ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

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FACTORS AFFECTING DEPOSIT MOBILIZATION: A CASE STUDY IN SELECTED ETHIOPIAN PRIVATE COMMERCIAL BANKS

BY

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(SGS/0517/2011A)

JUNE, 2020
ADDIS ABABA, ETHIOPIA

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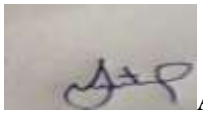
Asmamaw Getie (PHD)	 **Aug 12/2020**
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DECLARATION

I Menen Kassu, hereby declare that the thesis work entitled, ‘’**FACTORS AFFECTING DEPOSIT MOBILIZATION:A CASE STUDY IN SELECTED ETHIOPIAN PRIVATE COMMERCIAL BANKS**, is outcome of my own effort and study and that all sources of materials used for the study have been properly acknowledged. I have produced it independently except for the guidance and suggestions of the research advisor. This study submitted by me for the award of the degree of Masters of Business Administration (Accounting and finance) in graduated studies of St. Mary’s University at Addis Ababa Ethiopia, it is original work and it hasn’t been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

By: Menen Kassu

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Signature:

Date: JUNE, 2020

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Statement of Certification

This is to certify that Menen Kassu carried out her research on the topic entitled "**FACTORS AFFECTING DEPOSIT MOBILIZATION: A CASE STUDY IN SELECTED ETHIOPIAN PRIVATE COMMERCIAL BANKS**: This work is original in nature and is suitable for submission for the award of Master of Business Administration (Accounting and Finance).

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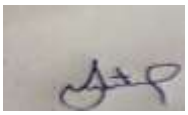
Signature _____ Signature 

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ACRONYMS

AIB	Awash international bank
ATM	Automatic Teller Machine
BLIQD	Bank's Liquidity
BOA	Bank of Abyssinia
CBE	Commercial Bank of Ethiopia
CLRM	Classical Linear Regression Model
CRRISK	Credit Risk
DB	Dashen bank
EXR	Exchange Rate
INFLN	Inflation
NBE	National bank of Ethiopia
NIB	NIB International Bank
OLS	Ordinary Least Square
SC	Share Company
UB	United Bank
USD	United State Dollar
WB	Wegagen Bank

ABSTRACT

Deposits are the primary source of funds for a bank, which facilitates the uses of funds of loans and investments. The higher the deposits amount, the bigger the lending and investments portfolio can be maintained by the banks to sustain its expansion and future growth. Mobilizing deposits is one of the essential issues in developing countries as domestic funds provide cheap and reliable source of funds for development. The objective of this study is empirically investigating factors affecting deposit mobilizations of Ethiopian private commercial banks for the periods 2010 to 2019. The researcher adopted explanatory research design and Quantitative research approach. Endogenous and exogenous variables were analyzed by using the balanced panel data regression model. To check the appropriateness of the model Different diagnostics test were conducted such as test of hetroscedasticity, autocorrelation and Normality. The results explained that Banks Liquidity has a positive insignificant effect, credit risk and exchange rate have positive and statistically significant and inflation has significant negative influences on commercial bank deposit mobilization. Recommendation given to Commercial banks they should have managed high liquidity risk that contributed by increased deposit.

Key Words: Deposit mobilization, private Commercial banks

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banking system is the backbone of financial intermediation through the mobilization and channeling of financial resources. Banks in performing their pivotal role in the economy, facilitate financial settlement through the payment system, influence money market rates and provide a means for international payment. The sector mobilizes funds from the surplus-spending units into the economy and by lending such funds to the deficit spending units for investment, banks in the process increase the quantum of national savings and investment (Mordi, 2004).

Financial resources of banking systems are naturally provided from people's deposit. Therefore, we can say that deposits are the most important resource of commercial banks. Thus the amount of deposit a commercial bank should have at hand should be enough to make the bank involve in the market and to satisfy the financial needs of its customers. Now a day, commercial banks are managing their deposit to fulfill the need of their customers. However, their managing systems for the deposits are being affected by some exogenous and endogenous factors (Garo, 2015).

Desinga, (1975), classify the variables that have effect on commercial banks' deposit into Exogenous and Endogenous factors. Endogenous factors can be controlled by the banking system; however, the exogenous factors cannot be controlled by the banking system.
Exogenous factors are further sub divided into two; country specific factors and bank specific factors. Country specific factors includes saving interest rate, inflation, real interest rate, population growth of the country, per capita income of the society, economic growth (as measured by real GDP), exchange rate consumer price index and shocks. Bank specific factors include liquidity of the bank, profitability of the bank, security of the bank, number of commercial bank`s branches, bank size, reserves and transaction cost, awareness of the society, convenience of bank`s office and services in the bank. These are the variables that are claimed in the literature to affect the volume of total deposit of commercial banks.

1.1.1 Banking Development in Ethiopia

The fundamental role of monetary and financial institutions for economic development is widely recognized by economic literature. There are five principal events, which may conveniently be taken as dividing Ethiopian banking history into periods. The first was establishment of the Bank of Abyssinia in 1906. The second was Italian occupation in 1936,following liquidation of the Bank of Ethiopia, a broad colonial banking network, extended to encompass all Italian possessions in the Horn of Africa, such as Eritrea, Ethiopia and Somalia and closely linked with the metropolitan financial system, was set up in the country. The third event was establishment of the State Bank of Ethiopia in 1943, marking the rebirth of the Ethiopian independent banking. This occurred during World War II after liberation of the country. The fourth was the revolution of 1974, which wiped out the monarchy, nationalized companies and shaped a "socialist banking", the whole credit system being based on the central bank and three state-owned financial institutions, each of them enjoying monopoly in its respective market. The fifth event was the collapse of socialist regime followed by a financial sector reform and liberalization according to Monetary and Banking Proclamation of 1994. (NBE report)

1.1.2 Back ground of Private Commercial Banks in Ethiopia

Private commercial banks are a recent phenomenon in the Ethiopian economy. They came into existence after the downfall of the Derge regime two and half decades ago. Before the Derge, private commercial banks used to operate in the economy. But after it came to power, private commercial banks were nationalized and amalgamated with the state owned banks, then after that Ethiopian economy was dominated by state owned banks. In the time of Derge, no one was allowed to have a sum of money more than birr 500, 000.00 in personal bank account. After the downfall of the Derge private commercial banks were allowed to operate and they started to have market share and now they are playing major role in the Ethiopian economy. National Bank of Ethiopia (NBE) entry constraint, minimum paid up capital requirement was initially set 75 million then raised to 500 million and within few years they should raise to 2 billion, which is impossible for new entrants as well for those who joined lately, since 2013 no new private commercial bank has entered to the market because of the capital requirement.

Following the Proclamation of Licensing and Supervision of Banking Business Proclamation No. 84/1994, awash bank was registered as the first private commercial bank in modern Ethiopia banking business. There are eighteen banks operated in Ethiopia.

The new economy policy introduced in November ,1991 caused the culmination of the command economic heard ling the establishment of a market oriented one .This policy change created an opportunity and a conducive environment for the emergency of private financial institutions aimed at bringing a meaningful economic role in the development efforts of the country,(NBE 2018/2019 annual report).

Mobilizing on resources has always been the main bank system tasks. Banks collect the surplus amount of money and thus carry out its main role which is going between depositors and loan suppliants. Usually, in a bank activities, financial resources attraction is of a great significance since the success in this respect will provide way for other organizations success. For each bank and banks system, attracting financial resources relates to factors both inside and outside the organization (Shaban, 2013). Therefore, identifying these factors and their effectiveness is very important for success in the entire economy. This study has evaluated both endogenous and exogenous factors that affecting deposit mobilization in Ethiopian private commercial banks.

1.2 STATEMENT OF THE PROBLEM

Financial resources of banking systems are naturally provided from people's deposit. Therefore, deposits are the most important resource of commercial banks. Thus the amount of deposit a commercial bank should have at hand be enough to make the bank involve in the market and to satisfy the financial needs of its customers. Now a day, commercial banks are managing their deposit to fulfill the need of their customers but their managing systems for the deposits are being affected by some exogenous and endogenous factors (Desinga, 1975).

Banks mobilize deposits as their primary source of funds. Having optimal deposits level, banks shall be able to lend the funds to generate interest on lending. In addition to lending, the deposits fund can be placed in certain investments areas which suits the banks' or the deposits' objectives. Deposit mobilization is a continuous function for a bank to ensure the sum total of deposits,

At any time adequate to maintain the current level of lending and investments especially to compensate the withdrawals made by depositors. Usually, the deposits level is kept slightly or certain percentages above the lending and investments level to ensure the bank has adequate cash reserves to meet expected withdrawals and also recurring withdrawals called liquidity. Deposit mobilization is important as a source of investment, profit and for economic growth and development (Helani, 2018).

Mobilizing deposits domestically is crucial in many developing countries. Domestic funds provide a cheap and reliable source of funds for development, which is a great value in developing countries, especially when the economy has difficulty in raising capital in international markets. Most banks in many developing countries have been privatized, so factors that affect deposit mobilization are important for the success for the entire economy.(Shaban, 2013). A survival of every commercial bank highly depends on bank deposit, because deposit mobilization is a major activity of all commercial banks.as a result the issue of banks deposit and its determinant is crucial to financial sector of developing country like Ethiopia (Mamo, 2017).

(Shemsu, 2015), the researcher conducted determinants of commercial banks deposits: a case study in commercial bank of Ethiopia.one of the study result that is inflation rate has positive insignificant effect on deposit growth. (Muluken, 2018), the researcher empirically investigates determinants of deposit mobilization in commercial bank of Ethiopia.as a result banks liquidity, exchange rate positively and statistically significant and inflation positive and significant, credit risk and government expenditure negative insignificant influence to bank deposit.

(Ashenafi, 2016) The study concerned on factors affecting deposit mobilization of commercial bank of Ethiopia. The study result showed that exchange rate has a positive significant relationship with bank deposit growth. On the other hand Inflation affects positively insignificant and can increase CBE's deposit. (Menbere, 2018) The study found out factors that affect deposit mobilization of selected private commercial banks in Ethiopia. Among the study variables, inflation has positive significant and liquidity has negative significant effect on deposit mobilization.

Thus managing deposits is not possible without knowing and controlling the factors affecting it. Commercial banks identify the sources of deposit by considering the determining factors of bank deposit. From the empirical review most of the researchers conducted on commercial bank of

Ethiopia as a case study and there is inconsistency of study results that influencing deposit mobilization. Thus, this study empirically investigates factors affecting deposit mobilization of Ethiopian private commercial banks and there is rarely available academician's reference material of Ethiopian private commercial banks.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of this study is to identify factors affecting deposit mobilization in Ethiopian private commercial banks

1.3.2 Specific Objectives

The specific objectives of this study are:

- To evaluate the effect of banks liquidity and credit risk on commercial banks deposit mobilization.
- To determine the influence of exchange rate and inflation on commercial banks deposit.

1.4 Hypothesis

Hypothesis is a tentative answer to a research problem expressed in the form of a clearly stated relationship between independent (Cause) and dependent (effect) variable (Helani, 2018). Hypothesis of this study are as follows:

H1: Banks liquidity positively affects deposit mobilization of commercial banks

H2: Credit risk positively affects deposit mobilization of commercial banks

H3: Exchange rate positively affects deposit mobilization of commercial banks

H4: Inflation rate negatively affects deposit mobilization of commercial banks

1.5 Scope of the Study

The study was focused on examining endogenous and exogenous factors affecting deposit mobilization in private commercial banks in Ethiopia; Such as Awash bank, Dashen bank, bank of Abyssinia, united bank, Wegagen bank and Nib bank by evaluating the effect of banks liquidity, credit risk, exchange rate and rate of inflation variables on deposit mobilization. The researcher took the six commercial banks because they have the highest deposit growth between 60 million to 30 million with in the study period and the rest of private commercial banks were below this range (NBE 2018/2019 Report).in addition to this, time constraint of the researcher limited to the six banks. The researcher was taken 10 years data covered the year from 2002/2010 to 2011/2019.

1.6 Limitation of the Study

Although, deposit mobilization activity in Ethiopia is made by both government and all private commercial banks, this study only concerned on six private commercial banks and it was limited to ten year data with only quantitative analysis method. But the majority of deposit mobilized in the selected private commercial banks (NBE, 2018/19 report).and because of covid 19 and the researcher time constraint to conduct primary data, the study relied on secondary data. However, the necessary effort and commitment was given to accomplish the study objective efficiently and effectively.

1.7 Significance of the Study

Factors influencing deposit mobilization are very important to any financial institution. The findings of this study will provide insights for NBE to make deposit mobilization policies. The research will contribute to commercial banks to identify and manage negative effect deposit mobilization factors. The study will provide great opportunities for new entrants to evaluate factors that affecting deposit mobilization in the industry, it will be a literature for other related researchers and fill knowledge gap of deposit mobilization in Ethiopia commercial banks.

1.8 Organization of the Paper

The research paper organized in five chapters. Chapter one deals with the general introduction to the study, the problem statement, objective of the study, the scope and significance of the study. Chapter two describes review of related literatures of deposit mobilization. Chapter three is a detail description of methodology such as, research design, sample and data sources. Chapter four is main body of the study contains data presentation about the dependent and independent variables, data analysis and discussion. Chapter five concludes the finding of the research and gives relevant recommendations based on the findings.

CHAPTER TWO

LITRATURE REVIEW

2.1 Theoretical review

Banking sector is the dominant financial system in every economy. Well developed and efficient financial system is the key driven factor in economic development of countries, since without banks; financial system cannot undertake the economic growth. Banks play intermediary role of mobilizing funds from savers those who have excess funds and subsequently lending them to investors those who are deficient in funds. Hence, banks cannot exist without deposits. (Giragn, 2015)

Banking system is the backbone of financial intermediation through the mobilization and channeling of financial resources. Banks in performing their pivotal role in the economy, facilitate financial settlement through the payment system, influence money market rates and provide a means for international payment. The sector mobilizes funds from the surplus-spending units into the economy and by lending such funds to the deficit spending units for investment, banks in the process increase the quantum of national savings and investment (Mordi, 2004). Deposits are the oxygen of banks. Banks contribute to the economic growth by facilitating investment and increasing capital accumulation and it is capable only if the banks have satisfied amounts of deposits. It's also the working capital of the economy and sustainability and the profitability of banks are impossible without the deposits (Richard, 2015).

2.1.1 Motives of deposit

There are many motives to save money at the depositor side, such as to own house, to provide for children's education and marriage, to provide for old age, to bequeath property to children and for emergency expenditure. In general depositors keep their money in banks to undertake some activities in the future (Bhatt, 1970).

2.1.2 Types of Deposit

To carry out their extensive lending and investing operations banks drown on a wide variety of deposit and non-deposit source of fund. The bulk of commercial bank funds almost three fourth of the total comes from deposits. Main types of deposit: are demand, saving and time deposits. (Peter S. Rose 6th Edition)

2.1.2.1 Demand deposit

Demand Deposits is More commonly known as checking account are the principal means of making payment because they are safer than cash and are widely accepted.it consists of funds held in an account from which deposited funds can be withdrawn at any time without any advance notice to the depository bank and it can be demanded at any time by an account holder. Many checking accounts today are demand deposits and are accessible by the account holder through ATM and online banking.

2.1.2.2 Saving deposit

Saving Deposit generally is in small dollar amount they bear a relatively low interest rate but may be withdrawn by the depositors with no notice.it is also a deposit account held at a bank that provides principal security and a modest interest rate. Depending on the specific type of savings the account is likely to have a limited number of free transfers or transactions.

2.1.2.3 Time deposit

Time Deposit carries a fixed maturity and usually offers the highest interest rates a bank can pay and it may be divided into non-negotiable certificates of deposit (CDs), which are usually small consumer type account and negotiable CDs that maybe traded in the open market in million-dollar amount and are purchased mainly by corporations. Checkable Deposit Are bank accounts that allow the owners of the account to write check to third parties it include all account (demand deposit).Interest bearing notes (negotiable order of withdrawal) accounts and money market deposits account. Checkable deposit and money market deposits accounts are a payable on demand. That is, if a depositor shows up at the bank and request, the bank must pay the depositor immediately.

Checkable deposits are an asset for the depositor because it is a part of his/her wealth. Conversely it is a liability for the bank. They are usually the lowest cost source of bank because

depositors are willing to forgo same interest in order to have access to a liquid asset than can be used to make purchase. The bank cost of maintaining checks, preparing and sending out monthly statements, proving efficient tellers maintain an impressive building and marketing to entire customers to deposits there funds with the given bank and conveniently located branches, and advertisings. (Peter S. Rose 6th Edition)

Deposit mobilization is the primary function of the banks. Banks are striving to mobilize deposits as it is the fundamental objective of all banks. However, banks and financial institutions use deposits as sources of funds for loans and investments and also banks working with a smaller capital when compared with the other institutions since because they have potential to use deposits to initiate, expand and maintain their banks. Therefore, banks can earn high profits due to deposits. (Helani & Prasansha, 2018)

Deposit mobilization is one main functions of banking business and so an important source of working fund for the bank.it 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 (Maende, 1992).

2.1.3 Importance of Deposit mobilization

2.1.3.1 Source of Investment

An agent function of banks play a great role in the efficient allocation of funds of countries by mobilizing resources for productive activities they transfer funds from those who don't have productive use of it to those with productive venture, (Ongore & Kusa, 2013).savings are resources which one decides to put aside for investment purposes and not for luxury. Personal savings is people save and avoiding consuming all their income. These savings can remain on the bank accounts for future use or be actively invested in houses, real estate, bonds, shares and other financial instruments.

2.1.3.2 Source of Profit

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

2.1.3.3 Economic Growth

A good bank performance is contributed to resource allocation rewards and shareholders with sufficient return for their investment. When there is return there shall be an investment which, in turn, brings about economic growth. On the other hand, poor banking performance has a negative repercussion on the economic growth and development; it can lead to runs, failures and crises. Banking crisis could entail financial crisis which in turn brings the economic instability.

poor deposit mobilization consequences; inability to disburse loans to qualifying members on demand, inability to meet operation costs, inability to service debts, Unstable board of directors due to frequent reshuffle as disgruntled members vote officials out, Quitting of members to competitors and Falsification of financial reports. These can cause the voting out of elected officials on accusations of fraud, financial mismanagement practices. In addition, dissatisfied members can quit in large numbers to join alternative and emerging financial institutions for fear of losing their savings if the situation deteriorates (Ongore & Kusa, 2013),.

Since deposits are normally considered as a cost effective source of working fund, the bank's ability to lend more as well as its success greatly lies on its deposit mobilization. However the bank's ability to mobilize enough funds from the public through its current, savings, fixed, recurring accounts and other specialized schemes will depend on the systems employed in this highly competitive industry, (Digaria, 2011).

Mobilizing on resources has always been the main bank system tasks. Banks collect the surplus amount of money and thus carry out its main role which is go-between depositors and loan suppliants. Usually, in a bank activities, financial resources attraction is of a great significance

since the success in this respect will pave the way for other domains success. For each bank and banks system, attracting financial resources relates to factors both inside and outside the organization. Therefore, identifying these factors and their effectiveness is very important and pivotal for success in this respect. In financial markets of most countries, banks play a very significant role and have taken a very special place in accelerating the regular circulation of economic cycle through financial resources to create and develop civil plans and provide units for engagement plans, and terminate inchoate plans. Since banks are nonprofit institutes, they cover most of their resources by their deposits. So depositors' decision regarding selecting their assets basket may have a worthy portion on bank deposits. (Monsef, 2010)

Organizations are established in order for replying environment's requirements. One of the most important environmental factors is customers. If an organization can atone, maintain and/or increase customers' satisfaction, it will be successful, accordingly. Thus developing and transcend organizations seek always for atoning customers satisfaction. Hence, Banks should know what customers criterion is in order for choosing and continuing their relation with a bank , to maintain and attract these customers .Awareness toward the selection criteria of a bank by a customer allows bank to identify proper marketing strategies to attract new customers and maintain their current customers. In fact, a growing competition and similarity in prepared services by banks makes this issue increasingly obvious, as these factors are customers' main criterion in selecting the products of financial services providers, (Yaghubi. N.2014) Although factors such as industrialization, development and evaluation of social activities and consequently incidence of new requirements are among significant and influential factors in establishing and spreading the financial institutes, economic development and advancement is also one of the most important factors in expanding and revolting these institutes. Indeed, financial institutes have been established in order to facilitate other economic institute development. And therefore, one can state that existence of developed financial institutes and market along with applying new methods has a direct relationship with ranking of development of a country. In these circumstances, attracting financial resources and an effective competition in attracting such resources by various bank groups has taken attention of financial and credit institutes.

Financial resources of banking systems are naturally provided from people's deposit. Therefore, we can say that deposits are the most important resource of commercial banks. Thus the amount of deposit a commercial bank should have at hand should be enough to make the bank involve in the market and to satisfy the financial needs of its customers. Now a day, commercial banks are managing their deposit to fulfill the need of their customers. However, their managing systems for the deposits are being affected by some exogenous and endogenous factors (Desinga, 1975).

According to Aftabi (2013).Factors inside organizations affecting resources attraction in a general classification, one can divide factors influencing financial resources attraction into factors inside and outside of an organization. Outside organization factors are those which are out of control of bank management and include: Inflation rate, money supplying growth rate, national earnings and economic growth and Central bank policies. Factors inside the bank are: service factors(Quality of bank services and Electronic banking service),financial factors (expending loans, Gain rate paid to deposits and Rewards paid to deposits),human and communicative factors (Advertisements, Staff's behavior and way of communication with customers, Proper informing and providing education to customer, Proper individual characteristics of staffs and Staff's specialty skills) Physical factors organizational dependence and fidelity factors and consultative factors (Bank branches location, Number of bank branches, Design and beautification of branches ' exterior and interior space)

2.2 Empirical review

Many literatures have analyzed the factors affecting of deposit mobilization with different aspects. Empirical researchers have investigated internal and external factors affecting of deposit mobilization of the bank. This study will focus on variables such as banks liquidity, credit risk, exchange rate and inflation that affect the deposit mobilization.

2.2.1 Determinants of commercial banks deposit

The success and efficiency of 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. According to Maharana & Choudhury (2015) deposit mobilization is depends on exogenous and endogenous factors.

2.2.1.1 Endogenous factors

Bank's Liquidity

Liquidity represents ability of banks to provide liquid funds for payment of due and withdrawn deposits in order to fund asset growth and business operations, besides to settle other financial obligation weather it is foreseen or unforeseen (Milic & Solesa,2017).liquidity risk as the likelihood that demand for cash by the customers of banks exceeds the banks ready supply of cash, liquidity is the ability of banks to fund increases in asset and meet obligations as they come due, without incurring unacceptable losses (Belaid,2016).

According to Liza, (2018) liquidity creation is crucial for commercial banks existence. Banking sector plays an important role in the economic growth of a country through matching surplus economic units with deficit. But maturity transformation of short term deposits in to long term loans make banks vulnerable to liquidity risk, which affects the banks and the whole market.

Liquidity can be defined as the ability of a financial institution to meet all legitimate demands for funds (Fiedler, 2000). Some examples of this includes: setting up liquidity management policies, reserve liquidity, balancing assets and liabilities and preparing liquid financial instruments, ISMAL and RIFKI (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)

Funding liquidity risk is the risk that the bank will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the firm. At any point in time, a financial institution is either funding liquid or not. Nevertheless, the two concepts are linked (Brunnermeier, 2009). Suppose a bank only holds assets which are perfectly market-liquid.

According to the theory of financial intermediation, an important role of banks in the economy is to provide liquidity by funding long term, illiquid assets with short term, liquid liabilities.

Through this function of liquidity providers, banks create liquidity as they hold illiquid assets and provide cash and demand deposits to the rest of the economy. Diamond and Dybvig (1983) emphasize the preference for liquidity under uncertainty of economic agents to justify the existence of banks: banks exist because they provide better liquidity insurance than financial markets. However, as banks are liquidity insurers, they face transformation risk and are exposed

to the risk of run on deposits. More generally, the higher is liquidity creation to the external public, the higher is the risk for banks to face losses from having to dispose of illiquid assets to meet the liquidity demands of customers. A natural justification for the existence of deposit-taking institutions, thereby giving also an explanation for the economically important role of banks in providing liquidity, was initially modeled by (Bryant 1980 and Diamond and Dybvig 1983). They showed that by investing in illiquid loans and financing them with demandable deposits, banks can be described as pools of liquidity in order to provide households with insurance against idiosyncratic consumption shocks. However, this structure is also the source of a potential fragility of banks since in case of an unexpected high number of depositors deciding to withdraw their funds for other reasons than liquidity needs, a bank run will result. Both papers stand in the tradition of prior research on the liquidity of assets, for example by (Tobin 1965 or Niehans 1978) as well as on bank runs, by (Friedman and Schwartz 1963). However, at least a certain part of a bank‘s liability are call or sight deposits which are by definition and by law to be paid back on demand and on a first-come first-serve basis. This rule of distribution makes depositors wary that they might be late or stand too far behind in the waiting line in the case a bank encounters problems, and it makes them even aware of what little information they may have on the monitoring activity of the bank. This situation can lead to a bank run, and the danger of a run is what induces banks to do what their depositors want them to do, namely to be active delegated monitors in the spirit of (Diamond 1984). Based on this argument Diamond and Rajan (2001), raised the question whether or not financial fragility where small shocks lead to can have large effects on assets prices is a desirable state for banks. They argue that the existence of the fragility itself gives banks the right incentives to create liquidity. According to them, any kind of regulation, such as capital standards, impair this liquidity creation and should thus be avoided.

Kashyap et al. (2002) also conducted a related analysis justifying the existence of banks liquidity creation. They argue that because banks carry out lending and deposit taking under the same roof, synergies must exist between these two tasks. These synergies can be found in the way deposits and loan commitments are secured through the holding of liquid assets as collateral against withdrawals. They regard these liquid assets as costly overheads. These overheads can be share by the two separate functions, hence the synergy. A detailed analysis of the link between liquidity shortages and systemic banking crises is given by (Diamond and Rajan, 2005). It is

argued that the failure of a single bank can shrink the pool of available liquidity to the extent that other banks could be affected by it. A contagion effect is the result. However, as solvency and liquidity effects interact it is hard to determine the root of a crisis. Generally, liquidity risk arises from the fundamental role of banks in the maturity transformation of short-term deposits into long term loans. According to Joint Forum of the Basel Committee (2006), banks liquidity risk includes two types of risk: funding liquidity risk and market liquidity risk. Funding liquidity risk is the risk that the bank will not be able to meet efficiently both expected and unexpected current and future cash flow and collateral needs without affecting either daily operations or the financial condition of the firm. Market liquidity risk is the risk that a bank cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption. There are strong interactions between funding liquidity risk and market liquidity risk, especially in periods of crisis. Drehmann and Nikolau (2009) pointed to the fact that shock to funding liquidity can lead to asset sales and may lead to decrease of asset prices. Lower market liquidity leads to higher margin which increase funding liquidity risk. Events in the second half of 2007 and early 2008 highlight the crucial importance of liquidity to the functioning of markets and the banking sector as well as links between funding and market liquidity risk, interrelationships of funding liquidity risk and credit risks, reputation effects on liquidity, and other links among liquidity and other typical banking features. Liquidity risk is not an isolated risk‘ like credit or market risks although credit risk often arise as a liquidity shortage when the scheduled repayments fall due, but a consequential risk‟, with its own intrinsic characteristics, that can be triggered or exacerbated by other financial and operating risks within the banking business (Chen et al. 2005).

Reserves

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 (Richard Goode and Richard S**).** According to them reserves that are fixed legally can influence the deposits that banks can hold, 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. Till money is the currency that banks keep on hand satisfying day to day needs. They pointed out that bank deposits are a large part of the money supply in virtually all countries.

Credit risk

Credit is the provision of goods and services to a person or entity on agreed terms and conditions where the payments are to be made later with or without interest. During the contract period, not all debtors will repay their dues as and when they fall due. When the debtor does not pay their dues on the due date, the lender is exposed to credit risks which may in turn lead to default. Credit risk is therefore the investor's risk of loss, financial or otherwise, arising from a borrower who does no pay his or her dues as agreed in the contractual terms (Nyunja, 2011).

Credit risk is a financial exposure resulting from a bank's dependence on another party or counterparty to perform an obligation as agreed. Credit risk is the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties (Chen and Pan, 2012).

2.2.1.2 Exogenous factors

Inflation

Inflation is the persistent increase in the general prices of goods and services within an economy over a given period of time (Beligna, 2012).inflation is measured alternatively by Consumer price index (Deaton 1991).

Inflation is one of the factors that determine commercial banks deposits. 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).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. 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 and Mahdi (2010).

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 and Mahdi (2010).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 decrease; 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 and Mahdi (2010).

With respect to the effect of inflation on savings, in general, all individuals who save a part of their incomes in banks are directly damaged by the inflation and their assets decrease in proportion with money value decrease, Mohammad and Mahdi (2010). In that case as people try to change their cashes and savings to more reliable and stable forms such as land, jewelry, antiques, art collections, foreign currencies that causes to definite decrease in commercial bank's total deposit. High inflation rates reduce the real value of deposits not decrease deposit (M. A. Baqui et al, 1987).

Exchange rate

Exchange rates are quoted as foreign currency per unit of domestic currency or domestic currency per unit of foreign currency (Bishop, 2006).

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

Determinants of Commercial Bank deposit a case of DB 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.

According to Nugel (2012) as currencies depreciated in one country deposit will be reduced since investors tend to withdraw deposit and exchanged to keep it by appreciating currency (Hard currency) or invest in another form of investment rather than bank deposit. Alemayehu (2015) also confirms that for developing country in general saving is negatively correlated with unstable exchange rate.

2.2.2 Empirical review outside Ethiopia

(Pavla, 2002 the research concern on determinants of commercial banks liquidity in Chzech Republic. The study identifies the determinants of liquidity of Slovak commercial banks deposit growth. The study concerned on both micro and macroeconomic data of covering the period from 2001 to 2010 with panel data regression analysis. The research found that bank liquidity drops mainly as a result of the financial crisis. Bank liquid assets decreases also with higher bank profitability, higher capital adequacy and with the size of bank. Liquidity measured by lending activity of banks increases with the growth of gross domestic product and bank profitability and decreases with higher unemployment. Key interest rates, interest margin, rate of inflation and the level of outperforming loans have no statistically significant effect on the liquidity of Slovak commercial banks.

(Muhammad & Amir, 2013) the study explained Commercial banks liquidity in Pakistan by examined firm specific and macroeconomic factors. The study taken 26 Pakistan commercial banks as a sample and covering the study periods from 2007 to 2011.Besides it cover the period of the Asian financial crisis 2008. Bank's liquidity is measured by two ways; one is cash and cash equivalents to total assets and second is advances net of provisions to total assets. Two models are estimated based on these measures of liquidity. The results of model 1 indicate that the bank specific fundamentals (Non-performing loan and Turn on Asset) and monetary policy interest rate positively determine the bank liquidity whereas inflation has a negative impact. Bank liquidity measured by model 1 is negatively and significantly affected by the financial crisis. The results of model 2 indicate that the bank size and monetary policy interest rate positively and significantly determine the bank liquidity.

2.2.3 Empirical review in Ethiopia

A survival of every commercial bank highly depends on bank deposit, because deposit mobilization is a major activity of all commercial banks.as a result the issue of banks deposit and its determinant is crucial to financial sector of developing country like Ethiopia (Shemsu, 2015).

(Shemsu, 2015), the researcher conducted determinants of commercial deposits a case study in commercial bank of Ethiopia. The researcher adopted mixed research approach using both primary and secondary data. The secondary data taken from annual report of CBE and NBE covering from the year 1998 to 2014.the researcher identifies five explanatory variables (interest rate, overall inflation rate, number of branch opening, GDP and individual foreign remittance).the study used OLS Eviews 7 software for analysis.as a result, all explanatory variables are positively correlated with explained variables. Among the explanatory variable branch opening was the most significant variable and interest rate was less significant variable, GDP and inflation rate positive insignificant effect on deposit growth. Finally the study recommends that the high successful deposit mobilization of commercial banks shall motivate deposit growth.

(Muluken,2018),the researcher empirically investigate determinants of deposit mobilization in commercial bank of Ethiopia by identifying seven influential independent variables such as, banks liquidity, exchange rate, profitability, money supply, interest rate, inflation, credit risk and government expenditure. The study relies on secondary data sources and conducted in the period of 1995-2017.it used quantitative research approach and time series regression model, as a result banks liquidity, exchange rate and profitability are positively and statistically significant, money supply negatively and statistically significant, interest rate and inflation positive and insignificant, credit risk and government expenditure negative insignificant influence to bank deposit,

(Ashenafi, 2016) the study was concerned on factors that affect deposit mobilization of Commercial Banks of Ethiopia. The researcher identified one dependent (CBE total deposit) and six independent variables (deposit interest rate, inflation rate, foreign remittance, nominal GDP, exchange rate and branch expansion).The study by using a twenty three years data for each variable, it found out that the key factors of deposit growth are Based on regression analysis result nominal GDP, exchange rate, branch expansion and foreign remittance was found to have

a positive relationship with bank deposit growth and the effect on bank deposit is significant. On the other hand deposit interest rate and Inflation are affects positively insignificant and can increase CBE's deposit.

(Menbere, 2018) The study tries to find out the factors that affect deposit mobilization of selected private commercial banks in Ethiopia. The study relies on secondary data of selected commercial banks the year covered from 2012 to 2016.the balanced panel data regression results showed that three variables, number of branches, inflation and liquidity had statistically significant effect on deposit mobilization. Among these variables that affect deposit mobilization, number of branches, inflation and interest rate had positive effect whereas, GDP and liquidity had negative effect on deposit mobilization.

(Wubit, 2012) Factors determining commercial bank deposit an empirical study on commercial bank of Ethiopia. The study used both primary data(questionnaire and interview) and secondary data from CBE,NBE and CSA annual reports from the year 2000 to 2011GC.the study identifies three independent variables(branch expansion, deposit rate and inflation rate),to analyses them it used multiple linear regression model and tested by Eviews system. AS a result all the three variables affect total deposit, which is branch expansion had positive significant, deposit rate and inflation had positive insignificant effect on total deposit.

(Daniel, 2018) the study assessed commercial banks deposit mobilization in Ethiopia by concentrating on Dashen Bank S.C. by using questionnaires and structured review of documents and records of dashen bank and national bank of Ethiopia, it reveals that customer service, branch expansion, the good will of the bank, management flexibility on customer service, provision of foreign currency and the commitment of the staffs highly affect deposit mobilization of the bank.

2.3 Conceptual frame work

From the above theoretical and empirical literature reviews the main factors of deposit mobilization are both endogenous and exogenous factors. This study has used both endogenous (banks liquidity and credit risk) and exogenous (exchange rate and inflation) determinants of bank deposit. The study will quantify how these variables are determining the deposit of Ethiopian private commercial banks.

The conceptual frame work of the relationship between the dependent variable (commercial banks deposit mobilization) and independent variables are stated below:

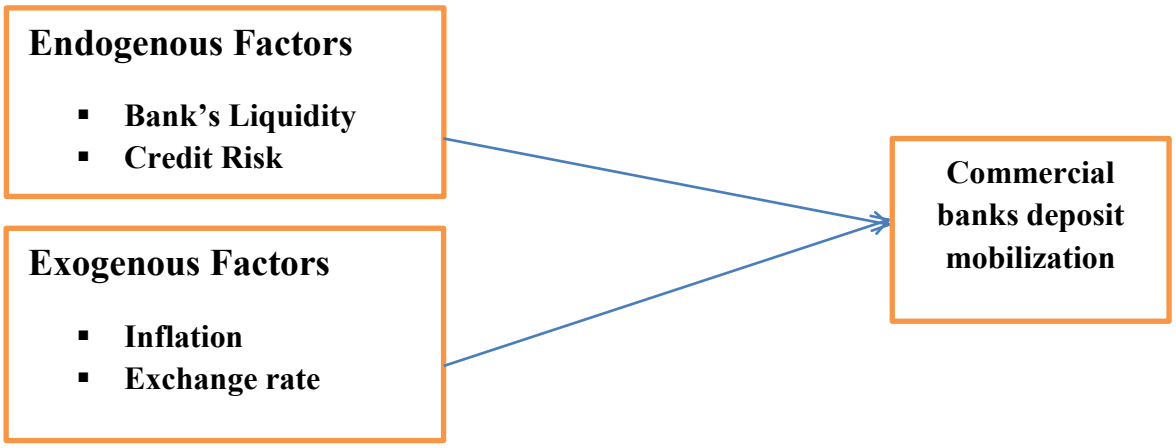


Figure 2.1 Conceptual framework

Source: Researcher (2020)

2.4 Summary and Literature gap

Banks as institutions whose main activities and functions are to accept deposit in forms of saving and they have maintained certain level of liquidity and advance. Deposit mobilization is one of the important functions of banking business. It is an important source of working fund and is an indispensable factor to increase the sources of the banks to serve effectively.it plays an important role in providing good service to different factors of the economy.

Deposit mobilization is a major activity of all commercial banks.as a result the issue of banks deposit and its determinant is crucial to financial sector of developing country like Ethiopia. A survival of every commercial bank highly depends on bank deposit, deposits are normally considered as a cost effective source of working fund, the bank's ability to lend more as well as its success mainly lies on its deposit mobilization. Commercial banks are managing their deposit to fulfill the need of their customers. However, their managing systems for the deposits are being affected by some exogenous and endogenous factors (Desinga, 1975).

From the empirical review most of the researchers taken commercial bank of Ethiopia as a case study of considering factors influencing deposit mobilization and their study concerned on

limited number of variables and there is inconsistency of study results. Thus the researchers motivated to study additional variables such as, banks liquidity, credit risk, exchange rate and inflation that influencing deposit mobilization of commercial banks in Ethiopia and there is rarely available academicians' reference material of this area.

CHAPTER THREE

METHODOLOGY

3.1 Research design

Explanatory research helps to measuring causal relationship between variables so that this study had adopted explanatory (causal) research design and the researcher has used quantitative research method, the quantitative data of the dependent variable deposit mobilization of private commercial banks and the independent variables such as, banks liquidity, credit risk, inflation and exchange rate have used. The researcher wants to explain the relationship between dependent and independent variable using multiple regressions (OLS) system.

3.2 Data source and collection method

The sources of data for this research were secondary sources. The researcher gathered the data from audited financial reports of the year covering from 2010 to 2019 of the selected private commercial banks to evaluate endogenous variables (banks liquidity and credit risk) and national bank of Ethiopia to evaluate the exogenous variables (exchange rate and inflation). The endogenous data were collected from the selected banks audited financial documents and exogenous data were collected from NBE on annual base and the value of most of the variables was on June 30th of 2010-2019.

3.3 Sample Design

There are sixteen private commercial banks registered by NBE (2019). The population of this study is all private owned commercial banks in Ethiopia.by applying purposive sampling method six private banks were selected based on their total deposit amount of the study period.

Table 3.1 List of sampled private commercial Banks with establishment year And Total deposit of (2018/2019)

NO	BANK NAME	EST.YEAR	TOTAL DEP(MILLION)
1	Awash International Bank	1994	**59,616**
2	Dashen Bank	1996	**44,721**
3	Bank of Abyssinia	1996	**32,146**
4	Wegagen Bank	1997	**29,079**
5	United Bank	1998	**23,545**
6	NIB International Bank	1999	**27,663**

3.4 Definition of variables

The dependent and explanatory variables used in the study are explained as follows:

3.4.1 Dependent variable

Deposit mobilization is the primary function of the banks. Banks are striving to mobilize deposits as it is the fundamental objective of all banks. However, banks and financial institutions use deposits as sources of funds for loans and investments and also banks working with a smaller capital when compared with the other institutions since because they have potential to use deposits to initiate, expand and maintain their banks. Therefore, banks can earn high profits due to deposits. (Helani & Prasansha, 2018).Deposit mobilization is a major activity of all commercial banks (Maende, 1992). Thus Deposit mobilization of private commercial banks is the dependent variable.

3.4.2 Independent variables

Devinaga, (2010), classify the variables that have effect on commercial banks' deposit into Exogenous and Endogenous factors. Endogenous factors can be controlled by the banking system; however, the exogenous factors cannot be controlled by the banking system.

Banks liquidity

Liquidity represents ability of banks to provide liquid funds for payment of due and withdrawn deposits in order to fund asset growth and business operations, besides to settle other financial obligation weather it is foreseen or unforeseen (Milic & Solesa,2017).liquidity risk as the likelihood that demand for cash by the customers of banks exceeds the banks ready supply of cash, liquidity is the ability of banks to fund increases in asset and meet obligations as they come due, without incurring unacceptable losses (Belaid,2016).

Liquidity can be defined as the ability of a financial institution to meet all legitimate demands for funds (Kinfe, 2019).

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). According to Liza, (2018) liquidity creation is crucial for commercial banks existence. Banking sector plays an important role in the economic growth of a country through matching surplus economic units with deficit. But maturity transformation of short term deposits in to long term loans make banks vulnerable to liquidity risk, which affects the banks and the whole market.

H1: Banks liquidity positively affects commercial banks deposit mobilization

Credit risk

Credit risk is a financial exposure resulting from a bank's dependence on another party or counterparty to perform an obligation as agreed. Credit risk is the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties (Chen and Pan, 2012).

Credit is the provision of goods and services to a person or entity on agreed terms and conditions where the payments are to be made later with or without interest. During the contract period, not all debtors will repay their dues as and when they fall due. When the debtor does not pay their dues on the due date, the lender is exposed to credit risks which may in turn lead to default. Credit risk is therefore the investor's risk of loss, financial or otherwise, arising from a borrower who does no pay his or her dues as agreed in the contractual terms (Nyunja, 2011).it is measured by loan to asset ratio.

H2: Credit risk positively affects deposit mobilization of commercial banks

Exchange rate

Exchange rates are quoted as foreign currency per unit of domestic currency or domestic currency per unit of foreign currency (Bishop, 2006).

According to Nugel (2012) as currencies depreciated in one country deposit will be reduced since investors tend to withdraw deposit and exchanged to keep it by appreciating currency (Hard currency) or invest in another form of investment rather than bank deposit. Alemayehu (2015) also confirms that for developing country in general saving is negatively correlated with unstable exchange rate.

H3: Exchange rate is positively affect deposit mobilization of commercial banks

Inflation

Inflation is the persistent increase in the general prices of goods and services within an economy over a given period of time (Beligna, 2012).inflation is measured alternatively by Consumer price index (Deaton 1991).

All individuals who save a part of their incomes in banks are directly damaged by the inflation and their assets decrease in proportion with money value decrease, Mohammad and Mahdi (2010). In that case as people try to change their cashes and savings to more reliable and stable forms such as land, jewelry, antiques, art collections, foreign currencies that causes to definite decrease in commercial bank's total deposit. High inflation rates reduce the real value of deposits not decrease deposit (M. A. Baqui, 1987).

H4: Inflation rate negatively affect commercial banks deposit.

Table 3.2 Notation and measurement of variables

variables	Dep/Independent	Notation	Measurement	Expected sign
Deposit	Dependent	DEP	Logarithm of total deposit	
Banks liquidity	Independent	BLIQD	Total deposit by total loan	+
Credit risk	Independent	CRRISK	Total loan to total asset	+
Exchange rate	Independent	EXR	Growth ETB with USD	+
Inflation	Independent	INFL	Average annual inflation rate	-

3.5 Data analysis method

Panel data is important for allows control over variables we cannot observe or measure; accounts for individual heterogeneity and variables that change over time but not across group Brooks, (2008). this study were conducted by balanced Panel data analysis using E-View 8 data analysis econometric packages to determine the relationship that exist between commercial banks deposit and liquidity ratio or Liquidity risk, Loan to Asset ratio or Credit risk, exchange rate and inflation over the period from 2010 to 2019.E-Views 8 system were used to test the relationship between the dependent (deposit mobilization) and the independent variables, besides random effect multiple regression analysis was used to measure the significance level of the effect of independent variables on the dependent variable. The model assumption tests of Multicolliniarity, Autocorrelation, hetroskedasticity and Normality test have been tested by E-Views 8 system before the model used for analysis purpose. The result of the above model assumption tests are explained in chapter four.

The study has used random effect linear regression model because it made three of the explanatory variables significant. The study has been used balanced panel data of 10 years from the year 2010 to 2019 GC. The proposed multiple linear regression models:

$$DM = \alpha + \beta\ 1\ BLIQDit + \beta\ 2\ CRRISKit + \beta\ 3\ EXRit + \beta\ 4\ INFLNit + \mu.$$

Where:

DM: total deposit of commercial bank for period t.

BLIQDit: total deposit to total asset ratio for commercial bank i for period t.

CRRISKit: loan to asset ratio for commercial bank i for period t.

EXRit: growth of exchange of Ethiopian birr to USD for period t.

INFLNit: over all Ethiopian inflation rate for period t.

μ: residual

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter consists of the analysis of quantitative data. The first part presents descriptive data analysis of the dependent and independent variables using tables to provide an insight on the distribution of the data across time. The second part presents the classical linear regression model assumptions diagnostic test results. Part three presents interpretation of regression result analysis. The Fourth part presents summary of main findings of the result.

4.1.1 Descriptive Data Analysis

This section presents the descriptive statistics of dependent and independent variables that used in this study. Descriptive analysis was conducted to observe the trend of panel data to be used in econometric analysis model. Logarithm of total deposit of commercial banks is the dependent variable, using logarithm in order to have a better model by reducing variance between the variables, the independent variables are banks liquidity, credit risk, exchange rate and inflation

Table 4.1 descriptive statistics of dependent and independent variables

Date: 06/13/20
Time: 20:24
Sample: 2010 2019

	DEP	BLIQD	CRRISK	EXR	INFLN
Mean	7.101732	0.775863	0.483346	20.81200	12.86000
Median	7.083812	0.788549	0.472573	20.06500	11.15000
Maximum	7.775363	0.844294	0.633239	28.91000	34.10000
Minimum	6.593596	0.669155	0.361001	13.53000	2.800000
Std. Dev.	0.283819	0.043747	0.059157	4.497135	8.269101
Skewness	0.259489	-0.682762	0.410653	0.382268	1.500663
Kurtosis	2.261196	2.550852	2.663670	2.360819	4.794098
Jarque-Bera	2.037925	5.165976	1.969155	2.482670	30.56687
Probability	0.360969	0.075548	0.373597	0.288998	0.000000
Sum	426.1039	46.55178	29.00074	1248.720	771.6000
Sum Sq. Dev.	4.752645	0.112917	0.206476	1193.229	4034.304
Observations	60	60	60	60	60

Source: E-Views 8 Output

The mean of deposit mobilization was 7.1 with the standard deviation of 28.38 percent; it implies that deposit mobilization of the commercial banks had reached a logarithm of 7.1 with in the study period. The maximum deposit mobilization of commercial banks was logarithm of 7.77 and minimum mobilized deposits were logarithm of 6.59.both the range and standard deviation shows the existence of high level of variation in the selected commercial banks deposit mobilization trend.

The mean of banks liquidity was 77.58 percent with the standard variation of 4.37percent and the maximum value was 84.42 percent and minimum was 66.91percent.the variation of deposit to loan ratio was very law According to (Richard Goode and Richard S**)** reserves that are fixed legally can influence the deposits that banks can hold, 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.

The mean of loan to asset ratio was 48.33 percent and standard deviation value of 5.91percent.the maximum value of 63.32 percent and minimum of 36.1percent.eventhouh there was low variation but high range of credit risk in the selected commercial banks of the study period.

The mean of exchange rate was 20.81 and standard deviation of 4.49.the maximum value was 28.91 and the minimum was 13.53.The annual average general inflation was 12.86 with the standard variation of 8.26. The minimum and maximum value of average inflation rate was 2.8 and 34.1 respectively. In Ethiopia in 2011 the highest inflation was recorded but deposit was not negatively affected by that year. (Muluken, 2019)

4.2 Testing the Classical Linear Regression Model (CLRM) Assumptions

There are five assumptions made in relation to the classical linear regression model (CLRM).Before running the regression equation the following tests were carried out; normality using kurtosis normality tests, multicolinearity using the correlation matrix and Heteroskedasticity using white test. As these tests prove the validity of the model, the study had continued into regression analysis. Accordingly, the output of the tests which are displayed by Eviews 8 software are presented and interpreted as follow.

4.2.1 Test of Heteroskedasticity

Table 4.2 Test of Heteroskedasticity

Heteroskedasticity Test: White

F-statistic	1.527269	Prob. F(14,45)	0.1402
Obs*R-squared	19.32618	Prob. Chi-Square(14)	0.1529
Scaled explained SS	9.070288	Prob. Chi-Square(14)	0.8265

Source: E-Views 8 Output

The assumption of CLRM says that the variance of the residuals should be constant (homoscedasticity) if not there is a problem of hetroscedasticity. White test was used in this study. If the p-value is very small, less than 0.05(level of significance), it is an indicator for the presence of hetroskedasticity (Brooks 2008). In this study based on the result of P- value is found to be greater than the level of significance that is 0.15> 0.05. Hence, do not reject the assumption of homoscedasticity which is variance of the residuals is constant and it implies there is no problem of hetroscedasticity.

4.2.2 Test for Multicollinearity

Table 4.3 Correlation matrixes

	DEP	BLIQD	CRRISK	INFLN	EXR
DEP	1.000000	0.360821	0.770249	-0.128369	0.878612
BLIQD	0.360821	1.000000	0.287475	-0.001683	0.223949
CRRISK	0.770249	0.287475	1.000000	-0.087703	0.817549
INFLN	-0.128369	-0.001683	-0.087703	1.000000	-0.035929
EXR	0.878612	0.223949	0.817549	-0.035929	1.000000

Source: E-Views 8 Output

Multicollinearity mean the relationship that exists between explanatory variables, it consequences unrelated result of explanatory variables on the dependent variables(Churchill and Iacobucci 2005).correlation coefficient below 0.9 may not cause serious multicollinearity problem(Hair, 2006). Therefore, in this study correlation matrix for the four of the independent variables is shown above Table 4.3. The result of correlation matrix implies that the highest correlation of 0.81 which is between exchange rate and credit risk. Hence there is no correlation above 0.9.therefore there is no problem of multicolliniarity.

4.2.3 Test of Autocorrelation

Table 4.4 serial correlation test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	7.460246	Prob. F(52,3)	0.0607
Obs*R-squared	59.53956	Prob. Chi-Square(52)	0.2204

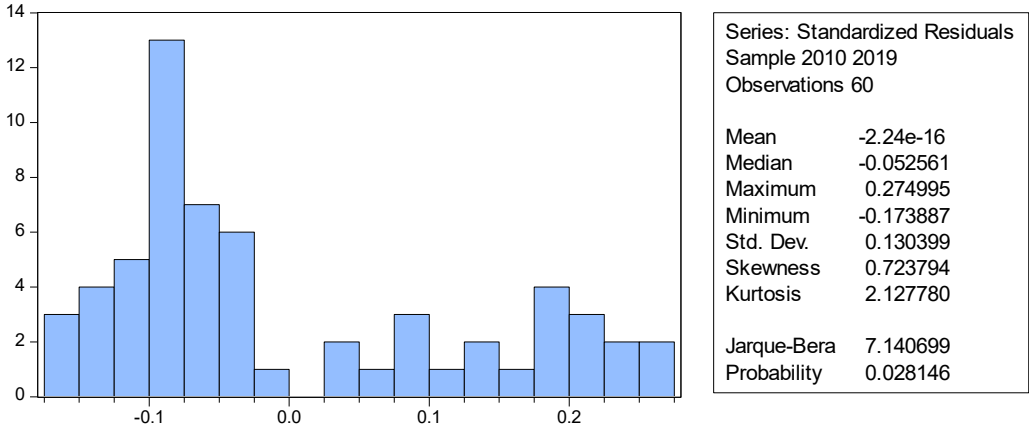
Source: E-Views 8 Output

Autocorrelation or serial correlation means the relation between residuals (Brooks 2008).based on table 4.4 result of Breusch-Godfrey Serial Correlation LM Test the p-value(0.22>0.05) indicates that do not reject the null hypothesis which is no serial correlation between the residuals.

4.2.4 Test for normality

A kurtosis normality test has been used. The normality test figure 4.2 indicates that the kurtosis value is around 2.12 which are near to 3. Jarque – Bera also indicates that the residuals are normally distributed the value greater than 0.05.

Figure 4.1 Test for normality



Source: E-Views 8 Output

4.3 Interpretations of Regression Analysis

This section discusses the regression results of random effect model that determines deposit mobilization in Ethiopian commercial banks. There are two types of panel estimator approaches that employed in a panel data (Brooks 2008), that are fixed effect and Random effect model. Table 4.4 hausman test indicates that p-value (1) is greater than level of significance (0.05),that is do not reject null hypothesis of random effect model is appropriate for this study.

Table 4.5 Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

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

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BLIQD	0.005888	0.031110	0.000742	0.3546
CRRISK	0.504367	0.506691	0.000105	0.8209
EXR	0.049807	0.049727	0.000000	0.6002
INFLN	-0.003116	-0.003116	0.000000	0.9748

Source: E-Views 8 Output

Table 4.6 Regression result

Dependent Variable: DEP
Method: Panel (Cross-section random effects)
Date: 06/13/20 Time: 20:10
Sample: 2010 2019
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BLIQD	0.031110	0.224455	0.138604	0.8903
CRRISK	0.506691	0.201733	2.511698	0.0150
EXR	0.049727	0.002606	19.08229	0.0000
INFLN	-0.003116	0.000744	-4.187355	0.0001
C	5.837835	0.185818	31.41694	0.0000
R-squared	0.969076	Mean dependent var		0.704551

Adjusted R-squared	0.966827	S.D. dependent var	0.255327
S.E. of regression	0.046504	Sum squared resid	0.118944
F-statistic	430.8871	Durbin-Watson stat	0.830304
Prob(F-statistic)	0.000000		

Source: E-Views 8 Output

Regression model explained as follows:

DEP=5.83+0.03BLIQD+0.51CRRISK+0.04EXR-0.003INFLN+ μ

R-squared coefficient of 0.96 obtained from the estimated model revealing that 96 percent of variation in deposit (DEP) is explained by the selected explanatory variables of Inflation (INFLN), Exchange Rate (EXR), Bank Liquidity (BLIQD) and credit risk (CRRISK). And this shows that the dependent variables in the model is highly depends on the independent variables.

The coefficient estimate of the constant of the regression is 5.83, it shows that the value of deposit, if the value of all explanatory variables becomes zero. This indicates that the total deposit of commercial banks will be increased by antilog of 5.83 given all independent variable zero.

Banks liquidity

The regression coefficient of liquidity is 0.03 indicates that, other explanatory variables remained constant, a unit increase in liquidity increase level of deposit mobilization but p value 0.89 indicated that liquidity have insignificant relationship with the deposit mobilization of commercial banks at 0.05 significance level. This result inconsistent with (Menebere, 2018) that is significant negative result and consistent with (Muluken, 2019) significant positive result. According to (Ketema, 2017) it means that the depositors are concerned with liquidity position which determines a bank's ability to respond to the withdrawal needs which are normally on demand or on a short notice.

Credit risk

The regression result shows coefficient of credit risk is 0.5 mean that a unit increase in credit risk increases deposit mobilization of commercial banks by 0.5, if other explanatory variables being constant. And p value of 0.01 it is significant at 0.05significance level. The possible reason, private banks are giving optimal level of credit as possible. The result is inconsistent with (Muluken, 2019) negative significant result.

Inflation

The exogenous variable inflation having coefficient of -0.0031 and p value 0.001, this result indicate that, a unit increase in rate of inflation is decrease commercial banks deposit by 0.003,if other explanatory variables being constant and negatively affect deposit mobilization of commercial banks significantly. The result is inconsistent with (Muluken, 2019), (Wubit, 2012) and (Menbere, 2018) significant positive result and (Shemsu, 2015) positive insignificant result.

Exchange rate

The other exogenous variable, Exchange Rate have a coefficient value of 0.04 it implies that other independent variables being constant a unit increase in USD is increased deposit of commercial banks by 0.04 and have positive significant relationship with commercial banks deposit mobilization. According to (muluken, 2017) it could be the attribution of remittance from Diasporas to families in home country is increasing. According to NBE report, in Ethiopia remittance from Diaspora is one of the most beneficial sources to offset foreign trade deficit of the foreign currency for the country. It has positive impact on individual income and savings (Ketema, 2017). The significant relation was inconsistent with the findings of (muluken, 2017).

4.4 Summary of the finding

The main objective of this study was to investigate factors affecting deposit mobilization of private commercial banks during the period from 2010-2019.The study used two endogenous variables (Credit Risk and Bank Liquidity) and two exogenous variables (Inflation and Exchange Rate) to determine their effect on deposit mobilization. The result indicated that deposit mobilization of commercial banks in Ethiopia positively influenced by banks liquidity, credit risk, exchange rate and negatively with Inflation. As a result of the analysis and interpretation, the following are the summary of the findings:

Table4.7. Summary of hypothesis test and significance

Independent variables	Expected relationship with deposit	Actual result	Significance
Bank's liquidity	Positive	Positive	Insignificant
Credit risk	Positive	Positive	Significant
Exchange rate	Positive	Positive	Significant
Inflation	Negative	Negative	Significant

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This study examined the determining factors of private commercial banks deposit mobilization. The main resource for commercial banks is deposit. Based on the regression result, R-squared shows that 96 percent of variation in total deposit explained by the four explanatory variables, thus the study was have a good model. The study was used balanced panel data of six private commercial banks over the period 2010 to 2019.The endogenous data were mainly collected from annual audited financial reports of the bank and the exogenous data were collected from NBE.

- ✓ Banks liquidity, credit risk and exchange rate are found to be positive opportunities for commercial banks to mobilize more deposits. Even though banks liquidity is insignificant the other two have significant effect on deposit mobilization.

- ✓ Based on the result inflation had significant negative effect on deposit mobilization of banks. Inflation in the study period that results in higher costs of doing business, which leads to decrease in deposit mobilized by commercial banks.
- ✓ The study indicated that the bank liquidity had a positive and statically insignificant effect on commercial banks deposit. Deposit growth increase and increase liquidity risk.

5.2. Recommendation

Based on the research finding and conclusion the following recommendations are given.

- ❖ It is well known that deposits are the critical resource for the commercial banks to stay competitor; Therefore private commercial banks should give due emphasis to its deposit mobilizing as a survival task.
- ❖ Commercial banks should have managed high liquidity risk that contributed by increased deposit.
- ❖ Finally, recommended that interested researchers should conduct the same area of this research by using additional explanatory variables with including all commercial banks.

REFERENCES

Alemayehu, G. 2015, "will the Government of Ethiopia's policy of saving mobilization be successful?' The lesson from the African Evidence', Mudaye Neway vol.5 N0.2

Ali shibab sabbir (2015).International journal of interactive mobile technologies (iJIM) 9(2) April 2015.

Aftabi, H, Daneshvar, S., & Mortezaei, F. (2013). Assessing the effect of banking resource mobilization on financial resource attraction (Case Study: Melli Bank of Anzali). International Research Journal of Applied and Basic Sciences

Chris Brooks (2008). "Introductory Econometrics for Finance": Second edition, Cambridge University Press.

Devinaga, R. (2010). Theoretical Framework of Profitability as Applied to Commercial Bank in Malaysia. European Journal of Economics, Finance and Administrative Sciences, Multimedia University, Faculty of Business and Law, Melaka, Malaysia.

Fedric S. Mishkin (INC. 1992) the economics of money, banking, and financial markets 2nd edition, Colombia University.
Dashen bank S.C, Annual Report for Financial Year Ended 30 June 2010-2019

Garo, G. (2015), Determinants of Deposit Mobilization and Related Costs of Commercial Banks in Ethiopia. A Research Project Paper Submitted to the Department of Management College of Business and Economics.

Helani Udara Gunasekara and Prasansha Kumari, Factors Affecting for Deposit Mobilization in Sri Lanka: International Review of Management and Marketing, 2018, 8(5), 30-42.

Dr. Ibrahim Mohamed Alrajawy: The Influence of Bank Related Variables on Deposit Mobilization: An Analysis of Private Commercial Banks in Myanmar; Vol-118-Issue-10-October-2019

International Journal of Management, Innovation & Entrepreneurial Research EISSN: 2395-7662, Vol. 5, No 1, 2019, pp 24-32 https://doi.org/10.18510/ijmier.2019.514

Levine, R. (1997) "Financial Development and Economic Growth": views and agenda. Journal of Economic Literature, XXXV (II), 688-726

Liza, B., (2018). Determinants of bank liquidity risk of commercial banks of Ethiopia, MSc thesis in Accounting and Finance, Addis Ababa University.

Maharana, N., Choudhury, S.K., Panigrahi, A.K. (2015), Deposit mobilization of commercial banks: A comparative study of BOB and Axis Bank in Bhubaneswar City. Journal of Management Research and Analysis, 2(3), 195-203.

Milic D. &Solesa, D., 2017.Analysis of macroeconomic determinants in the banking sector liquidity with role in financing agricultural sector. Economics of Agriculture.

Mohammad Namazi and Mahdi Salehi (2010). The Role of Inflation in Financial Repression: Evidence from Iran. IDOSI Publications, World Applied Sciences Journal 11(6): 653661.

Muhammad, F. M., & Amir, R. (2013). Commercial Banks Liquidity in Pakistan: Firm Specific and Macroeconomic Factors. Romanian Economic Journal, 2013, vol. 16, issue 48, pages 139-154.

Mamo Esayas, an Investigation of Determinants of Deposit Mobilization in Commercial Banks of Ethiopia; Vol.7, No.19, 2017

Ngula I. (2012), "Determinants of Deposit Mobilization and its Role in economic growth in Ghana": Kwame Nkrumah University.

Nyunja, F. (2011). Credit Risk. KASNEB Newsline, January-march (1)

Peter S. Rose (INC. 1997) Money and capital markets: Financial institutions and instruments in a global market place 6th edition faxes and A and M university.

PAVLA, V.Determinants of Commercial Banks' Liquidity in the Czech Republic. Silesian University in Opava, School of Business Administration in Karviná, ISBN: 978-1-61804-2002-2

Richard Goode and Richard S. Thorn (1959). "Variable Reserve Requirements against

Commercial Bank Deposits" Staff Papers - International Monetary Fund, Vol. 7, No. 1, pp. 9-45

Unpublished thesis

Ashenafi Goche, (2016).Factors affecting deposit mobilization in commercial bank of Ethiopia: the case of Addis Ababa city branches, MBA thesis St. Mary's University

Daniel Alemu, (2018).An assessment of deposit mobilization of commercial banks in Ethiopia the case of dashen bank s.c, Executive MBA thesis Addis Ababa University.

Fekadu Yosef, (2019) Factors affecting Deposit Mobilization: The Case of Dashen Bank S.c Addis Ababa branches.MBA thesis St. Mary's University

Kinfe Tuga, (2019) Determinants of liquidity risk: evidence from Ethiopian commercial banks.AAU

Menbere Getachew, (2018).Factors affecting deposit mobilization in Ethiopian private commercial banks, MBA thesis St. Mary's University

Muluken Abebe,(2019). Factors affecting deposit mobilization: the case of commercial bank of Ethiopia

Oduro Asamoah, Joyce,(2015).Challenges of deposit mobilization at agricultural development bank. A Thesis Submitted to the Kumasi Business School (KSB), Kwame Nkrumah University

Shemsu Bargicho,(2015).determinants of commercial banks deposits: A case study of CBE.

Sisay Assefa, (2013).Factors affecting deposit mobilization in private commercial banks: the case of awash international bank, MBA thesis St. Mary's University

Websites

National Bank of Ethiopia: -www.nbe.gov.et

APPENDIXS

Appendix - I List of private commercial banks in Ethiopia

NO	BANK NAME	EST.YEAR	TOTAL DEPOSIT(MILLION)
1	Awash International Bank	1994	**59,616**
2	Dashen Bank	1996	**44,721**
3	Bank of Abyssinia	1996	**32,146**
4	Wegagen Bank	1997	**29,079**
5	United Bank	1998	**23,545**
6	NIB International Bank	1999	**27,663**
7	Cooperative Bank of Oromia	2007	**25,807**
8	LION International Bank	2006	**16,396**
9	Oromia International Bank	2008	**26,589**
10	Bunna International Bank	2009	**10,586**
11	Zemen Bank	2009	**11,625**
12	Abay Bank	2010	**11,598**
13	Berhan International Bank	2010	**14,964**
14	Addis International bank	2011	**3,946**
15	Debub Global bank	2012	**3,523**
16	Enat Bank	2013	**7,118**

Appendix – II Descriptive Analysis

Date: 06/13/20
Time: 20:24
Sample: 2010 2019

	DEP	BLIQD	CRRISK	EXR	INFLN
Mean	7.101732	0.775863	0.483346	20.81200	12.86000
Median	7.083812	0.788549	0.472573	20.06500	11.15000
Maximum	7.775363	0.844294	0.633239	28.91000	34.10000
Minimum	6.593596	0.669155	0.361001	13.53000	2.800000
Std. Dev.	0.283819	0.043747	0.059157	4.497135	8.269101
Skewness	0.259489	-0.682762	0.410653	0.382268	1.500663
Kurtosis	2.261196	2.550852	2.663670	2.360819	4.794098
Jarque-Bera	2.037925	5.165976	1.969155	2.482670	30.56687
Probability	0.360969	0.075548	0.373597	0.288998	0.000000
Sum	426.1039	46.55178	29.00074	1248.720	771.6000
Sum Sq. Dev.	4.752645	0.112917	0.206476	1193.229	4034.304
Observations	60	60	60	60	60

Appendix – III Hetroskedasticity

Heteroskedasticity Test: White

F-statistic	1.527269	Prob. F(14,45)	0.1402
Obs*R-squared	19.32618	Prob. Chi-Square(14)	0.1529
Scaled explained SS	9.070288	Prob. Chi-Square(14)	0.8265

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/14/20 Time: 00:10
Sample: 1 60
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.421177	0.654802	-2.170391	0.0353
BLIQD^2	0.431151	1.173329	0.367460	0.7150
BLIQD*CRRISK	-5.993200	2.093971	-2.862122	0.0064
BLIQD*EXR	0.019321	0.021088	0.916219	0.3644
BLIQD*INFLN	0.006218	0.006789	0.915911	0.3646
BLIQD	1.808529	1.587848	1.138981	0.2607

CRRISK^2	1.188711	1.737643	0.684094	0.4974
CRRISK*EXR	0.003808	0.040170	0.094786	0.9249
CRRISK*INFLN	-0.014729	0.017552	-0.839203	0.4058
CRRISK	3.621059	1.365362	2.652087	0.0110
EXR^2	-5.77E-05	0.000423	-0.136300	0.8922
EXR*INFLN	0.000144	0.000377	0.382346	0.7040
EXR	-0.015845	0.016053	-0.987069	0.3289
INFLN^2	2.87E-05	3.85E-05	0.745343	0.4599
INFLN	-0.001538	0.006743	-0.228124	0.8206

R-squared	0.322103	Mean dependent var	0.014861
Adjusted R-squared	0.111202	S.D. dependent var	0.015839
S.E. of regression	0.014932	Akaike info criterion	-5.358245
Sum squared resid	0.010034	Schwarz criterion	-4.834659
Log likelihood	175.7473	Hannan-Quinn criter.	-5.153442
F-statistic	1.527269	Durbin-Watson stat	0.952324
Prob(F-statistic)	0.140219		

Appendix – IV Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	7.460246	Prob. F(52,3)	0.0607
Obs*R-squared	59.53956	Prob. Chi-Square(52)	0.2204

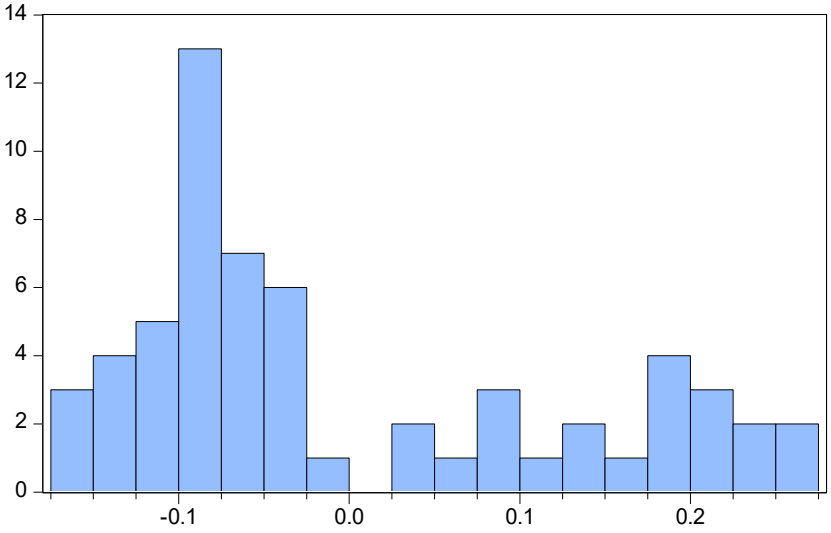
Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 06/14/20 Time: 00:23
Sample: 1 60
Included observations: 60
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.222588	0.472598	2.586953	0.0813
BLIQD	-1.813775	0.642342	-2.823691	0.0665
CRRISK	0.474718	0.727114	0.652879	0.5604
EXR	0.003018	0.009568	0.315426	0.7731
INFLN	0.000632	0.001868	0.338252	0.7575
RESID(-1)	-0.359976	0.644525	-0.558513	0.6155
RESID(-2)	-0.016664	0.396195	-0.042061	0.9691
RESID(-3)	0.434415	0.427210	1.016867	0.3841
RESID(-4)	0.217701	0.343999	0.632854	0.5718
RESID(-5)	0.143723	0.481795	0.298307	0.7849
RESID(-6)	0.610245	0.776889	0.785498	0.4895
RESID(-7)	-0.462309	0.412692	-1.120227	0.3442
RESID(-8)	-0.033625	0.602275	-0.055829	0.9590
RESID(-9)	0.327477	0.526888	0.621532	0.5783
RESID(-10)	0.667425	0.819758	0.814173	0.4752
RESID(-11)	-0.485792	0.467525	-1.039070	0.3752

RESID(-12)	0.011662	0.695522	0.016768	0.9877
RESID(-13)	-0.310392	0.548263	-0.566137	0.6109
RESID(-14)	-0.810014	0.535262	-1.513303	0.2274
RESID(-15)	-0.927889	0.763121	-1.215913	0.3110
RESID(-16)	-0.306325	0.620488	-0.493684	0.6554
RESID(-17)	-0.116095	0.906807	-0.128026	0.9062
RESID(-18)	0.309782	0.675587	0.458537	0.6777
RESID(-19)	1.391318	1.210961	1.148938	0.3339
RESID(-20)	0.008119	1.065609	0.007619	0.9944
RESID(-21)	-0.595629	1.344248	-0.443094	0.6877
RESID(-22)	0.457760	0.824599	0.555130	0.6175
RESID(-23)	1.059787	1.651738	0.641619	0.5668
RESID(-24)	-0.814491	0.993107	-0.820145	0.4722
RESID(-25)	0.440948	1.524011	0.289334	0.7912
RESID(-26)	1.680551	1.714477	0.980212	0.3993
RESID(-27)	-0.624597	1.357799	-0.460007	0.6768
RESID(-28)	-1.988868	1.836192	-1.083148	0.3580
RESID(-29)	-0.947178	1.411760	-0.670920	0.5503
RESID(-30)	-0.856357	1.423085	-0.601761	0.5898
RESID(-31)	-1.894256	1.695845	-1.116999	0.3454
RESID(-32)	-0.102027	2.164269	-0.047141	0.9654
RESID(-33)	1.446137	1.432435	1.009566	0.3871
RESID(-34)	1.011503	1.879895	0.538064	0.6279
RESID(-35)	-0.127864	1.558992	-0.082017	0.9398
RESID(-36)	0.197019	1.803481	0.109244	0.9199
RESID(-37)	0.270278	2.008905	0.134540	0.9015
RESID(-38)	0.377960	2.279448	0.165812	0.8788
RESID(-39)	2.447650	3.238021	0.755909	0.5046
RESID(-40)	-0.069275	3.324323	-0.020839	0.9847
RESID(-41)	-0.182549	4.726475	-0.038623	0.9716
RESID(-42)	1.804131	3.432170	0.525653	0.6355
RESID(-43)	0.279981	6.721209	0.041656	0.9694
RESID(-44)	-6.915795	4.233346	-1.633648	0.2008
RESID(-45)	-5.205908	8.738273	-0.595759	0.5933
RESID(-46)	0.932587	4.749056	0.196373	0.8569
RESID(-47)	0.990102	5.446189	0.181797	0.8673
RESID(-48)	-2.442584	4.683485	-0.521531	0.6381
RESID(-49)	1.106528	4.652765	0.237822	0.8273
RESID(-50)	5.421903	4.989057	1.086759	0.3567
RESID(-51)	2.027700	3.964779	0.511428	0.6443
RESID(-52)	0.821886	2.723785	0.301744	0.7826

R-squared	0.992326	Mean dependent var	1.57E-16
Adjusted R-squared	0.849079	S.D. dependent var	0.122933
S.E. of regression	0.047758	Akaike info criterion	-4.341084
Sum squared resid	0.006842	Schwarz criterion	-2.351457
Log likelihood	187.2325	Hannan-Quinn criter.	-3.562831
F-statistic	6.927371	Durbin-Watson stat	1.644089
Prob(F-statistic)	0.067125		

Appendix – V Normality Test



Series: Standardized Residuals
Sample 2010 2019
Observations 60

Mean	-2.24e-16
Median	-0.052561
Maximum	0.274995
Minimum	-0.173887
Std. Dev.	0.130399
Skewness	0.723794
Kurtosis	2.127780
Jarque-Bera	7.140699
Probability	0.028146

Appendix – VI Random Effect Hausman Test

Correlated Random Effects - Hausman Test
Equation: EQ02
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

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

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BLIQD	0.005888	0.031110	0.000742	0.3546
CRRISK	0.504367	0.506691	0.000105	0.8209
EXR	0.049807	0.049727	0.000000	0.6002
INFLN	-0.003116	-0.003116	0.000000	0.9748

Cross-section random effects test equation:
Dependent Variable: DEP
Method: Panel Least Squares
Date: 06/13/20 Time: 20:19
Sample: 2010 2019
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.856865	0.176922	33.10419	0.0000
BLIQD	0.005888	0.226103	0.026040	0.9793
CRRISK	0.504367	0.201994	2.496943	0.0159
EXR	0.049807	0.002610	19.08031	0.0000
INFLN	-0.003116	0.000744	-4.187462	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.976828	Mean dependent var	7.101732
Adjusted R-squared	0.972658	S.D. dependent var	0.283819
S.E. of regression	0.046931	Akaike info criterion	-3.129264
Sum squared resid	0.110126	Schwarz criterion	-2.780206
Log likelihood	103.8779	Hannan-Quinn criter.	-2.992728
F-statistic	234.2022	Durbin-Watson stat	0.925606
Prob(F-statistic)	0.000000		

Appendix – VII Random Effect Regression Result

Dependent Variable: DEP
Method: Panel EGLS (Cross-section random effects)
Date: 06/13/20 Time: 20:10
Sample: 2010 2019
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BLIQD	0.031110	0.224455	0.138604	0.8903
CRRISK	0.506691	0.201733	2.511698	0.0150
EXR	0.049727	0.002606	19.08229	0.0000
INFLN	-0.003116	0.000744	-4.187355	0.0001
C	5.837835	0.185818	31.41694	0.0000

R-squared	0.969076	Mean dependent var	0.704551
Adjusted R-squared	0.966827	S.D. dependent var	0.255327
S.E. of regression	0.046504	Sum squared resid	0.118944
F-statistic	430.8871	Durbin-Watson stat	0.830304
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.788910	Mean dependent var	7.101732
Sum squared resid	1.003236	Durbin-Watson stat	0.130274

Appendix – VIII Coefficient Test

Wald Test:
Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	3767.787	(4, 55)	0.0000
Chi-square	15071.15	4	0.0000

Null Hypothesis: C(1)=C(2)=C(3)=C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(1)	5.837835	0.185818
C(2)	0.031110	0.224455
C(3)	0.506691	0.201733
C(4)	0.049727	0.002606

Restrictions are linear in coefficients.

Appendix – IX Data used for Regression Analysis

BANK NAME	YEAR	DEP	BLIQD	CRRISK	INFLN	EXR
AIB	2010	6.78575253	0.768547398	0.395944255	2.8	13.53
AIB	2011	6.88895301	0.765514869	0.394083304	18.1	16.91
AIB	2012	6.9639936	0.771098832	0.461150839	34.1	17.73
AIB	2013	7.09847794	0.844293827	0.518883734	13.5	18.64
AIB	2014	7.17723946	0.750904573	0.458158481	8.1	19.57
AIB	2015	7.25622955	0.755760568	0.522926013	7.7	20.56
AIB	2016	7.35854453	0.771102278	0.521816573	9.7	21.8
AIB	2017	7.48559225	0.728790995	0.537853849	7.4	23.1
AIB	2018	7.63800357	0.786192759	0.566406661	14.6	27.37
AIB	2019	7.77536327	0.798763857	0.633239321	12.6	28.91
DB	2010	7.00623279	0.821196304	0.4087011	2.8	13.53
DB	2011	7.07339718	0.807735991	0.424122037	18.1	16.91
DB	2012	7.14815826	0.802829217	0.463686727	34.1	17.73
DB	2013	7.20006379	0.802710464	0.448789371	13.5	18.64

DB	2014	7.24751518	0.805080547	0.429357259	8.1	19.57
DB	2015	7.29697457	0.800121386	0.465475927	7.7	20.56
DB	2016	7.35714363	0.796408089	0.444251434	9.7	21.8
DB	2017	7.44377164	0.802392519	0.522255564	7.4	23.1
DB	2018	7.55614323	0.792217919	0.512611892	14.6	27.37
DB	2019	7.65051646	0.795495817	0.57946107	12.6	28.91
BOA	2010	6.710865941	0.818348159	0.502145062	2.8	13.53
BOA	2011	6.783564869	0.834747649	0.455579585	18.1	16.91
BOA	2012	6.830682317	0.821827997	0.473014779	34.1	17.73
BOA	2013	6.929222171	0.838763911	0.464201624	13.5	18.64
BOA	2014	6.958873369	0.806683699	0.448814736	8.1	19.57
BOA	2015	7.04603331	0.813472056	0.432061342	7.7	20.56
BOA	2016	7.134653868	0.810251449	0.47608637	9.7	21.8
BOA	2017	7.315987339	0.817412576	0.549944718	7.4	23.1
BOA	2018	7.411527787	0.806481103	0.562498632	14.6	27.37
BOA	2019	7.50713302	0.818091775	0.60402963	12.6	28.91
UB	2010	6.674388	0.801334073	0.443267986	2.8	13.53
UB	2011	6.7828895	0.785156402	0.424167898	18.1	16.91
UB	2012	6.8297867	0.769047191	0.46494197	34.1	17.73
UB	2013	6.906522	0.808151603	0.472130267	13.5	18.64
UB	2014	6.9496329	0.749806549	0.426866122	8.1	19.57
UB	2015	7.0720424	0.821980841	0.477692507	7.7	20.56
UB	2016	7.115199	0.754935619	0.494176273	9.7	21.8
UB	2017	7.2176195	0.753559343	0.547703685	7.4	23.1
UB	2018	7.3632179	0.823342287	0.537472	14.6	27.37
UB	2019	7.4635922	0.813738768	0.607883905	12.6	28.91
WB	2010	6.59359617	0.683184922	0.43084294	2.8	13.53
WB	2011	6.77506259	0.739045162	0.361001358	18.1	16.91
WB	2012	6.76028524	0.689837849	0.427172149	34.1	17.73
WB	2013	6.87798491	0.726458081	0.451244011	13.5	18.64
WB	2014	6.92347613	0.745778994	0.4095519	8.1	19.57
WB	2015	6.99435851	0.719909622	0.442838639	7.7	20.56
WB	2016	7.04448292	0.684319013	0.463657163	9.7	21.8
WB	2017	7.14669318	0.669154754	0.488567083	7.4	23.1
WB	2018	7.31188371	0.74864727	0.549366195	14.6	27.37
WB	2019	7.37190386	0.790906016	0.552613519	12.6	28.91
NIB	2010	6.61563447	0.691174008	0.426417685	2.8	13.53
NIB	2011	6.71239713	0.725112486	0.388993251	18.1	16.91
NIB	2012	6.76626409	0.705413243	0.448151281	34.1	17.73
NIB	2013	6.82314806	0.727720066	0.4967731	13.5	18.64
NIB	2014	6.89890555	0.737236771	0.503172896	8.1	19.57

NIB	2015	6.99007722	0.737328117	0.520064695	7.7	20.56
NIB	2016	7.09422718	0.784758168	0.474529354	9.7	21.8
NIB	2017	7.21527898	0.781002212	0.509583624	7.4	23.1
NIB	2018	7.33484042	0.810045517	0.505777304	14.6	27.37
NIB	2019	7.44191042	0.820457496	0.57656695	12.6	28.91