ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

FACTORS AFFECTING DEPOSIT MOBILIZATION ON PRIVATE COMMERCIAL BANKS IN ETHIOPIA

By

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ADDIS ABABA, ETHIOPIA

ST. MARY'S UNIVERSITY

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APPROVED BY BOARD OF EXAMINERS

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DECLARATION

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

Name :----------

Signature: ----------

St. Mary University, Addis Ababa **June, 2020**

ENDORSEMENT

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

AbebawKassie (PhD)

AdvisorSignature_____

St. Mary University, Addis Ababa **June, 2020**

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List of Acronyms

AIB	Awash International Bank
BOA	Bank of Abyssinia
BS	Bank size
CBO	Cooperative Bank ofOromia
CLRM	Classical Linear Regression Model
GDP	Gross Domestic Product
DB	Dashen Bank
IFD	Foreign Direct Investment
NBE	National Bank of Ethiopia
NIB	Nib International Bank
OLS	Ordinary Least Squares
S.C.	Share Company
UB	United Bank
WB	Wegagen Bank

Abstract

Deposit mobilization is a fundamental part of banking activity. Thus,the main objective of the study is to examine the factors affecting deposit mobilization of private commercial banks in Ethiopia. The study used balanced panel model in examining the regression model and collect data from six private commercial banks covering the period of Twenty(20) consecutive years, 2000-2019 with a total of 120 observations. To this end, the study employed a quantitative research approach by documentary analysis based on their audited financial statement. The study used panel data techniques specifically fixed effect model on the regression analysis and used E-view8 software. The study used one dependent variable total deposit amount (DEP) and nine independent variables that are Bank's size, Number of Bank's Branch, Bank Reserve, Deposit interest rate, Loan to Deposit Ratio, Lending Rate, Exchange Rate, Inflation rate and Gross domestic product (GDP). The regression result of Exchange Rate and Deposit Interest Rate show that positive and significant effect at 5% significance level on deposit mobilization of private commercial bank in Ethiopia and Bank Size, Bank Reserve, Loan to Deposit Ratio, Number of Bank's Branch and Lending rate show that positive and significant at 1% significance level on Deposit Mobilization.Whereasinflation rate has negative and insignificant impact at 5% significance level on deposit mobilization of private commercial bank and GDP show that positive and insignificant impact at 5% significance level on deposit mobilization. The study recommended that Ethiopian private commercial banks should give attention to Bank Size, Bank Reserve, and Loan to Deposit Ratio, Lending Rate, Exchange Rate, Deposit Interest Rate and Number of Bank's Branchthat could affect deposit mobilization and significantly enhance their deposit.

Key words: - Bank, Micro and Macro Economic Factors and Deposit Mobilization

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The theoretical behind greater liberalization in the banking industry was to create competition in commercial banks that attract deposits mobilization to be used to provide credits to the private sector. A liberalized banking sector, on the other hand, sees banks competing with one another for deposits, putting upward pressure on the deposit rate of interest and thus increasing the quantity of deposits mobilized. Mobilizing deposits domestically is crucial in many developing countries. Domestic funds provide a cheap and reliable source of funds for development, which is of great value in developing countries, especially when the economy has difficulty in raising capital in international markets. Yet, in many developing countries, there is a considerable amount of savings that are not intermediated through the formal sector. Tagel, (2015)

The financial system in all economy is composed of the Bank-based system where provision and monitoring of investments funds are made through the banks on one hand and the stock market where investors (surplus units) enter directly through ownership of securities. Banks play an intermediary role of mobilizing funds from savers and subsequently lend them to investors- individual/corporations Shemsu, (2015).

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 these countries, especially when the economy has difficulty raising capital from international donors, financiers and markets. Yet, in many developing countries, there is a considerable amount of savings that are not intermediated through the formal sector particularly there exist significant savings potential in the rural and / or semi-urban sector of many developing countries. In a modern economy, the important activity of the commercial banks is to mobilize deposits from the public. The people with surplus income and

savings find it convenient and safe to deposit the amounts with banks. Thus, deposits with the bank grow along with the interest earned. Granting of loans and advance and channelling households' saving to corporate sector is mostly possible if the banks have accumulated sufficient deposit from the available market.

Financial resource mobilization is a critical issue in the economy of Ethiopia, commercial Bank of Ethiopia mobilizes resource from customer local deposit, foreign currency and loan collection. Customer local deposit is a major source to resource mobilization of commercial bank of Ethiopia. Therefore customer deposits have a dramatic impact in resource mobilization of commercial banks. On the basis of resource mobilization purpose commercial Bank of Ethiopia serve different types of deposit mobilization. These are demand deposit, saving deposit, women deposit and fixed time deposit. Mamo, (2017)

Selvaraj& Kumar, (2015) stated that 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. Mobilization of rural savings is one of the important objectives of the Commercial Banks. It helps to expand banking operations. The successful functioning of commercial banks depends on the extent of funds mobilized. Deposits are the life blood of banking companies. Deposits constitute a vital source of funds required for banking business. There are different types of deposits, with different maturity pattern carrying different rates of interests. Deposit mobilization is depending on the cost of deposits. Mobilization of deposits for a bank is as essential as oxygen for human being.

According to Richard, (1971) in the most basic terms, commercial banks take deposits from individual and institutional customers, which they then use to extend credit to other customers. They make money by earning more in interest from borrowers than they pay in interest to those whose deposits they accept.

Compared to most countries, Ethiopia has taken a cautious approach toward the liberalization of its banking industry. For all intents and purposes, its industry is closed and generally less developed than its regional peers. The industry comprises one state-owned development bank and the financial giant dominant Commercial Bank of Ethiopia (CBE) which embarks on aggressive branch network expansion aimed at mobilization of deposit resources; continued amassing of foreign currency proceeds of export items channelled from China, channelling of savings made for the housing project in the capital city (though it also lends householders at a lower interest rate); imposition of private banks to purchase

NBE-Bills and the sum effect of the above and other factors enable the CBE secure competitive edge over private banks with assets accounting for more than 65 per cent of the industry's total holdings. The banking industry's nonperforming loan ratio is commendably low, and profitability is good, but the dominance of public sector banking certainly restricts financial intermediation and economic growth. It contrasts with regional and international peer countries where banking industries have a much higher share of private sector and foreign participation Dereje, (2017).

In Ethiopia commercial banks are the main controller of the financial system performing financial intermediation. They control greater portion of the investment funds from domestic deposits and are the main creditors of the corporate bodies, SMEs and individual investors. That is why the traditional banking business of supplying funds to the economy is still of importance. For example, most business organizations especially in Ethiopia are highly dependent on bank loans as a source of capital and the ability of banks in giving loan depend much on their ability to attract deposits. Even though, mobilizing deposit is the major activity of all commercial banks, managing and identifying the determining factors of deposit is a mandatory task for banks. Mobilizing deposits is not possible without knowing and controlling the factors affecting it Shemsu, (2015).

1.2 Statement of the problem

F**i**nancial development is crucial to economic growth and banks are the most important elements of the financial system. With the limited banking trend and low income of the society private commercial banks in Ethiopia has been experiencing competition in banking industry and one of the main objectives of financial institutions is mobilizing resources, Deposit mobilization is the process of encouraging customers to deposit cash with the bank or attracting new clients to come and open accounts with the bank. From an institutional perspective, the primary motive for mobilizing savings lies in lower cost of capital compared to other sources of funds. Samuel (2015)

Deposit mobilization is an integral part of banking activity. Mobilization of savings through intensive deposit collection has been regarded as the major task of banking all over the world. Deposit mobilization is the collection of cash or funds by a financial institution from the public through its current, savings, fixed recurring accounts and other specialized schemes Mahindra (2005). Nkwede (2010) pointed out that banks plan their deposit mobilization strategy depending on the country's investment growth through the growth of the branch, using technologies, continuous training of staff boosting the deposit, increasing the organization's confidence, or the current branch, expanding bank deposit products, utilizing high media coverage, branch expansion, home-based learning about benefits to deliver, to provide door to door service and so on.

Now days, the Ethiopian Banks are developing strategies that enables them to mobilize deposit. But, the Commercial Bank of Ethiopia is aggressively increasing accessibility to far remote areas, increasing operational efficiency, and the government also making favours by giving some way of deposit mobilization such as issuance of bonds to mobilize funds that would be used for huge development projects such as Great Renaissance Dam, Condominium housing projects, water and electric payment. On top of this, every civil servant also get his/her salary only from CBE and these activities of CBE increase the challenge of other private commercial banks.

In the process of mobilization, accepting deposit and granting loan, banks encounter problems. Few of the problems include; most of the time customers use assets with low values as collateral for borrowing money from banks. Hence, in case the borrowers fail to pay back the loan, they try to overcome so many challenges to determine the interest rates that are equivalent to their competitors. The other problem is, since most of the capital of the bank is composed of the deposit they accept from their customers, without promoting modern banking technology they may get also losing their customers. Samuel (2015).

On top of this, (Federal Negarit Gazette, 2013) under the proclamation number 780/2013, the finance intelligence centre announced to control Anti-money laundry and Countering the financing of terrorism support. Banks also have obliged to take due diligence & identify the source of the wealth and funds of the customer when new customer account is opened and give information on every deposit and withdrawal beyond birr 300,000.00 and USD 15,000.00 this leads some persons to think as government is tracking their money. Therefore this is also being a big threat on deposit mobilization.

There are studies with reference to Ethiopia on Deposit Mobilization, Sisay (2013) on his study on the Factors Affecting Deposit Mobilization in Private Commercial Banks: The Case of Awash International Bank S.C. stated that the reconstruction of Addis Ababa roads, Aggressive branch expansion of CBE, the condominium house construction program, peoples attitude towards using private banks and poor parking area are strongly influence the deposit mobilization process of Awash International Bank S.C.

As per Fekadu, (2019) studied on Factors Affecting Deposit Mobilization in The Case of Dashen Bank, stated independent variables such as service quality, branch expansion, interest rate, technology, disposable income, and market strategy are factor of deposit mobilization for Dashen Bank and the variables are positively and statistically significant on the bank deposit growth.

Tagel(2015) on his study Assessment on Factors Affecting Deposit Mobilization examines that awareness creation and branch expansion, interest rate and service level, technology are among the most important factors to facilitate deposit mobilization.

However, these all researches did not examine other variables which mainly affect deposit mobilization such as, loan to deposit ratio, bank reserve, lending interest rate and Deposit Interest Rate. Thus, due to the severity of the problem concerning to this topic incorporating essential variables collectively is what motivated the researcher to study on factors affecting deposit mobilization on private commercial banks in Ethiopia.

1.3 Research question

Base on the above statement of the problem the researcher develops the following research question.

- What are the factors that affect deposit mobilization on private commercial banks in Ethiopia?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of the study is to examine the factors that affect deposit mobilization on private commercial banks in Ethiopia.

1.4.2 Specific Objectives

The specific objectives of the study are;

- To examine the impact of Micro economic factor such as Bank size, Lending Rate and Number of Bank's branch on deposits mobilization of private commercial banks in Ethiopia.
- To examine the impact of Macroeconomic factors such as Exchange Rate, Inflation Rate, Deposit Interest Rate, GDP, Loan to Deposit Ratio and Bank Reserve on deposits mobilization of private commercial banks in Ethiopia.

1.5 Constructing Hypothesis

Hypothesis is a tentative answer to a research problem expressed in the form of a clearly stated relationship between independent and dependent variable. Accordingly, the following are hypothesis of this study

- Bank Size has positive and significant effect on deposit mobilization
- Lending Rate has negative and significant effect on deposit mobilization
- Number of Bank's Branch has positive and significant effect on deposit mobilization

- Exchange Rate has positive and significant effect on deposit mobilization
- Inflation Rate has negative and insignificant effect on deposit mobilization
- Deposit Interest Rate has positive and significant effect on deposit mobilization
- GDP has positive and significant effect on deposit mobilization
- Loan to Deposit Ratio has positive and significant effect on deposit mobilization
- Bank Reserve has positive and significant effect on deposit mobilization

1.6 Scope of the Study

The study focused on Factors Affecting Deposit Mobilization on Private Commercial Banks in Ethiopia and used secondary source of data for analysis purpose. The study takes in to account financial performance of banks for the last 20 years that is from 2000 G.C to 2019 G.C. As a result, the research incorporated private commercial banks started their operation before or on 2009 G.C, these are six private commercial banks that operate in Ethiopian. These banks selected due to their market share. As NBE (2016/17) annual report stated, these six private commercial banks together account for 69% of the market share based on their number of branch and capital held by all Ethiopian private commercial banks. Those banks are Awash International Bank, Dashen Bank, Abyssinia Bank, Wegagen Bank, United Bank, Nib International Bank. Moreover, the study used nine (9) variables, i.e. Number of Bank's branch, Bank size, Deposit Interest Rate, Bank reserve, Loan to deposit ratio, Exchange rate, Inflation rate, GDP, Lending interest rate.

1.7 Significant of the Study

Studying the factors that affect deposit mobilization on private banks will have benefits from the findings that emerged from the results of the study and these are the following organ that will be benefited;

The study will help private commercial banks to manage their deposit by letting them know what affects it and which variable is the most important,

Bank's Management: Administration could be interested in identifying indicators of success and failure to take the necessary actions to improve the deposit performance of the company and choose the right decisions.

Banks: banks may possibly involve in knowing the ability of customers to provide better services based on the indicators of success of the companies.

The study could add knowledge on the field of banking and financial resource studies and it will serves for further study in the sector and help as additional input for other researchers.

1.8 Limitation of the study

The study is conducted using secondary data. The sample and the data of the study are shortened and may not be enough because of the world wide COVID 19 pandemic that is happening these days, which creates difficulty on the researcher to use primary data's such as questioners from bank customers, employees and interviews with related persons that are very relevant for the research work to give adequate recommendations.

1.9 Structure of the study

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

CHAPTER TWO

LITERATURE REVIEW

This section present theoretical and empirical review on the factors affecting deposits mobilization on private commercial banks in Ethiopia. Accordingly, the first part presented theoretical literature about different factors that affect deposits mobilization on private commercial banks and also explained some theories which are related with the topic. The second part discussed about various empirical studies. The gaps in existing literature described in the third part and the conceptual framework depicted in the fourth part.

2. Theoretical Literature

2.1 The Concept of Banking

Banking is one of the oldest professions in human history, it also flourished with civilizations. Since humans started, using money bank services were in use money bank services were in use throughout history. Modern banking as we know it today was established in Italy and Greece in the 15th century. Today, banks are one of the most important institutions for a modern economy to work in any country. Gedey, (1990)

Banking is an industry that handles cash, credit, and other financial transactions. Banks provide a safe place to store extra cash and credit. They offer savings accounts, certificates of deposit, and checking accounts. Banks use these deposits to make loans. These loans include home mortgages, business loans, and car loans.(https://en.m.wikipedia). A Bank is a financial institution which is involved in borrowing and lending money. Banks take customer deposits in return for paying customers an annual interest payment. The bank then uses the majority of these deposits to lend to other customers for a variety of loans. The difference between the two interest rates is effectively the profit margin for banks. Banks plays an important role in the economy for offering a service for people wishing to save. Banks also play an important role in offering finance to businesses who wish to invest and expand. These loans and business investment are important for enabling economic growth. (https://www.economicshelp.org)

2.1.2. The Function of Banks in Financial Systems

Financial sector is broad which consists of the banking sector and other financial institution (such as insurance corporations and pension funds, brokers, public exchange and securities markets etc.), however in the context of African continent the banking industry carries the greater share of the financial system. Most of the business relies on banking sector as a source of financing. Banks have historically been viewed as playing role in financial markets for two reasons. One is that they perform a critical role in facilitating payments. Commercial banks, as well as other intermediaries, provide services in screening and monitoring borrowers; and by developing expertise as well as diversifying across many borrowers, banks reduce the costs of supplying credit. Thus in their role as lenders, banks are often not merely buying someone's debt, rather they are providing significant financial services associated with extending credit to their customers Sheku, (2005).

Understanding the many roles that banks play in the financial system is one of the fundamental issues in theoretical economics and finance. The efficiency of the process through which savings are channelled into productive activities is crucial for growth and general welfare. Banks are one part of this process. Lenders of funds are primarily households and firms. These lenders can supply funds to the ultimate borrowers, who are mainly firms, governments and households, in two ways. The first is through financial markets, which consist of money markets, bond markets and equity markets. The second is through banks and other financial intermediaries such as money market funds, mutual funds, insurance companies and pension funds Medhat, (2004).

Banks perform various roles in the economy Franklin & Elena, (2008):-

- They improve the information problem between investors and borrowers by monitoring the latter and ensuring a proper use of the depositors' fund.
- They provide inter temporal smoothing of risk that cannot be diversified at a given point in time as well as insurance to depositors against unexpected consumption shocks. Because of the maturity mismatch between their assets and liabilities, however banks are subject to the possibility of runs and systematic risk.
- Banks contribute to the growth of the economy.

Commercial banks are institutions that engage in two distinct types of activities, one on each side of the balance sheet deposit-taking and lending. So that banks are playing mainly intermediation function, this is supported by Russell &Bamindele, (2009). Mahendra (2005) also states banks as the backbones of the trade and commerce playing the intermediary role of capital formation and supply.

Even if other financial institutions are available banks play a major role in facilitating the way the financial sector operates. Therefore banks are important of all other financial institutions. Banks influence macroeconomic environment and bank failures involve significant macroeconomic costs Adam, (2005).

Kelvin, (2001), said that commercial banks are important financial intermediaries serving the general public in any society. In most cases commercial banks hold more assets than any other financial institutions. Apart from their many functions, commercial banks facilitate growth and development. Banks lend in many areas or sectors of the economy. And also he explained that Banks mobilize, allocate and invest much of society's savings. Households and businesses are mainly using banks to save their money to get loan for their project undertakings.

Bank deposits represent the most significant components of the money supply used by the public, and changes in money growth are highly correlated with changes in the prices of goods and services in the economy. Commercial banks are critical to the development process. By granting loans in areas such as agriculture, manufacturing, services, construction and energy sectors, banks contribute to the development of the country Not only commercial banks are affecting the economy but also the economy affects the function of commercial banks. Bank loan portfolio including volume, tenor and structure may be generally influenced by their expectations of the performance of economy both in terms of stability and level of performance. As cited by banks make out more loans during periods of boom and reduced level of macroeconomic uncertainty and curtail lending when the economy is in recession Kelvin, (2001).

2.1.3.Commercial Bank Deposits

Commercial Bank deposits are major liabilities for commercial banks. Deposits of commercial banks account for about 75% of commercial bank liabilities. Due to the fact that commercial banks are using this liability to lend it and gain return on it their deposits are using them do their business. Therefore, banks will be better if they are mobilizing more deposits. The cost of intermediation for mobilizing deposits is also very important part of overall intermediation cost of the banking system Kelvin, (2001).

According to Islam &Ghosh, (2014) the Major types of deposits are:-

Checking accounts: - A deposit account held at a bank or other financial institution, for the purpose of securely and quickly providing frequent access to funds on demand, through a variety of different Channels. Because money is available on demand these accounts are also referred to as demand accounts or demand deposit accounts.

Savings accounts: - Accounts maintained by retail banks that pay interest but cannot be used directly as money (for example, by writing a cheque). Although not as convenient to use as checking accounts, these accounts let customers keep liquid assets while still earning a monetary return.

Term deposit: - A money deposit at a banking institution that cannot be withdrawn for a present fixed 'term' or period of time. When the term is over it can be withdrawn or it can be rolled over for another term. Generally speaking, the longer term the better the yield on the money.

2.1.4. Purpose of Deposit

Bank deposits serve different purposes for different people. Some people cannot save regularly. They deposit money in the bank only when they have extra income. The purpose of deposit then is to keep money safe for future needs. From depositors' point of view, the key purposes to use deposit in bank are safety of their money, easy access and a possible real return. In general depositors keep their money in banks for a motive to undertake some activities in the future. According the author Bhatt, there are motives to save money, the followings are the example of some motives:-

- To own house
- To provide for children's education and marriage
- To provide for old age
- To leave property to children
- To provide for emergency expenditure

2.1.5. The Importance of Deposits for Banks

Deposits are the main source for providing loans and so are important financial source for banks. They are a unique item on banks' balance sheet that distinguishes it from other types of business firms.

A. Deposits as a source of fund for loan

Herald (2009) states deposits are the main source of banks to provide loan. This deposit is mainly provided by people as Mohammed and Mahdi (2010). However deposits can also be provided by business organizations, NGOs, government and so on. Therefore, whether deposits are from individuals, businesses and government they are important financial source of banks.

B. Attracting deposit is cheaper than raising equity

Banks as any other business organizations can collect funds from debt and/or equity. In the banks context, raising equity is more expensive or costly than attracting deposits. Lorenzo et al (2010) states that, if the lending channel plays a role, the deposit growth should lead to an increase in the supply of loans due to the additional source of financing for banks. As demand for loan increases because of the development work done by individuals, businesses and government, banks should extend their deposit base. When a commercial bank creates a deposit by lending to a business man, it is clearly performing a function for which it is entitled to a return in the form of interest payments Lorenzo et al (2010).

C. Banks make profit using their deposits

Deposits provide most of the raw materials for bank loans and thus represent the ultimate source of the bank's profits and growth Mahindra, (2005). Banks make profit by using their deposits, therefore it is said that depositors can disciple banks. Maria & Sergio, (2001), found that depositors discipline banks by withdrawing deposits and by requiring higher interest rates. For depository corporations mainly deposit money banks, their principal objectives is undertaking financial intermediation to make profit and increase their shareholders value Sheku, (2005). They achieve their objectives mainly by attracting deposits and investing the money on profitable investment portfolio.

D. Fund investment and/or development projects

Debt is largely held by domestic commercial banks which are funded mainly from deposits, the government demand for bank assets enabled banks to continue to expand their deposit base rapidly Herald &Heiko, (2008). Individual investors and government are mainly depending on the deposits of banks to fund their investments and/or development projects. Generally, the banking system can be viable only if it can mobilize deposits at the required rate. And this can be done only by making a bank deposit more attractive. The ability of a bank's management and staff to attract checking and savings accounts from business and individuals is an important measure of the bank's acceptance by the public Mahendra, (2005).

2.1.6. Concept and Importance of Deposit Mobilization

Deposit mobilization is defined by Elser et al (1999) as the process of encouraging customers to deposit cash with the bank or luring new clients to come and open accounts with the bank. From an institutional perspective, the primary motive for mobilizing savings lies in lower cost of capital compared to other sources of funds.

According to Kutanet al (2010) banks serve as intermediaries accepting commercial and individual deposits (savings) and transferring them in the form of loans to investments. Since the adoption of the multiple currencies in 2009 local banks went on a massive deposit mobilization drive by offering a range of products and services that are tailored to their particular clientele which saw them pool substantial amounts from the depositors. Deposit Mobilization is the bedrock of the present future growth of banks.

There has recently been an upsurge of interest among development economists, governments and international donors in programs to increase financial saving in developing country, particularly in rural areas and from non-wealthy house holder. This upsurge is in part a reaction to the failures of sub seized credit program, especially for the agricultural sectors, to achieve their goals of increasing output and transferring income to the rural poor. These failures have been attributed to recourse waste, regressive credit rationing and decreased viability of financial intermediaries resulting from attempt to influence resource and decreased viability of financial intermediaries resulting from attempt to influence resource allocation and income distribution through the provision of credit, at below equilibrium interest rate. In addition to the failure of subsidized credit, the myth that the poor have no margin over consumptions for saving and in any case do not respond to economic incentives are increasingly being questioned. Hilegiorgis, (2014)

Bank deposits represent the most significant components of the money supply used by the public, and changes in money growth are highly correlated with changes in the prices of goods and services in the economy. Bank deposits are made to deposit accounts at a banking institution, such as savings accounts, checking accounts, time deposit accounts and money market accounts. The account holder has the right to withdraw any deposited funds, as set forth in the terms and conditions of the account. The "deposit" itself is a liability owed by the bank to the depositor (the person or entity that made the deposit), and refers to this liability rather than to the actual funds that are deposited Sergeant, (2001).

Introduction Deposit mobilization is one of the important functions of banking all over the world. The mobilization of deposits plays an important role in providing satisfactory service to various sectors of the economy. However, the ability of banks to generate growth and economic development depends on

the health, solidity and stability of the banking system itself. The relationship between the mobilization of bank deposits, the financing of bank credit and the formation of capital is through the activities of the banking industry such as mobilization of deposits and creation of credits. Samuel, (2015).

Deposit mobilization is one of the most important parts of banking activities which play a vital role in developing all spares of an economy. Deposit mobilization is the process of mobilizing funds from the surplus units to the deficit units which helps in improving economic efficiency by making better opportunities for productive investment. Therefore, the mobilization of bank deposit should be managed properly. But, it is not an easy task. The success of the mobilization of deposit depends on the financial system's development and the bank's strategic practices. Byyiyet, (2019)

2.1.7 Factors Affecting Commercial Banks Deposits

An important indicator of the success and efficiency of any credit agency, which is also a banking institution is, the extent to which it is able to mobilize the savings of the community in the form of deposit. But deposit mobilization is very difficult task. It depends up on various factors exogenous as well as endogenous, to the banking system N. Desinga, (2005). Exogenous factors are the general economic environment of the region, the volume of business transaction of the region, the confidence of the people on the banking system, the banking habit of the people and the saving potential of the region. Even when exogenous factors are more conducive for deposit mobilization, banks may fail because of unfavourable endogenous factors such as location, type of building and window dressing (furniture, cheque books, vouchers, pay slips etc), which assure the customers about the physical fitness of a bank N. Desinga, (2005).

2.1.7.1 External Factors

These are factors that are from country and banks that can affect the growth of commercial banks deposits. There are discussed as follows:-

Country specific factors

The country's economic, social and political factors can affect the commercial banks deposit. According to Herald &Heiko, (2008), country specific risks such as political, economic and financial risks may affect the propensity for depositors to place funds in the banking system.

Any single bank operates under the rule and regulation of the country where it belongs, also different problems and shocks that has happened in the country has its own concern in the banks operation.

Generally, a bank success in their operation is mainly depends on the environment where the business is undertaken. The researcher has identified ten country specific factors that have affected the commercial banks deposits from the literature. They are saving interest rate or deposit rate, inflation, real interest rate, number of commercial banks available in the country, population growth, per capita income of the society, economic growth, consumer price index, gross domestic product (GDP) and shocks Herald &Heiko, (2008).

1. **Saving interest rate (Deposit Interest Rate)**

One of the most effective factors for deciding to deposit in banking system is the interest rate Mohammad & Mahdi, (2010). Moreover, this article shows the impact of interest rate on the performance of the banking system to achieve the goals that are expected from the banking system. Herald &Heiko (2009) also mentioned interest as one of the determining factor for commercial banks deposits. Philip (1968), also states that the offering of attractive interest rate on bank deposits may be considered to have had a beneficial effect. Moreover, Mustafa &Sayera (2009) said that low deposit rates are discouraging saving mobilization. Bhatt (2002) said that the banking system is unlikely to be in a position to meet the demand for bank credit unless concerted policy is pursued to raise the rate of saving generally and the rate of saving in the form of deposits in particular.

Interest rate in the banking system is held as investment cost from the investor's point of view and opportunity cost from the depositor's point of view Mohammad & Mahdi, (2010).Thus, and capital market forces balance interest rates. In other words, the just and correct interest rate should be determined through market mechanism, that is, interest rate is balanced in supply and demand conditions in proportion with the inflation rate. Eustacius& David (1995) states that deposits are more interest rate sensitive and banks may choose to increase investments in interest rate sensitive assets and to decrease investments in loans. That is commercial bank deposits are interest rate sensitive, therefore as the interest rate changes the deposit of the commercial banks will change.

It is known that depositors bring money to the bank which the banks in turn lend it to the borrowers. The gross earnings of the bank are determined by the volume and composition of loan able funds and the rates at which they are loaned. After losses and expenses of operation are deducted, the net earnings provide a margin out of which interest on deposits can be paid. Because of the competition for these funds among bankers who desire to loan them at a profit, a bank must pay interest or lose deposits to a competitor. The payment of interest on deposits is explained in this wise, like any other interest rate.

As to Erna &Ekki (2004), Economists, mainly conventional ones, believe that depositors are attracted to deposit their money in banks because of the opportunity cost of holding cash in hand is high when the interest rate is also high. This can easily be explained by the utility maximization (cost minimization) premise, as a depositor will choose an action that will maximize their welfare or satisfaction. As to

Richard, (1971), regulation of the commercial banking industry affects the returns which commercial banks realize on their deposits and capital. That is although deposits are the source for profit of banks it is influenced by regulation of the country. Accordingly, the higher profit rate on demand deposits is to a large extent the result of the prohibition against the payment of interest on these deposits. Therefore, depositors are motivated by returns.

Using an Adaptive Expectation Model (AEM), it is founded that depositors are indeed motivated by returns in Malaysia Erna &Ekki, (2004). On the other hand, Erna &Ekki, (2004) states that the rate of interest does not have influence on the volume of the deposits. However, Rose, (2001), said that banks increase their deposits by offering higher deposit rate. These are the articles that contradict to each other in identifying the relationship between the commercial banks deposits and saving interest rates or deposit rate.

2. Inflation

According to Herald &Heiko (2008), inflation is one of the factors that determine commercial banks deposits. Fischer showed that in Latin America the effect of inflation on savings and time deposit to GDP was significantly negative Mohammad & Mahdi, (2010).

The classical belief is that, because bank assets and liabilities are expressed in monetary terms and because these assets will normally grow in line with growth in money supply, banks are relatively immune from the effects of inflation Devinaga, (2010). In brief, monetary policy works by controlling the cost and availability of credit. During inflation, the Central bank can raise the cost of borrowing and reduce the credit creating capacity of commercial banks. According to Devinaga (2010), this will make borrowing more costly than before and thereby the demand for funds will be reduced. Similarly with a reduction in their credit creating capacity, the banks will be more cautious in their lending policies. Since the banks demand for fund decreases obviously the deposits will decrease.

Banking system was affected by inflation in terms of deposit absorption and facilities grant.

In developed countries negative correlation between inflation and absorbed deposits and granted facilities has been documented. However, in developing countries the opposite is true Mohammad & Mahdi, (2010).

Inflation is seen as an economic problem in developed countries in the second half of 20th century. Inflation with effect in economic growth, employment, income distribution and wealth as well as social and political conditions of a country can influence its entire dignity Mohammad & Mahdi, (2010). Banking system as an important effective factor in economic performance has also been under the influence of inflation. As far as the effect of inflation on financial sector conceived the literature demonstrates that inflation affects the capacity of financial sector for optimal allocating of resources. That is as inflation rate increases, true yield rate of money and assets decreases; therefore deposits are no longer attractive. Also the increase of inflation rate has a negative effect on the performance of financial sector through the market credits and in turn, on the performances of banks and capital markets and finally on the long term economic growth Mohammad & Mahdi, (2010).

3. Real interest rate

Real interest rate is nominal interest rate minus inflation rate. Mohammad & Mahdi, (2010), said that in negative real interest rate condition, people withdraw their resources from banking system. According to this author some research supposed that decrease in real interest rate could decrease true demands for money (in its extensive definition including savings and time deposits). Therefore it states that the interest rate and deposit of the banks have positive relationship. According to Voon-Choong et al(2010), while interest rates risk is a major concern for banks due to the nominal nature of their assets and the asset-liability maturity mismatch(Hasan and sarkar, 2002), some researchers emphasized that higher interest rates had positive impact on banks (Hanweck and Ryu, 2004; Hyde, 2007).

4. Per capital income of the society

According to Jim, (2008), per capita is the level of GDP divided by the population of a country or region. 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. If households and firms desire to hold more money, deposits will increase. Thus, the relationship between income and deposits is positive that is as the income of the society increases the same happens for the commercial bank' deposits. Income is expected to have a positive effect on deposits M. A. Baqui& Richard L. Meyer, (1987).

Therefore as society's per capita income increases the same will happen for commercial banks deposits. Mahendra, (2005), also indicates that income of the society matters for banks' deposit growth.

5. **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.

6. **Shocks**

Aggregate shocks affect deposits and interest rates during crises, regardless of bank fundamentals and investors' responsiveness to bank risk taking increases in the aftermath crises. Therefore, given all other variables the shocks happened in the economy can affect the banks' deposits (Maria & Sergio, 2001).

7. **Lending rate**

The interest rate can be defined as the annual price charged by a lender to a borrower in order for the borrower to obtain a loan and is usually expressed as a percentage of the total amount loaned. In manipulating the lending rate for increased deposit mobilization, banks tend to reduce the rate of interest charged on loans in order to lure people to open an account and then deposit money with them so as to borrow at a low interest rate. The borrowing could be in the form of loans, advances or overdraft. Bernard, (2019)

8. **GDP**

GDP is the market value of all goods and services produced in a country over a period of one year and are one of the primary indicators used to gauge the economic performance of a country. Evidently, there is a positive relationship between the GDP growth rate and deposit mobilization.

During period of high economic growth, there is increase in the demand for goods and services and as such there is potential for higher profits and producers will deposit more of their surplus earnings in the bank and deposits are bound to increase while period of depression is associated with lower earning on investments which will invariably reduce bank deposits. Bernard, (2019)

9. **Exchange rate**

Exchange rate is the rate at which one currency is being converted into another currency. Exchange rate changes can affect deposit mobilization as when the currency of one country depreciates in value, most investors will withdraw their deposits in the bank in exchange for currencies with higher value. Bernard , (2019)

2.1.8. Bank Specific factors

1. **Liquidity of the banks**

As to ISMAL, RIFKI, (2010), the concept of liquidity in finance principally lies in two areas:-

a) Liquidity of financial instruments in the financial market

b) The liquidity related to solvency.

The former related to liquid financial markets and financial instruments, smooth transactions and no barriers. As to ISMAL, (2010), the latter discusses the obligation of banks to make payments to third parties. Some examples of this includes: setting up liquidity management policies, reserve liquidity, balancing assets and liabilities and preparing liquid financial instruments ISMAL, (2010).

An important measure of liquidity is loan to deposit ratio. The loans to deposit ratio is inversely related to liquidity and consequently the higher the loans to deposit ratio the lower the liquidity and vice versa Devinga, (2010).

Key liquidity indicators such as central bank credit to financial institutions, deposits as a share of monetary aggregates, loans to deposits ratios, are important for open market operations and liquidity management Sheku, (2005). The basic need for liquidity, asset, liability, capital adequacy, credit and interest rates risks management are now more challenging than before. The banks' liquidity management involves acquiring sufficient liquid asset to meet the bank's obligation to depositors. According to the theories of financial intermediation, the two most crucial reasons for the existence of financial institutions, especially banks, are their provision of liquidity and financial services ISMAL, 2010). According to ISMAL, (2010), Regarding the provision of liquidity, banks accept funds from depositors and extend such funds to the real sector while providing liquidity for any withdrawal of

deposits, however the banks' role in transforming short term deposits into long term loans makes them inherently vulnerable to liquidity risk Bank for International Settlements, (2008).

Individual, business and government will be willing to deposits their money in banks if they are certain that they are save to withdraw the money whenever they want, this is the question of liquidity of banks. The more liquid banks can attract the deposits.

A higher degree of financial intermediation (proxied by the loan-to-assets ratios) 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 Herald &Heiko, (2008). A higher liquidity buffers (measured by the ratio of liquid assets to deposits) tend factor favouring deposit demand Herald &Heiko, (2008). Liquid banks as well as banks with a higher loan exposure are associated with higher deposit growth. Herald &Heiko, (2008), states that the liquidity situation of the bank also plays a significant role in determining banks deposit growth. According to Nada, (2010), Banks perceived as risky should have had more difficulty attracting deposits and making loans than banks perceived as safe. When banks fail to pay for its depositors then it faces liquidity risk that makes other depositors not to deposit in that particular bank.

2. **Profitability of the bank**

Erna &Ekki (2004), finds that the long run relationship between commercial banks deposits and the profitability of the banks. Higher bank profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits Herald &Heiko, (2008). However, the effect of bank profitability and bank size are found to be insignificant once controlling for the other variables. So, the effect of profitability and banks size on commercial bank deposit is lower as compared with other variables.

3. **Security of the bank**

Security of banks matters in mobilizing deposit. Riskier banks would be able to attract deposits only paying higher Interest rates. The security of banks has its own impact on its attractiveness for depositors. For example in the existence of deposit insurance the depositors no longer are concerned about the soundness of their banks because their deposits are insured in the event of bank failure. So the bank should secure its system so as to mobilize more deposit than before and to attract new depositors and maintain the exiting depositors. Samuel, (2015)

4. **Banking accessibility**

There is a relationship between commercial banks deposits and commercial bank's branch expansion. Not only are deposits influenced by bank branches, but the expansion of bank branches is also influenced by the level of deposits in any area M. A. Baqui& Richard L. Meyer, (1987).

It is expected that banks make decisions on expanding their facilities by considering factors such as level of competition, deposit potential, regional income and existence of road and vehicles. As deposit potential is one thing that banks consider in expanding its branches, the deposit can also be a reason for branch expansion strategy that the banking sector uses. According to Erna &Ekki, (2004), there is a long run relationship between commercial bank branch and commercial banks deposits.

It is often argued that branching stabilizes banking system by facilitating diversification of bank portfolios. Mark & Kris (2006), found from theoretical literature on banking regulation that branch banking leads to more stable banking systems by enabling banks to better diversify their assets and widen their deposit base. An argument commonly articulated in the literature is that branch banking stabilizes banking systems by reducing their vulnerability to local economic shocks; branching enables banks to diversify their loans and deposits over a wider geographical area or customer base Mark & Kris, (2006). Restrictions on branching have been linked to the instability of banking systems.

Daniel (2005) suggests that the lack of widespread branching bank networks hindered the development of large-scale industrial firms. It is stated that unit banks become increasingly incapable of receiving deposits from a widespread geographic area. The single office bank is also not able to monitor geographically diffuse debtors as easily as could be done with multiple offices. Moreover, it can be concludes that under branch banking the mobility of capital is almost perfect.

5. **Bank size**

Among the factors prominently identified as affecting deposit variability one is bank size. Evidence indicates that the number and diversity of the ownership of individual deposit accounts as well as the distribution of deposits by type vary with bank size Kaufman, (2002).

Herald &Heiko (2008) founds that although insignificant once controlled by other variables bank size have an effect on deposits. Smaller banks have to generate fewer deposits in absolute terms to achieve the same deposit growth than large banks, thus possibly favouring smaller banks in achieving higher deposit growth. However a larger bank with economies of scale as well as larger branch network might be able to better attract deposits Herald &Heiko, (2008).

6. Foreign remittance

Remittance from Diasporas to families in home-country has become another significant determinant of household saving and domestic private savings Athukorala&Sen, (2001). Remittance is part of the disposable income of recipient households, and as their combined income increases, saving is expected to do so. It is, however, alleged that remittance makes households rather loose in their spending and pressurize families to Western life-style. According to this pessimistic view, remittance is spent on

conspicuous consumption, and unproductive investment when viewed in terms of the economy. On the optimistic side is that remittances allow poor households to invest on durable goods and human capital – improving children's education and health, and should therefore be encouraged and facilitated.

7. Reserves

Thorn & S. (2009) said that reserves that are fixed legally can influence the deposits that banks can hold. According to them reserve requirements determine the maximum amount of loans and investments that each commercial banks and the banking system as a whole may maintain in relation to deposits. Thus, if the reserve requirement is 20 percent of deposits, loans and investment (of the bank's own choosing) may not exceed 80 percent of deposits.

Therefore, reserve requirements limit the total expansion of bank deposits that can occur on the basis of any primary increase in deposits. Reserve requirements also have the effect of limiting the reduction in bank credit and deposits that is forced up on the banking system by a primary decrease in deposits. The commercial banks can obtain currency to pay out to customers only by drawing down their reserve deposits at the central bank or by using till money Thorn & S. (2009). Till money, according to Thorn & S. (2009) is the currency that banks keep on hand to satisfy day to day needs. They pointed out that bank deposits are a large part of the money supply in virtually all countries.

8. Loan to Deposit ratio

This is the ratio of saving to gross loan portfolio. This is total loans divided by total assets, provides a measure of income source. Loans are the largest segment of interest bearing assets. Other things being constant, the more the deposits that are transformed in to loans, the higher the level of profit will be, therefore, it is expected to have a positive relationship with bank resource mobilization performance. The quality of loan portfolio determines the resource mobilization of the bank. Mamo (2017)

2.2 Empirical Evidence from Different Studies

The empirical literature part discusses past studies that were conducted on the area of Factors Affecting Deposit Mobilization on Private Commercial Banks. In this part the variables that were included, the methodology that is used to undertake the study and the results of the study under review are discussed. These helps to see where the literature on this area is and how this study added to the existing literature. Accordingly, the articles are discussed below one by one.

As studied by Tagel (2015) assessment on Factors Affecting Deposit Mobilization: in the case of Private Commercial Bank In Arba Minch Town, used regression analysis and the variables used are dependent variable, Deposit Mobilization and independent variables are service level and technology, awareness and branch expansion and interest rate. The researcher recommended that financial institutions need technology improvement, use agent banking for easing deposits mobilization and saving unnecessary expenses and the bank should increase deposit interest rate to attract more deposits in the banks after consultations with central bank.

As per Fekadu (2019), conducted on the Factors Affecting Deposit Mobilization; the case of Dashen Bank S.C. Addis Ababa Branches. Quantitative and Qualitative research approach is adopted in this research. Used six independent variables, Service Quality, Branch Expansion, Interest Rate, Technology, Disposable Income and Market Strategy. The researcher recommended that deposit mobilization is very crucial for banking business and Dashen bank should be vigilant in applying the aforementioned independent variables to attract and retain more deposits and deposit customers.

As studied by Emmanuel (2015), asses the Factors Affecting Deposit Mobilization By bank Agent in Kenya: A Case of National Bank of Kenya, Kisii County. The data collected analysed using descriptive and inferential statistics a regression analysis. The variables that are used dependent variable deposit mobilization (level of charges agency and ledger account ledger), the independent variables are fraud, customer service and branch network. Recommendation was the management on National Bank should take in to consideration frauds during deposit mobilization by National Bank agents, the National bank determine needs of clients when establishing new branch networks, need to keep satisfaction by re-assessing customer services.

In accordance with Helani&Prasansha (2018), the paper examines the Factors Affecting for Deposit Mobilization in Sri Lanka. Use random sampling method, and the data analysed using descriptive statistics and regression analysis. The study reveals that the significant and positive relationship between deposit mobilization and interest rate, security, branch expansion, services, technology and awareness. According to the researcher findings all the factors identified are significant and positively impacted on deposit mobilization.

As stated by Sisay (2013) on his study about factors affecting deposit mobilization in Ethiopia private commercial banks: the case of Awash International Bank S.C.. The researcher used Descriptive statistical techniques. Those having two years andabove experience senior Addis Ababa area branches and head office employeewere selected for data collection. The research has used questionnaire andstructured interview discussion for employees and the management of awashinternational bank Share Company. the result shows that the reconstruction ofAddis Ababa roads, aggressive branch expansion of CBE, the currentcondominium house construction program, peoples attitude towards usingprivate banks and poor parking area are strongly influence the depositmobilization process of awash international bank S.C. opening of additionalbranches, aggressive promotion and upgrading service deliverance can booststhe deposit balance of a bank positively. the study suggest the management ofthe bank should arrange and apply incentive program such as coupon prizes toattract more depositors, open additional branches near to the customers, promote excellent services and other mores are discussed in the research.

As stated by Richard, et al (2015) on The Effects of Deposits Mobilization on Financial Performance In Commercial Banks in Rwanda, A case of Equity Bank Rwanda Limited. The target population for the study was the bank managers involved in deposit mobilization namely the marketing team and the branch management team in equity bank Rwanda. The research used a census to study a population of 27 staff. The main source of data was the primary and secondary data. The documentary method, the questionnaire as research instruments were used to get the data needed for the research. Data were processed by use of descriptive statistics after editing have been done. The finding indicated that a positive change in deposits interest rate affects the level of deposits received and later on the profitability of the bank. The study revealed that the introduction of innovative banking technology has led to the increase in deposits at a low cost as opposed to the usual way of getting deposit through term deposits and made financial services accessible in the unbanked people. The study recommends the

bank to develop other strategies towards marketing and mobilize more deposits as they are indispensable tools towards the profitability of the bank.

According to Hilegiorgis (2014) studied on challenges and Prospects of Deposit Mobilization in the case of Wegagen Bank: focused on Wegagen main Branch, the researcher used descriptive analysis .the main questions raised by the researcher was about customer relation with the bank, service Delivery Effort, Employees' performance, level of customer satisfaction, Employees' motivation towards their job, and the researcher recommended that Depositors are attracted not only by interest rate but also by specialized services. The bank should work on creating customer awareness and the bank also should expand computerized banking activity to offer fast and efficient service.

As per Samuel (2015), research on Challenges of Deposit Mobilization For Private Commercial Banks In Ethiopia: The Case of Awash International Bank S.C., the researcher used descriptive analysis , the questions raised by the researcher are competition with other private and government banks, major depositors of the bank, reasons for continuous deposit growth of the bank, time taken for customer service, major cause for the variation in deposit among branches of AIB, customers' satisfaction rating and volume of deposits grows because of special services and the researcher recommended that AIB should develop a procedure on standard service delivery time to facilitate delivery of fast and quality services to its customers, give consideration on the bank location advantage and disadvantage, adopt other services, use high interest rate and should work on the branch expansion.

As Mamo (2017) investigate on Determinants of Deposit Mobilization in Commercial Banks of Ethiopia. Used descriptive and econometric analysis, the explanatory variables are loan, existence of competitors; interest rate and branch expansion were included. The study recommended that expansion of banks in different areas as well as enhancing the number of the customers via different incentive provision and coping up with emerging competitors as potential means of promoting deposit mobilization.

As studied by Giragn (2015), on Determinants of Deposit Mobilization and Related Costs of Commercial Banks in Ethiopia. The researcher used econometric analysis and the variables are branch expansion, money supply, exchange rate of Birr to USD and inflation. The other variables-deposit rate and real per capital GDP growth rate have insignificant power to influence the dependent variable. The researcher recommended that banks have to do much in branch expansion studding potential deposit areas.

As per Oduro (2015) conducted on challenges of deposit mobilization at agricultural development bank of Ghana. The study seeks to investigate deposit mobilization within the operations of Agricultural Development Bank with specific reference to the branches in the Kumasi metropolitan area. Descriptive analysis was used to describe the behaviour of individual variables. Account opening processes, loan application processes, non- functioning of ICT facilities inadequate branches and poor customer service delivery are identified as some of the challenges facing ADB in their deposit mobilization operations. The study recommends the following as some of the possible means of addressing the above challenges. Regular training of staff, reduce loan application requirement, improves ICT facilities, provision of attractive products such as mobile phone services, open new branches at vantage locations and ensure good customer services.

Study conducted by Kibebe (2016) on determinants of commercial banks deposit mobilization evidence from private commercial banks in Ethiopia, the study adopts mixed approach to gather the data. The primary date gathered using questionnaire and the secondary data, the study used time series data from 2000-2014 for analysis made using Classical linear regression method. The study shows that, Age dependency ratio, Investment and money supply, are the most significant factors of deposit mobilization activity. The other variable such as Per capita income has insignificant power to influence the dependent variable. As a result, the study recommended that, Government should increase investment so as to promote economic growth to mobilize deposits since there exists a positive relationship between Deposit and Investment. And private banks ought to increase number of branches to mobilize more resources.

As studied by Ketema (2015) asses on the area of determinants of commercial banks deposit mobilization in Ethiopia, the researcher used quantitative research approach. Bank specific and macroeconomic variables were analysed. The researcher recommends that Government should decrease the broad Money Supply to the economy since it had a negative significant effect on deposit mobilization. Since the depositor confidence will increase 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 decrease their outstanding loan and advance to reduce their credit risk and decreases their liquidity by mobilizing more fixed time deposit instead of individual and demand deposit since credit risk had a positive and significant effect on bank deposit.

Based on Thangam&Ganapathy (2017) study conducted on deposit mobilization of commercial banks: a study with special reference to western region in India. In this paper an attempt is made to evaluate the growth rate and Compound Annual Growth Rate in deposit mobilization of scheduled commercial banks in the Western Region of India during the period from 2005-2006 to 2014-2015. The western region includes Goa, Gujarat, Maharashtra, Dadra & Nagar Haveli and Daman & Diu. The banks offer as various deposit schemes to the public which include Current Deposit, Saving Deposit and Term Deposit. The result found that the state of Maharashtra the term deposit increase at the same time saving deposit and current deposit decrease because the state of Maharashtra the population is more compare with other western region in India and the state of Maharashtra second-most populous state and third-largest state by area.

As per Girma&Jiqin (2018) Effect of Deposit Mobilization on the Financial Sustainability of Rural Saving and Credit Cooperatives: Evidence from Ethiopia. The researchers used balanced panel data of 166 rural savings and credit cooperatives from Ethiopia over the period of 2014 – 2016(RUSACCOs). The results of the panel regression estimates showed that among the deposits mobilization variables, the deposit to loan ratio, deposit to total asset ratio, the volume of deposits, and demand deposit ratio had significant direct impact on financial sustainability. The researchers suggest that RUSACCOs should focus on deposit mobilization specifically on demand deposits and keep the interest rate spread narrower to ensure their sustainability.

As stated by Aberham (2019) on the Assessment of Determinants of Deposit Mobilization of Financial Sectors in Ethiopia: in the case of Commercial Bank of Ethiopia. The variables used independent variables Income, Expense, Asset, Liability, Reserve, Loans and advances and consumer price index. Descriptive and econometric analyses are used. The study identified that CBE's main source of capital is deposit. The study recommended that there is a need to remove obstacles on the depositing road by awareness creation efforts tailored to its employees, stakeholders and customers; improving bank service accessibility and consumption.

As studied by Akaninyene et al (2018) on Inflation and Deposit Mobilization in Deposit Money Banks. The Nigerian Perspective. The study examine inflation rate in Nigeria with the view of ascertaining its effect on the deposit mobilization in banks. Multiple regressions ordinary least square statistical tool was applied to establish the like fit to the observed data and the degree of relationship that exist between variables. Findings reveal among others that there exist a significant and negative relationship amongst

demand, savings and time deposit with inflation in Nigeria, and that interest rate impacted significantly and positively on saving and time deposit. The researchers recommended among others evaluation of the marginal increment of deposit interest rate for savings and time deposit through Central Bank of Nigeria Monetary Policy Committee at higher rate than inflation as an incentive to attract high deposit mobilization, and encouragement of increased trade activities geared towards increased money supply in the economy.

As per SM Nahidul, Mohammed & H.M Atif (2019) studied on Determinants of Deposit Mobilization of Private Commercial Banks: Evidence from Bangladesh. The study examines the impact of firms – specific variables and macroeconomic variables on the deposit mobilization of private commercial banks in Bangladesh using panel data regression methodology. The results of this study provide evidence that total deposit has significant negative impact on the deposit mobilization and broad money supply growth rate has significant positive impact on the banks deposit growth rate whereas the rest of the selected variables i.e. number of banks branches, deposit interest rate, loan-to-deposit ratio, gross domestic products growth rate, inflation rate have no significant impact on the banks deposit growth rate of the private commercial banks in Bangladesh. These results will obviously provide some noteworthy information to researchers, financial analysis, banking policy makers and supervisory authorities.

As studied by Francis et al (2016) The Role of Mobile Deposit in Deposit Mobilization in Ghana. The study used stratified, convenience and purposeful techniques to arrive at the sample size and descriptive statistics for the presentation and analysis of findings. The findings show that mobile deposit as a way of deposit mobilization through mobile banking has proven to be very effective means of mobilizing deposit apart from the traditional usual way of deposit mobilization. The mobile deposit solution through the use of speed banking cards has proven to be a complementary deposit system.

As per Tafirei et al (2013) Analysing the Relationship between Banks' Deposit Interest Rate and Deposit Mobilisation: Empirical Evidence from Zimbabwean Commercial Banks (1980-2006). The researchers developed an ordinary Least Squares model to show the relationship between the response and explanatory variables. The study found a positive relationship between deposit rates and banks deposits for the period under study and all the other explanatory variables were statistically significant. The study recommended banks to tap in to the unbanked markets through massive branch expansion, offering low cost accounts and increasing offered on deposits to attract more deposits. The government should come up with consistent policies and create a conductive political environment for business and foreign direct investment.

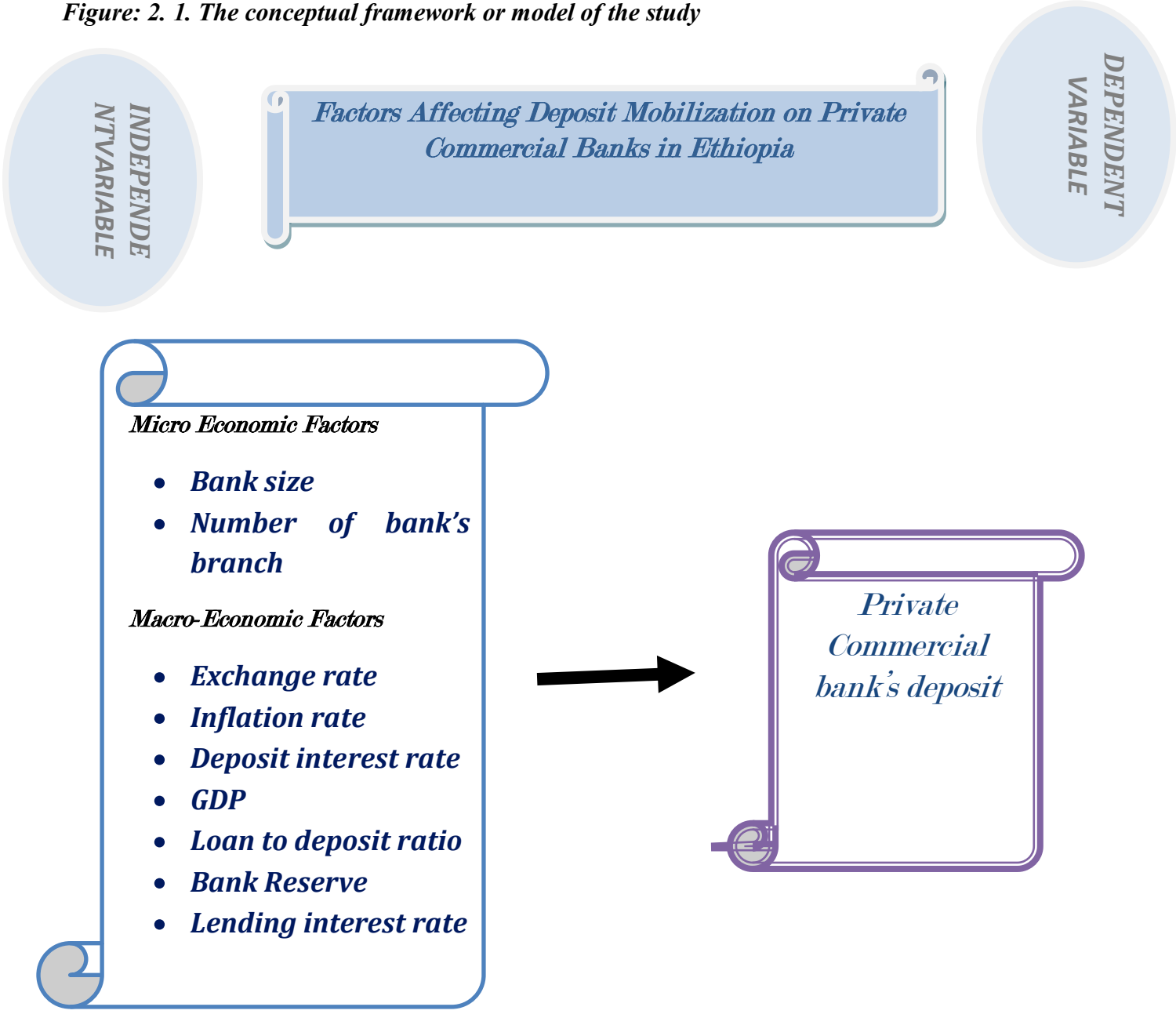
2.3 Summary and Research Gap Analysis

The study reviewed empirical studies conducted in different countries which tried to fill the gap of the factors that affect deposit mobilization on private commercial banks. But studies in Ethiopia focused on the Determinants of deposit mobilization on private commercial banks and those who study on the factors of deposit mobilization depend on specific variables such as Inflation, Technology, GDP, EmployeePerformance, Branch Expansion, Awareness, service Quality are in specific areas or banks and had knowledge gaps on the factors that affect deposit mobilization on private commercial banks. Therefore, the main objective of this research is to analyse the factors that affect deposit mobilization on private commercial banks in Ethiopia and study on variables such as Loan to Deposit Ratio, Lending Rate, Bank Reserve and Bank Size which are not mostly covered by previous studies. The study also tries to observe previously examined variable by covering different and wide ranges of Banks.

2.4 Conceptual Frame Work

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

Figure: 2. 1. The conceptual framework or model of the study



Source: - Compiled by the researcher mainly based on Tegenu (2015), Bernard (2019),Ketema (2017)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

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

3.1. Research Design

Cooper et al (2003) discussed that explanatory studies unlike descriptive studies, go beyond observing and describing the condition and tries to explain the reasons of the phenomenon. Descriptive research considers traits like the size of the sample in relation to the target population, the study variables, the methodologies to the research and the methods that were engaged in data collection. Thus, explanatory research design is used in this research because the study identifies the factor that affects deposit mobilization on private commercial banks in Ethiopia.

3.2. Research Approach

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

Hence, based on the above discussions of the three research approaches and by considering the research problem and objective, this study used quantitative research approach. Quantitative research is a systematic and scientific investigation of quantitative properties, phenomena's and their relationships by developing and employ mathematical models, theories and hypotheses pertaining to natural and/or social phenomena Abiy et al., (2007).

3.3. Population of theStudy

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

3.4. Sample Size and Sampling Techniques

The total populations of the private commercial banks in Ethiopia are sixteen but for the study purpose the researcher used sample of six private commercial banks in Ethiopia. These banks are selected due to their market share. As NBE (2016/17) annual report stated, these six private commercial banks together accounted for 69% of the market share based on their number of branch and capital held by all Ethiopian private commercial banks.

The study covered a period of 20 years from 2000 G.C - 2019 G.C and included all private commercial banks those who have 20 and above establishment year. Samples of private commercial banks are Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB) and Bank of Abyssinia S.C (BOA). According to Suheyli (2015) as cited in Singh (2006) when the subjects used in the sample is homogeneous, using purposive sampling technique is appropriate. Thus, the researcher employed purposive sampling method to draw the sample from the population and meet the study objective. The matrix for the frame is20*6 that includes 120 observations.

3.5 Data Source and Types

Data can be collected from both primary and secondary sources. Primary data is a type of data, which is collected and accumulated specifically for the research project at hand. This can be collected from questionnaire. Secondary data involves the collection of information from studies that other researchers have conducted on a given issues or phenomenon Creswell, (2009). Therefore, to achieve the objectives of this study, secondary data on sample of six private commercial banks obtained from their audited financial statements and annual reports filed with NBE through document review.

3.6 Data Analysis Method

To achieve objective of the study, the study concentrated on quantitative analysis. Hence, the researcher used econometric model to identify and examine factors affecting deposits mobilization of private commercial banks in Ethiopia and used Ordinary Least Square (OLS) method using Eviews-8 econometric software package for the study. According to Brooks (2008) regression is concerned with describing and evaluating the relationship between a given variable (usually called the dependent variable) and one or more other variables (usually known as the independent variables. Thus, the researcher adopted panel data regression model to examine factors affecting deposits mobilization of private commercial banks in Ethiopia.

As stated by Brooks (2008) panel data is favoured for situation often arises in financial modelling where we have data comprising both time series and cross-sectional elements. In addition, we can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone. Accordingly, the study model focused on panel data technique that comprises both cross-sectional elements and time-series elements; the cross-sectional element is reflected by the different Ethiopian private commercial banks companies (six) and the time-series element is revealed by the period of study (2000 G.C - 2019G.C). Therefore, the collected panel data is analysed using descriptive statistics, correlations and multiple linear regression analysis. The rational for choosing Ordinary Least Square (OLS) is appropriate for regression equation, because it has diagnostic tests that must be tested.Thus Classical Linear Regression Model (CLRM) assumption should true, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators Brooks, (2008). Diagnostic checking is done to test whether the sample is consistent with the following assumptions. According to Brooks (2008), the assumptions of ordinary least squares are:

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

II. variance of the errors is constant ($Var(u_t) = \sigma^2 < \infty$)

III. Covariance between the error terms over time is zero ($cov(u_i, u_j) = 0$ for $i \neq j$

IV. Test for Normality ($u_t \sim N(0, \sigma^2)$)

V. Multicollinearity Test

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

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

Relay on Brooks (2008), the first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated.

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

According to Brooks (2008), the variance of the errors is constant this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. If heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors.

There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity. The hypothesis for the Heteroscedasticity test was formulated as follow;

H_0: There is no Heteroscedasticity problem in the model.

H_1: There is Heteroscedasticity problem in the model.

$\alpha = 0.05$

Decision Rule: Reject H_0 if p-value is less than significance level. Otherwise, do not reject H_0.

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

According to Brooks (2008), when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Therefore, the study test for the existence of autocorrelation, the popular Durbin–Watson test and Breusch-Godfrey test were employed.

H_0: There is no autocorrelation problem in the model.

H_1: There is autocorrelation problem in the model.

$\alpha = 0.05$

Decision Rule: Reject H_0 if p-value less than significance level. Otherwise, do not reject H_0.

IV. Normality (ut~N(0, σ2)

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

H_0: Error term is normally distributed

H_1: Error term is not normally distributed

$\alpha = 0.05$

Decision Rule: Reject H_0 if p-value of JB tests less than significance level. Otherwise, do not reject H_0.

V. Multicollinearity

According to Brooks (2008), Multicollinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicollinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. This study used high pair-wise correlation coefficients method to test the presence of multicollinearity problem in a regression model, because it shows the correlation of independent variables between each other one by one Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

3.7 Model specification

According to Brooks (2008), it is very easy to generalize the simple model to one with k regressors (independent variables).$Yi = \beta_1 + \beta_2 x_{1i} + \beta_3 x_{2i} + \cdots + \beta_k x_{ki} + \varepsilon i$, i= (1, 2, . . . ,i). So, Where Y_i is the i^{th} observation of the dependent variable, $X_{1i},\ldots,X_{ki}$ are the i^{th} observation of the independent variables, $\beta_0,\ldots,\beta_k$ are the regression coefficients, ε_i is the i^{th} observation of the stochastic error term.

Accordingly, to examine factors that affecting deposit mobilization of private commercial banks in Ethiopia, the researcher estimated linear regression model in the following form.

$$\boldsymbol{DEPit = \alpha + \beta_1 NBBit + \beta_2 DINTit + \beta_3 EXGit + \beta_4 INFit + \beta 5LRit + \beta 6LDRit + \beta 7BRit + \beta 8BSit + \beta 9GDPit + \varepsilon}$$

Where:

DEP= Deposit mobilization

NBB= Number of bank's branch

DINT= Deposit interest rate

EXG= Exchange rate

INF= Inflation rate

LR= Lending Rate

LDR= Loan to DEPOSIT Ratio

BR= Bank Reserve

BS= Bank Size

GDP= Gross Domestic Product

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

α = Constant

β= 1, 2, 3, 4, 5, 6, 7, 8 & 9 are parameters to be estimate;

i = Private commercial banks i = 1. . . 6; and t = the index of time periods and t = 1. . . 20

3.8. Variables description and Hypothesis Development

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

Dependent variable

Deposit mobilization of private commercial banks

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 Ketema, (2017).

Independent Variables

Number of Bank's Branch

Branch banking refers to a bank that is connected to one or more other banks in area or outside of it with a head office overseeing the branches. Branch network expansion is one of the traditional and oldest methods used by banks for deposit mobilization. The branches are located nationwide in both the rural and urban area to allow for close proximity to both existing and prospective customers. The branch network would encompass the number of the bank branches and their geographical spread. Large branch network therefore is a distinctive advantage in successful mobilization of deposits. Thus, when a bank opens up a new branch, it draws new customers to the newly opened branch and deposit is bound to increase.

Banks generally takes so many factors in to consideration in opening branches. Among the factors are profitability, ability to mobilize deposit, targeted market, government requirement, infrastructure, etc. since banks uses customer deposits to generate income, deposit mobilization is the paramount factor considered in locating a branch. This is the reason why banks are located in urban areas where there are abundant business opportunities and infrastructures for the banks. This increase in the number of branches has led to the increase in the amount of deposit mobilized by banks. The branches are increased so that the bank would move closer to their customers to avoid long traveling for safety purpose. Bernard, (2019)

Relay on these evidences, the study hypothesizes bank's branch has positive and statistically significant effect on deposit mobilization.

H_1: Number of Bank's branch has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

Loan-to-Deposit Ratio

As stated by Mamo (2017), loan to deposit ratio is total loans divided by total assets, provides a measure of income source. Loans are the largest segment of interest bearing assets. Other things being constant, the more the deposits that are transformed in to loans, the higher the level of profit will be, therefore, it is expected to have a positive relationship with bank resource mobilization performance butBernard, (2019) said that if the loan- to-deposit ratio is too high, it means that the bank may not have enough liquidity to meet customer's withdrawals and may discourage people from further depositing their money.

Relay on these evidences, the study hypothesizes Loan-to-Deposit ratio has positive effect on deposit mobilization.

H_2: Loan-to-Deposit ratio has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

Bank Reserve

Thorn & S. (2009) said that reserves that are fixed legally can influence the deposits that banks can hold. According to them reserve requirements determine the maximum amount of loans and investments that each commercial banks and the banking system as a whole may maintain in relation to deposits. Thus, if the reserve requirement is 20 percent of deposits, loans and investment (of the bank's own choosing) may not exceed 80 percent of deposits.

According to Abreham, (2019) if the liquidity position in banks increases, had a direct impact on bank deposit balance in cash reserve requirement at Central Bank, which is a significant determinant for saving mobilization. The total liability of banks declared on annual basis which is used as an independent variable for this study having and positive impact on Deposit Balance.

Relay on these evidences, the study hypothesizes Bank Reserve has positive and statistically significant effect on deposit mobilization.

H3: Bank Reserve has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization

Bank's size

As stated by Herald and Heiko (2009),among the factors prominently identified as affecting deposit variability one is bank size. Evidence indicates that the number and diversity of the ownership of individual deposit accounts as well as the distribution of deposits by type vary with bank size. Herald and Heiko (2009) founds that although insignificant once controlled by other variables bank size have an effect on deposits. A smaller bank has to generate less deposit in absolute terms to achieve the same deposit growth than large banks, thus possibly favouring smaller banks in achieving higher deposit growth.

Relay on these evidences, the study hypothesizes bank's size has positive and statistically significant effect on deposit mobilization.

H_4: Bank's size has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

Exchange rate

The National Bank of Ethiopia (Central Bank) follows a managed floating exchange rate regime where the local currency Birr is pegged to the US Dollar. Accordingly, drastic movements in the nominal exchange rate are not expected. Birr continued to depreciate but at a very slow rate and it reached 18.19/USD at the end of 2012/13. This gradual depreciation is in line with the goal to enhance competitiveness of Ethiopian exports and attract foreign direct investment (IFD).

The average exchange rate of Birr against US dollar in the official market showed annual depreciation of 5.4 % since 2011/12. In January 2014, the exchange rate reached 19.107 Birr/USD, 4.85 % depreciation since January 2013 (Ketema, 2017).

Relay on these evidences, the study hypothesizes exchange rate has positive and statistically significant effect on deposit mobilization.

H_5: Exchange rate has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

Inflation Rate

According to Ketema,(2017) 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. Inflation is measured alternatively by consumer price index. Inflation may increase precautionary savings by individuals. Precautionary saving is additional saving that result from the knowledge that the future is uncertain and 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, deposit 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.

Relay on these evidences, the study hypothesizes inflation has negative and statistically insignificant effect on deposit mobilization.

H_6: Inflation has negative and statistically insignificant effect on Ethiopian private commercial banks deposit mobilization.

Deposit Interest Rate

Over the years, interest rates have remained a subject for critical assessment with diverse implication for critical assessment with diverse implications for deposit mobilization and investment promotion. Interest rate is defined as the rental payment for the use of credit by borrowers and return for parting with liquidity by lenders. Banks pay interest on deposits on one hand and on the other hand they charge interest on loans and advances lent to borrowers. Banks tend to adjust the interest rate paid on deposit upwards as a way of mobilizing more deposit from public. Bernard, (2019)

Mohammad and Mahdi (2010), believe that one of the most effective factors for deciding to deposit in banking system is the interest rate. Saving or deposits, according to classical economists, are a function of the rate of interest. The higher interest rates, people will be more willing to forego present consumption. Moreover, Mohammad and Mahdi said that low deposit rates are discouraging saving mobilization. Thus, higher interest rate on deposit attracts people to deposit more money in banks.

Relay on these evidences, the study hypothesizes Deposit Interest rate has positive and statistically significant effect on deposit mobilization.

H_7: Deposit Interest Rate has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

GDP

According to Ongore&Kusa, (2013) Commercial banks play a vital role in the economic resource allocation of countries. They channel funds from depositors to investors continuously. They can do so, if they generate necessary income to cover their operational cost they incur in the due course. In other words for sustainable intermediation function, banks need to be profitable. Beyond the intermediation function, the financial performance of banks has critical implications for economic growth of countries. Good financial performance rewards the shareholders for their investment. This, in turn, encourages additional investment and brings about economic growth. On the other hand, poor banking performance can lead to banking failure and crisis which have negative repercussions on the economic growth.

As Zhang & Daly, (2013) mentioned GDP is one of the most commonly used macroeconomic variables to measure cyclical output effects within an economy where GDP is expected to influence numerous factors related to the supply and demand for loans and deposits. Favourable economic conditions will affect positively on the demand for banking services, but may have either positive or negative influence

on bank profitability levels. In general we expect a positive relationship between GDP and bank performance.

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.

Relay on these evidences, the study hypothesizes GDP has positive and statistically significant effect on deposit mobilization.

H_8: GDP has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

Lending Interest Rate

As Bernard, (2019) stated the interest rate can be defined as the annual price charged by a lender to a borrower in order for the borrower to obtain a loan and is usually expressed as a obtain a loan and is usually expressed as a percentage of the total amount loaned. In manipulating the lending rate for increased deposit mobilization, banks tend to reduce the rate of interest charged on loans in order to lure people to open an account and then deposit money with them so as to borrow at a low interest rate.

Relay on this evidence the study hypothesized when a bank reduces the rate of interest charged on loans, it encourages people to open an account and then deposit money with it so as to borrow at a low interest rate. Thus, it has negative relationship exist between lending rate and deposit mobilization.

H_9: Lending Interest Rate has negative and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

3.9. Operationalization of study variables

The following table presented the summary of variables, their measurement and expected sign for factors (independent variables)that affect deposit mobilization (dependent variable) of private commercial banksin Ethiopia.

Table: 3. 1.Description of variables and their expected relationship

Dependent Variable

Variable	Measurement	Notations	Expected Signs
Deposit mobilization of private commercial banks	**Natural log of total amount deposit**	**DEP**	

Independent Variables

Variable	Measurement	Notations	Expected Signs
Number of bank's branch	**Natural log Number of branch for private commercial bank**	**NBB**	+
Deposit interest rate	**The rate of interest on deposit given by commercial banks**	**DIR**	+
Exchange rate	**The Growth of Ethiopia Birr with USD**	**ER**	+
Inflation	**The overall inflation rate in Ethiopia**	**INF**	-
Bank Size	**Natural log Total Asset**	**BS**	+
Bank Reserve	**Natural log Bank Reserve Account With NBE**	**BR**	+

Loan to Deposit Ratio	**Loan to Deposit Ratio**	**LDR**	+
Lending Rate	**Lending Rate**	**LR**	-
GDP	**The overall gross domestic product rate in Ethiopia**	**GDP**	+

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

This chapter deals with the results and analysis of the findings and it contains three sections. The first section presented descriptive and correlation analysis on variables of the study; the second section presented fulfilment of the classical linear regression model (CLRM) assumptions; the third section laid down the results of regression and interview analysis that constitute the main findings of this study.

4.1 Descriptive Statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for six banks from the year 2000 to 2019 with a total of 120 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable firms' deposit mobilization of private commercial banks and independent variables (Bank's Size, Loan to Deposit Ratio, Bank Reserve, and Number of bank's branch, Deposit interest rate, Exchange Rate, Inflation rate and Gross domestic product (GDP)) and Lending interest rate.

Table 4.1 Descriptive statistics

	DEP	LR	ER	INF	DIR	GDP	NBB	LDR	BR	BS
Mean	9.576993	0.116123	14.39796	0.117766	0.045833	0.088445	2.227533	0.699489	8.769005	9.651160
Max.	10.57109	0.139880	28.10820	0.364000	0.070000	0.602000	3.905150	1.144737	10.05424	10.51900
Min.	8.460590	0.092500	8.200000	-0.105722	0.030000	-0.046000	1.477121	0.466284	6.698970	6.005840
Std.dev.	0.543684	0.013040	6.405906	0.106062	0.013447	0.124165	0.337004	0.138897	0.736832	0.671929
Observ.	120	120	120	120	120	120	120	120	120	120

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

Table 4.1 presents a summary of the descriptive statistics of the dependent and independent variables for six private banks for a period of twenty (20) years from 2000-2019 with a total of 120 observations. Key figures, including mean, maximum, minimum and standard deviation value were reported.

The average value for deposit amount for private commercial banks as measured by Natural log of total amount deposit is log of 9.576993 with standard deviation of 0.543684, maximum log of 10.57109 and minimum log of 8.460590. This means most of the sample of private commercial banks have deposit amount is average value is 9.576993.

The average value for lending interest rate for private commercial banks as measured by percentage of lending rate 0.116123with standard deviation of 0.013040, maximum of 0.139880and minimum of 0.092500. This means most of the sample of private commercial banks have deposit amount is average value is 0.116123.

The average value for exchange rate for private commercial banks as measured by The Growth of Ethiopia Birr with USD is log of 14.39796with standard deviation of log of 6.405906, maximum of 28.10820and minimum of log of 8.200000. This means most of the sample of private commercial banks have deposit amount is average value is log of 14.39796.

The average value for inflation rate for private commercial banks as measured by the overall inflation rate in Ethiopia is 0.117766with standard deviation of 0.106062, maximum of 0.364000 and minimum of -0.105722. This means most of the sample of private commercial banks have deposit amount is average value is 0.117766.

The average value for deposit interest rate for private commercial banks as measured by the rate of interest on deposit given by commercial banks of private commercial banks is 0.045833with standard deviation of 0.013447, maximum of 0.070000and minimum of 0.030000. This means most of the sample of private commercial banks have deposit amount is average value is 0.045833.

The average value for number of GDP for private commercial banks as measured by the overall gross domestic product rate in Ethiopia in private commercial banks is 0.088445with standard deviation of 0.124165, maximum of 0.602000and minimum of -0.046000. This means most of the sample of private commercial banks have deposit amount is average value is 0.088445.

The average value for number of bank's branch for private commercial banks as measured by Natural log Number of branch for private commercial bank in private commercial banks is log of 2.227533with standard deviation of 0.337004, maximum of log of 3.905150and minimum of log of 1.477121. This means most of the sample of private commercial banks have deposit amount is average value is log of 2.227533.

The average value for loan to deposit ratio for private commercial banks as measured by Loan to Deposit Ratio in private commercial banks is 0.699489with standard deviation of 0.138897, maximum of log of 1.144737and minimum of 0.466284. This means most of the sample of private commercial banks have deposit amount is average value is 0.699489.

The average value for bank reserve for private commercial banks as measured by Natural log Bank Reserve Account with NBE in private commercial banks is log of 8.769005with standard deviation of 0.736832, maximum of log of 10.05424and minimum of log of 6.698970. This means most of the sample of private commercial banks have deposit amount is average value is log of 8.769005.

The average value for bank size for private commercial banks as measured by Natural log Total Asset is 9.651160 with standard deviation of 0.671929, maximum of 10.51900and minimum of 6.005840. This means most of the sample of private commercial banks have deposit amount is average value is 9.651160.

4.2 Correlation Analysis

Correlation measures the degree of linear association between variables. Values of the correlation coefficient are always ranged between +1 and -1. A correlation coefficient of +1 indicates that the existence of a perfect positive association between the two variables, while a correlation coefficient of -1 indicates perfect negative association. A correlation coefficient of zero, on the other hand, indicates the absence of relationship (association) between two variables Brooks, (2008). The table below shows the correlation matrix among dependent and independent variables.

Table 4.2 Correlation Analysis of Variables

	DEP
DEP	**1**
LR	**0.624**
ER	**0.811**
INF	**-0.356**
DIR	**0.328**
GDP	**0.381**
NBB	**0.831**
LDR	**0.563**
BR	**0.886**
BS	**0.796**

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

The correlation results in Table 4.2 show inflation rate has negative correlation with total deposit amount for measurement of Ethiopian private commercial banks. It refers that when these variables increase, deposit amount of Ethiopian private commercial banks will be go down. However, number of bank's branch, loan to deposit ratio, bank reserve, bank size, exchange rate, deposit interest rate, GDP and lending interest rate have positive correlation with total deposit of amount which indicates that while these variables increase, at the same time deposit amount of Ethiopian private commercial banks would be increased. It implies that the stated variables have a positive relationship among the dependent variables.

The coefficient estimates of correlation in the above table shows -0.012forinflation rate. However, lending interest rate, exchange rate, deposit interest rate, GDP, number of banks branch, loan to deposit ratio, bank reserve and bank size have 0.624, 0.811, 0.328, 0.381, 0.831, 0.563,0.886 and 0.796coefficient numberrespectively.

4.3 Regression Model Tests

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

4.3.1 Model Selection (Random Effect versus Fixed Effect Models)

As Brooks (2008) referring on his book, there are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models and random effects models. The choice between both approaches is done by running a Hausman test. To conduct a Hausman test the number of cross section should be greater than the number of coefficients to be estimated. But, in this study the numbers of cross section aren't greater than the number of coefficients to be estimated so it is not possible to conduct a Hausman test. Therefore a fixed cross-sectional effect is specified in the estimation so as to capture unobserved idiosyncratic effects of different companies.

In addition, as stated by Gujarati (2004), if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated fixed effect model and random effect model.

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

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

Before going further in to panel data econometric measurement, the first issue is to test the assumption of classical linear regression model (CLRM). Five assumptions were made relating to the classical linear regression model (CLRM). These were required to show that estimation technique, ordinary least squares (OLS), had a number of desirable properties, and also hypothesis tests regarding the coefficient estimates could validly be conducted Brooks (2008).

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

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brooks, 2008). Since, this research included a constant term (β_0) in the regression model and it passed the first assumption.

II. Test for heteroskedasticity assumption(var(ut) = $\sigma 2 < \infty$)

As indicated by Brooks (2008), this assumption requires that the variance of the errors to be constant. If the errors do not have a constant variance, it is said that the assumption of homoscedasticity has been violated. This violation is termed as heteroscedasticity. In this study test was used to test for existence of heteroscedasticity across the range of explanatory variables.

H_0: The variance of the error is homoscedasticity

H_1: The variance of the error is heteroscedasticity

Table 4.3Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.799936	Prob. F(9,110)	0.6171
Obs*R-squared	7.371464	Prob. Chi-Square(9)	0.5985
Scaled explained SS	112.8871	Prob. Chi-Square(9)	0.0000

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

In this case, both the F- statistic and R-squared versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05 and also the third version of the test statistic, 'Scaled explained SS', which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, suggests also that there is no evidence of heteroscedasticity. Thus, the conclusion of the test has shown that no evidence of heteroscedasticity and the null hypothesis is accepted.

III. Test for autocorrelation assumption (cov(ui, uj) = 0 for i ≠ j

This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated Brooks, (2008).

The study used both Durbin-Watson (DW) and Breusch-Godfrey test for the existence of autocorrelation. Accordingly, from the regression result DW is 1.884139 it is closed to two. Another test for the existence of autocorrelation is by using Breusch-Godfrey test.

Table 4.4 .Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.771295	Prob. F(2,108)	0.4649
Obs*R-squared	1.689851	Prob. Chi-Square(2)	0.4296

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

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

IV. Test of normality (ut~N(0, σ2)

A normal distribution is not skewed and is defined to have a coefficient of kurtosis ≈ 3. JarqueBera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are ≈ 0 and ≈ 3 respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure. If the JarqueBera value is greater than 0.05, it's an indicator for the presence of normality Brook, (2008).

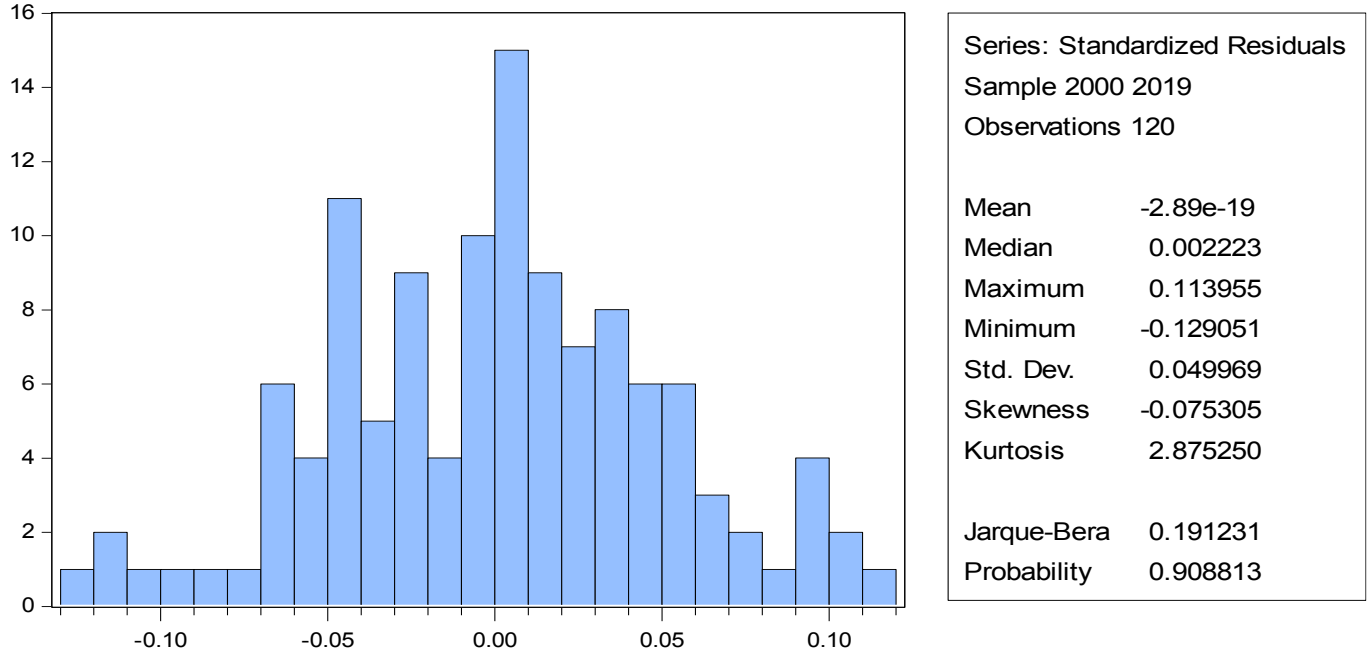
In addition, it is quite often the case that one or two very extreme residuals cause a rejection of the normality assumption. Such observations would appear in the tails of the distribution, which enters into the definition of kurtosis, to be very large. Such observations that do not fit in with the pattern of the remainder of the data are known as outliers. If this is the case, one way to improve the chances of error normality is to use dummy variables Brooks (2008).

The hypothesis for the normality test was formulated as follow:

H_0: Error term is normally distributed

H_1: Error term is not normally distributed

Figure4.1.Normality Test Result



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

The above diagram witnesses that normality assumption holds, i.e., the coefficient of kurtosis was close to 3, skewness was zeroand the Bera-Jarquestatistic has a P-value of 0.908813 implying that the data were consistent with a normal distribution assumption. Based on the statistical result, the study failed to reject the null hypothesis of normality at the 5% significance level.

V. Test for multicollinearity

As referred by Brooks (2008), an implicit assumption that is made 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 be orthogonal to one another. However, a

problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity. Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

Table 4.5 Correlation Matrix between independent variables

	LR	ER	INF	DIR	GDP	NBB	LDR	BR	BS
LR	**1.000000**								
ER	**0.692226**	**1.000000**							
INF	**0.243019**	**0.117881**	**1.000000**						
DIR	**0.703868**	**0.581719**	**0.009092**	**1.000000**					
GDP	**0.392720**	**0.505784**	**0.065600**	**0.305691**	**1.000000**				
NBB	**0.489974**	**0.717331**	**0.316922**	**0.222202**	**0.303188**	**1.000000**			
LDR	**-0.227760**	**-0.305400**	**-0.350516**	**-0.121657**	**0.022154**	**-0.376930**	**1.000000**		
BR	**0.625680**	**0.727681**	**0.420829**	**0.383492**	**0.344454**	**0.689286**	**-0.552569**	**1.000000**	
BS	**0.449689**	**0.591866**	**0.304000**	**0.207305**	**0.339648**	**0.429392**	**-0.479765**	**0.665996**	**1.000000**

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

The method used in this study to test the existence of multicollinearity was by checking the Pearson correlation between the independent variables. The correlations between the independent variables are shown in table 4.6 above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study.

4.4. Analysis of Regression

This section presents the empirical findings from the econometric output to examine the factors that affecting deposits mobilization of private commercial banks in Ethiopia. Table 4.7 below reports regression results between the dependent variable and explanatory variables. Under the following regression outputs the beta coefficient may be negative or positive; beta indicates that each variable's level of influence on the dependent variable.

Regression result

Empirical model*: the empirical model used in the study in order to identify factors that affecting deposits mobilization of private commercial banks in Ethiopia.*

Table 4.6Regression result

Dependent Variable: DEP
Method: Panel Least Squares
Date: 06/07/20 Time: 20:43
Sample: 2000 2019
Periods included: 20
Cross-sections included: 6
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.793493	0.275321	13.77846	0.0000
LR	3.145090	1.137254	2.765512	0.0067
ER	0.011114	0.003421	3.248475	0.0016
INF	-0.132852	0.098389	-1.350266	0.1798
DIR	2.158208	1.069426	2.018099	0.0461
GDP	0.031706	0.081053	0.391172	0.6965
NBB	0.605982	0.046017	13.16855	0.0000
LDR	0.277323	0.082634	3.356034	0.0011
BR	0.181603	0.023803	7.629550	0.0000
BS	0.272225	0.019891	13.68616	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.975768	Mean dependent var		9.576993
Adjusted R-squared	0.972537	S.D. dependent var		0.543684
S.E. of regression	0.090099	Akaike info criterion		-1.859347
Sum squared resid	0.852372	Schwarz criterion		-1.510911
Log likelihood	126.5608	Hannan-Quinn criter.		-1.717846
F-statistic	302.0079	Durbin-Watson stat		1.884139
Prob(F-statistic)	0.000000			

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

Thus, based on the result in above table, the following model was developed to examine factors that affect deposit mobilization of private commercial banks in Ethiopia.

DEP=*3.793493+3.145090***LR**+0.011114***ER**-

0.132852**INF**+2.158208**DIR**+0.031706**GDP**+0.605982**NBB**+0.277323**LDR**+0.181603 **BR**+0.272225**BS** +ε

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

The R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). The coefficient of determination in this model is given by R-squared of 97.57% and Adjusted R-squared of 97.25%, which means the changes in the independent variables (Bank's size, Bank reserve, lending interest rate, and Loan to Deposit Ratio, Number of bank's branch, Deposit interest rate, Exchange Rate, Inflation rate and Gross domestic product (GDP)) collectively explain 97.57% of the changes in the dependent variable (DEP) and the remaining 2.43% of changes is explained by other factors which are not included in the model.

Thus, these variables collectively are good explanatory variables to identify factors that determining deposits mobilization of private commercial banks in Ethiopia. The value of F-statistics (302.0079) and the p-value of (0.000000)attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable.

The coefficient for LR is 3.145090 on DEP which indicates that the total asset of private commercial banks haspositive relationship with DEP and also the relationship is significant at 1% level of significant.And also, the coefficient for ER is 0.011114on DEP which refers that exchange rate haspositive relationship with DEP and also the relationship is significant at 5% level of significant.Next to this, the coefficient for INF is -0.132852 on which refers that it has negative and insignificant relation with DEP at 5% level of significant. In addition to this, the coefficient for DIR is 2.158208 on DEP which indicates that the total asset of private commercial banks haspositive relationship with DEP and also, the relationship is significant at 5% level of significant.

Moreover, GDP, NBB, LDR, BR and BS have coefficient of 0.031706, 0.605982, 0.277323 and 0.272225 respectively only GDP is insignificant at 5% level of significant and others are significant at 1%, 5%, and 1% respectively.

The negative relationships indicate that there is an inverse relationship between the independent variable and DEP. Thus, increasing of those variables will lead to a decrease in DEP of Ethiopian private commercial bank. On the other hand the positive relationships indicate that there is a direct relationship between the remaining eight independent variables and DEP.

4.4.1 Discussion of Regression Result

Number of Bank's Branch (NBB)

H_1: Number of Bank's branch has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of number of bank's branch (NBB) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.605982. This means that holding other independent variables constant and when one percent increases in NBB, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 60.59% and the p value of NBB is 0.0000reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that number of bank's branch has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Mamo (2017),Giragn (2015), Ketema (2017), Fekadu (2019) and Helani&Prasanha (2018). This implies that bank's number of branch has direct relationship with deposit mobilization.The possible reason for the resultis increasing number of branches led to in the improving deposit amount significantly and can promote deposit mobilization.

Loan-to-Deposit Ratio (LDR)

H_2: Loan-to-Deposit ratio has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of Loan to Deposit Ratio (LDR) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.277323. This means that holding other independent variables constant and when one percent increases in LDR, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 27.73 and the p value of LDR is 0.0011reveals that it is statistically significant at 1% level of significance. Accordingly, the result did not support the working hypothesis that LDR has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Mamo (2017). This means that bank's loan to deposit ratio has direct relationship with deposit mobilization. Consequently, the possible reason for the result as observed by the researcher is that as LDR increases, bank deposit will be enhanced and can add additional deposit mobilization.

Bank Reserve (BR)

H3: Bank Reserve has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization

According to the regression result of bankreserve (BR) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.181603. This means that holding other independent variables constant and when one percent increases in BR, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 18.16% and the p value of BR is 0.0000reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that BR has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Aberham (2019). This means that bank reserve has direct relationship with deposit mobilization. Consequently, the possible reason for the result as observed by the researcher is that as BR increases, banks liquidity will enhanced and can add additional deposit amount.

Bank's Size (BS)

H_4: Bank's size has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of bank's size (BS) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.272225. This means that holding other independent variables constant and when one percent increases in BS, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 27.22% and the p value of BS is 0.0000reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that BS has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Shemsu (2015),Oduro (2015) and Emmanuel (2015). This indicates that an increase in BS will have a significant change on bank's deposit.

Consequently, the possible reason for the result as observed by the researcher is that when banks increase their size or asset they can improve their deposit amount by increasing number of customers in line with deposit mobilization.

Exchange Rate (ER)

H_5: Exchange rate has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of exchange rate (ER) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.011114. This means that holding other independent variables constant and when one percent increases in ER, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 1.11% and the p value of ER is 0.0016reveals that it is statistically significant at 5% level of significance. Accordingly, the result supports the working hypothesis that number of ER branch has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Giragn (2015),Ketema (2017) andKebebe (2016). This implies that Exchange rate has direct relationship with deposit mobilization.The possible reason for the resultis when exchange rate changes it can affect deposit mobilization as the currency of one country depreciates in value, most investors will withdraw their deposit in bank, thus exchange rate has significant impact on deposit mobilization.

Inflation (INF)

H_6: Inflation has negative and statistically insignificant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of inflation (INF) has a negative relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of -0.132852. This means that holding other independent variables constant and when one percent increases in INF, consequently it decrease deposit amount (DEP) of Ethiopian private commercial banks by -13.28% and the p value of INF is 0.1798reveals that it is statistically insignificant at 5% level of significance. Accordingly, the result supports the working hypothesis that INF has negative and statistically insignificant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Ketema (2017), Islam (2019). This implies that INF has indirect relationship with deposit mobilization. This indicates that if inflation rate increase it affects banks by reducing purchasing power of money and out control of price and this lead to increase the impact on deposit mobilization.

Deposit Interest Rate (DIR)

H_7: Deposit Interest Rate has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of deposit interest rate (DIR) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 2.158208. This means that holding other independent variables constant and when one percent increases in DIR, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 215.8% and the p value of DIR is 0.0461reveals that it is statistically significant at 5% level of significance. Accordingly, the result supports the working hypothesis that deposit interest rate has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies of Ketema (2015),Shemsu (2015), Bernard (2019) and Oduro (2015). This implies that deposit interest rate has direct relationship with deposit mobilization.The possible reason for the resultis higher interest rate on deposit attracts people to deposit more in the bank and when deposit interest rate increased, bank can have more depositors because the return rate that the customer maintains will be raised.

GDP

H_8: GDP has positive and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of GDP has positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 0.031706. This means that holding other independent variables constant and when one percent increases in GDP, consequently it increase deposit amount (DEP) of Ethiopian private commercial banks by 3.17% and the p value of GDP is 0.6965reveals that it is statistically insignificant at 5% level of significance. Accordingly, the result did not support the working hypothesis that GDP has positive and statistically insignificant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

The study finding is consistent with previous studies ofKibebe (2016),Islam (2019) and Giragn (2015). This indicates that an increase in GDP will not have a significant change on bank's deposit. As a result, the possible reason for the result as observed by the researcher is increasing in GDP have not any significant impact on deposit amount. The study finding is also consistent with previous studies of Shemsu (2015),Oduro (2015), Venkatesan (2012) and Andinet (2016). This implies that GDP has direct relationship with deposit mobilization. The possible reason for the result is that when the GDP increases, it can enhance society's income so that most people will have a chance to save their money at bank after consumption but only high economic growth could not be enough to deposit in bank, other factors such as awareness, service can determine deposit mobilization . Hence, a positive relationship exists between GDP and deposit mobilization but it has insignificant impact on deposit mobilization.

Lending Rate (LR)

H_9: Lending Interest Rate has negative and statistically significant effect on Ethiopian private commercial banks deposit mobilization.

According to the regression result of Lending Rate (LR) has a positive relationship with Ethiopian private commercial deposit mobilization by a coefficient estimate of 3.145090. This means that holding other independent variables constant and when one percent increases in LR, consequently it increases deposit amount (DEP) of Ethiopian private commercial banks by 314.5% and the p value of LR is 0.0067reveals that it is statistically significant at 1% level of significance. Accordingly, the result supports the working hypothesis that lending rate has positive and statistically significant effect on deposit mobilization of private commercial banks in Ethiopia for the sample period.

However my hypothesis is based on Bernard (2019) finding, the finding of this study is inconsistent with previous studies of Bernard (2019) and my hypothesis on the negative relationship of lending rate and deposit mobilization but the study finding is consistent with previous studies of Bernard (2019) in statistically significance impact, this implies that lending rate has a direct relationship with deposit mobilization. As banks increasing its total deposit, it can enhance the loan rate and as the same time it can increase banks deposit amount and as depositor's interest rate set by the government, the change in the depositors' interest rate will help banks to increase its deposit by incurring additional cost which forces banks to increase moderate lending rate so as to attract new depositors who will be feature borrowers and maintain its interest income the other way.

Table 4.7Comparison of test result with expectation

Independent Variables	**Expected Relationships with DEP**	**Actual result**	**Statistical Significance test**	**Hypothesis Status**
Lending rate	-	+	Significant at 1%	Reject
Exchange rate	+	+	Significant at 5%	Failed to Reject
Inflation rate	-	-	Insignificant at 5%	Failed to Reject
Deposit interest rate	+	+	Significant at 5%	Failed to Reject
GDP	+	+	Insignificant at 5%	Reject
Number of bank's branch	+	+	Significant at 1%	Failed to Reject
Loan to deposit ratio	+	+	Significant at 1%	Failed to Reject
Bank reserve	+	+	Significant at 1%	Failed to Reject
Bank size	+	+	Significant at 1%	Failed to Reject

Source - Complied by researcher

CHAPTER FIVE

SUMMARY, CONCULSION AND RECOMMENDATION

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

5.1. Summary of findings

The research general objective was to identify factors that affecting deposits mobilization of private commercial banks in Ethiopia. The study used 20 years data from six selected private commercialBanks in Ethiopia. It carried out by constructing a balanced panel regression model based onOLS and fixed effects model of the secondary data obtained from the audited annual report ofsampled commercial Banks in Ethiopia.

The overall result obtained from the regression model indicates that the stated variable under this study most of them they have an effect on deposit mobilization of private commercial Banks in Ethiopia. The dependent variables is bank's total deposit amount in order to achieve the objectives, the study used nine independent variables i.e., Bank's size, Bank reserve, Loan to deposit ratio, Lending rate and Number of bank's branch, Deposit interest rate, Exchange Rate, Inflation rate and Gross domestic product (GDP).

From the regression result, Bank's size, Loan to deposit ratio, Lending rate, Number of bank's branch, Deposit interest rate, Bank reserve and Exchange rate have significant impact on deposit mobilization. Inflation rate and GDP have no significant effect on deposit mobilization Ethiopian private commercial Banks.

5.2. Conclusion

The study specifically identifies that affecting deposits mobilization of private commercial banks in Ethiopiabased on the following conclusions.

- Number of bank's branch has positive and significant effect on deposit mobilization of private commercial banks. This implies that number of bank's branch has a direct relationship with deposit mobilization. As banks increase their branch, they can be easily accessible, can attract more customers and earn higher profit and significant deposit.
- Loan to deposit ratio has positive and significant effect on deposit mobilization of private commercial banks. This implies that loan to deposit ratio has a direct relationship with deposit mobilization.As banks increasing its loan to deposit ratio, it can enhance the deposit amount.
- Bank reserve has positive and significant effect on deposit mobilization of private commercial banks. This implies that bank reserve has direct relationship with deposit mobilization. When bank reserve increases, bank customer can be sustainable and their deposit will be enhanced and can add additional deposit amount.
- Bank's size has positive and significant effect on deposit mobilization of private commercial banks. This indicates that an increase in bank's size will have a significant change on bank's deposit; banks can earn higher profit and retain number of customer with their deposit.
- Exchange rate has positive and significant effect on deposit mobilization of private commercial banks. This expresses that when banks currency increase customers deposit increase in banks and improve their deposit amount significantly.
- Inflation rate has negative and insignificant effect on deposit mobilization of private commercial banks. This indicates that if inflation rate increase, it decrease purchasing power due to this fact people may not save money but it has insignificant impact on deposit mobilization.
- Deposit interest rate has positive and significant effect on deposit mobilization of private commercial banks. This indicates that higher interest rate on deposit attracts people to deposit more money in bank and it significantly increase deposit mobilization.
- GDP has positive and insignificant effect on deposit mobilization of private commercial banks. This implies that during high economic growth producers will deposit more but it has insignificant effect on deposit mobilization.
- Lending rate has positive and significant effect on deposit mobilization of private commercial banks. This implies that increasing in lending rate can improve deposit mobilization.

5.3. Recommendation

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

- The analysis indicated that Number of bank's branch has positive and significant effect on deposit mobilization of private commercial banks. Thus, banks have to open more branches in order to be more accessible and to attract customers.
- The finding implies that Loan to deposit ratio has positive and significant effect on deposit mobilization of private commercial banks. Hence, banks should work on liquidity and being profitable in order to enhance public confidence and relied on its own deposits to make loans to its customers.
- The finding implies that Bank reserve has positive and significant effect on deposit mobilization of private commercial banks. Therefore, banks have to ensure that the funds that they hold in reserve should be able to meet liabilities in case of sudden withdrawals.
- The analysis indicated that Bank's size has positive and significant effect on deposit mobilization of private commercial banks. Thus, they have to enhance their assets by investing on long term asset as well as on short term asset because increasing bank size can increase profitability.
- The finding implies that Exchange rate has positive and significant effect on deposit mobilization of private commercial banks. Hence, in order to improve exchange rate, banks have to work with government and increase the value of currency and appreciate investors to invest in the country and to deposit more.
- The analysis indicated that Deposit interest rate has positive and significant effect on deposit mobilization of private commercial banks. Therefore, National Bank of Ethiopia should increase the deposit interest rate at reasonable conditions by looking the country economic status and banks should fix the deposit interest rate based on the level of customer or other by other requirement deposit customers should get higher interest rate.
- The finding implies that Lending rate has positive and significant effect on deposit mobilization of private commercial banks., as the increase in lending rate is the result of the increase in minimum depositor's interest rate set by the government, the change in the depositors' interest rate will help banks to increase its deposit Hence, banks must increase moderate lending rate so as to attract new depositors who will be feature borrowers and maintain its interest income on the other way.

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APPENDICES

Appendix 1:- Descriptive statistics

	DEP	LR	ER	INF	DIR	GDP	NBB	LDR	BR	BS
Mean	9.576993	0.116123	14.39796	0.117766	0.045833	0.088445	2.227533	0.699489	8.769005	9.651160
Median	9.680557	0.118800	11.65570	0.101383	0.050000	0.066000	2.284101	0.693889	8.944797	9.778560
Maximum	10.57109	0.139880	28.10820	0.364000	0.070000	0.602000	3.905150	1.144737	10.05424	10.51900
Minimum	8.460590	0.092500	8.200000	-0.105722	0.030000	-0.046000	1.477121	0.466284	6.698970	6.005840
Std. Dev.	0.543684	0.013040	6.405906	0.106062	0.013447	0.124165	0.337004	0.138897	0.736832	0.671929
Skewness	-0.370594	-0.523060	0.665022	0.613711	0.331942	3.480439	0.441839	0.727473	-0.589982	-1.598612
Kurtosis	1.980090	2.358740	2.154021	3.748102	2.051937	14.97529	7.017131	3.275640	2.622358	8.646666
Jarque-Bera	7.947877	7.527901	12.42349	10.33112	6.697828	959.3071	84.59113	10.96423	7.674649	210.5354
Probability	0.018799	0.023192	0.002006	0.005710	0.035122	0.000000	0.000000	0.004161	0.021551	0.000000
Sum	1149.239	13.93478	1727.756	14.13197	5.500000	10.61340	267.3039	83.93874	1052.281	1158.139
Sum Sq. Dev.	35.17544	0.020234	4883.240	1.338647	0.021517	1.834615	13.51505	2.295787	64.60772	53.72710
Observations	120	120	120	120	120	120	120	120	120	120

Appendix 2:- Correlation Analysis of Variables

	DEP	LR	ER	INF	DIR	GDP	NBB	LDR	BR	BS
DEP	1.000000	0.624036	0.811269	0.356618	0.328771	0.381962	0.831826	-0.563200	0.886792	0.796524
LR	0.624036	1.000000	0.692226	0.243019	0.703868	0.392720	0.489974	-0.227760	0.625680	0.449689
ER	0.811269	0.692226	1.000000	0.117881	0.581719	0.505784	0.717331	-0.305400	0.727681	0.591866
INF	-0.356618	0.243019	0.117881	1.000000	0.009092	0.065600	0.316922	-0.350516	0.420829	0.304000
DIR	0.328771	0.703868	0.581719	0.009092	1.000000	0.305691	0.222202	-0.121657	0.383492	0.207305
GDP	0.381962	0.392720	0.505784	0.065600	0.305691	1.000000	0.303188	0.022154	0.344454	0.339648
NBB	0.831826	0.489974	0.717331	0.316922	0.222202	0.303188	1.000000	-0.376930	0.689286	0.429392
LDR	-0.563200	-0.227760	-0.305400	-0.350516	-0.121657	0.022154	-0.376930	1.000000	-0.552569	-0.479765
BR	0.886792	0.625680	0.727681	0.420829	0.383492	0.344454	0.689286	-0.552569	1.000000	0.665996
BS	0.796524	0.449689	0.591866	0.304000	0.207305	0.339648	0.429392	-0.479765	0.665996	1.000000

Appendix3:- Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	**0.799936**	**Prob. F(9,110)**	**0.6171**
Obs*R-squared	**7.371464**	**Prob. Chi-Square(9)**	**0.5985**
Scaled explained SS	**112.8871**	**Prob. Chi-Square(9)**	**0.0000**

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/07/20 Time: 20:15
Sample: 1 120
Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**-0.027799**	**0.084393**	**-0.329397**	**0.7425**
LR^2	**4.524875**	**3.298615**	**1.371750**	**0.1729**
ER^2	**-0.000102**	**6.63E-05**	**-1.542933**	**0.1257**
INF^2	**-0.313510**	**0.174693**	**-1.794630**	**0.0755**
DIR^2	**-5.002499**	**6.704014**	**-0.746195**	**0.4571**
GDP^2	**0.073470**	**0.093859**	**0.782778**	**0.4354**
NBB^2	**0.004466**	**0.006248**	**0.714848**	**0.4762**
LDR^2	**-0.036510**	**0.035646**	**-1.024247**	**0.3080**
BR^2	**0.000473**	**0.000883**	**0.536372**	**0.5928**
BS^2	**-0.000234**	**0.000756**	**-0.309573**	**0.7575**

R-squared	**0.061429**	**Mean dependent var**	**0.009901**
Adjusted R-squared	**-0.015363**	**S.D. dependent var**	**0.060027**
S.E. of regression	**0.060486**	**Akaike info criterion**	**-2.693147**
Sum squared resid	**0.402444**	**Schwarz criterion**	**-2.460856**
Log likelihood	**171.5888**	**Hannan-Quinn criter.**	**-2.598812**
F-statistic	**0.799936**	**Durbin-Watson stat**	**1.993033**
Prob(F-statistic)	**0.617080**		

Appendix 4:- Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

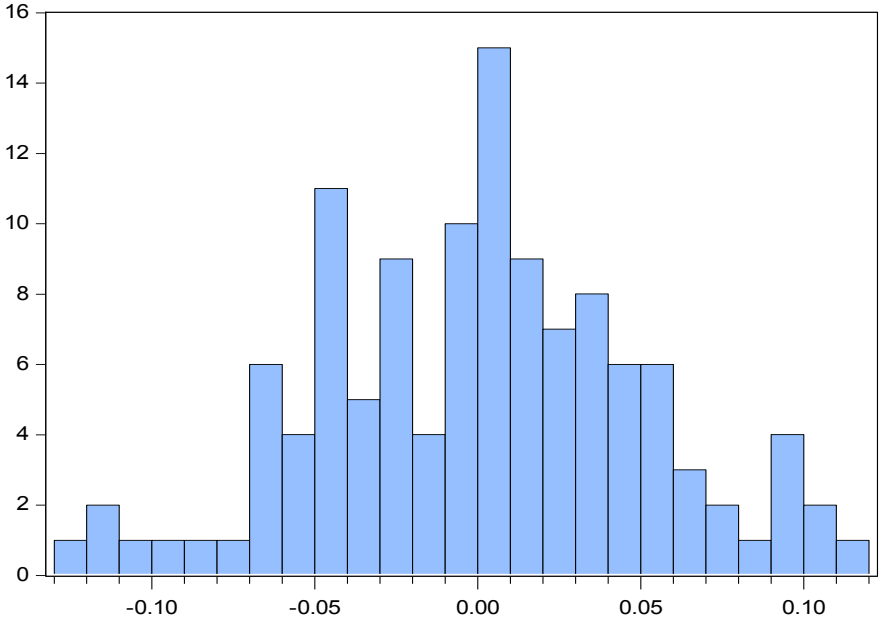
F-statistic	**0.771295**	**Prob. F(2,108)**	**0.4649**
Obs*R-squared	**1.689851**	**Prob. Chi-Square(2)**	**0.4296**

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 06/07/20 Time: 20:17
Sample: 1 120
Included observations: 120
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**0.013132**	**0.291137**	**0.045107**	**0.9641**
LR	**0.025182**	**1.303981**	**0.019311**	**0.9846**
ER	**0.000348**	**0.003542**	**0.098375**	**0.9218**
INF	**0.008671**	**0.109608**	**0.079112**	**0.9371**
DIR	**-0.073497**	**1.177852**	**-0.062399**	**0.9504**
GDP	**0.000488**	**0.093093**	**0.005244**	**0.9958**
NBB	**-0.002108**	**0.049952**	**-0.042200**	**0.9664**
LDR	**0.007739**	**0.090921**	**0.085116**	**0.9323**
BR	**-5.58E-05**	**0.026014**	**-0.002147**	**0.9983**
BS	**-0.001972**	**0.021781**	**-0.090548**	**0.9280**
RESID(-1)	**0.116718**	**0.097076**	**1.202340**	**0.2319**
RESID(-2)	**0.017349**	**0.098215**	**0.176644**	**0.8601**

R-squared	**0.014082**	**Mean dependent var**	**-4.82E-16**
Adjusted R-squared	**-0.086335**	**S.D. dependent var**	**0.099921**
S.E. of regression	**0.104145**	**Akaike info criterion**	**-1.591423**
Sum squared resid	**1.171391**	**Schwarz criterion**	**-1.312674**
Log likelihood	**107.4854**	**Hannan-Quinn criter.**	**-1.478222**
F-statistic	**0.140235**	**Durbin-Watson stat**	**1.997451**
Prob(F-statistic)	**0.999488**		

Appendix 5:- Test of normality (ut~N(0, σ2)



Series: Standardized Residuals	
Sample 2000 2019	
Observations 120	
Mean	-2.89e-19
Median	0.002223
Maximum	0.113955
Minimum	-0.129051
Std. Dev.	0.049969
Skewness	-0.075305
Kurtosis	2.875250
Jarque-Bera	0.191231
Probability	0.908813

Appendix 6:-Correlation Matrix between independent variables

	LR	ER	INF	DIR	GDP	NBB	LDR	BR	BS
LR	1.000000	0.692226	0.243019	0.703868	0.392720	0.489974	-0.227760	0.625680	0.449689
ER	0.692226	1.000000	0.117881	0.581719	0.505784	0.717331	-0.305400	0.727681	0.591866
INF	0.243019	0.117881	1.000000	0.009092	0.065600	0.316922	-0.350516	0.420829	0.304000
DIR	0.703868	0.581719	0.009092	1.000000	0.305691	0.222202	-0.121657	0.383492	0.207305
GDP	0.392720	0.505784	0.065600	0.305691	1.000000	0.303188	0.022154	0.344454	0.339648
NBB	0.489974	0.717331	0.316922	0.222202	0.303188	1.000000	-0.376930	0.689286	0.429392
LDR	-0.227760	-0.305400	-0.350516	-0.121657	0.022154	-0.376930	1.000000	-0.552569	-0.479765
BR	0.625680	0.727681	0.420829	0.383492	0.344454	0.689286	-0.552569	1.000000	0.665996
BS	0.449689	0.591866	0.304000	0.207305	0.339648	0.429392	-0.479765	0.665996	1.000000

Appendix 7:- Regression result

Dependent Variable: DEP
Method: Panel Least Squares
Date: 06/07/20 Time: 20:43
Sample: 2000 2019
Periods included: 20
Cross-sections included: 6
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.793493	0.275321	13.77846	0.0000
LR	3.145090	1.137254	2.765512	0.0067
ER	0.011114	0.003421	3.248475	0.0016
INF	-0.132852	0.098389	-1.350266	0.1798
DIR	2.158208	1.069426	2.018099	0.0461
GDP	0.031706	0.081053	0.391172	0.6965
NBB	0.605982	0.046017	13.16855	0.0000
LDR	0.277323	0.082634	3.356034	0.0011
BR	0.181603	0.023803	7.629550	0.0000
BS	0.272225	0.019891	13.68616	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.975768	Mean dependent var	9.576993
Adjusted R-squared	0.972537	S.D. dependent var	0.543684
S.E. of regression	0.090099	Akaike info criterion	-1.859347
Sum squared resid	0.852372	Schwarz criterion	-1.510911
Log likelihood	126.5608	Hannan-Quinn criter.	-1.717846
F-statistic	302.0079	Durbin-Watson stat	1.884139
Prob(F-statistic)	0.000000		

Appendix 8:- Final Raw Data

BANK	*YEAR*	*BR*	*BS*	*DEP*	*DIR*	*ER*	*GDP*	*INF*	*LDR*	*LR*	*NBB*	
1	*2000*	*7.431364*	*8.880242*	*8.613517*	*0.06*	*8.2*	*0.048*	*0.053557*	*0.732657*	*0.12*	*1.477121*	
1	*2001*	*7.908485*	*8.957607*	*8.87564*	*0.06*	*8.42*	*0.055*	*-0.003467*	*0.721704*	*0.1275*	*1.69897*	
1	*2002*	*7.908485*	*9.046105*	*8.968483*	*0.03*	*8.543*	*-0.011*	*-0.105722*	*0.65914*	*0.0925*	*1.845098*	
1	*2003*	*7.78533*	*9.146438*	*9.065953*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.649485*	*0.0925*	*1.954243*	
1	*2004*	*8.313867*	*9.247973*	*9.17406*	*0.03*	*8.635*	*0.107*	*0.073471*	*0.584729*	*0.0925*	*2.079181*	
1	*2005*	*8.367356*	*9.347525*	*9.287802*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.623711*	*0.105*	*2.146128*	
1	*2006*	*8.374748*	*9.47041*	*9.409426*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.693416*	*0.105*	*2.20412*	
1	*2007*	*8.716003*	*9.583199*	*9.49304*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.772172*	*0.105*	*2.255273*	
1	*2008*	*8.958756*	*9.683067*	*9.587658*	*0.04*	*9.244*	*0.071*	*0.253*	*0.674736*	*0.115*	*2.30103*	
1	*2009*	*9.248237*	*9.807707*	*9.695693*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.516649*	*0.1225*	*2.342423*	
1	*2010*	*9.220341*	*9.900082*	*9.785752*	*0.04*	*12.8909*	*0.0969*	*0.028*	*0.490895*	*0.1225*	*2.380211*	
1	*2011*	*9.356288*	*10.005*	*9.888953*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.496082*	*0.1188*	*2.414973*	
1	*2012*	*9.055787*	*10.07688*	*9.963993*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.581868*	*0.11875*	*2.447158*	
1	*2013*	*9.942497*	*10.17198*	*9.551818*	*0.07*	*18.1947*	*0.051*	*0.135*	*0.600413*	*0.1188*	*1.477121*	
1	*2014*	*9.609249*	*10.24554*	*10.07091*	*0.05*	*19.0748*	*0.045*	*0.081*	*0.761663*	*0.1188*	*2.50515*	
1	*2015*	*9.66999*	*10.30843*	*10.1217*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.743118*	*0.1188*	*2.556303*	
1	*2016*	*9.723269*	*10.36335*	*10.16717*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.761663*	*0.1275*	*2.568202*	
1	*2017*	*9.77072*	*10.4121*	*10.20832*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.77168*	*0.1275*	*2.579784*	
1	*2018*	*9.813494*	*10.45592*	*10.24591*	*0.07*	*26.1082*	*0.052*	*0.146*	*0.81538*	*0.135*	*2.591065*	
1	*2019*	*9.85243*	*10.49572*	*10.32391*	*0.07*	*28.0543*	*0.602*	*0.126*	*0.8438*	*0.135*	*2.60206*	
2	*2000*	*8.025306*	*8.937016*	*8.781755*	*0.06*	*8.2*	*0.048*	*0.053557*	*0.85124*	*0.12*	*1.544068*	
2	*2001*	*7.944483*	*9.041393*	*8.947434*	*0.06*	*8.42*	*0.055*	*-0.003467*	*0.77991*	*0.1275*	*1.69897*	
2	*2002*	*8.004321*	*9.172019*	*9.075912*	*0.03*	*8.543*	*-0.011*	*-0.105722*	*0.709488*	*0.0925*	*1.845098*	
2	*2003*	*8.139879*	*9.299071*	*9.209783*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.747016*	*0.0925*	*1.954243*	
2	*2004*	*8.352183*	*9.427648*	*9.338058*	*0.03*	*8.635*	*0.107*	*0.073471*	*0.762443*	*0.0925*	*2.079181*	
2	*2005*	*8.591065*	*9.534026*	*9.452247*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.834236*	*0.105*	*2.161368*	
2	*2006*	*8.683047*	*9.657629*	*9.567262*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.800041*	*0.105*	*2.217484*	
2	*2007*	*8.935003*	*9.781109*	*9.686726*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.695836*	*0.105*	*2.267172*	
2	*2008*	*9.248643*	*9.893683*	*9.788982*	*0.04*	*9.244*	*0.071*	*0.253*	*0.548787*	*0.115*	*2.352183*	
2	*2009*	*9.536766*	*9.988228*	*9.899011*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.486836*	*0.1225*	*2.342423*	
2	*2010*	*9.347578*	*10.09179*	*10.00623*	*0.04*	*12.8909*	*0.0969*	*0.028*	*0.514631*	*0.1225*	*2.39794*	
2	*2011*	*9.470364*	*10.16613*	*10.0734*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.565164*	*0.1188*	*2.414973*	
2	*2012*	*9.351526*	*10.24354*	*10.14816*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.546534*	*0.11875*	*2.462398*	
2	*2013*	*9.349468*	*10.2955*	*10.20006*	*0.05*	*18.1947*	*0.051*	*0.135*	*0.565164*	*0.1188*	*2.477121*	
2	*2014*	*9.394806*	*10.34168*	*10.24752*	*0.05*	*19.0748*	*0.045*	*0.081*	*0.546534*	*0.1188*	*2.50515*	

2	*2015*	*9.469126*	*10.38341*	*10.2893*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.53331*	*0.1188*	*2.518514*	
2	*2016*	*9.532567*	*10.42148*	*10.32741*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.589785*	*0.1275*	*2.568202*	
2	*2017*	*9.58791*	*10.45648*	*10.36245*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.652483*	*0.1275*	*2.579784*	
2	*2018*	*9.636992*	*10.48887*	*10.23007*	*0.07*	*9.1082*	*0.052*	*0.146*	*0.678523*	*0.135*	*2.60206*	
2	*2019*	*9.681085*	*10.519*	*10.42504*	*0.07*	*28.0543*	*0.602*	*0.126*	*0.71256*	*0.135*	*2.647383*	
3	*2000*	*7.799341*	*8.856124*	*8.683047*	*0.06*	*8.2*	*0.048*	*0.053557*	*1.06639*	*0.12*	*1.544068*	
3	*2001*	*7.70757*	*8.952308*	*8.813581*	*0.06*	*8.42*	*0.055*	*-0.003467*	*1.02765*	*0.1275*	*1.69897*	
3	*2002*	*7.845098*	*9.057666*	*8.958564*	*0.03*	*8.543*	*-0.011*	*-0.105722*	*0.694169*	*0.0925*	*1.845098*	
3	*2003*	*7.863323*	*9.12483*	*9.031812*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.694238*	*0.0925*	*1.954243*	
3	*2004*	*8.017033*	*9.200029*	*9.10551*	*0.03*	*8.635*	*0.107*	*0.073471*	*0.697255*	*0.0925*	*2.079181*	
3	*2005*	*8.643453*	*9.313234*	*9.211388*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.720959*	*0.105*	*2.161368*	
3	*2006*	*8.673942*	*9.4524*	*9.337858*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.873679*	*0.105*	*2.217484*	
3	*2007*	*8.636488*	*9.530968*	*9.434729*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.807424*	*0.105*	*2.267172*	
3	*2008*	*8.914229*	*9.630422*	*9.5413*	*0.04*	*9.244*	*0.071*	*0.253*	*0.737996*	*0.115*	*2.352183*	
3	*2009*	*9.228808*	*9.738512*	*9.652651*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.543535*	*0.1225*	*2.342423*	
3	*2010*	*9.205752*	*9.797928*	*9.710866*	*0.04*	*12.8909*	*0.0969*	*0.028*	*0.568161*	*0.1225*	*2.39794*	
3	*2011*	*9.121431*	*9.86201*	*9.783565*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.527584*	*0.1188*	*2.414973*	
3	*2012*	*8.947473*	*9.915901*	*9.830682*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.560781*	*0.11875*	*2.462398*	
3	*2013*	*8.883418*	*10.00558*	*9.929222*	*0.05*	*18.1947*	*0.051*	*0.135*	*0.542426*	*0.1188*	*2.477121*	
3	*2014*	*9.004824*	*10.05217*	*9.958873*	*0.05*	*19.0748*	*0.045*	*0.081*	*0.55637*	*0.1188*	*2.50515*	
3	*2015*	*9.099601*	*10.15574*	*10.03427*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.578956*	*0.1188*	*2.518514*	
3	*2016*	*9.177354*	*10.2393*	*10.0985*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.598452*	*0.1275*	*2.579784*	
3	*2017*	*9.243277*	*10.30935*	*10.15444*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.612585*	*0.1275*	*2.60206*	
3	*2018*	*9.3005*	*10.36966*	*10.20399*	*0.07*	*26.1082*	*0.052*	*0.146*	*0.675289*	*0.135*	*2.653213*	
3	*2019*	*9.351054*	*10.4226*	*10.2723*	*0.07*	*28.0543*	*0.602*	*0.126*	*0.712588*	*0.135*	*2.675778*	
4	*2000*	*7.78533*	*8.710963*	*8.571709*	*0.06*	*8.2*	*0.048*	*0.053557*	*0.683646*	*0.12*	*1.477121*	
4	*2001*	*7.770852*	*8.765669*	*8.652246*	*0.06*	*8.42*	*0.055*	*-0.003467*	*0.732739*	*0.1275*	*1.69897*	
4	*2002*	*7.812913*	*8.810233*	*8.711807*	*0.03*	*8.543*	*-0.011*	*-0.105722*	*0.749515*	*0.0925*	*1.845098*	
4	*2003*	*7.740363*	*8.948902*	*8.847573*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.769886*	*0.0925*	*1.90309*	
4	*2004*	*7.977724*	*9.056905*	*8.942504*	*0.03*	*8.635*	*0.107*	*0.073471*	*0.793379*	*0.0925*	*1.954243*	
4	*2005*	*7.792392*	*9.208441*	*9.109916*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.738354*	*0.105*	*2*	
4	*2006*	*8.243038*	*9.353916*	*9.249932*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.852643*	*0.105*	*2.041393*	
4	*2007*	*8.514548*	*9.541579*	*9.435127*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.75638*	*0.105*	*2.079181*	
4	*2008*	*8.926775*	*9.615412*	*9.472219*	*0.04*	*9.244*	*0.071*	*0.253*	*0.744331*	*0.115*	*2.113943*	
4	*2009*	*9.277085*	*9.709126*	*9.57152*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.532067*	*0.1225*	*2.146128*	
4	*2010*	*8.942122*	*9.759058*	*9.593596*	*0.07*	*12.8909*	*0.0969*	*0.028*	*0.605595*	*0.1225*	*2.20412*	
4	*2011*	*9.283447*	*9.906391*	*9.775063*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.466284*	*0.1188*	*2.255273*	
4	*2012*	*8.762219*	*9.921538*	*9.760285*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.604179*	*0.11875*	*2.30103*	
4	*2013*	*9.002982*	*10.01677*	*9.877985*	*0.05*	*18.1947*	*0.051*	*0.135*	*0.607246*	*0.1188*	*2.322219*	
4	*2014*	*8.619203*	*10.05087*	*9.923476*	*0.05*	*19.0748*	*0.045*	*0.081*	*0.539989*	*0.1188*	*2.380211*	

4	*2015*	*9.15697*	*10.15039*	*10.00762*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.612874*	*0.1188*	*2.414973*	
4	*2016*	*9.270421*	*10.2313*	*10.07807*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.627846*	*0.1275*	*2.477121*	
4	*2017*	*9.360289*	*10.29948*	*10.13868*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.654795*	*0.1275*	*2.491362*	
4	*2018*	*9.994711*	*6.00584*	*10.06045*	*0.07*	*28.1082*	*0.052*	*0.146*	*0.701254*	*0.135*	*3.90515*	
4	*2019*	*9.498227*	*10.41027*	*10.26356*	*0.07*	*28.0543*	*0.602*	*0.126*	*0.721548*	*0.135*	*2.564666*	
5	*2000*	*6.69897*	*8.155336*	*8.671011*	*0.03*	*8.2*	*0.048*	*0.053557*	*1.144737*	*0.12*	*2.477121*	
5	*2001*	*7.414973*	*8.330414*	*8.46059*	*0.06*	*8.42*	*0.055*	*-0.003467*	*1.031008*	*0.1275*	*1.69897*	
5	*2002*	*7.568202*	*8.49693*	*8.552495*	*0.07*	*8.543*	*-0.011*	*-0.105722*	*0.851852*	*0.0925*	*1.845098*	
5	*2003*	*7.740363*	*8.671173*	*8.702892*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.986063*	*0.0925*	*1.90309*	
5	*2004*	*7.672098*	*8.82866*	*8.725912*	*0.07*	*8.635*	*0.107*	*0.073471*	*0.693609*	*0.0925*	*1.954243*	
5	*2005*	*8.130334*	*9.0306*	*8.937016*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.65896*	*0.105*	*2*	
5	*2006*	*8.456366*	*9.203848*	*9.08636*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.79918*	*0.105*	*2.041393*	
5	*2007*	*8.149219*	*9.338954*	*9.187803*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.887411*	*0.105*	*2.079181*	
5	*2008*	*8.752363*	*9.511878*	*9.387985*	*0.04*	*9.244*	*0.071*	*0.253*	*0.740748*	*0.115*	*2.113943*	
5	*2009*	*9.124255*	*9.667611*	*9.558199*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.576858*	*0.1225*	*2.146128*	
5	*2010*	*9.242451*	*9.770574*	*9.674388*	*0.04*	*12.8909*	*0.0969*	*0.028*	*0.532985*	*0.1225*	*2.20412*	
5	*2011*	*9.139237*	*9.887933*	*9.78289*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.52527*	*0.1188*	*2.255273*	
5	*2012*	*8.929433*	*9.943834*	*9.829787*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.590475*	*0.11875*	*2.30103*	
5	*2013*	*8.667918*	*9.999029*	*9.906522*	*0.05*	*18.1947*	*0.051*	*0.135*	*0.57335*	*0.13988*	*2.322219*	
5	*2014*	*8.850484*	*10.07062*	*9.949832*	*0.05*	*19.0748*	*0.045*	*0.081*	*0.552642*	*0.1188*	*2.380211*	
5	*2015*	*9.051204*	*10.16864*	*10.00924*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.578993*	*0.1188*	*2.414973*	
5	*2016*	*9.187952*	*10.24856*	*10.06149*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.598542*	*0.1275*	*2.462398*	
5	*2017*	*9.291797*	*10.31603*	*10.10812*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.624588*	*0.1275*	*2.477121*	
5	*2018*	*9.375541*	*10.37441*	*10.15023*	*0.07*	*26.1082*	*0.052*	*0.146*	*0.654578*	*0.135*	*2.491362*	
5	*2019*	*9.445717*	*10.42587*	*10.24152*	*0.07*	*28.0543*	*0.602*	*0.126*	*0.712588*	*0.135*	*2.510545*	
6	*2000*	*10.05424*	*8.198657*	*8.892095*	*0.06*	*14.0756*	*0.048*	*0.053557*	*0.75641*	*0.12*	*1.477121*	
6	*2001*	*7.113943*	*8.526339*	*8.487643*	*0.06*	*8.42*	*0.055*	*-0.003467*	*1.009615*	*0.1275*	*1.69897*	
6	*2002*	*6.69897*	*8.727541*	*8.537819*	*0.03*	*8.543*	*-0.011*	*-0.105722*	*0.927536*	*0.0925*	*1.845098*	
6	*2003*	*7.60206*	*8.946943*	*8.769377*	*0.03*	*8.581*	*-0.046*	*0.109241*	*0.897959*	*0.0925*	*1.90309*	
6	*2004*	*7.792392*	*9.095866*	*8.920123*	*0.03*	*8.635*	*0.107*	*0.073471*	*0.908654*	*0.0925*	*1.954243*	
6	*2005*	*7.991226*	*9.238548*	*9.087426*	*0.03*	*8.652*	*0.089*	*0.061256*	*0.88798*	*0.105*	*2.00103*	
6	*2006*	*7.968483*	*9.306854*	*9.161967*	*0.03*	*8.681*	*0.081*	*0.105767*	*0.976584*	*0.105*	*2.041393*	
6	*2007*	*8.445604*	*9.416141*	*9.273927*	*0.03*	*8.794*	*0.078*	*0.158227*	*0.934007*	*0.105*	*2.079181*	
6	*2008*	*8.857385*	*9.562306*	*9.392684*	*0.04*	*9.244*	*0.071*	*0.253*	*0.82342*	*0.115*	*2.113943*	
6	*2009*	*8.957254*	*9.681829*	*9.518038*	*0.04*	*10.4205*	*0.061*	*0.364*	*0.642538*	*0.1225*	*2.146128*	
6	*2010*	*8.969539*	*9.776011*	*9.615654*	*0.04*	*12.8909*	*0.0969*	*0.028*	*0.592857*	*0.1225*	*2.20412*	
6	*2011*	*9.226668*	*9.851963*	*9.712431*	*0.05*	*16.1178*	*0.09*	*0.181*	*0.514294*	*0.1188*	*2.255273*	
6	*2012*	*8.921654*	*9.917804*	*9.766274*	*0.05*	*17.2536*	*0.061*	*0.341*	*0.618063*	*0.11875*	*2.30103*	
6	*2013*	*8.702382*	*9.961162*	*9.823162*	*0.05*	*18.1947*	*0.051*	*0.135*	*0.665541*	*0.1188*	*2.322219*	
6	*2014*	*8.980928*	*10.0313*	*9.898906*	*0.03*	*19.0748*	*0.045*	*0.081*	*0.682512*	*0.1188*	*2.380211*	

6	*2015*	*9.233005*	*10.12119*	*9.94153*	*0.05*	*20.0956*	*0.124*	*0.077*	*0.701245*	*0.1188*	*2.39794*	
6	*2016*	*9.39147*	*10.19564*	*9.980343*	*0.05*	*21.1059*	*0.034*	*0.097*	*0.754896*	*0.1275*	*2.414973*	
6	*2017*	*9.50732*	*10.25916*	*10.01597*	*0.05*	*22.4137*	*0.08*	*0.074*	*0.784568*	*0.1275*	*2.423246*	
6	*2018*	*9.598684*	*10.31458*	*10.04889*	*0.07*	*26.1082*	*0.052*	*0.146*	*0.814522*	*0.135*	*2.431364*	
6	*2019*	*9.674129*	*10.36371*	*10.20338*	*0.03*	*28.0543*	*0.602*	*0.126*	*0.824579*	*0.135*	*2.450249*	