks shows slight decrease however, the degree of variation from the mean has doubled itself.

Return on Equity shows positive mean value of 31.59 and standard deviation 13.75. This shows that there is a slight increase in mean value of ROE in the post bill purchase requirement and also the degree of variation from the mean decreased dramatically.

Loan to total asset which is the measure of core earning source of the banks exhibited mean and standard deviation value of 42.66 and 5.6 respectively. This figure indicated that out of the total asset of private banks, 43% earning is obtained from loan. The minimum and maximum value is 26.1% and 52% respectively. The figure indicated that the portion of total loan over total asset has declined in the post bill purchase regulatory measure period.

Interest Rate on Loans (IRL) exhibited mean value of 12.05 and standard deviation 0.2 whereas the IRM which is measured by the difference between lending rate and deposit rate exhibited mean value and standard deviation of 7.17 and 0.33 respectively. This indicated that, the smallest variation is exhibited in both variables as compared with other explanatory variables.

4.1.2.2.3.1. Correlation analysis among study variables

In this section the correlation between liquidity measure; Total loan to total deposit ratio (LNTD) and explanatory variables; NBE Bill, Capital adequacy, Provision to total loan, ROE, IRL (Interest on Loans), LNTA and IRM(difference between IRL and interest rate on deposit) have been presented and analyzed.

4.1.2.2.3.1.1. Correlation analysis between liquidity measure and explanatory variables

The LNTD reflects liquidity shock absorption capacity of the bank and this bank liquidity measure is correlated with other explanatory variables either positively or negatively. In table 4.11 below, the correlation analysis was undertaken between liquidity measure; total loan to total deposit and explanatory variables; NBE Bill, Capital adequacy, Provision to total loan, ROE, (Interest on Loans), LNTA and IRM(difference between IRL and interest rate on deposit).

As it can be seen from the table below, there was a positive correlation between bank liquidity and Bill, CAP, PRTL, and ROE. Whereas, there is a negative correlation between private commercial banks liquidity measure; LNTA, and IRM ratio and LNTA (portion of earning source from total asset). That means the more the IRM and LNTA, the less the liquidity of private commercial banks in Ethiopia.

Table 4.11Correlation Matrix: LNTD

	LNTD	BILL	CAP	PRTL	ROE	LNTA	IRM
LNTD	1						
BILL	.314*	1					
CAP	.052	.092	1				
PRTL	.258*	-.154	-.088	1			
ROE	.422**	.031	.132	.031	1		
LNTA	-.415**	.091	.145	-.221	-.260*	1	
IRM	-.478**	-.448**	.096	.118	-.110	-.034	1

Source: SPSS output from private banks financial statements

As per the table above, the correlation coefficient between bank liquidity and NBE bill was 0.31which mean that when private commercial banks bill purchased increases the percentage of loan to deposit ratio also increases which is an indication of bank liquidity problem. Capital adequacy ratio and bank liquidity shows correlation coefficient of 0.05 which is the smallest positive correlation as compared with other variables. Apart from this the positive correlation coefficient i.e. 0.42 is also exhibited between bank liquidity and ROE. This relationship can be explained that the higher LNTD ratio means loan dominance over the bank deposit which reflects positively increasing return on equity. PRTL also positively associated with LNTD i.e. 0.24.

In addition there is a negative association i.e. -0.42 between bank liquidity and loan to total asset ratio which is a measure of earning source from total asset. This indicated that the more the portion of loan from total asset, the less the bank liquidity ratio will be. Lastly, the highest negative association was exhibited between bank liquidity and IRM figure.

On the other hand, the highest positive association between net gain on lending interest rate (the difference between lending rate and deposit rate) and private banks liquidity which is 0.26.this means that the ore net gain on lending, the more bank liquidity will be. The second positive association is observed between bank liquidity and return on equity which is the smallest positive association as compared with net gain on interest rate.

4.1.2.2.3.1.2. Correlation analysis among explanatory variables

The correlation between explanatory variables; NBE Bill, Capital adequacy, Provision to total loan, ROE, (Interest on Loans), LNTA and IRM (difference between IRL and interest rate on deposit) included in this study are presented and analyzed.

Accordingtotable4.12below, capital adequacy ratio of private commercial bank with ROE and LNTA is highly correlated as compared to other explanatory variables included in this study with the coefficient of 0.05 and 0.16 respectively. Since their coefficient is less than 0.70 we can concluded there is no series multicolinarity problem as supported with empirical evidence; Mashotra(2007) argued that the correlation coefficient can be 0.75. Cooper & Schindler (2009) suggested that a correlation coefficient above 0.8 should be corrected for. Lastly, Hair et al. (2006) argued that also correlation coefficient below 0.9 may not cause serious multicolinarity problem.

On the other hand, there is a negative correlation between capital adequacy and provision to total loan and that of net lending rate gain which is -0.12 and -0.1 respectively.

Table 4.12 Correlation Matrix between Explanatory Variables

	BILL	CAP	PRTL	ROE	LNTA	IRM
BILL	1					
CAP	.092	1				
PRTL	-.154	-.088	1			
ROE	.031	.132	.031	1		
LNTA	.091	.145	-.221	-.260*	1	
IRM	-.448**	.096	.118	-.110	-.034	1

Source: SPSS output from private banks financial statements

As indicated in the table above, bill has positive association with ROE, LNTA and CAP which have correlation coefficient of 0.03, 0.09 and 0.09 respectively. The figure indicted that, ROE exhibited the least association with bill as compared with other explanatory variables. From the figure indicated above we can understand that CAP which is the measure of earning source from total asset has the highest positive association with bill whereas LNTA exhibited moderate association. Bank risk exposure (PRTL) and IRM has negative association with bill which is -0.15 and -0.45.

Capital adequacy ratio is negatively associated with credit risk exposure which is -0.09 and positive association with other explanatory variables namely ROE, LNTA and IRM with positive correlation coefficient of 0.13, 0.15 and 0.1 respectively.

Bank credit risk exposure, on the other hand, have positive correlation with ROE and IRM and negative association with LNTA.

As the table above also shows, ROE figure has negative association with LNTA and IRM whereas LNTA is negatively associated with IRM.

4.1.3. Regression analysis results and discussions

4.1.3.1. Regression Analysis between ROA and Explanatory Variables

To examine the relationship between profitability measures and explanatory variables two regression analysis were used. The first regression analysis was undertaken to investigate the relationship between ROA and independent variables after the bill purchase regulatory measure was imposed. Thus this regression model was applied:

$$\textbf{ROA} = 2.85 + 0.001NIM - 0.092PRTL + 0.006LNTA + 0.075FRTA + 0.001LNTD - 0.00004BILL \ldots\ldots\ldots\ldots\ldots (1)$$

In the following table 4.13, coefficients, standard errors, t-values, and p-values for explanatory variables, and R-squared, Adjusted R-squared, Standard Error of regression, F-statistic, Prob (F-statistic) for the regression, and number of observations included in the study are presented.

Table 4.13: Regression result between ROA and explanatory variables

	Coefficient	Standard error	t-value	p-value
C	2.85	1.1	2.28	.01
NIM	.001	0.05	-.22	.03
PRTL	-.092	.09	-1.01	.79
LNTA	0.006	.02	0.27	.032
FRTA	.075	.03	2.29	.02
LNTD	0.001	0.002	.14	.04
27% NBE Bill	-.00004	.01	-.004	.99
R-square	0.78			
Adjusted R-square	0.68			
S.E. of regression	0.91			
F-statistic	1.8			
Prob. (F-statistic)	0.1			
Number of Observation	64			

Source: SPSS output from private banks financial statements

As it can be seen from table 4.13 loan to total asset, foreign bank deposit to total asset, net interest margin and loan to total deposit are statistically significant at 5 percent significant level. Which means that net interest margin, foreign bank deposit, higher portion of loan from total asset and higher liquidity ratio have better contribution to improve banks profitability. The result also shows that private commercial banks should focus to raise their deposit mobilization effort to enhance their profitability.

All explanatory variables have a positive relationship with return on asset except PRTL AND NBE bill. Low coefficient of -0.00004 shows that NBE bill has weak impact on the profitability of private commercial banks and any increase in NBE bill leads to insignificant decline in profitability. A positive coefficient of NIM (.001), FRTA (.075), LNTA (.006) and LNTD (.001) implies that an increase in such variables leads to increase profitability.

R-squared is measured the goodness of fit of the explanatory variables in explaining the variations in banks profitability measure ROA. As clearly described in Table 4.13 R-squared value for the regression model was 0.78. This indicates the explanatory variables in this study jointly explain about 78 percent of the variation in the profitability measure, return on asset. The remaining 22 percent of the variation in the profitability of private banks explained by other variables which are not included the model. Therefore, these explanatory variables together, are good explanatory variables of the profitability of private commercial banks in Ethiopia. Beside this F- statistics (1.8) which is used to measure the overall test of significance of the model was presented.

4.1.3.2. Regression analysis between Bank Liquidity and explanatory variables

The second regression analysis was done to know how much the bank liquidity is affected by the amount of bill purchased by private banks. This regression model was used:

$$LIQ=199.97 +0.32BILL +0.57CAP+ 0.75PRTL +0.29ROE -0.92LNTA- 19.46IRM\ldots (2)$$

Table 4.14 Regression analysis result between LIQ and explanatory variables

	Coefficient	Standard error	t-value	p-value
C	199.971	35.815	5.583	.000
Capital Adequacy Ratio	.566	.445	1.273	.208
Credit Risk Exposure	.746	.253	2.943	.005
Return of Equity	.290	.102	2.845	.006
Loan to total asset	-.918	.253	-3.635	.001
Net Lending Rate(IRM)	-19.464	4.522	-4.304	.000
27% NBE Bill	.321	.177	1.811	.075
R-square	0.76			
Adjusted R-square	0.69			
S.E. of regression	0.11			
F-statistic	13.15			
Prob. (F-statistic)	0.000			
Number of Observation	64			

Source: SPSS output from private banks financial Statement

In the above table coefficient, standard error, t-value, and p-value for all explanatory variables and the value of R-squared, adjusted R-squared, S.E of regression, F- statistics with p-value and number of observations included in this study were presented.

As per table 4.14 above, capital adequacy ratio, provision to total loan, return on equity and NBE bill has a positive relationship with performance measure; liquidity, and both provision to total asset and ROE are statistically significant at 1 percent significance level. As compared with other variables, provision to total loan has strong impact on bank liquidity position which is usually measured by provision divided by net loan.

According to table 4.14, the regression analysis result indicated that loan to total asset and IRM have negative relationship with bank liquidity position. Although, there is negative relationship between loan to total asset ratio and liquidity, it is significant at 5 percent significance level, which means the more loans to total asset ratio of the bank, the lower the bank liquidity position. While, with regard to negative coefficient of IRM of private banks; it indicates that the poor IRM leads to liquidity problem, the result is significant at 1% level of significance.

Table 4.14 also shows that variations in the dependent variable for the bank performance, as measured by liquidity position, are explained satisfactorily by variations in the selected explanatory variables, Because R-squared 0.76, which indicates that explanatory variables included in the study together explain about 76 percent of the variation in the profitability. The remaining 24 percent variation in the profitability of private commercial banks in Ethiopia is explained by other variables which are not included in the study.

The Table also presented the value F-statistics which is 13.15 with p-value of 0.0000, which is used to measure the overall significance of the regression model. As stated earlier, the p-value is 0.0000 which is sufficiently low and we can say that the model is well fitted at 1 percent level of significance.

4.1.4. Discussion of Interview Results

In this section primary data gathered from top executives of private commercial banks through unstructured interview was presented and discussed. They were solicited to elaborate the impact of regulatory measures, specifically the 27% NBE bill purchase requirement, on the performance of private commercial banks. Accordingly, fifteen experienced bankers who were assumed to have a deeper understanding of credit dynamics in the Ethiopian financial industry were interviewed. These were from all banks and NBE referring to their expertise opinion.

With regard to the question related to the imposition of NBE bill purchase requirement and the resulting profitability trend as measured by ROA, almost all bankers argued that the requirement seriously affect the bank's profitability. Despite the fact that the real ROA of most private commercial banks has an increasing trend, bankers raise the issue as it hampering the increasing trend of profitability. They also pointed out that, since there was a lending ceiling before the imposition of 27% NBE bill purchase requirement, it is difficult to trace the impact on profitability.

On the other hand, as various bank experts explained during our interview, the NBE bill has low interest earning with maturity of five year. The requirement claimed reducing fund available for lending. In addition, the requirement has a potential of creating maturity mismatch. That means private banks collect savings mostly for two to three year maturity and even shorter in some cases. Therefore, fulfilling 27 percent requirement means that they have to freeze their resources for five years which thereby creates a clear maturity mismatch.

As the CEO of Cooperative Bank of Oromia indicates, the policy has clear implication in terms of the return banks collect and the competing demand they need to satisfy. The government also takes the policy as a means of taking the scarce resource they have. On the other hand they pointed out that banks mobilize deposit at interest rate of five percent while

the return they secure from the bond is three percent. As an employee they earn five percent on the renaissance bond while banking sector is not. The opportunity cost is so high. [Ethiopian business review, 2015]

In conclusion, the interview result indicated that the 27 percent NBE bill purchase requirement has a negative impact on the profitability of private commercial banks. It further indicated that the requirement seriously affect the liquidity position of private banks.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter the major findings of the study are summarized; conclusions are drawn based on the findings and recommendations are forwarded for the concerned bodies.

5.1. Summary and Conclusions

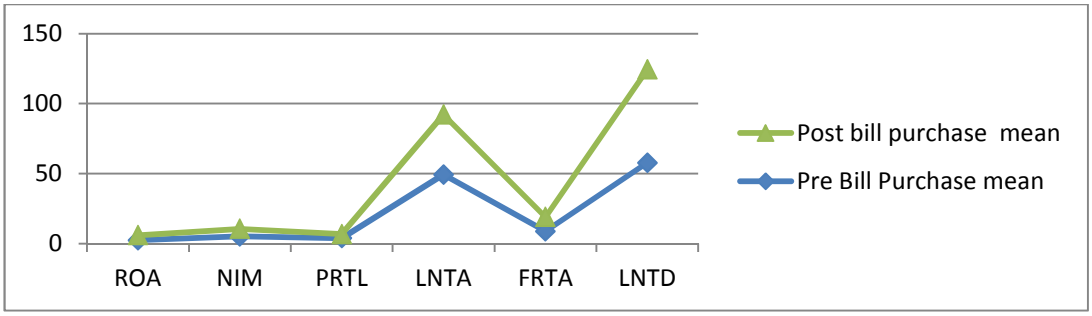
The main objective of this study was to examine the impact of regulatory measures on the performance of privately owned commercial banks in particularly with respect to 27% bill purchase requirement. Specific objectives were to assess the impact of 27% bill purchase requirement on the profitability and liquidity position of private commercial banks. Balanced panel data of 64 observations from 2007 to 2014 of eight private commercial banks was analyzed using multiple linear regressions method. In this study, both secondary and primary data were used to investigate the impact of 27% bill purchase regulatory measure on the performance sample private commercial banks in Ethiopia.

With regard to secondary data analysis, based on the financial statement of private banks, two regression models were used for profitability measures; (ROA) and bank liquidity measure (LNTD). In relation to the primary data analysis the unstructured interview was used with top executives of private commercial banks. The major findings of the study results from secondary and primary data analysis are presented as follows:

- Descriptive analysis results revealed that despite the variation in private commercial banks, the mean ROA appear positive and showed an increasing trend throughout the period covered under this study. More specially, the Mean ROA increased from 2.4% to 3.5% in the post bill purchase period. Even, high degree of variation from the mean was exhibited during the pre-bill purchase requirement period. Trend wise as well, the profit of banks under the study is moving in an increasing trend in in pre and post bill

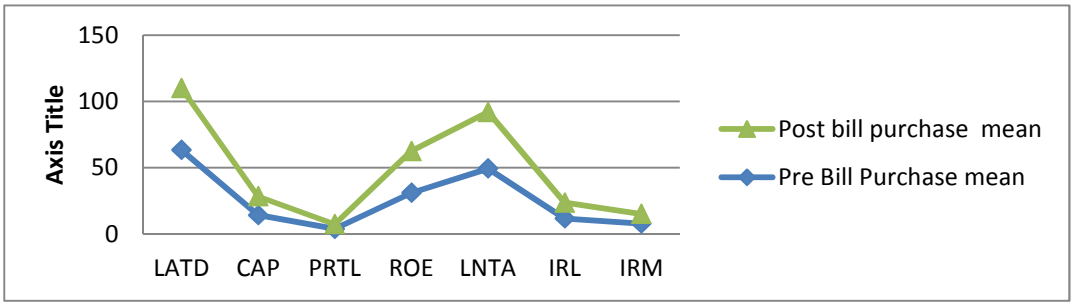
purchase requirement (chart 5.1 below) indicating that banking business has remained one of the most profitable engagements.

Chart 5.1. Pre and post bill purchase period mean comparison



- In relation to the descriptive analysis of bank liquidity measure LNTD, the mean value of loan to deposit ratio decline from 63% to 46% with high degree of variability from the mean (Chart 5.2 below). This indicated that private banks granted significant amount to loan from their deposit in the pre bill purchase period as compared with the post bill purchase requirement period. On the other hand, LNTA which is measured by total loan to total asset ratio, decline from 49% to 43% indicating that the portion of total loan in the total asset of private banks were declining. Other explanatory variables mean value have no significant variation.

Chart 5.2 LNTD pre and post bill purchase mean comparison



- In relation to ROA profitability measure, FRTA has significant impact on the profitability of private banks whereas LNTD and Bill also have negative but weak association with profitability of private banks in the post bill purchase period. As compared with the pre bill purchase period, the strength of relationship between ROA and FRTA shows dramatic increase in the post bill purchase period. This indicated that in the post bill purchase requirement period, banks concentrate in other income generating lines of business increased apart from the net interest margin. All in all, the regression result of this study indicated that all explanatory variables included in this study jointly explain about 78% of the variation in return on asset.

- In relation with bank liquidity position (LNTD), capital adequacy ratio, PRTL and LNTA have significant negative association in the pre bill purchase period whereas Bill, CAP, PRTL, and ROE exhibited positive association with LNTD. Note that the more the LNTD percentage the more that bank liquidity problem is. Therefore, the result indicated that the Bill purchase requirement is eroding the banks liquidity position. The increase in IRM has negative impact on LNTD which implies that borrowers are price sensitive. In this regard the regression output of the study indicated that the explanatory variables included in this study jointlyexplainabout76 percent of the variation in liquidity position.

- With regard to the primary data of the study, most of the respondents argue that the NBE bill purchase requirement has eroded the private banks liquidity position as well as the potential profit to be earned by banks. In connection with this, they explained that the ceiling imposed on banks in the pre bill purchase period shadows the impact of bill purchase requirement in the post bill purchase period.

Based on the findings of the study, it can be concluded that private banks exposure to government bills has negative and significant relationship with ROA. Nevertheless, the magnitude is not rigorous. Even the pre and post bill purchase policy periods comparison shows a relatively better profitability record for private banks during times of policy restrictions. Hence, the bill seems contributed positively to performance via moping the excess liquidity holding of banks or providing an opportunity for private banks to invest their excess funds in government securities than the customary practice of holding their liquid asset in zero earning accounts at the National Bank of Ethiopia.

The weak link between Banks' performance and bill purchase imposed reduced loanable fund against the background of interest dominated income base requires further investigation. Even so, barrier to entry to the market is seen as one player to explain the matter as the minimum paid up capital requirement for establishing Banks have risen from Birr 200m to Birr 500m only recently. The move has deterred new entrants from joining in and hence the existing ones are left to enjoy the benefits of one of the least Banked countries in Sub Sahara Africa.

In addition, it activated banks to work on fee generating income sources. The significant relation of the NIM with performance revealed bank’s respond to the policy through adjusting their loan prices in a way to compensate for the opportunity lost. Hence, the Banks cost related to bill purchase to some extent seems covered by the borrowers but the increase in rate has not resulted in materialized high default risk.

All in all, the result of the study shows that the impact of 27% bill purchase requirement is mitigated by the excess liquidity standing of banks during the policy formulation, the limited but likely possibility to expand to other fee generating services, stable liability prices and banks discretion to adjust their asset prices. However, the decline trend in the share of loans from the total asset could have negative impact on the long run but to some extent tone down by the maturity of part of the bills in few years’ time.

5.2. Recommendations

In order to hold up risky surprises and maintaining financial stability, it is vital to identify the impact of regulatory measures on the performance of private commercial banks in Ethiopia. Therefore, based on the study results, the following recommendations were forwarded to the concerned bodies.

- Tight government regulations towards the banking sector were one of the major determinants factors for the profitability of private commercial banks. Accordingly, government bodies should take into consideration the adverse effect of the policies imposed on private banks.

- Private commercial banks should focus on branch expansion to mobilize funds from the unbanked society. As many literatures supports financial intermediation in Ethiopia is still in its early stages even by the standards of other low-income countries: more than 90 percent of the population is unbanked (versus an average of 60-70 percent elsewhere in Africa); and many other metrics such as the total number of banks, banks contribution to GDP, bank accounts per person, branches per person, and bank credit per person are lower in Ethiopia compared to other African countries. Thus, private commercial banks should focus to reach this unmet demand of finance by adjusting their strategy with the government regulation.

- The indirect and long term effect of bill purchase also requires further scrutiny. Although it appears non-inflationary from the outset, Banks' effort to make up for the deposit gap and their scramble for savings in the market could push the price of demand deposits up. This stirs an income gap as the predetermined interest attached to the bonds will not react to market prices. What is more, post bill purchase /upon

maturity/ scenario should also be given due consideration on the effect it may have on the financial environment;

- And finally, management bodies of private commercial banks should strive to strengthen and widening other income generating sources such as Agent Banking to reach untapped market, paperless service to decrease the service delivery process and others. True, this demands huge investment on infrastructure and technology. Yet, it is investing on their future to assure the public, their shareholders and the government alike of their commitment to stay in the business.

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