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Determinants of Deposit Mobilization in Commercial Banks of Ethiopia

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of this university or other institute of higher learning, except where due acknowledgment has been made in the text.

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Acronyms

AIB	Awash International Bank S.C.
BBR	Bank branches of commercial banks
BOA	Bank of Abysinia S.C.
CBE	Commercial Bank of Ethiopia
CGA	Consultative Group to Assist the Poorest(a group supported by GTZ)
CSA	Central Statistics Authority
DBE	Development Bank of Ethiopia
DEP	Deposit value of all commercial banks
DWRD	Deposit rate weighted against saving and fixed deposits
ETB	Ethiopian Currency (Birr)
EXBRUSD	Average annual rate of exchange of Birr to US Dollars
GDP	Gross Domestic Product
GINF	General Annual Inflation
GTP	Growth and Transformation Plan
IMF	International Monetary Fund
MOFED	Ministry of Finance and Economic Development
M1	Money Supply in terms of Narrow Money
NBE	National Bank of Ethiopia
NIB	Nib International Bank S.C.
RPGDP	Real per capital Gross Domestic Product Growth Rate
ROA	Return on Asset
OLS	Ordinary least square
TD	Volume of Total Deposit
UB	United Bank S.C.
USD	United States Dollar
VIF	Variance Inflation Factor
WB	Wegagan Bank S.C.

Abstract

The objective of commercial banks in Ethiopia is to make profits and thus satisfy the needs of their respective owners. The making of profits and even staying on board of these conventional banks depend on the strategies adopted by each bank to mobilize deposits from the public that is an input to earn income for most conventional banks. In order to make good strategies, however, the banks should know what factors determine the deposit mobilization activity in the real world. This paper empirically examines the determinants of commercial banks deposit mobilization in Ethiopia for the periods 2003-2016. From total of eighteen Commercial Banks which are engaged in commercial bank activities, seven selected based on the historical time formation of banks. The researcher adopted Quantitative research approach. Bank specific and macroeconomic variables were analysed by using the balanced panel random effect regression model. Different diagnostic tests (test for assumption of Homoscedasticity, Autocorrelation, Normality, average value of the error is zero and independent variables are non-stochastic) were conducted to check the appropriateness of the model. The results reveal that Bank Profitability, Gross domestic product and liquidity are positively and statistically significant on bank deposit growth; whereas, Exchange rate and credit risk is negatively and statistically insignificant on bank deposit growth. General inflation had insignificant positive influence on bank deposit growth. Since the depositor confidence increases if the commercial banks are profitable and have adequate asset return, so commercial banks should sustain their profitability to increase their amount of deposit. Commercial Banks should also increases their liquidity because higher liquidity buffers tend to signal greater bank soundness, which could be a factor favouring deposit demand. Finally the study suggests that as deposits are the critical resource for investment, economic growth & development and also the banks are stay profitable, they have to give more emphasis than ever to the activity. The Ethiopian commercial banks should have to introduce new deposit product types that are appealing to the public to increase market share. The government also should to give equal playing ground for all banks.

Keywords: Commercial Banks, Deposit Mobilization, Random Effect Model Deposit

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Achieving high and sustainable rates of economic growth has long been the goal of economic development in all countries. The economic development of any country is dependent on its financial system which includes its banks, stock markets, insurance sector, pension funds and government – run central bank with authority.

Usually, banks are the cornerstone of a national financial system through play an intermediary role of mobilizing funds from savers and subsequently lending them to investors.

Mobilizing deposits is one of the essential issues in developing countries as domestic funds provide cheap and reliable source of funds for development, which is of great value to those countries, especially when the economy has difficulty raising capital from international donors, financiers and markets.

In the context of Ethiopia there is a limited number of bank branches to meet the demand of financial services to all its corners, especially in remote rural areas. Financial services are largely concentrated in urban areas. The country's economic growth requires a huge amount of investment and high saving that has been given high attention to encourage and develop domestic saving mobilization culture. (Giragn 2015)The deposit mobilization activity is the focus area for both the state & private banks in Ethiopia.

The main objective of this study is the issue of banks deposits and its determinants is critical to the financial sector of developing country like Ethiopia. So the researcher enables banks and regulators to keep control to the issue of deposit which is very important to the security of their operation as well as the economy as a whole in the country. Therefore, this paper aimed to identify and evaluate those factors affecting deposit of commercial banks of Ethiopia.

1.2 Statement of the problem

According to Ethiopia strategic plan the Total investment required for GTP II is estimated at ETB 4.2 trillion (equivalent to USD 200 Billion). About 55% of these investments are expected to be on- budget, of which 5.4% is expected for external loans. The remaining 45% will be off-budget, to be implemented by state owned enterprises (from their own revenue, domestic and external loans). Given the huge magnitude of the required financial resources, the GoE plans to significantly scale up domestic saving mobilization. (African Development Bank group, country strategy paper 2016-2020, pp8)

Ethiopian bank industry is still in its growing stage. The deposit generated by the country economy not yet been mobilized as much as expected. NBE indicates that from deposit that should be mobilized by banks only 7% is mobilized as of 2012 (Mamo 2017). This indicates that from the money that should be deposited in the bank 93% of was not mobilized.

Therefore the banking sector in Ethiopia must increase their deposit by overcoming the existing challenges; hence they need to know the factors that determine deposit or financial savings.

Various research works are reviewed. The related research has mostly focus on only one public Bank (Commercial Bank of Ethiopia) or Private commercial Banks separately to assess the factors affecting the total amount of deposits of Ethiopian commercial banks. In addition to this, there is also inconsistency finding among researcher. This inconsistency of results might be attributable to the method of data analysis used by different researchers, the time period used and different category of banks. Determinant variables commonly explained as a factor affecting deposit are Inflation and Interest rate.

For instance; Inflation Rate taken as explanatory variable by (ketema, 2017) the result of his study indicates inflation has a negative relation and insignificant to Commercial Banks Deposit. (Giragn, 2015) also used the variable in his study to determine the effect of inflation to Commercial Bank Deposit Growth result of the study was positive relation and significant for deposit. Finally (Shemsu, 2015) used Inflation rate as an explanatory variable to determine the effect on the Commercial bank of Ethiopia deposit result was positive relation and insignificant to the dependent variable deposit.

Interest rate: was taken as an explanatory variable by (Andinet, 2016), the result is positive and significant to deposit. (Shemsu, 2015) the result is positive and insignificant and (Girang,

2015) the result is negative and insignificant and lastly (Wubitu, 2012) result shows positive and insignificant.

The study also take the recommendation for further study made by (Andinet, 2016), (Shemsu, 2014) & (Dereje, 2017)to determine the factors affecting the commercial bank deposit by introducing additional variable at Micro level Bank Credit Risk and at Macro level Government Expenditure.

Thus this study empirically investigates determinants of deposit mobilizations in financial savings for banks in Ethiopia and which of those factors are influential and also minimize the research gaps on factors affecting deposit mobilization in commercial banks.

1.3 Objective of the Study

The following are the general and specific objectives of the study

1.3.1 General Objective

The general objective of the study is to investigate factors that determine deposit mobilization activity on commercial Banks of Ethiopia.

1.3.2 Specific Objectives of the study

The study is designed to achieve the following specific objectives

- To identify that determines deposit mobilization in commercial banks of Ethiopia.
- To analyze the identified factors that significantly affecting the deposit mobilization.

1.4 Research questions

The research questions of this project are attempting to answer the following:

- What are the factors that determine deposit mobilization in commercial banks of Ethiopia?
- What factors are significantly affect the deposit mobilization in the commercial banks of Ethiopia deposit mobilization effort?

1.5 Significance of the study

Studying the determinants of deposit mobilization in Ethiopia commercial banks is beneficial for different stake holders. Accordingly, the following are the significances that are attained from the study:

- This study is helpful to commercial banks to manage their deposit by identifying factors determining deposit mobilization and further identify which variable is the most important so that more emphasis has to be given
- It is also helpful to the regulatory body to take as an additional input for future policy making.
- It provides information for all stakeholders especially for boards and management of the commercial banks in order to minimize the impact of factors determining deposits mobilization by making them to design effective strategies.
- It serves as source of reference for further studies in the area of deposit mobilization.

1.6 Scope of the study

The work of this research is delimited to some major bank specific and non-bank specific factors that determine commercial bank deposit mobilization in Ethiopia. The research is not cover all commercial banks and all factors which affects the deposit mobilization of the commercial banks rather some banks has be selected purposively based on seniority and some factors are selected in the study.

In order to make the scope of the study manageable, this research focus on some major factors that determine bank deposit and the study is restricted to identify some of the bank specific and non specific factors affecting deposit of Commercial Banks of Ethiopia.

The Ethiopian banking sector currently comprised of central banks (The National Bank of Ethiopia or NBE), two government owned banks and sixteen private banks. (Ethiopia – Bank system, published 12/11/18). The deposit mobilization activity in Ethiopia is made by the entire nineteen commercial banks and other financial institutions such as microfinance institutions. However, the study used data of only seven oldest commercial banks those commercial banks having at least Eighteen years working experience in Ethiopia (i.e. from 2002/3 to 2015/16) with respect to gathering qualitative data. This is because one can acquire long periods of data for research that can be used to analyze trends and make reasonable comparison. With respect to the quantitative data collection and analysis, the researcher has collected data for all total banks and the population as a whole that existed within the years covered by this study. Simply, the researcher did not take sample from the frame and rather used the data of the population as a whole. Therefore, the sampling frame and the sample was the same.

1.7 Organization of the study

The study is organized as follows. The first chapter contains background of the study, statement of the problem, objective of the study, significance of the study, scope of the study and organization background. The second chapter reviews literature on both theoretical and empirical studies regarding the bank's deposits and factors that determine deposit mobilization activity. The third chapter deals with research design and methodology of the study. The fourth chapter presents the results of analysis done and discusses findings made. Finally the fifth chapter focused on conclusions, limitations and recommendation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review is prepared in two parts, the theoretical parts and the empirical part. In the theoretical review part the researcher has reviewed related literature regarding the role of financial system for economic development of a country and included certain explanations as to what deposits are and the types of deposits.

In the empirical literature review part the researcher also discusses past studies that were conducted on the area of factors determining commercial banks deposits.

2.2 Theoretical and conceptual literature review

The development of any country depends on the economic growth the country achieves over a period of time. Economic growth deals about investment and production and also the extent of Gross domestic product in a country. Only when this grows, the people will experience growth in the form of improved standard of living, namely economic development.

Also the economic development of any country is dependent on its financial system which includes its banks, stock markets, insurance sector, pension fund and the like. These sectors influence a nation's currency and interest rates. In developed countries, they work together to promote growth and avoid runaway price inflation. When a country is still in a developing stage, the lack of a strong, sound financial system generally works against the national economy.

The financial system acts as a mediator between those in need of finance (borrowers) and those who have excess funds (lenders). This type of transaction can be done straight forward by engaging in direct lending or indirectly via organized markets (stock markets) or financial intermediaries like banks. The financial system plays an important role in the allocation of resources in any economy. Since it helps in the channeling of money from the saving portion of the population to the corporate sector. It also assists in the allocation of investment funds among companies and enables the sharing of risks between firms and the household sector.

In the context of African continent, financial institutions in particular the banking industry carries the greater share of the financial system (Sheku, 2005). Most of the business rely on banking sector as a source of financing (Medhat, 2004). It is no exception to Ethiopia where the others like insurance companies and microfinance institution (MFI) are led by banks in terms of capital size, total assets, employment capacity and profits. (NBE Report, 2011/12)

There has been a debate in the academic world as to whether the efficiency of financial sector really plays a role in economic development in the country. A great number of authors such as (Baghehot, 1873: Schumpeter, 1912: Hicks, 1969 and Miller, 1998) have concluded that finance is the strong contributor to growth. Arrests et al. (2001) use both bank and stock market to assess the finance and growth relationship using quarterly data on a sample of developing countries. They find a positive and significant association between finance growths, with the larger impact from banking sector measures. However, for few such as Robinson (1952) suggest that growth leads to financial development and Lucas (1988) show that finance is overstressed in explaining growth.

In Ethiopian context, Ethiopia is low income country has been the reason for reliance on foreign debt and aids from international community, in general, the rate of investment in Ethiopia has remained very low. For the past few years, the government has recognized the importance of mobilizing domestic savings for huge investments.

According to Ethiopian Country Commercial Guide (2018), Under the Growth and Transformation Plan II (GTP II), NBE increased the minimum capital for banks to operate to 2 billion Birr ($90 million) and requires all sixteen currently operating private banks to increase their paid up capital to that amount by 2020. As of mid-2018, foreign banks are not permitted to provide financial services in Ethiopia and the market is closed to foreign retail banks, but the sector may be subject to reforms as the government of Prime Minister Abiy Ahmed pursues broad economic reforms. Currently, Ethiopia has allowed some foreign banks to open liaison offices in Addis to facilitate credit to companies from their countries of origins. Chinese, German, Kenyan, Turkish, and South African banks have opened liaison offices in Ethiopia.

Based on the most recently data, the Commercial Bank of Ethiopia (CBE) mobilizes more than 60 percent of total bank deposits, bank loans and foreign exchange. NBE controls the bank's minimum deposit rate, which now stands at 5 percent, while loan interest rates are

allowed to float. Real deposit interest rates have been negative in recent years mainly due to inflation. (Ethiopia Country Commercial Guide, 2018).

The state-owned Commercial Bank of Ethiopia (CBE) dominates the market in terms of assets, deposits, bank branches, and total banking workforce. The other government-owned bank is the Development Bank of Ethiopia (DBE), which provides loans to investors operating in priority sectors. DBE extends short, medium, and long-term loans for viable development projects, including industrial and agricultural projects. DBE also provides other banking services such as checking and saving accounts to its clients. (Ethiopia Country Commercial Guide, 2018).

NBE aims to foster monetary stability and a sound financial system, maintaining credit and exchange conditions conducive to the balanced growth of the economy. NBE may engage with banks and other financial institutions in the discount, rediscount, purchase, or sale of duly signed and endorsed bills of exchange, promissory notes, acceptances, and other credit instruments with maturity periods not exceeding 180 days from the date of their discount, rediscount, or acquisition by the bank. The bank may buy, sell, and hold foreign currency notes and coins and such documents and instruments, including telegraphic transfers, as they are customarily employed in international payments or transfers of funds. Lack of access to finance is a significant constraint for local businesses. In 2015, NBE allowed commercial banks to provide mobile banking service and agent banking. Pursuant to NBE's permit, many of the commercial banks added mobile and agent banking in their line of services. (Ethiopia Country Commercial Guide, 2018).

2.3 Commercial Banks Deposit

Commercial banks are the most dominant depository institution. They serve investors by offering a wide variety of deposit accounts, and they transfer deposited funds to deficit units by providing direct loans or purchasing debt securities. Commercial banks serve both the private and public sectors, as their deposit and lending services are public sectors, as their deposit and lending service are utilized by households, business and government agencies.(Ketema 2017)

The three types of deposits, namely saving, demand deposit and term of fixed time deposits accounts services, are provided by all the commercial banks in Ethiopia. Although the forms of the three deposits and how they are being opened and used differ, they are all installed to

mobilize deposits to the banks. The definitions of the three deposits types are mentioned as followed.

1) **Time or term deposits:** These deposits are kept by the bank for specified period of time per the agreement between the bank and depositor. Higher interest rate are paid by the banks for such kinds of deposits depending upon the amount of deposits and the length of period for keeping the deposits provided there is no breach of the agreement.
2) **Saving deposits:** These accounts are opened by many people who need to save their wealth usually beyond current consumption and in anticipation of future investment such as building own house, buy car and to self sponsor education etc. In doing so the account holder earns interest on the saving balance. Saving accounts are the most favored deposit account for commercial banks as they are cheap and are usually stable in nature. They are the services with which banks reach out the broad mass of people.
3) **Current deposits:** These deposits are generally used by business persons to settle debts usually through use of cheques. They are most often ready for payment upon demand anytime and usually no interest are paid on these accounts.(Giragn 2015)

2.4 Importance of deposit Mobilization

Deposit mobilization has so many uses. Some of them are the following

A. A source of investment

According to (Ongore&Kusa, 2013), Intermediation function of banks play a vital role in the efficient allocation of resources of countries by mobilizing resources for productive activities. They transfer funds from those who don't have productive use of it to those with productive venture. (Nwanko, Ewuim, &Asoya, 2013) States that, savings are resources which one decides to put aside for investment purposes and not for luxury. What people save, avoiding to consume all their income, is called "personal savings". These savings can remain on the bank accounts for future use or be actively invested in houses, real estate, bonds, shares and other financial instruments.

B. Low cost

According to (Shettar & Sheshgiri, 2014) the success of the banking greatly lies on the deposit mobilization. Performances of the bank depend on deposits, as the deposits are normally considered as a cost effective source of working fund.

Elser, Hannig, &Wisniwski, (1999) savings are a source of funds with low financial costs i.e., interest costs, Compared to other commercial funds. With regard to financial costs, most of the institutions apply a differentiated interest rate schedule, compensating for the higher administrative costs with no or low interest rates on small savings and increasing them according to the size of the deposit.

C. A source of profit

According to (Varman, 2005) the ability of a bank‘s management and staff to attract checking and saving accounts from business and individuals is an important measure of the bank‘s acceptance by the public. Deposits provide most of the raw materials for bank loans and thus represent the ultimate source of bank profits and growth.

Tuyishime, Memba, &Mbera, (2015) also affirmed that, Deposits are an indispensable tool commercial banks use to enhance its profitability through advancing deposits mobilized to its customers in form of loans which make in return interest to commercial banks.

D. Economic Growth and Development

According to (Ongore&Kusa, 2013), In addition to resource allocation good bank performance rewards the shareholders with sufficient return for their investment. When there is return there shall be an investment which, in turn, brings about economic growth. On the other hand, poor banking performance has a negative repercussion on the economic growth and development. Poor performance can lead to runs, failures and crises. Banking crisis could entail financial crisis which in turn brings the economic meltdown.

2.5 Empirical Literature Review

Various number of studies have examined the determinants of deposit mobilization in many countries around the world. Most of the studies considered banks specific internal factor and external factors and examine either a particular country or a number of countries and a number of explanatory variables have been proposed three categories, according to the nature and purpose of each study.

Azmi & Haron (2006) this study investigates the structural determinants of deposits level of commercial banks in Malaysia, using cointegration techniques. The results suggest that determinants such as rates of profit of Islamic bank, rates of interest on deposits, Base Lending Rate, Kuala Lumpur Composite Index, Consumer Price Index, Money Supply and Gross Domestic Product have significant impact on deposits. We also find that in most cases, customers of conventional system behave in conformity with the savings behaviour theories.

This is a seminal work, which attempts to identify factors that influence depositors' behaviour in Malaysia. Both financial and economic variables are introduced and their long- and short-run relationships examined using cointegration techniques. The researcher considers in this research analysis a number of factors that have been identified in the economic literature as potential determinants of savings.

This includes rates of return, inflation, money supply and GDP. New variables, namely base lending rate and composite index were introduced as a factor believed to have an influence on the level of deposits in Malaysia. In most cases, the behavioural patterns of Malaysian depositors are in conformity with the existing saving theories. However, there are also deviations from these theories. For example, both inflation and returns on deposit are supposed to have a positive relationship but this study found otherwise. Similarly, instead of an inverse relationship, both composite index and money supply have positive sign with savings account. For each of the deviation found, an explanation has been put forward. Finally, this study does not differentiate the behavioural pattern of different classes of depositors. It is interesting to examine whether different types of depositors have the same long-run influencing factors. In view of this, it focuses this subject matter in the future research agenda.

Andinet (2016) the aim of this study is to examine factors influencing deposit mobilization in private commercial banks in Ethiopia. In doing so, the study adopted quantitative methods research approach using secondary data. The study had found variables that can affect the total deposits of the banks. Seven variables are regressed with the dependent variable i.e. total deposit. The explanatory variables are number of bank branches, deposit interest rate, liquid asset to deposit ratio, lagged value of bank deposits, net interest margin, inflation rate and economic growth (GDP). The data for these variables were collected from the respective private commercial banks' financial statements, national bank of Ethiopia, central statistical authority and MOFEC of the sample year 2005 up to 2015. Different diagnostic test were performed to know whether the model is valid or not. All the tests were valid and eventually regression analysis was performed using E view statistical package. The result from regression analysis showed that number of bank branches, deposit interest rate, net interest margin and GDP were significantly and positively correlated with the explained variable. Lagged value of bank deposit was significantly and negatively correlated with total deposit. However, liquid asset to deposit ratio and inflation rate were insignificantly negatively

correlated with bank deposit. Finally the study had recommended what should be done to mobilize more deposits.

Dereje (2017) the purpose of his study is to investigate determinants of deposit mobilization in private commercial banks of Ethiopia using panel data of six private commercial banks from year 2002 to 2012. The study used both quantitative and qualitative research approach. Secondary financial data are analysed using multiple linear regressions models for the six bank's deposit. Fixed or random effect regression model was applied to investigate the impact of bank branches, exchange rate, Real Gross domestic product, Capital Adequacy and Liquidity on private commercial banks deposits. Besides, the study used primary data analysis to solicit managers‟ perception towards the determinants of private commercial banks deposit mobilization. The empirical results from regression analysis showed that bank branches, exchange rate, and real gross domestic product affects deposit of the bank positively whereas, capital adequacy and liquidity affects the deposit of the private banks negatively. This implication show that better capitalized banks tend to create less liquidity that leads to mobilize little deposit amount. On the other hand the feedback of respondents depicted that managerial efficiency, government policy, convenience of bank office, technology, bank size and awareness of savings by society affected deposit level of the banks significantly. Thus, management bodies of private commercial banks should strive to strengthen the identified significant factors and government bodies should also see the adverse effect of tight polices imposed on the existing private commercial banks as well as for the new entrant banks.

2.6 Factors affecting Deposit mobilization of commercial Banks

An important indicator of the success of any resource mobilization agency, which is also a banking institution is, the extent to which it is able to mobilize the resource of the community in the form of customer deposits.

Though deposits have great significance to the banks in developing world, few have been studied as the factors that have an impact on it. Study made by Kose et al (1999) indicates that developing economies are characterized by unstable macroeconomic environments such as inflation, inappropriate fiscal and monetary policies, interest rate controls. The net effect is the change in liquidity which affects savings and capital formation. Where the macroeconomic environment is favorable to savings then the commercial banks are in a better position to increase savings. On the contrary, where macroeconomic policies erode

liquidity from the hands of the people then deposits reduce and may negatively impact on capital growth and investment in the country.

According to Giragn (2015) the determinants of deposit mobilization of commercial banks are classified in to two- bank specific factors and non- bank specific factors.

2.6.1 Bank Specific factors for deposit mobilization

2.6.1.1 Liquidity of the Bank

Liquidity can be defined as a measure of the relative amount of asset in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities. The liquidity measure provides suggestions about the level of liquidity on which the commercial banks are operating.

According to (Olagunju, Olanrewaju, Olabode and Samuel 2011) Liquidity involves three elements or characteristics namely Marketability, Stability and Conservatism. Liquid assets should be more marketable or transferable. That means, they are expected to be converted to cash easily and promptly, and are redeemed prior to maturity. All assets that cannot be redeemed at maturity are said to be illiquid. the fact that the prices of the former are fixed and have lesser variability than the prices and value of the later that experience considerable fluctuation.

Conservatism quality of liquidity refers to the ability of the holders of liquid assets to recover the cost of the asset on the time of resale. On the basis, common stocks are not considered highly liquid asset despite its ready marketability. This can be attributed to the fact that on certain periods, the current prices are lower than their initial or original prices. In consideration of these qualities, people and firms decide to hold cash which is the only perfectly liquid asset. Another quality of liquid asset is price stability. Based on this characteristic, bank deposits and short term securities are more liquid than equity investments such as common stocks and real estates due to Banking liquidity is the ability to meet obligations when they come due without incurring unacceptable losses.

Therefore; bankers are always sensitive to the issue of liquidity and liquidity risk and the central bank is also there to monitor that banks are liquid enough to meet their respective obligations when the public demands. The more liquid the banks are, the better they attract deposits. Higher liquidity buffers tend to signal greater bank soundness, which could be a factor favouring deposit demand (Herald and Heiko, 2009).

2.6.1.2Bank profitability, size, and security and number of bank branches

Herald and Heiko (2009) state that higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits. Erna and Ekki (2004) find that there is a long run relationship between commercial banks deposits and the profitability of the banks. One of the reason as to why people deposit in banks is to ensure a feeling of security of their money. Larger banks in terms of total assets or capital attract better deposit amounts than smaller ones in absolute terms (Herald and Heiko, 2009). This is largely because of the bigger banks have many branches, huge capital and or assets and provide a better sense of security to savers apart from their low transaction costs due to economies of scale.

According to the study made by CGAP, 2010, Financial Access 2010, Ethiopia has low geographic and demographic penetration of bank branches in the sub-Saharan Africa. The population is hugely unbanked and there is only 1.39 branches open for every 100,000 adults whereas 5.11, 4.38 and 2.25 for Ghana, Kenya and Uganda respectively. Most banks are head quartered in Addis Ababa and their branches too are concentrated in the capital (Muluneh, 2012).

Many researchers have found return on asset to be significantly related to commercial banks deposit mobilization. The known measures of banks deposit performance over the years have been either based on return on assets or return on equity. However, in the measuring these performance, many researchers have argued for the return on assets (ROA) as against return on equity (ROE). According to (Hassan & Bashir 2003), "ROA shows the profit earned per dollar of assets and most importantly, it reflects the management's ability to utilize the bank's financial and real investment resources to generate profits. For any bank, ROA depends on the bank's policy decisions as well as on uncontrollable factors relating to the economy and government regulations".

Rivard and Thomas (1997) suggest that "bank deposit performance is best measured by ROA in that ROA is not distorted by high equity multipliers and ROA represents a better measure of the ability of a firm to generate returns on its portfolio of assets". ROE on the other hand, "reflects how effectively a bank management is in utilizing its shareholders funds. Since ROA tend to be lower for financial intermediaries, most banks heavily utilized financial leverage heavily to increase their ROE to competitive levels". (Hassan and Bashir, 2003).

2.6.1.3 Credit Risk (Proxied by the loans-to-asset ratio)

Rodrik and Subramanian (2008) argue that an improvement in financial intermediation, which raises domestic saving and enhances access of firms to domestic finance in an investment constrained economy. A higher degree of intermediation may signal a bank's success in generating income as well as a need for it to attract more deposits to support its increased lending activities.

According to (Osie, 2015) "institutional governance, ownership and reputation of the financial institutions is key factors for successful deposit mobilization. Prior to offering voluntary deposit services, Financial Institutions must ensure that they have the institutional structures that allow them to mobilize savings legally. "Institutional capacity requires that adequate governance, management, staff and operational structures are in place to provide savings services". (Ledgerwood, 1998) Moreover, (Klaehn et al, 2002) expound that the "vision, commitment and disposition of the pro poor institutions are critical in successfully mobilizing deposit from the public".

2.6.2 Non-Bank Specific Factors for Deposit Mobilization

Ketema (2017) states that the external or macro determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and deposit positions of Banks. Non-bank specific factors are defined for this research as factors that have an impact on deposit mobilization that are beyond the control of the banks themselves. The macroeconomic factors that can affect bank's deposit include factors such as; Exchange Rate, Inflation and GDP among others.

2.6.2.1 Economic growth

Economic performance is generally being measured through GDP (Gross Domestic Product), a variable that has also become the de facto universal metric for 'standards of living. It is universally applied according to common standards, and has some undeniable benefits mainly due to its simplicity.

According to (Herald & Heiko, 2008), growth is one of the determining factors for commercial banks deposits. GDP is calculated by adding up the value-added at each stage of production (deducting the cost of produced inputs and materials purchased from an industry's suppliers. (Erna & Ekki, 2004), finds four variables, GDP, number of Islamic bank's branch offices, profit sharing rate, and interest rate that are thought to have influence on the volume of deposits. So, GDP can influence the growth of commercial banks deposits.

2.6.2.2 Inflation

"Banks in their quest to boost deposits and increase self-sufficiency must analyze the behavior of depositors in a period of inflation. The latter is the persistent increase in the general price level for a specified period of time. Thus, it is a fall in the market value of money (purchasing power) as a result of persistent rise in prices. Real value of money declines resulting in benefit to debtors and loss to creditors" (Brealey and Myers 2003). "From the monetarist point of view inflation is demand pull and an exogenous rise in money supply is the causality. In the short run an increase in money supply induces demand above supply of goods and services which causes prices to rise until the market adjusts to the equilibrium.

The structuralist, however, argues from the effect of changes in the socio-political, economic and institutional structures with the view to increasing growth in the economy of market failures". (Kirkpatrick and Nixon, Beim 2001) expresses the most popular view held by economists by characterising on int1ationary period as the period of uncertainty. Distortion of capital gains and negatively impacts on the real interest rates making markets difficult to allocate resources efficiently (Beim et al., 2001). Investors with surplus funds hold on to assets which can appreciate in value rather than money whose value are frequently eroded away. Empirical evidence from Latin American countries as stated in the World Development Reports indicates that inflation is an implicit tax on depositors and has the capacity to reduce profits through low deposit rates. A strong correlation exists between real interest rates and inflation as both can impact on deposits and savings

2.6.2.3 Exchange Rate

Exchange rates are quoted as foreign currency per unit of domestic currency or domestic currency per unit of foreign currency (Bishop, 2006). Exchange rate allows denominating the cost or price of a good or service in a common currency. As Thomas (2014) explanation, the term depreciation and appreciation is used to show the decrease and increase in the value of currency. Depreciations a decrease in the value of currency relative to another currency. Appreciations an increase in the value of a currency relative to another currency. The main factors that influence exchange rate are: inflation, interest rate, speculation, and change in competitiveness, balance of payment, government debt, government intervention and Economic growth / recession.

According to (Nugel 2012) as currencies depreciated in one country deposit will be reduced since investors tend to withdraw deposit and exchanged to keep it by appreciating currency

(Hard currency) or invest in another form of investment rather than bank deposit. (Alemayeh 2015) also confirms that for developing country in general saving is negatively correlated with unstable exchange rate.

2.7 Knowledge Gap

Evidence from prior studies, various external and internal factors has effect on commercial bank deposits. However, the significance of each factor differs across continent, countries and time period. For instance, the study made by Erna & Ekki (2014) in Indonesia, Mohammed & Mansur (2014) in Malaysia and Giragn (2015) in Ethiopia indicated that GDP has not significant influence on the volume of commercial bank deposits. While, Mohammed (2014) in Bahrain and Shemsu (2015) in Ethiopia revealed that GDP has positive influence on the volume of commercial bank deposit.

Moreover, the study made by Ngula (2012) in Ghana, Prema-chandra and Kunal (2001) in India, Shemsu (2015) in Ethiopia, Wubitu (2012) in Ethiopia and Giragn (2015) researches showed that inflation has significant effect on the deposits of commercial bank. However, Hussein & Ali (2014) in Iran and Orji (2012) in Nigeria showed that inflation has a negative influence on the commercial bank deposits.

These contradictory findings revealed that there is inconsistency among research findings on factors affecting deposit. Many literatures consider mainly quantitative factors other qualitative factors are not yet investigated well. As there is no comprehensive study that include various determining factors of deposit in the country, this study is initiate to fill the research gaps by taking appropriate variables which can go with the condition and situation in Ethiopian banking industry role on deposit to come up with concrete result.

2.8 Conceptual Framework

From the above theoretical and empirical literature reviews the main factors that determine the deposit growth of financial institution specifically banks is divided by mainly by both macro and micro economic factors. This study used both macro and micro determinants of bank deposit that includes Inflation rate, GDP, Exchange rate, Bank profitability, bank liquidity and Bank credit risk. The study has quantified how these variables are determining the deposit of commercial banks in Ethiopia.

The conceptual schema of the relationship between the dependent variable (commercial banks deposit) and independent (GDP, Inflation, Exchange rate, Bank profitability, Bank liquidity & Bank credit risk) variables are depicted here below:

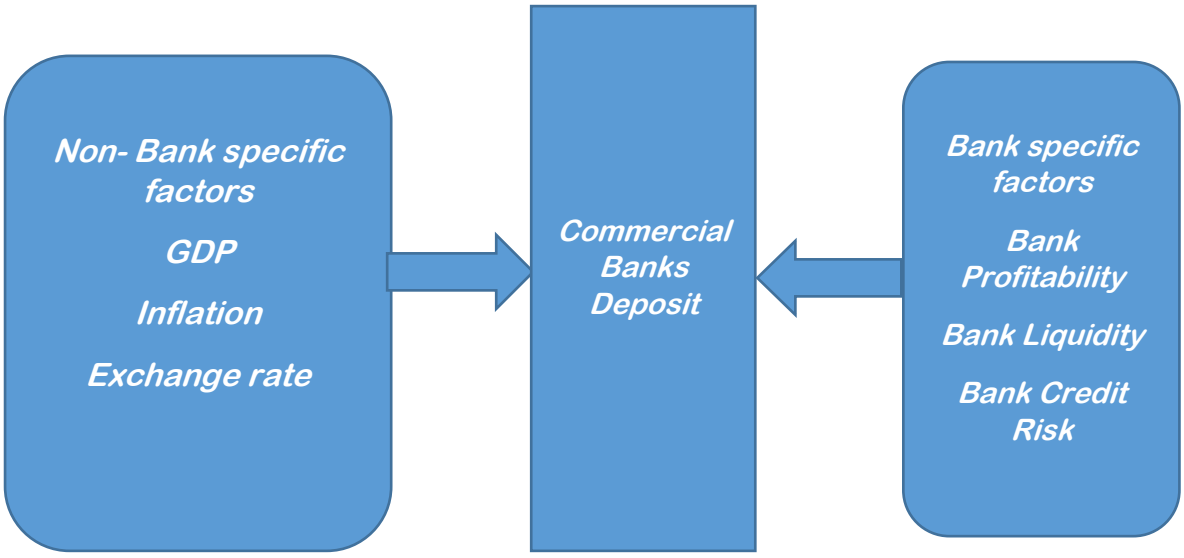


Fig.1Conceptual framework of the study

CHAPTER THREE

3. Research Methodology

3.1Introduction

This chapter covers the research approach, the type and source of data, the research design, it explains the type of data used for the study and the techniques employed in identifying the factors that influence the mobilization of deposits, identifies the challenges facing commercial banks in deposit mobilization and offers recommendation. The validity and reliability of the data were also high –light

3.2 Research Approach and Research Design

The study examine the cause and effect relationships between growth of deposit and its determinant, therefore it is an explanatory research and the problem identified factors affecting the outcome having numeric value, it is quantitative approach.

Therefore the researcher had employed quantitative research methodology and techniques using an econometric model and Descriptive Quantitative & Qualitative Analysis in order to address the research questions. Multiple regression using OLS (Ordinary Least Square) estimates of the dependent(Total Deposit Amount) and independent three non-bank specific variables Inflation, GDP and Exchange rate and three bank specific variables Bank profitability, bank liquidity and bank credit risk were employed. It uses time series data covering the period from 2002/03 through 2015/16.

The types of data used in this study are quantitative data type in nature it can be best fit to the panel data analysis. The Panel data involves the pooling of observations on a cross section of units over several time periods and provides results that are simply not detectable in pure cross sections or pure time series studies Brooks, (2008). In addition Hsiao, (2003) described panel or a longitudinal data set is one that follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample.

Brooks (2008), states that, panel date set has two major advantages; first, it can address a broader range of issue and tackle more complex problem than pure time series or pure cross sectional data alone and by structuring the model in appropriate way, the researcher can remove the impact of certain forms of omitted variable bias in the regression result. Second,

it is often examined how the relationships between variables change. Hence, by combining cross-sectional data and time series data, the researcher can increase the number of degree of freedom, and thus the power of test, by employing information on the dynamic behavior of a large number of entities at same time.

To comply with the research objectives, the researcher is focus on both primary and secondary data. The study was got the secondary data for the numerical expressed variables from the annual reports of the regulatory body of the banks in Ethiopia i.e. the National Bank of Ethiopia (NBE), the reports of the Central Statistical Authority, Ministry of Finance and Economic Development and from others that are as secondary data sources from the eight commercial banks of Ethiopia for the period of fourteen years (2002/3 to 2015/16) The expected total number of observation is 98 (7*14).

The data includes the following:

a) Year-end total volume of deposits in all commercial banks in Ethiopia,

b) Average annual year on year general inflation rates,

c) Average annual exchange rate of Ethiopian Birr to USD,

d) Real per capita GDP growth rate,

e) Return on asset

f) Bank liquidity (Total deposit divided by total asset)

g) Loan to asset ratio of the banks

3.3 Data collection instruments

Fourteen years of annual data were collected to explore the significance of the quantitative factors through time series analysis.

3.4 Sample and Population

As to June of 2016 there are eighteen banks in Ethiopia, these are Commercial bank of Ethiopia, Awash International Bank S.C, Bank of Abyssinia S.C, Wegagen Bank S.C, United Bank S.C, Nib International Bank S.C, Dashen Bank S.C, Development Bank of Ethiopia, Cooperative Bank of Oromia S.C, Lion International Bank S.C, Zemen Bank S.C, Oromia International Bank S.C, Buna International Bank S.C, Berhan International Bank S.C, Abay Bank S.C, Addis International Bank S.C, Debub Global Bank S.C, and Enat Banks S.C. However, from all the above listed banks, Development Bank of Ethiopia is not commercial bank. Among the total eighteen banks, two of them are owned by the government and the remaining sixteen are privately owned (Birritu 2015) Hence, The main objective of the study

is to investigate the determinant of commercial banks deposit in Ethiopia, the seventeen commercial banks can be treated as population of the study.

In line with balanced panel data approach, to meet the desired objective of this study and to make generalization from sample to population, the researcher used maximum combination of years and number of banks and achieved the maximum number of observations through purposive sampling technique. Thus, out of seventeen commercial banks that are registered and operated in Ethiopia, seven are selected due to their long term experience.

Therefore, the matrix for the frame is 14*7 that includes 98 observations. The sampled commercial Bank are Commercial Bank of Ethiopia, Awash International Bank S.C, Bank of Abyssinia S.C, Wegagen Bank S.C, United Bank S.C, Nib International Bank S.C, and Dashen Bank S.C,

These Commercial Banks are selected purposively, because the use of purposive sampling enables the researcher to generate meaningful insights that help to gain a deeper understanding of the research phenomena by selecting the most informative participants that is satisfactory to its specific needs.

3.5 Validity and Reliability of the Data

The validity is concerned with the accuracy or truthfulness of the data. That is, the validity refers to the extent to which the data obtained is accurate for the purpose. The researcher exercised validity by soliciting published annual reports of National Bank of Ethiopia and from each of the banks for the years under review. This has helped the researcher to get relevant information for the purpose of the study.

Reliability of data is related to its consistency and it refers to the extent to which the data is the same irrespective of their source. That is, the data for the study is specifically taken from the annual reports of the banks and were found in agreement with some of the data found on publications of National Bank of Ethiopia and therefore were reliable.

3.6 Description of Variables

This section deals with the analysis of variables for determining commercial banks deposit mobilization. A summary of the variables and how they are measured is presented in table.

3.6.1 Dependent variables

In this study, commercial banks deposit has been used as the dependent variable. Deposit represents the total accumulated amount of customer financial savings with the commercial banks. The performance of commercial banks is best measured by the size of its deposit liabilities. A large portion of commercial banks asset base is often finance by their deposit

mobilization. For instance, a commercial banks ability to lend more loans to its customers will be determined by the size of its deposit. The growth of the bank is therefore subject to its ability to mobilize more deposit at cheaper cost from the general public. In view of this it is worth studying and identifying the major determinants of efficient deposit mobilization.

3.6.2 Independent variables

The following independent variables hypothesis is proposed to increase our understanding of the determinant factors of deposit growth in commercial banks. These factors were determined by detailed review of the literatures.

Inflation

Inflation is a sustained rise in the general level of prices – the price level. The inflation rate is the rate at which the price level increases. As (Deaton 1991) explained inflation is measured alternatively by Consumer price index. The first theory he assumed that greater uncertainty should raise savings since risk-averse consumers set resources aside as a precaution against possible adverse changes in income and other factor. Hence inflation may increase precautionary savings by individuals. Precautionary saving is additional saving that result from the knowledge that the future is uncertain (D. Carroll, 2006). The second theory was, inflation can influence saving through its impact on real wealth. As inflation accelerates, deposits become less attractive, depending on the interest rate. In this case, the assumption would be that as deposit interest rates rise, deposits would increase in principle as well. The narrower the spread between deposit rates and inflation, the less attractive it should be to hold deposits above the required level.

Gross Domestic Product (GDP)

GDP is one of the explanatory variables commonly used as determinants of economic growth. According to Jim (2008), the level of GDP divided by the population of a country or region is what is known as per capita income. Changes in real GDP per capita over time are often interpreted as a measure of changes in the average standard of living of a country. Thus the relation between income of the society and deposit volume is expected to be positive and significant. Studies by Mahendra (2005) and M. A. Baqui et al, (1987) both reveal that growth in income have a positive effect on deposits.

Exchange rate of Ethiopian Birr to USD

For the major net importing country like Ethiopia, variability of the exchange rate of the local Ethiopia money (Birr) to foreign currency values is enormous. As the exchange rate of Birr to USD ratio grows, local deposits will deplete in the process of importing goods and services.

This means as the country does by far more imports than exports and the exchange rate of Birrto USD grows, then local deposits in banks will reduce showing that there is inverse relationship. There are also cases where it shows the opposite trend by increasing the foreign direct inflows. However, the study by Ngula(2012) on the 'Determinants of deposit mobilization and its role in economic growth in Ghana has demonstrated that a deterioration in the Ghanaian currency with respect to the US currency resulting in a higher deposit mobilization.

Bank's Liquidity

Managing liquidity is a daily process requiring bankers to monitor and project cash flows to ensure adequate liquidity is maintained. Maintaining a balance between short-term assets and short-term liabilities is critical. For commercial bank, clients' deposits are its primary liabilities, whereas reserves and loans are its primary assets. Bank liquidity can be measured with different liquidity ratio.

For the purpose of this study, Total loan and advance to deposit liquidity ratio is used. The ratio serves as a useful planning and control tool in liquidity management since commercial banks use it as a guide in lending and investment decision. Loans & Advances are the major portion of a bank's asset and it is the most earning asset of a bank. This ratio tells us the percentage of funding sources tied up by illiquid asset. It relates illiquid asset with liquid liability. This ratio also indicates the percentage of deposit locked in to illiquid asset. The ratio reflects the proportion of the customers' deposits that has been given out in the form of loans and the percentage that is retained in the liquid forms.

Credit Risk

According to (Osie, 2015) "institutional governance, ownership and reputation of the financial institutions is key factors for successful deposit mobilization. Prior to offering voluntary deposit services, Financial Institutions must ensure that they have the institutional structures that allow them to mobilize savings legally. "Institutional capacity requires that adequate governance, management, staff and operational structures are in place to provide savings services".

Profitability

Profitability accounts for the impact of better financial soundness on bank risk bearing capacity and on their ability to perform liquidity transformation (Rauch et al. 2008 and Shen et al. 2010). Most commonly, profitability is measured by return on asset (ROA) and return on equity (ROE). For the purpose of this study, the proxy of profitability is return on asset that measures the overall financial performance of banks and the return on asset (ROA) is measured by the ratio of net profit after tax to total Asset. (Bhalla 2006), in his book, explains ROA as a ratio which is used to measure the company's efficiency in the use of its assets to generate profit. It means that a more efficient company will generate a higher level of profit from a given level of total asset than its less efficient competitor.

Finger and Hesse (2009) state that higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits. (Rachmawati and syamsulhakim 2004) also find that there is a long run relationship between commercial banks deposits and the profitability of the banks. This study considered there is a positive relationship between Profitable & Bank's Deposits.

3.7 Data Analysing Instruments and Descriptive Analysis

The researcher utilized multiple regressions to analyse the quantitative data which are collected from annual reports of the National Bank of Ethiopia for fourteen years (from the year 2002/03-2015/16). Multiple regression analysis is conducted using Eviews data analysis software to determine the exact nature of the relationship that exist between deposits, real per capita GDP, inflation, exchange rates, credit risk,bank profitability and liquidity in Ethiopia over the period under study. There is one dependent variable, total deposit volume of private banks, regressed with the independent variables (explanatory variables) such as inflation rate, real per capita GDP, exchange rate, credit risk, bank profitability and liquidity. This shows that the research is more of descriptive and explanatory in nature.

Multiple Regression

The type of the data for this study is time series including the 14 years of data in the regression analysis from 2002/3-2015/16. The model is multiple regression models with one dependent variable and eight independent variables. This regression analysis allows to explicitly controlling for many other factors that simultaneously affect the dependent variable. This is important both for testing economic theories and for evaluating policy effects when we rely on non-experimental data.

Moreover, multiple regression models may accommodate many explanatory variables that may be correlated. Naturally, if we add more factors to our model for explaining dependent variable(y), then more of the variation in y can be explained. Thus, multiple regression analysis can be used to build better models for predicting the dependent variable. An additional advantage of multiple regression analysis is that it can incorporate fairly general functional form relationship and the model allows for much more flexibility. Once we in the context of multiple regression, there is no need to stop with one or two independent variables. Therefore the general models which incorporate all of the variables to test the hypotheses of this study are:

DEPit = α + β1(GINF)it + β2(RPGDP)it + β3(ROA)it + β4(CRISK)it + β5(LIQ)it + β6(EXBRUS)it + εit

$\boldsymbol{DEPit}$ is the dependent variable and represents the total amount of deposits held by all commercial banks for period t,

G$INFit$ Represents the overall inflation rate in Ethiopia for period t,

RPGDPit Annual real per capital gross domestic product

EXBRUSit Represents the growth of the exchange birr to USD for period t,

$LIQit$ Represents total deposit to total asset ratio for period t,

CRISKit Represents Loan to asset ratio for period t ,

ROAit Represents Bank Profitability for period t,

εit represent the stochastic error term of the linear regression model. It also represents all the relevant variables, which were omitted from the model as well as the random errors from the β represent the estimated parameters or represent the slope co-efficient to the dependent variable.

The symbol alpha (α) represents the constant term and betas (β1, β2, β3, β4, β5, β6) represent the coefficient of the independent variables. The null hypothesis is rejected at 5% significant level. The relevant data is collected regarding each single variable and analysed. For multiple regression models, the following basic assumptions are held:

3.8 Diagnostic Testing Methods

The econometric estimation technique that is used by this study is ordinary least square (OLS). There are five assumptions made in relation to the classical linear regression model (CLRM). The researcher has tested if there are violations of these assumptions. The method used to test these assumptions by the researcher is described as follows:-

The average value of the error is zero (Non-zero variance)

This assumption is not violated if the regression line does not intercept through the origin. This assumption is violated if the model does not have constant term since the line intercepts through the origin; however in our case the model have constant term which will prove that the line did not pass through the origin and the first assumption of CLRM is not violated. Therefore the variation in the dependent variable, total deposit of commercial banks, is explained by the independent variables.

Assumption of Homoscedasticity

The variance of the errors should be constant, this assumption known that homoscedasticity assumption. If the errors do not have a constant variance, they are said to be heteroscedasticity. It would be concluded that there is significant evidence of heteroscedasticity, so that it would not be plausible to assume that the variance of the errors is constant. The researcher was used Breush Pegan Godfrey test (BPG) or white test to test homoscedasticity.

The Assumption of Autocorrelation

The covariance between the error terms overtime (or cross-sectional for that type of data) is zero. In other word it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or they are serially correlated. The researcher was used Breusch Godfrey Serial Correlation LM Test to test correlation.

The Independent Variables are Non Stochastic

OLS estimator is consistent and unbiased in the presence of stochastic regressors, provided that the regressors are not correlated with the error term of the estimation equation. However, if one or more of the explanatory variables is contemporaneously correlated with the disturbance term, the OLS estimator will not even be consistent. The regressors (independent variables) are not correlated with error term of the estimation equation is the assumption that is violated if the constant term does not exist.

The Assumption of Disturbances' are Normally Distributed

Linearity defines the dependent variable as a linear function of the predictors or the independent variables. The mean values of the outcome variable for each increment of the predictor(s) lie along a straight line. If we model a non-linear relationship using a linear

model then this obviously limits the generality of the findings. The researcher was used Bera Jarque(BJ) normality test for testing non normality.

Test of Multicolinearity

When using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables they would be said to orthogonal to one another. If the explanatory variables were orthogonal to one another adding or removing a variable from regression equation would not cause the values of the coefficients on the other variables to change. Therefore, there should be no any perfect linear relationship between two or more of the explanatory variables. So, the explanatory variables should not correlate too highly. If there is perfect collinearity between explanatory's it becomes impossible to obtain unique estimates of the regression coefficients because there are an infinite number of combinations of coefficients that would work equally well.

Chapter Four

Data Analysis and Interpretation

This chapter deals with the results and analysis of the findings. The chapter contains five sections. The first section presents descriptive analysis on variables of the study; the second section; presents correlation analysis between dependent and independent variables; the third section; presents the result of the fulfillment of the classical linear regression model (CLRM) assumptions; the fourth section lays down the results of regression; the fifth section presents interpretation of the regression result; the sixth section; presents the analysis of qualitative data.

4.1. Descriptive Analysis

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for seven commercial banks from the year 2002/2003 to 2015/2016 with a total of 98 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable deposit (DEP) and independent variables general inflation rate (GINF), real per capital gross domestic product (RPGDP), annual average exchange rate of Birr to USD (EXRBUSD), return on asset (ROA), loan to asset ratio (CRISK) bank liquidity(LIQ)

Table 4.1 Descriptive Statistics

	DEP	CRISK	EXBRUSD	GINF	LIQ	ROA	RPGDP
Mean	3.795630	0.500766	13.40897	0.153398	0.771224	0.028651	3.741090
Median	3.780627	0.473772	11.65570	0.105969	0.780000	0.029157	3.741581
Maximum	5.459227	0.727676	21.10590	0.552413	0.870000	0.048480	3.947631
Minimum	2.520221	0.224572	8.580900	0.023830	0.610000	0.010386	3.518576
Std. Dev.	0.589500	0.112794	4.806622	0.141452	0.048911	0.008350	0.130494
Observations	98	98	98	98	98	98	98

Source: EViews Out Put

Table 4.1 shows the average indicators of variables computed from the financial statements

NBE annual report and the standard deviation that shows how much dispersion exists from the average value. According to Brooks, (2008), a low standard deviation indicates that the data point tend to be very close to the mean, whereas high standard deviation indicates that the data point are spread out over a large range of values.

As shown in the table 4.1 above, the logarithm of commercial bank deposit was used for regression and its minimum and maximum value was 2.52 and 5.46 respectively and also a mean of 3.79. It can be noticed that the commercial bank deposit fluctuates between 2.52 and 5.46. This means, commercial banks were achieved on average 3.79 from deposit for the period of 2002/3-2015/16. The standard deviation among banks in terms of bank deposit was 0.59 percent; this confirms that there were a variations of deposit among commercial banks during the study period. The reason of this variation of deposit may attribute to high amount of deposit collected by Commercial Bank of Ethiopia compared to other commercial banks.

As shown in the result, there were higher credit risk the mean value of was 50 percent the standard deviation was 11.28 percent, while 72.8 and 22.4 observed as maximum and minimum values, respectively, exhibits higher dispersion larger than its mean value, this implies that commercial bank loan disbursement is increasing for the study period. The mean amount in credit risk is greater than the mean amount of the deposit collected. The result shows the commercial banks credit risk is higher.

In the above table 4.1 the result of average annual exchange rate is 13.4 percent. The minimum and the maximum growth was 8.58 percent and 21.10 percent the growth is increasing from year to year with the standard deviation of 4.81 percent which is a very low dispersion.

The average general inflation of the country over the sample period was recorded 15.34 percent. The maximum inflation was recorded in the year 2008 value 55.2 percent and the minimum was in the year 2004 value 2.38 percent. The rate of inflation dispersed which exhibits higher dispersion larger than its average value over the periods under study towards its mean with standard deviation of 14.14%. This clearly shows that there was a bit more variations in terms of cost of living as it measured by inflation consumer price index.

The average loan to deposit ratio of the studied commercial banks was 77.12 percent. The maximum loan to deposit ratio of 87 percent was registered in the year 2005 and 2006 by

Awash International Bank. This indicates that, on average the commercial banks in Ethiopia have higher amount of volatile deposits which are tied up with illiquid loans. On the other hand, the minimum loan to deposit ratio of 61 percent was register in the year 2003 by UB. The standard deviation of 4.89% shows there was low dispersion of loan to deposit ratio from its mean value.

Profitability (Return on asset ratio) is the likelihood of a business earning the desired level of income within a specific period of time under certain prevailing business conditions. Average return on asset of studied banks for the period from 2003 to 2016 was 2.86 percent. The minimum return on asset of 1.03 percent was registered in the year 2004 by United Bank and the maximum return on asset of 4.8 percent was registered on the year 2003 by Bank of Abysinya. The standard deviation of 0.83 percent reveals that there was very little dispersion of average return on asset of studied banks towards their mean value.

GDP measures the economic growth of the country. The annual GDP of the country ranges from a minimum of 3.52% to a maximum of 3.95%. The mean value of GDP was 3.74%. The mean value of 3.74% GDP indicates the average real economic growth of the country. Also the standard deviation was 0.13 percent; this implies that economic growth in Ethiopia during the period of 2002/2003 to 2015/2016 remains stable.

4.2. Correlation Analysis

Table 4.2 Correlation Matrix

	DEP	CRISK	EXBRUSD	GINF	LIQ	ROA	RPGDP
DEP	1.000000						
CRISK	-0.751656	1.000000					
EXBRUSD	0.622817	-0.492410	1.000000				
GINF	-0.024081	0.029193	-0.124345	1.000000			
LIQ	0.093151	0.069820	-0.016712	-0.093615	1.000000		
ROA	0.162545	-0.042039	0.129202	0.289936	-0.078779	1.000000	
RPGDP	0.666032	-0.512073	0.657527	-0.055307	-0.037900	0.232271	1.000000

Source: EViews Out Put

Table 4.2, shows the correlation between the explanatory variable and deposit in this study. As noted in Brooks (2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the leverage, Pearson product moment of correlation coefficient was used. Values of the

correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. The correlation matrix in Table 4.2 shows that deposit (dependent variable) was positively correlated with real per capital GDP, annual average exchange rate of Birr to USD, profitability (return on asset), credit risk (loan to asset ratio) and bank liquidity. Which indicates that firm with higher deposit have high; real per capital GDP, profitability, bank liquidity and annual average exchange rate of Birr to USD. However, general inflation and credit risk have negative correlation with deposit.

In general, even though the correlation analysis shows the direction and degree of associations between variables, it does not allow the study to make cause and effect inferences regarding the relationship between the identified variables. Thus, in examining the effects of selected independent variables on commercial banks deposit, the econometric regression analysis which is discussed in the forthcoming section of the paper gives assurance to overcome the shortcomings of correlation analysis.

4.3. Testing Assumptions of Classical Linear Regression Model (CLRM)

In this study as mentioned in chapter three diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Consequently, the results for the model assumptions test are presented as follows:

- **Test for average value of the error term is zero (E(ut)=0)**

According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. Thus, since the regression model used in this study included a constant term, this assumption is not violated.

- **Test for Homoscedasticity assumption (Var(ut)=σ2<∞)**

The condition of classic linear regression model implies that there should be homoscedasticity between variables. This means that the variance should be constant and same. Variance of residuals should be constant otherwise, the condition for existence of regression, homoscedasticity, would be violated and the data would be heteroscedasticity Brooks, (2008). To check for this, Breusch-Pagan-Godfrey test were applied. The Breusch-

pagan tests of the null hypothesis that the error variances are all equal versus the alternative that the error variance are a multiplicative function of one or more variables.

Hence, following the general null hypothesis of Breusch-pagan tests, the study develops the following hypothesis to check the presence of heteroscedasticity:

- H0: homoscedasticity
- H1: heteroscedasticity

Table 4.3 Heteroscedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.202214	Prob. F(6,91)	0.3124
Obs*R-squared	7.197622	Prob. Chi-Square(6)	0.3030
Scaled explained SS	9.415030	Prob. Chi-Square(6)	0.1515

Both F-statistic and chi-square (χ 2) tests statistic were used. As can be presented in the above Heteroscedasticity test both the F- and $\chi 2$ -test statistics give the same conclusion that there is no significant evidence for the presence of Heteroscedasticity. Since the p-values in all of the cases were above 0.05, the null hypothesis of homoscedasticity is failed to reject at 5 percent of significant level. This implying that there is no significant evidence for the presence of heteroscedasticity in these research models. Generally, in all of the regression models used in this study it was proved that the variance of the error term is constant or homoscedasticity.

- **Test for absence of autocorrelation assumption (cov (ui,uj)=0 for i ≠ j)**

This assumption basically lies on the notion that states covariance between the error terms over time (or cross-sectionally) is zero. In other words, it is assumed that the errors are uncorrelated one another. Thus, the null hypothesis is meant for checking whether the error terms are auto correlated or not. The measurement done by Durbin-Watson statistic used from by the Breusch-Godfrey test (LM Test). For the purpose of this paper, DW statistic is considered. Autocorrelation has a critical value near two indicates nonexistence of autocorrelation Brooks, (2008). Therefore, the value of DW of the study shows in Appendix-A the Breusch-Godfrey test (LM Test) is 1.84 which indicates the assumption of no autocorrelation won't be rejected.

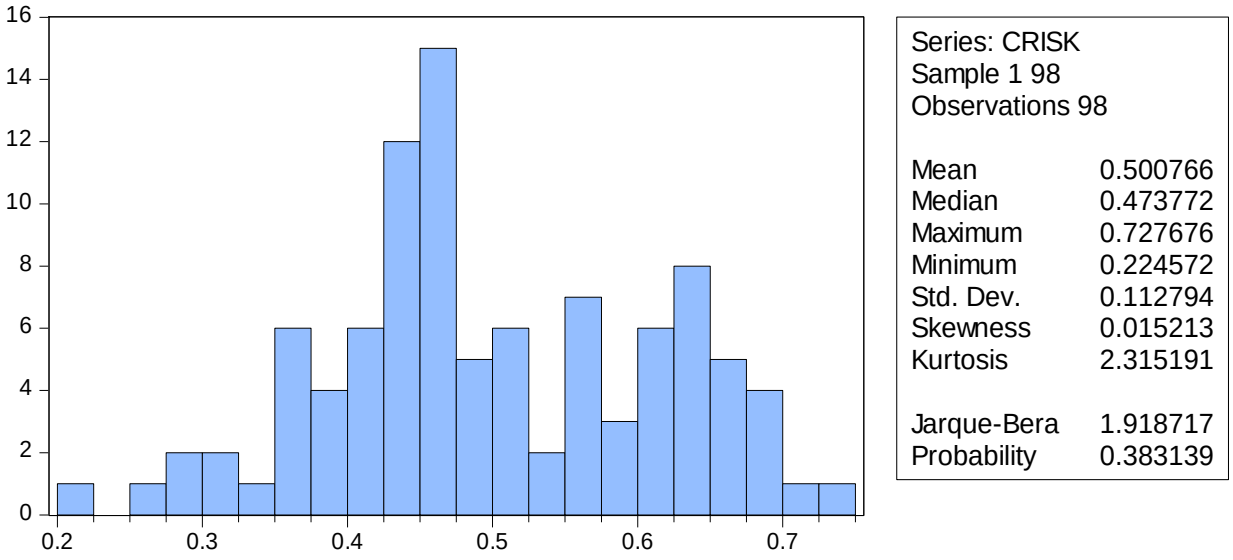
- **Test for Normality assumption (Ut ~N(0, σ2)**

A normal distribution is not skewed and is defined to have a coefficient of kurtosis 3. BeraJarque formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how far the tails of the distribution are. The Bera-Jarque probability statistics/P-value is also expected not to be significant even at 10% significant level (Brooks, 2008). The study develops the following hypothesis to check the normality:

H0 = Normally Distributed

H1 = Not normally Distributed

Figure 4.1 Normality Test



Source: EViews Out Put

As shown in the above Histogram, kurtosis approaches to 3 (i.e. 2.315191) and the Jarque-Bera Statistics was not significant even at 10% level of significance as per the P-values shown in the histogram (i.e. 0.383139). Hence, the null hypothesis of normally distributed is failed to reject at 5 percent of significant level. This implying that there is no significant evidence for the presence of not normality distribution in this model. The Jarque Bera P-value of the model also supports the absence of non normality. Therefore, can be concluded that, the data is normal distributed.

- **Test for Absence of Series Multicolinearity Assumption**

This assumption is concerned with the relationship between explanatory variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect Collinearity, and it cannot be estimated by OLS (Brooks, 2008).

Multicolinearity indicates a linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2004). If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect collinearity, and it cannot be estimated by OLS Brooks (2008). When independent variables are multicollinear, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable Gujarati, (2004). According to Lewis-Beck, (1993) suggestion in order to find out the Multicolinearity problem, the bivariate correlations among the independent variables should be examined and the existence of correlation of about 0.8 or larger indicates a problem of Multicolinearity.Also, Cooper and Schendlar, (2003) suggested that a correlation above 0.8 should be corrected.

Table 4.4 Correlation Matrix of Explanatory Variables

	CRISK	EXBRUSD	GINF	LIQ	ROA	RPGDP
CRISK	1.000000					
EXBRUSD	-0.492410	1.000000				
GINF	0.029193	-0.124345	1.000000			
LIQ	0.069820	-0.016712	-0.093615	1.000000		
ROA	-0.042039	0.129202	0.289936	-0.078779	1.000000	
RPGDP	-0.512073	0.657527	-0.055307	-0.037900	0.232271	1.000000

Source: EViews Out Put

The Pearson correlation, which varies between -1 and 1, if the p-value is 0, there is no linear correlation, and if the p-value is -1 or 1 we have a perfectly negative or positive relationship between the variables. According to Pallant (2005), the results in the above correlation matrix table 4.5 show that the highest correlation of 0.657527 which is between number of Exchange rate and GDP. Since there is no correlation above 0.8 in this study according to Cooper and

Schendlar (2003) and Lewis-Beck (1993), it can be concluded in this study that there is no problem of Multicolinearity, thus enhanced the reliability for regression analysis.

- **Choosing Random effect (RE) Vs. fixed effect (FE) models**

The results so far indicate that all CRLM assumptions are not violated, so the ordinary least square regression can be safely applied. However, since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM) Brooks, (2008).

The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both crosssectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally Brooks, (2008). To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the REM model Baltagi (2005). The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method. (Brooks, 2008)

The Hausman test hypothesis is

H0= Random effect model is appropriate

H1= Fixed effect model is appropriate

Table 4.5 Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Source: EViews Out Put

Table 4.6 above shows Hausman specification test, the P-value of a model is 1.00, which is more than 5% level of significance. Hence, the null hypothesis of the random effect model is appropriate is failed to reject at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model and gives more comfort that random effects model results are valid.

4.4. Regression Result

This section presents the regression result of random effect model that made to examine the determinants of deposit of commercial banks in Ethiopia. Accordingly, the regression result was made and coefficients of the variables were estimated via E-view version 8 software. As stated earlier in model selection part, random effect regression model is an appropriate model used in this study. Thus, in this study the model used to examine the determinants of commercial banks deposit in Ethiopia was:

$$DEP_{it} = \alpha + \beta_1(GINF)_{it} + \beta_2(RPGDP)_{it} + \beta_3(ROA)_{it} + \beta_4(CRISK)_{it} + \beta_5(LIQ)_{it} + \beta_6(EXBRUS)_{it} + Ɛ_{it}$$

Where;

- α is an intercept,
- β1, β2, β3, β4, β5, and β6, represent estimated coefficient for specific bank i at time t,
- GINF it: General inflation rate i at time t,
- RPGDP it: Real per capital gross domestic product at time t,
- ROA it: Return on asset i at time t of the banks,
- CRISK it: Loan to asset ratio of the banks i at time t,
- LIQ it: Total deposit to total asset ratio of the banks i at time t,
- EXBRUSD it: Annual average exchange rate of Birr to USD at time t,
- t: Time (2002/2003-2015/2016).
- εit: Represents error terms for intentionally/unintentionally omitted or added variables. It has the characteristics of zero mean, constant variance and non- auto correlated.

The coefficients of explanatory variable were estimated by the use of ordinary least square (OLS) technique. The regression result in Table 4.7 demonstrates both coefficients of explanatory variables and corresponding p-values.

Table 4.6 Random effects model regression results

Dependent Variable: DEP

Method: Panel EGLS (Cross-section random effects)

Date: 06/16/19 Time: 10:17

Sample: 2003 2016

Periods included: 14

Cross-sections included: 7

Total panel (balanced) observations: 98

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GINF	0.018979	0.050576	0.375258	0.7083
RPGDP	3.186113	0.176862	18.01470	0.0000
ROA	2.519482	0.982696	2.563846	0.0120
CRISK	-0.141144	0.094301	-1.496744	0.1379
LIQ	0.881133	0.198259	4.444359	0.0000
EXBRUSD	-0.007553	0.004598	-1.642844	0.1039
C	-8.706592	0.632106	-13.77394	0.0000

	Effects Specification	
	S.D.	Rho
Cross-section random	0.164666	0.8638
Idiosyncratic random	0.065394	0.1362

	Weighted Statistics		
R-squared	0.964366	Mean dependent var	0.400608
Adjusted R-squared	0.962016	S.D. dependent var	0.401550
S.E. of regression	0.078260	Sum squared resid	0.557335
F-statistic	410.4567	Durbin-Watson stat	0.574128
Prob(F-statistic)	0.000000		

The starred coefficientestimates are significant at the 1 % (*)

Source: EViews out put

Thus, based on the result above Table 4.7, the following model was developed to examine the determinants of commercial banks deposit in this study.

DEP_{it}= -8.706592+ 0.018979GINF + 3.186113RPGDP + 2.519482 ROA -0.141144 CRISK + 0.881133 LIQ -0.007553 EXBRUS + ε_{it}

EViews regression output is divided into three panels. The top panel summarizes the input to the regression, the middle panel gives information about each regression coefficient, and the bottom panel provides summary statistics about the whole regression equation. The two most important numbers, "R-squared" (the one who answered how much percent of the variance in the dependent variable in the regression accounted for) and "S.E. of regression." and the one that shows how far is the estimated standard deviation of the error term. Five other elements, "Sum squared residuals," "Log likelihood," "Akaike info criterion," "Schwarz criterion," and "HannanQuinn criter." are used for making statistical comparisons between two different regressions. The next two numbers, "Mean dependent var" and "S.D. dependent var," report the sample mean and standard deviation of the left hand side variable Brooks, (2008).

"Adjusted R-squared" makes an adjustment to the plain-old to take account of the number of right hand side variables in the regression. Measures what fraction of the variation in the left hand side variable is explained by the regression. The adjusted, sometimes written, subtracts a small penalty for each additional variable added.

"F-statistic" and "Prob(F-statistic)" come as a pair and are used to test the hypothesis that none of the explanatory variables actually explain anything. Put more formally, the "F-statistic" computes the standard F-test of the joint hypothesis that all the coefficients, except the intercept, equal zero. "Prob (F-statistic)" displays the p-value corresponding to the reported F-statistic.

The final summary statistic is the "Durbin-Watson," the classic test statistic for serial correlation. A Durbin-Watson close to 2.0 is consistent with no serial correlation, while a number closer to 0 means there probably is serial correlation Brooks, (2008). Hence, as concluded in the Hausman test (Table 4.6) above the random effects model is appropriate regression analysis to this study.

4.5. Interpretation on Regression Result

This section discusses in detail the analysis of the results for each explanatory variable and their importance in determining deposits in Ethiopian commercial banks. Furthermore, the discussion analyzes the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the interpretation on the random effects model regression results and relationship between explanatory variables and deposit.

The estimation results reported in Table 4.7 also depicted that, The R-squared and Adjusted Rsquared values of 0.96 and 0.96 respectively is an indication that the model is a good fit. This means more than 96% of variations in determinants of commercial banks deposit in Ethiopia were explained by independent variables included in the model. However, the remaining 4% changes in determinants of commercial banks deposit of Ethiopian are caused by other factors that are not included in the model. Furthermore, the F-statistic was 410.46 and the probability of not rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable (DEPO) and the independent variables, is 0.000000 indicates that the overall model is highly significant at 1% and that all the independent variables are jointly significant in causing variation in determinants of commercial banks deposit.

The panel random effect estimation regression result in the above table 4.7 shows that, coefficient intercept (α) is -8.706592. This means, when all explanatory variables took a value of zero, the average value DEPO would be take -8.706592 unit and statistically significant at 1% level of significance.

General Inflation Rate(GINF)

The positive sign contrary to the expected negative relationship between inflation and commercial banks deposit implies the theory of standard life cycle model inflation could influence savings through its impact on real wealth. If customers attempt to maintain a target level of wealth or liquid assets relative to income, they will increase their savings as the same time commercial banks deposit will raise with inflation.

One of the external factors variable in this study was Inflation. According to the regression result of this study, Inflation has positive and statistically insignificant impact on deposit of commercial banks.

The coefficient of this relationship of 0.018979 indicates that holding other things constant, a unit increase in inflation rate will lead to an 1.8-unit increase in bank deposit growth at an insignificant level. This implies that persistent inflation has a negative insignificant effect on growth of bank deposit. So higher inflation induces savers to save less, perhaps households get stable price prediction from deposit. This result is consistent with the precautionary motive, suggesting that increased macroeconomic uncertainty induces people to save a proportion of their incomes. This is particularly true for households

in developing countries such as Ethiopia whose income prospects are more uncertain than their counterparts in developed countries.

Real Per Capital Gross Domestic Product(GDP)

The results of random effect model in Table 4.7 indicate that there is a positive and statistically significant impact of GDP on the level of bank's deposit. The result shows the effect of economic growth measured in terms of GDP on bank's deposit with a coefficient of 3.186113 and a p-value of 0.0000 at 1% significance level. This implies that for one unit change in GDP, keeping the other things constant had resulted 3.186113 unit change on the level of bank's deposit in same direction. Thus the positive sign implies that in times of strong economic growth, commercial banks deposit is higher, because it increases the lifetime earnings of the people.

Based on the result, hypothesis is not rejected and we can also conclude that GDP had positive and significant effect on commercial banks deposit. The finding is consistent with the previous empirical finding of Mahendra (2005) in India and Fisseha (2017) in Ethiopia. And the result was contradictory with the finding of Giragn (2015) in Ethiopia and Shemsu (2015) in Ethiopia.

Profitability (ROA)

Profitability in this study is measured by the return on asset (ROA). The regression result shows that, profitability has positive and statistically significant impact on Bank's deposit. The positive sign of the coefficient indicates a directly relationship between profitability and banks deposit. According to the regression result, a one unit change in the Bank's Profitability, keeping other things constant, has resulted in 2.519482 unit change on the level of deposit of commercial banks in.

Credit Risk (CRISK)

Bank credit risk was measured as a ratio of total deposit to total asset which has an insignificant negative impact on commercial bank deposit. The coefficient of this relationship is -0.141144 indicates that holding other things constant a unit increase in credit risk will lead to a 0.141144 decrease in commercial bank deposit. The result of the study is consistent with the finding of (Osie, 2015). The sign differs from the initial assumption. This means, there is no sufficient evidence to support the negative relationship between commercial banks deposit and loan to asset ratio.

Bank Liquidity (LIQ)

In this study, Ratio of total loan and advance to total deposit is used as a proxy bank liquidity. The ratio of loan and advances to deposits reflects the quantity or proportion of the customers' deposits that has been given out in form of loans. When the ratio is high it means that large portion deposit is given out in the form of loan. The result in this study found the at Bank liquidity is positively and statistically significant impact on commercial banks deposit at 1% significant level. According to the regression result, a one unit change in the Bank's liquidity, keeping other things constant, has resulted in 0.881133 unit change on the level of deposit of commercial banks in the same direction. In other word, it means that the depositors are concerned with liquidity position which determines a bank's ability to respond to the withdrawal needs which are normally on demand or on a short notice as the case may be.

This significant impact relation Bank's liquidity and deposit is consistent with the funding of Jemeber (2012) and Bahredin (2016).

Exchange rate of Birr to USD (EXBRUS)

Exchange Rate was found to have a negative insignificant relationship with commercial bank deposit growth according to the model in Table 4.7 above. But the correlation coefficient for deposit rates is -0.007553 indicating that a 1unit increase in exchange rate leads to a 0.007553 decrease in commercial bank deposit deposits.

For the major net importing country like Ethiopia, variability of the exchange rate of the local Ethiopia money (Birr) to foreign currency values is enormous. As the exchange rate of Birr to USD ratio grows, local deposits will deplete in the process of importing goods and services. This means as the country does by far more imports than exports and the exchange rate of Birr to USD grows, then local deposits in banks will reduce showing that there is inverse relationship. There are also cases where it shows the opposite trend by increasing the foreign direct inflows. However, the study by Ngula(2012) on the 'Determinants of deposit mobilization and its role in economic growth in Ghana has demonstrated that a deterioration in the Ghanaian currency with respect to the US currency resulting in a higher deposit mobilization.

CHAPTER FIVE

5. Conclusions and Recommendations

5.1 Summery

The study established the factors that determine Commercial Bank Deposit in Ethiopia banking sector during the period from 2003-2016. Findings indicated that Commercial Bank Deposit bank deposit growth are influenced by General Inflation(INF), Real per capital Gross DomesticProduct, (GDP), Exchange Rate(EXBRUS), Bank Profitability(ROA), Bank Liquidity(LIQ) and Loan to Asset Ratio(CRISK)

This chapter outlines the Conclusion and Recommendation of the study in accordance with the study results.

5.2 Conclusions

Nowadays, finding deposit is becoming a challenging job for the banks in Ethiopia compatible with the growing need of loans. Owing to the growing need for finances from new and existing businesses of the country coupled with the banks own desire to make profits from those finances, deposit mobilization is becoming the critical success factor for banks. The main objective of this study was to identify the macroeconomic and bank specific determinants of deposit of Ethiopian commercial banks. To comply with the objectives of the study, three bank specific and three macroeconomic variables were used.

The bank specific variables includes; Bank Credit Risk (CRISK), Bank Liquidity (LIQ) and Bank Profitability(ROA), and the macroeconomic variables were Inflation(INF), Gross Domestic Product (GDP) and Exchange Rate (EXBRUS). The study was used panel data for the sample of seven commercial banks in Ethiopia which had fourteen years of banking service over the period 2002/03 to 2015/16. The bank specific data were mainly collected from annual audited financial reports of the respective sample banks and the macroeconomic data were collected from NBE. Data was presented and analyzed by using descriptive statistics, correlation analysis and random effect regression analysis to identify the determinants of deposit of Ethiopian commercial banks.

The conclusion made regarding to determinants of commercial banks deposit in Ethiopia were given as follows:

- The deposit growth reacts positively towards the increase in inflation. The relationship is similar to the expected sign. Since the county has experienced double digits inflation in the study period that results in higher costs of doing business; which leads to decrease in deposit mobilized by commercial banks
- Real Gross Domestic Product (RGDP) had a positive and significant effect on DEPO of commercial banks in Ethiopia. It implies that in times of strong economic growth, commercial banks deposit is higher, because it increases the lifetime earnings of the people.
- In regard to profitability measured by Return on Asset has a significant positive impact on commercial bank deposits growth. Higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits. The depositor confidence will increase if the bank is profitable and have adequate asset return.
- The result of this study showed that, among the bank specific variables Bank Credit Risk is negatively and statically insignificant to the growth of commercial bank deposit.
- In connection with liquidity, the study indicated that the bank liquidity have positive and statically significant effect on commercial bank deposit. Deposit growth decreases when the bank liquidity increases or reduces liquidity risk. Liquidity arises mainly from the type of deposit where commercial banks were collected. Most of the deposit of the commercial banks are either individual or demand deposits and this deposits are withdrawn by the depositor at any time so the commercial banks should have adequate money to meet the withdrawal of the customer.
- The other micro level determinant of commercial bank deposit is exchange rate which have a negative insignificant impact on the commercial bank deposit. When the exchange rate of Birr to USD ratio grows, local deposit will reduce because of the increment of importing goods and services.

5.3 Recommendations

Based on the findings and conclusion of the study, the researcher is going to recommend the following to the commercial banks:

- It is well known that mobilizing deposit is a core activity of all commercial banks. By the same analogy CBE's major activity is mobilizing deposit. Therefore the bank should give due emphasis to its deposit mobilizing tasks by considering mobilizing deposit is a way to survival.
- Commercial banks are highly sensitive organization open to public scrutiny. As such, they must continuously ensure their profitability, which is essential for their deposit growth and viability as also for infusing public confidence. Thus, banks have assumed greater responsibilities in mobilizing domestic resources for financing the priorities of the economy and commercial banks should have managed liquidity that contributes some for reduction of deposit growth and NBE shall also keep its liquidity requirement in the future to increase the deposit growth of the banks.
- A lack of liquidity can put a quick and final end to a financial institution's efforts to mobilize deposits and, in the worst case, can cause it to collapse or close. Deposit mobilization requires clients to trust that they will always be able to access their savings when they want or need them. As the study point out, commercial bank required to have enough liquid asset to meet the demand for cash outflows, so as to generate and sustain public confidence of the depositors.
- The Ethiopian commercial banks have to give loan by considering their deposit and the risk of high loan to deposit ratio.
- The banks should also try to introduce new deposit product types that are appealing to the public to increase market share. There are areas that have to be looked at like online account opening and account maintenance to attract foreign depositors and in the process the legal requirements for account opening has to be comfortable.
- For the branch operation managers, it's a serious implication that, branch operation managers of Ethiopian commercial banks should give consideration to number of branch and loan to deposit ratio when they set deposit mobilization techniques as they are found to be the most significant internal variables that affect commercial banks deposit. This will help them to make their deposit increased in the long run.

- The government has to give equal playing ground for all banks and its policies should be impartial to all banks operating in the country. The existing institution of the banks, Ethiopian Bankers Association, has to broaden its authorities and responsibilities and instigate fair practices among individual banks.

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Appendix

Appendix A: Breusch-Pagan-Godfrey LM Test

F-statistic	90.34474	Prob. F(2,89)	0.0000
Obs*R-squared	65.65910	Prob. Chi-Square(2)	0.0000

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 06/16/19 Time: 16:21

Sample: 1 98

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRISK	0.569919	0.218202	2.611882	0.0106
EXBRUSD	0.034958	0.014006	2.495895	0.0144
GINF	0.023424	0.148941	0.157270	0.8754
LIQ	-0.139696	0.407219	-0.343048	0.7324
ROA	3.308914	2.655632	1.245999	0.2160
RPGDP	-0.830421	0.519767	-1.597677	0.1137
C	2.372892	1.801325	1.317304	0.1911
RESID(-1)	0.765494	0.100733	7.599251	0.0000
RESID(-2)	0.175261	0.111374	1.573623	0.1191

R-squared	0.669991	Mean dependent var	-5.03E-16
Adjusted R-squared	0.640327	S.D. dependent var	0.323586
S.E. of regression	0.194063	Akaike info criterion	-0.353923
Sum squared resid	3.351787	Schwarz criterion	-0.116528
Log likelihood	26.34224	Hannan-Quinn criter.	-0.257902
F-statistic	22.58618	Durbin-Watson stat	1.844476
Prob(F-statistic)	0.000000		

Appendix B: Correlated Random Effects - Hausman Test
Correlated Random Effects - Hausman Test
Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CRISK	-0.080060	-0.141144	0.000088	0.0000
EXBRUSD	-0.007456	-0.007553	0.000000	0.0952
GINF	0.018907	0.018979	0.000001	0.9256
LIQ	0.854490	0.881133	0.000494	0.2307
ROA	2.485109	2.519482	0.002544	0.4955
RPGDP	3.209877	3.186113	0.000021	0.0000

Cross-section random effects test equation:
Dependent Variable: DEP
Method: Panel Least Squares
Date: 06/16/19 Time: 09:02
Sample: 2003 2016

Periods included: 14

Cross-sections included: 7

Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.805846	0.629544	-13.98765	0.0000
CRISK	-0.080060	0.094767	-0.844813	0.4006
EXBRUSD	-0.007456	0.004598	-1.621521	0.1086
GINF	0.018907	0.050582	0.373793	0.7095
LIQ	0.854490	0.199501	4.283140	0.0000
ROA	2.485109	0.983989	2.525544	0.0134
RPGDP	3.209877	0.176921	18.14295	0.0000