ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF COMMERCIAL BANKS' DEPOSIT: IN THE CASE OF COMMERCIAL BANKS IN EHIOPIA

BY

MULUKEN KIDANE

JANUARY, 2018

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A THESIS SUBMITTED TO:

SCHOOL OF GRADUGATE STUDIES

IN PARTIAL FULLFILMENT OF THE

REQUIREMENTS FOR MBA IN ACCOUNTINGAND FINANCE

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DECLARATION

I, **Muluken Kidane**, would declare this thesis is my original work prepared under guidance of **Zinegnaw Abiy Hailu (PhD)**. All source materials utilized for this thesis exertion have been duly recognized. I similarly confirm that this thesis hasn't be given to either partially or entirely too any other learning institutions for obtaining any degree.

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ENDORSEMENT

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

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ABSTRACT

The study focused on examining the determinants of commercial banks deposit evidence from Ethiopia. In order to achieve this objective the study adopted quantitative methods of research approach using secondary data. Six explanatory variables were regressed with dependent variable (total deposit). The explanatory variables are number of bank branches, deposit interest rate, capital adequacy, liquid asset to deposit, economic growth (GDP) and inflation. The data for these variables were collected from the selected commercial banks financial statements, national bank of Ethiopia, and MoFEC from the year 1999/2000-2015/16. Seven commercial banks out of the seventeen commercial banks operating in Ethiopia in existence as of 2017 have purposively been selected for the study. Different diagnostic tests were performed to determine the validity of the model. The final result achieved by using pane date, number of bank branches, deposit interest rate, and GDP has positive and statistically significant impact on banks deposit.; whereas liquid asset to deposit and inflation has negative and statistically insignificant impact; capital adequacy has negative and significant impact on deposit. The study recommends commercial banks have to reach the unbanked area to increase deposit. The bank managers should be responsive to risk associated with changing macro economic factors like inflation and GDP. NBE should make periodic supervision and check capital strength of banks. The government should come up with consistent policies regarding proper setting of liquid asset to deposit ratio.

Key Words: *Commercial banks, deposit, number of bank branches, deposit interest rate, capital adequacy, liquid asset to deposit, economic growth (GDP), and inflation.*

Acknowledgements

Above all, I would like to thank the Almighty God for all his blessings and strength during my study and who made me to pass through all the difficult time. In producing this thesis, my Advisor Zinegnaw Abiy (PhD) has been a constant source of support and encouragement. His guidance, continual advice, vast knowledge, and his limitless support have been invaluable and important asset in improving the quality of the report and compilation of my thesis work. Dr, you are my role model, I am greatly benefited from your expertise and exceptional advice. I am always grateful to you.

I would like to take this opportunity to extend my grateful thanks to St.Mary's University for giving me scholarship opportunities to pursue my post graduate studies.

I would also like to express my deepest gratitude to my parents, my mother Tizita and my father Kidane for their unreserved pray and unconditional love, mum and dad I really love you, May my living God bless you more. I am indebted to my sisters Mitaye and selam and my brothers Biruk and Gedi.

Last but not least my friends, Sol, and Ende, we have spent good time thank you for all things we have done together.

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LIST OF ACRONYMS AND ABBREVIATIONS

BLUE:	Best Linear Unbiased Estimators)
CAP:	Capital adequacy
DEP:	Deposit
DIR:	Deposit Interest rate
DLECM:	Distributed Lag-Error Correction Model
DM:	Distributed Model
FEM:	Fixed effect model
GDP:	Gross Domestic Product
GTP:	Growth Transformation Plan
IMF:	International Monetary Fund
INF:	Inflation
LQATD:	Liquid Asset To Deposit
MoFEC:	Ministry of Finance and Economic Cooperation
NBB:	Number of Bank Branches
NBE:	National Bank of Ethiopia
NIB:	Nib International Bank
NPC:	National Planning Commission
OLS:	Ordinary Least Squares
PLC:	Private Limited Company
REM:	Random Effect Model
SCP:	Structure Conduct Performance
USD:	United States Dollar
VECM:	Vector Error Correction Model
VIF:	variance Inflation Factors

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

The economy of a country needs to generate sufficient funds to finance the required investment for economic growth of a country (Jibrin, Danjuma & Blessing, 2014) People are living with more comfortable and better standard of living than before because of a rush forward in economic growth. In order to achieve the targeted economic growth, government is implementing varies kind of policies such as encouraging saving; motivating investment and production in their countries. It is essential to mobilize domestic resources to achieve self sufficiency. Thus, financial institutions are one of the most important sectors of country's economy that needs to be reenergized constantly in mobilizing domestic deposit to enhance investment (Pinchawawee, 2011).

A bank is generally understood as a financial institution which provides fundamental banking services such as accepting deposits and providing loans (Kapila, 2001). The effectiveness and efficiency of financial intermediaries in encouraging deposit growth had been recognized by policy economists and policy makers such as McKinnon and Shaw (1973). Commercial banks role in the development of economic growth has become under study since the early 1950s as indicated in the studies such as Gurley and Shaw (1955), Goldsmith (1969) and Mckinnon (1973).Though the impact attributed to financial institutions differ among the authors, the consensus has been that Commercial bank deposits are an important factor in capital accumulation for economic development (Sharma, 1978).

One of the most important roles of financial institutions is acting as financial intermediation, which enables channeling of funds by collecting idle resources from

surplus unit to deficit unit and invest into valuable investment project to reach their objectives. It also enables the depositor for future use of money when they are in need of it and protect themselves against future shock (Mordi, 2004). Banks are contributing their vital role in the economy, and facilitate financial settlement through the payment system, influence money market rates and provide a means for international payment. Bank also plays important role in facilitating of convenience payment system by minimizing transaction cost (NCA, 2006). In developing economy, the commercial banks are recognized for their crucial role in the economy to enable in meeting the ever growing demand for credit (Mohammed & Nighat, 1989).

A number of factors are influencing commercial banks deposit mobilization. Among these; the institutional type, governance and organizational structure, appropriateness of saving products and technologies; management capabilities and the regulatory environment are mentioned (Ngenadakuriyo, 2014; Tennant, 200). In various countries these elements have been identified and analyzed on determining strategies and developed on how to successfully mobilize saving. Generally the factors are categorized as external and internal to the financial institutions. External factors are beyond the control of the banks whereas internal factors are those under the controlled of the commercial banks. External factors concern the financial regulatory environment such as policies on foreign exchange, the level of competition with other saving mobilization institutions such as insurance companies, employee saving schemes, poverty and unemployment levels, population growth of the country (Maimbo & Mavrotas, 2003). The internal factors comprise of internal performance of the banks; management control measures such as governance and management structures, policies, performance standards and incentives.

Mobilizing deposit is one of the most important functions of commercial banks because one of their successes depends on the extent of funds mobilized. Mobilizing adequate deposit plays an important role in providing satisfactory service to different sectors of the economy (Rajeshwari, 2014). Identifying the major determinant factors which may

hinder mobilizing deposit is an important point. According to Furness (1975) most developing countries has been looked that high proportion of money is kept out of bank and a low proportion in bank deposits. In Ethiopia, also there are a large number of people still prefer to live the crude way of keeping money under the carpet and with a number of non-formal financial institutions such as thrift collectors, local word of collecting money such as 'Ekub', 'Edir', 'Mahiber' and undisclosed places; in the roof, pot, walls, underground or under a bed (NBE, 2014).

According to the report of IMF (2013), the banking sector in Ethiopia is small in absolute and relative size, which is characterized by low loan deposit ratios, as a result large share of assets held in the form of government securities. Zereauyesus (2003) stated competition in terms of price among commercial banks in Ethiopia is relatively weak. Thus banks are competing in terms of service quality and efficiency including use of technological advances, branch network expansions and advertising.

According to the annual report of NBE 2014/2015 shows, the average economic growth rate recorded in Ethiopia was 10.1 percent per annum during the GTP I (2010/11-2014/15). The preparation and launch of the First Growth and Transformation Plan (GTP I) and Second Growth and Transformation plan (GTP II) marked a key point of departure on the road of Ethiopia's growth and transformation. As per the report of National Planning Commission (NPC, 2015), the government of Ethiopia has launched the second Growth and Transformation Plan GTP II (2015/16-2019-20). The main objective of the plan is to become a middle income country by the year 2025. It will never be achieved without the strong involvement of commercial banks. Thus, commercial banks have to mobilize huge resources in order to achieve GTP II. Therefore it has a good opportunity for the commercial banks in Ethiopia.

NBE 2014/15 annual report shows, at the end of 2014/15, domestic liquidity, which is measured by broad money supply (M2), reached birr 371.2 billion reflecting a 24.7

percent annual growth. Out of the 371.2 billion broad money supply 60.5 billion is outside of banks. These shows that still the resources are not sufficiently mobilized.

Commercial banks staffs' are knocking the door of business unit and households to open new accounts rather than simply sitting and looking for new customers in their office. This implies how commercial banks are aggressively needs the deposit, because it is the question of survival. Therefore to enhance their deposit, banks are expected to identify and determine factors affecting deposit and develop sound strategies and mobilize enough deposit. Thus the main objective of this study is determining those factors that may hold back deposit and give possible recommendations for Ethiopian commercial banks and ultimately increase deposit.

1.2. Back-ground of Commercial Banks in Ethiopia

In Ethiopia the financial sector includes; banks, insurance companies, microfinance institutions, saving and credit associations and pension funds. The banking industry accounts for about 95 per cent of the total financial sector, which implies the banking sectors are dominating than other financial sectors (Zerayesus, 2013).

The first bank in Ethiopia was established in 1906, Bank of Abyssinia it was inaugurated by Emperor Menelik II. It was based on the agreement signed between the Ethiopian government and National bank of Egypt, wholly owned by Britain, marked the beginning of the banking system in Ethiopia. It was a private bank whose shares were sold worldwide until Emperor Haileselassie I introduced reforms into the banking system in 1931. The Bank of Abyssinia was liquidated and newly established Bank of Ethiopia, a fully government owned bank, taking over management, staff and premises of the ceased bank. According to NBE (2012/13) until the second Italian invention in Ethiopia, the bank of Ethiopia provided central and commercial banking services to the country.

As noted in Degefe (1995, cited in Geda ,2006), following the 1974 revolution, in 1975, all private banks were nationalized and together with state owned banks placed under the coordination, supervision and control of the national bank of Ethiopia. The three private banks: Bank di Roma, Bank di Napoli and the Addis Ababa bank S.C. were merged to form "Addis Bank."

When EPRDF came in to power and allowed private ownership through licensing and supervision of banking business proclamation no. 84/1994, immediately after the enactment of the proclamation private banks began to flourish. However, the financial sector policy of Ethiopia does reserve investment on the sector only for domestic investors. It is believed that domestic banks are very young to cope up with competition that would have come from the highly experienced, well endowed and hi tech foreign banks. At present the number of banks stood at 18 of which 16 were private and the remaining two are state-owned. Banks opened 485 new branches in 2014/15 (of which 359 were private) raising the total branch network in the country to reach 2693. As a result, bank branch to population ratio declined from 1:39,833.8 people to 1:33,448.2 in 2014/15(NBE, 2014). This figure is not yet satisfactory so much has to be done to minimize the gap of the unbanked society and increase the deposit by identifying the main determinant factors.

1.3. Statement of the Problem

Commercial banks have played a major role in mobilization deposits and development of countries economy. Banks throughout the world thrive on their ability to generate income through their lending activities. Since the main source of commercial banks fund is depositor's money, there is a strong relationship between the ability of commercial banks to mobilize deposits and the amounts of credit granted to the customers'.

Reports shows mostly in developing countries large amount of deposits are lying idle in peoples pocket in the rural area, which are left out of the banking stream (Rutherford, 2000). Commercial banks should look for various strategies to mobilize huge amount of

deposits lying in the unbanked society to maximize their deposits. Commercial banks are also face challenges in their deposits growth efforts; characterized by unsound financial institutions with the absence of cautious regulations and supervision with a few Commercial banks dominating the sector. Like most developing economy, the mobilization of bank deposits can hardly be considered adequate to match the ever increasing demand for bank credit and other investment purposes.

According to the report of National Planning Commission (2016) at the final year of Ethiopian Growth and transformation plan II, the total investment expenditure is expected to be worth 2.281 trillion birr. This financial plan is classified in to two; budgetary and non budgetary sources. As per the forecast of the Government revenue and expenditure, the internal revenue including foreign donation will cover 86 percent whereas the remaining 14 percent will be the deficit. 38.8 percent of the deficit will be covered by foreign loans while the remaining 62.2 percent will be covered through borrowing from internal sources.

The report of NPC (2015) indicates Ethiopian government expects 11 percent real GDP growth yearly in GTP II. Gross Inland Revenue is expected to account for 18.8 percent of the GDP, the share of domestic savings which currently stands at over 21.8% of the GDP will also growth to 29.6 percent. Therefore the state commercial banks are the most important instruments that make possible in the mobilization effort. Therefore, banks are currently under pressure to collect deposit on behalf of the government to finance the huge Growth and Transformation Plan II of the country. Thus, factors influencing deposit, investment and growth need to be conducted efficiently; otherwise the targeted rate of growth in the economy may not be achieved and sustainable in the long term. Evidence from NBE 2014/15 annual report indicates out of 371.2 billion available broad money supply (M2) 60.5 billion is out of the commercial bank, thus much effort is expected from commercial banks in identifying the main determinant factors and mobilizing adequate deposit.

Facts from prior studies, a range of internal and external factors has an effect on commercial banks deposit. Nonetheless, the significance of each factor differs across the continent, countries, and the study period covered. Wubitu (2012) studied factors determining commercial bank deposit on commercial bank of Ethiopia by considering 12 years of data (2000-2011) the result indicates that, branch expansion had positive and significant effect on total deposit whereas inflation and deposit rate had positive but insignificant effect on total deposit. Andinet (2016) has studied on factors determining deposit growth by taking all private commercial banks operating in Ethiopia. His finding shows number of bank branches, deposit interest rate, net interest margin and GDP were significantly and positively correlated with the explained variable. However, unlike the finding of Wubitu inflation rate were insignificantly and negatively correlated with bank deposit. Shemsu (2015) in his study concludes branch expansion is an important strategy for deposit mobilization and it is highly significant and others factors (inflation, GDP and deposit rate) have positive effect on the increment of CBE's deposit growth but these factors are insignificant. However the finding of Tizita (2014), opening of new branches and inflation rate have negative effect on commercial banks deposit and level of real per capital income and urbanization ratio has significant positive effect on private savings. Behredin (2016) also studied in similar topics the result shows, inflation rate has positive insignificant impact on bank deposit growth and Loan to deposit ratio has negative significant impact on bank deposit growth. Ukinamemen (2010) the impact of inflation on total deposit growth had positive and insignificant effect on total deposit, but according to Orji (2012); Hussain and Brookins (2001) the empirical results showed a negative influence of Inflation Rate on the size of private domestic savings. Ngula (2012) concludes that banks' ability to mobilize more deposit is reduced when there is an increase in inflation rate whereas deposit interest rate found to have a positive relationship with bank deposit mobilization. Some studies have demonstrated a weak relationship between interest rates and deposits.

Therefore, by considering the huge amount of investment expenditure needed by the government for GPT II and yet by considering the inconsistency among various

researchers' findings, this paper would like to identify which factors are determining the deposit mobilization activity of commercial banks operating in Ethiopia.

1.4. Research Questions

Based on the stated problem statement, the researcher has developed the following research questions.

- What are the internal factors that influence deposit of Ethiopian commercial banks?
- What are the external factors that influence deposit of Ethiopian commercial banks?

1.5. Objectives of the Study

1.5.1. General Objectives

This research paper is intended to identify and evaluate those determinant factors affecting commercial banks deposit.

1.5.2. Specific Objectives

Specifically the research has intended to address the following specific objectives

- To examine the effect of number of bank branches operating in Ethiopian on banks deposit.
- To examine the effect of deposit interest rate on Ethiopian commercial banks deposit
- To examine the effect of liquid asset to deposit ratio on Ethiopian commercial banks deposit
- To examine the effect of inflation rate on Ethiopian commercial banks deposit.
- To examine the effect of GDP on Ethiopian commercial banks deposit.
- To examine the effect of capital adequacy on commercial banks deposit

1.6. Significance of the Study

Ethiopian economy has yet unexploited and found in infant stage; so there is a large potential for commercial banks to exploit these resources. Though commercial banks are less in number and scope, they are playing a vital role in economic development of the country. At the same time challenges exist in their operation especially in mobilizing of resources. Therefore, the significance of the study was to point out various factors that affect the deposit mobilization activity and provide possible recommendations.

- This research paper is assumed to be important to the managers of commercial banks in critically revising their deposit growth strategy.
- It is essential to both private and public financial institutions in improving the stability and growth of deposit in commercial banks
- This study is also useful to various stakeholders like the National Bank of Ethiopia, government and bank professionals in the evaluation of their policies
- Finally this paper also gives a good insight to other researchers which may study on similar topics

1.7. Scope of the Study

In Ethiopia deposit is mobilized by various financial institutions; micro finances institutions, banks and saving and credit associations. Though all of the institutions are contributing undeniable role in the economic development, the banking sectors are dominating in mobilizing deposit. Thus this study is limited to the selected commercial banks operating in Ethiopia. Currently the numbers of banks operating in Ethiopia are 17 of which 16 were private and the remaining two are state-owned. Out of these, seven commercial banks were selected. One is from state owned banks that is Commercial Bank of Ethiopia and six from private commercial banks; Awash international bank, Dashen bank, Bank of Abyssinia, Wegagen Bank, United Bank and Nib International Bank. These banks were selected based on the criterion of large share of deposit mobilization and large asset size. As per the report of NBE 2014/15 the stated six private banks are having greater than birr 9 billion total assets where as CBE excel this amount.

The study period covers from 1999/2000-2015/2016; the period 1999/2000 is used as a cut point based on the selected commercial banks beginning of operation (the most recent out of the chosen bank is Nib international bank 1999/200).

1.8. Organization of the Study

The study was organized in to five chapters; chapter one introduces the overall idea of deposit growth. Chapter two reviewed both the theoretical and empirical literature on the issue under investigation. Chapter three discussed the methodology adopted by the study. This included the research design, source of data used in the study, specification of the model relevant to the study, operationalization of the study variables, data analysis methods and various diagnostic test. Chapter four presented the empirical findings and discussion of the results. Finally Chapter five concludes the total work of the research and gives relevant recommendations based on the findings

CHAPTER TWO

2. Literature Review

This chapter discusses about the overall theoretical as well as empirical review which has been studied in different countries. The researcher also considers various major factors which have been studied by other researchers' which have impact on banks deposit.

2.1. Theoretical Review

Key (1999) advocates theory as: "systematic attempts to realize what is observed in the world. Bacharach (1989) in his side says a well defined and good theory indentifies relevant variables and the connection between them in a way that testable hypotheses can be generated.

2.1.1. The Keynesian Theory of Absolute Income Hypothesis

Keynes in his theory argues that consumption and savings are an increasing function of disposable income. He proposes that consumption will increase at a decreasing rate as the income increases other things remains constant. This indicates that, part of the income will be saved at an increasing rate as the disposable income increase (Epaphra 2014). Generally, the Keynesian saving function takes a form of linear function with constant Marginal Propensity to Save (MPS)

$S_t = C + \beta Y_t$

Where,

S_t=real value of savings

C= constant with value less than zero,

Hence, with $Y_t=0$, savings is negative or very low and in general, income-savings relationship is not proportional.

Y_t=total disposable income

β=changing S/changing Y, the marginal propensity to save is expected to be constant and positive but less than unity, so that the higher income leads to higher savings

2.1.2. The Life-Cycle Hypothesis of Savings

This model was developed **by** Franco Modigliani and his student, Richard Brumberg in the early 1950s. This theory advocates the rational individuals make their consumption decision based on the resources available to them over their life time, and also on their stages in the life cycle. Therefore, the life-cycle hypothesis of savings assumes that the individual's consumption in a particular period depends on their expectation about lifetime income so as to ensure a smooth consumption pattern over the lifetime. In addition, the model predicts that in order to ensure a smooth level of consumption over time, by individual tend to save more in the early ages of life in order to provide for retirement. This theory assumes the individual to be a net saver during the early stages of life, and dissevers during retirement. And as Haron and Azmi (2006) put it, the cornerstone of the life-cycle hypothesis is age related consumer heterogeneity. According to the predictions of the this model of savings, the savings curve takes a hump-shaped pattern which peaks in the middle ages of one life, with low savings during the young and old ages.

2.1.3. Bank Led theory

This theory offers distinct alternative to branch based banking, customer can process financial transaction at a whole range of retail agents rather than at bank branches or through bank employees. Bank is an institution in which customers maintain an account, and it is the ultimate provider of financial services. Retail agents have face to face contact with customers and perform cash in/cash out functions much as a branch based teller would take deposit and process withdrawal. Outlets that handle cash which is located near customers can potentially serve as a retail agent. Once the account is established, the customer can get all or certain financial transactions from the retail agents. The retail agents check all the necessary information that are expected to fulfill from the customer side, the agent will process the transaction, debiting the customer's and crediting the payee's bank account if it is a purchase or a transfer of funds between accounts. The retail agent is merely process a transfer of funds, deposit or withdrawal of cash. (Lyman,

Ivatury & Staschen, 2006). The bank led theory is associated to the study on how financial institutions like bank can deliver their services to the customer through the retail agents. This can be a means of mobilizing deposits in which commercial banks uses as new model to enhance financial inclusion and facilitate the transactions mainly in the area where the bank are not present.

2.1.4. The McKinnon-Shaw Hypothesis

McKinnon and Shaw (1973) argued that financial suppression and arbitrary distortions of financial prices including interest rates reduces real rate of growth. One of the basic doctrines of McKinnon-Shaw model is that investment function responds negatively to the effective real loan rate and interest, and positive to the growth rate. McKinnon-Shaw school anticipates financial liberalization to exert a positive influence on the rate of economic growth in both the short and long run. In addition to the classical theory of interest rate, the study also reviews the loanable funds theory in economics is central to the theory of interest rate fund. Loanable fund theory provides the theoretical justification on the relationship that exists between interest rate and deposit mobilization. This theory explains how demand and supply of credit determines the financial market interest rate. According to Bannocks, et al (1998), loanable fund is the money available for lending to Government, individuals and institutions in the financial market.

2.1.5. The Permanent-Income Hypothesis of Savings

The Permanent-Income Hypothesis was first propounded by Economist Milton Friedman in his treatise “A theory of consumption” in 1957. This model abstracted from retirement saving decisions. This theory distinguishes between permanent and temporary income. Income is argued by this model to consist of the permanent (anticipated and planned) component which is the expected long-term average income, and the temporary (transitory or windfall gain or unexpected) component. According to the permanent-income hypothesis, consumption at a particular point in time is dependent on not only on one’s current income but also on their expected future income (permanent income). The

theory postulates that a consumer will save only if he expects that his long-term average income (permanent income) will be less than his current income.

2.1.6. Enterprise risk management theory

Enterprise Risk Management uses the firm`s risks to determine which risks can be allowed and which risks cannot be allowed and which should be mitigated or avoided (Nicholson et al, 2005). A risk is an unplanned event with financial consequences resulting in loss or reduced earnings (Vasavada et al, 2005). Risk is a condition where there is a possibility of undesirable occurrence of a particular result which is known or best quantifiable and therefore insurable' (Periasamy, 2008). Financial institutions have to take risk, but they should do so consciously (Carey, 2001). Risks arise from all the bank`s activities. The bank is exposed risks each time new transactions are originated, introduction of new products, opening up of new markets, hiring of new staff: and new risks can also arise from a variety of changes made to processes, systems, vendors, organization structures, and corporate structures. Risk exposures can arise from changes in the external environment (Wadongo, 2013). The banks must control risks to ensure risks have no material impact on the bank`s profitability and or cause no material damage to its entity. The bank should consider minimizing exposures to risk subject to cost and risk/ reward tradeoffs. Risk events occur when there are inadequacies or failures due to; people (human factors), processes and systems. The greater the risk a business exposes itself the higher the returns (Eugene, 2012). For example, ATM machines have made it easy for the banks to offer services to their clients at odd hours. The returns for using the ATM machines are higher, but at the same time banks have lost millions of money through ATM machines whereby, fraudsters use skimming to access customer`s data and later withdraw money from their accounts (Deloitte Report,2013). Since the bank`s main goal is to make profit, mobilize enough deposit and stay in business, banks have to properly manage their assets and liability to minimize the risk that might be created when the bank take in short term deposits from customers and give out long term loans.

2.1.7 Real Bills Theory

This is one of the oldest theories in banking and it is also referred to as the "commercial loan theory". This theory holds that banks should concentrate on making short term self-liquidating loans and advances; implying that commercial bank should hold assets in short term loans that would be liquidated in the normal course of business. The proponents of this theory are of the view that banks should only finance the movement of goods through successive stages of production to consumption (making working capital loan). The proponents do not expect commercial banks to make long term or even medium term loans for the purpose of financing the purchase of plants and equipment, real estate or agricultural loans. The rational is that since the liabilities of a bank are payable on demand, it would be unable to meet its obligations if its assists are tied up over a long period of time. They further stressed that a bank needs a continual and substantial flow of cash moving though it in order to maintain its own liquidity and such cash flow can be attained only if the bank limits its lending activities to short term facilities otherwise the bank has to hold more of deposits to attain a cash flow in short term demands.

2.1.7. The Buffer Stock Theory of Savings

This theory is usually termed as the precautionary savings model. This theory advocates that consumers are intolerant and wise in the face of unpredictable income fluctuations. The buffer-stock theory assumes consumers to be impatient because they resort to borrowing against future income in order to finance current consumptions if income were certain, and also as prudent because they have precautionary motives. In a situation associated with future fluctuations in income and also preserve a smooth consumption pattern, individuals are forced to set aside some precautionary reserves by way of reducing current consumption in order to save against the contingent occurrences. Therefore, one would expect savings rate to be pro-cyclical, with individuals saving more when incomes are higher, in order to smoothen consumption in bad times. Carroll (1992) showed that under plausible circumstances this tension would imply the existence of a

target wealth stock. Whenever wealth is below the target, fear or prudence will dominate impatience and consumers will try to save. Meanwhile, if wealth is above the target, impatience will have a stronger role and consumers will plan to dissave.

2.1.8. Shiftability Theory

The next theory of bank deposit analysis is the shiftability theory Moulton (1981). Moulton (1981) this theory demonstrates assets shiftability refers to the ability of financial assets to move between persons or institutions or banks at negotiated prices. The shiftablity theory holds that the liquidity of a bank depends on its ability to shift its assets to someone else at a particular price. The theory is based on the proposition that a bank's liquidity could be maintained by holding assets that could be shifted or sold to other lenders or investors for cash at short notice. On the whole, a bank's interests as regards deposit will be better served if its assets are shiftable to enable it acquire liquidity readily as the need may arise. The shiftablitiy theory is fully accepted by Ethiopian bankers who invest a considerable proportion of their resources in treasury bills, treasury certificate and other marketable securities. The theory serves to redirect the attention of bankers from loan to investment as a source of bank liquidity.

It would be suitable for a bank to hold short -term open market investment in its portfolio of assets. The essence of holding short-term investments is to help banks to meet the withdrawal demands of customers from available cash or near cash assets that can easily be sold for cash. On the other hand, if loans are not repaid, the collateral security on the loan could be sold in the market if it is marketable, or rediscounted at the central bank.

2.1.9. The Structure - Conduct - Performance (SCP) Theory

This theory assumes that conduct or rivalry in a market is determined by market structure conditions, especially the number and size distribution of firms and the conditions of entry. This rivalry leads to unique levels of prices, profits and other aspects of market performance. Through the linkages of conduct, the performance of firms in a market is tied to the structure of the market. Fraser, et al (1972), as quoted by Dr. Devinaga Rasiah

(2010), indicated that the assumption of this (SCP) hypothesis is that the degree of concentration of a market, i.e. the number and size distribution of firms in the market, exerts a direct influence on the degree of competition among firms. The competition in the main markets for commercial bank services increases due to an increase in the number of financial institutions. The author used time-series techniques of co-integration and error-correction mechanism to test the collusion hypothesis. He wants to find whether a long-run relationship exists between profits of commercial banks and concentration in the banking industry. Then, he brings to a close that a long-run relationship between profitability and concentration, capital-asset ratio, loan-asset ratio, assets, demand deposits-deposits ratio, market deposits and market growth, exists in commercial banks

2.1.10. The Liability Management Theory

The liability management theory is also another important theory to be considered in this review. This theory suggests that banks can meet liquidity requirement by bidding in the market for additional funds. It further suggest that a bank borrow (purchase) the fund it needs by means of the various bank related money market instrument; inter-bank fund (call money fund), certificate of deposits and Eurocurrencies. Under words, the bank goes out to purchase the liquidity it need to liability management. This theory is contrast of the liquidity management theory which suggest that the bank sells secondary reserve assets to meet customers deposit withdrawals and legitimate loan request of its customers. Investment whether of the short term or intermediate terms provides some income and can quickly be converted. Loans which are much less liquid assets serve the credit needs of the society and provide the greatest sources of profits of banks.

The theory emphasized the need for a good mix of bank deposits. A well-mixed deposit with regular monthly or quarterly payments of principal and interest has some liquidity because of the regular monthly or quarterly cash flow that can be anticipated. It also emphasizes the desirability of relating loan repayment to the future anticipated income of

the borrower. This means emphasizing the cash flow prospect of a project rather than placing undue reliance on security.

However, from the depositor's perspective there are three main theories relating to savings behavior: the traditional models of the life-cycle hypothesis (Modigliani & Brumberg, 1954) and the permanent- income hypothesis (Friedman, 1957); and the more recent buffer-stock theory of savings behavior (Deaton, 1991). These theories explain why the individual depositor would like to hold part of asset portfolios in savings.

2.2. Factors affecting Deposit Mobilization

One of the key indicators of the success of depository institution is the extent to which it is able to mobilize the savings of the community in the form of deposit. However it is not an easy task. Because it depends on several exogenous and endogenous factors (N. Desinga, 1975). Exogenous factors are the general economic environment of a country like, inflation, economic growth, population, awareness of the society, and confidence of the people on the banking system, the banking habit of the people and the saving potential of the region. Whereas endogenous factors are those factors which is under the control of the organization; location, type of building and window-dressing (furniture, check books, vouchers, pay slips etc.), which assures the customers about the physical fitness of a bank. Furthermore Ongore & Kusa (2013), commercial banks performance can be affected by internal and external factors; it can also further classified in to bank specific (internal) and macro economic variables. The internal factors are individual bank characteristics and it can be influenced by the internal decision of board of directors and managers. On the other hand external factors are those countries of sector wise factors which are beyond the control of the bank.

2.2.1. External factors

These factors are beyond the control the banks such as money supply growth rate, economic growth, inflation, customer satisfaction, saving interest rate, level of education, remittance inflow, and many others (Desinga, 1975)

- **Economic Growth**

According to (Yanne et al., 2007) economic growth is an increase in the capacity of an economy to produce goods and services. It is generally measured by GDP; he also argued that this variable has become the de facto universal metric for standard of living. Herald and Heiko (2009) countries economic growth is one of the determinant factors for commercial banks deposit. Favorable economic conditions will create conducive environment for banking services. In general a positive relationship is expected between GDP and commercial banks deposit growth.

- **Inflation**

According to Ngula (2012) inflation shows the persistent increase in the general price of goods and services within an economy over a given period of time. Deaton (1991) inflation is measured by consumer price index. Zeidy (1996) in his side, inflation could reduce the real value of financial assets so that households shift them in to real or physical asset, which is considered better store of value. Furthermore (Boyd et al., 2000) found inverse relation between inflation and deposit, depending on the interest rate.

Three theories were adopted to determine how inflation affects savings. The first theory assumed that, greater uncertainty raises saving because risk-averse consumers set resources aside as a precaution against possible adverse changes in income and other factors. The second theory advocates that, inflation can influence savings through its impact on real wealth. In this regard if consumers are attempting to maintain the aimed level of wealth relative to their income, saving will rise with inflation. The third theory, saving may rise in inflationary period if consumers mistake an increase in the general price level for an increase in some relative prices and refrain from buying.

- **Customer Satisfaction**

Like any other business organizations, the survival of commercial banks is mainly depending on their customers. Thus; the staff members of commercial banks have to be honesty, integrity, confidentiality, respect and modesty for their customers. Individual characteristics such as good fit, appearance, and tidy needs to be strictly considered. In this regard the most influential factors, including human resources, diversity of services, quality of service, satisfaction of customers, employees, and indoor seating equipment, are considered to be tools in attracting customers. Therefore branches success in mobilizing adequate resources is mainly depend on attracting customers (Delaware, quoted in Hossein & Ali, 2014).

- **Income and Growth**

According to Keynes (1936) individuals claim on consumption and saving is related to their current income. He advocates as the individual income increases they tend to save an increasing percentage of income accordingly. Fry (1980) concludes both savings and investment are determined by the rate of economic growth. Jongwanich (2010) the increment of economic growth has a positive impact on private and household saving.

- **Saving Interest Rate**

Erna and Ekki (2004) point out; interest rate is balanced by demand and supply condition in proportion with inflation rate. They believe that depositors are interested to deposit money in banks because of the opportunity cost of holding the money on hand is high. (Mashamba, Magweva, & Gumbo, 2014) Stated, to give confidence for private savings, the real interest rates should be positive. In addition, innovative saving systems and investment bonds should be commenced to mobilize sufficient resources. Thus, savings are ultimately channeled to the productive sectors of the economy and this promotes economic growth. The higher real interest rates increase the extent of financial intermediation which in turn raises the rate of economic growth in developing countries.

The growth of any economy depends on capital accumulation, and this requires investment and an equal amount of saving to match it.

- **Remittance Inflow**

According to Prema-chandra & Kunal Sen (2001) the inflow of remittance from Diaspora to their families living in local country has become one of the very significant and determinant factors of domestic savings. 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, assumed that remittance makes households rather loose in their spending and force families to Western life-style. According to this pessimistic view, remittance is spent on conspicuous consumption, and unproductive investment when viewed in terms of the economy. On the optimistic side is that remittances allow poor households to invest on durable goods and human capital improving children's education and health, and should therefore be encouraged and facilitated (Shemsu, 2015).

- **Education**

Individuals' level of education is also one of the determinant factors in house hold savings. As shown in the research undertaken by Halfom (2015), the level of education has a positive and significant relation with savings. In order to clearly determine he classified their levels in to four; illiterate, primary school, secondary school and college level. As per the findings illiterate house hold has negative and significant relation with savings. Secondary and tertiary level households have a positive and significant impact on saving.

2.2.2. Internal factors

These internal factors are those factors that are related with the efficiency and management of the commercial banks. Such factors include variety of banking service, number of bank branches, bank profitability, deposit interest rate, bank size and quality of bank service,

- **Varity of banking services**

In a dynamic banking environment, commercial banks are expected to cope with this changing situations and able to provide new products and services to their loyal and potential customers with innovative marketing possible. Appropriate marketing strategies have to be properly designed with the scientific and the right product at the right time with the right tools to the customer offer (Hossein & Ali, 2014).

- **Number of Bank Branches**

Branch expansions means opening of new branches outlet within or out of the country (Venkatesan, 2012). Kazi (2012) opening branch is a method which encourages customers to deposit more. Lewis (1955) noted that people would save more if saving institutions were nearer to them than if they were farther. Ekki (2004) strengthen Lewis study, he argues by opening new branches, banks can get more customers particularly in reaching of the unbanked society. It is further argued that by opening new branches it can be stabilizes banking system because it diversifies bank portfolio (Carlson and Mitcheer, 2006). Mark and Kris (2006), advocates branching banks enables to better diversify assets and widen their deposit base so that it can lead to more stable banking system.

- **Bank Profitability**

One of the reasons why people deposit their money in commercial banks is to ensure a feeling of security of their money. A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system (Erna & Ekki, 2004). The relationship between commercial bank deposits and the profitability of the banks indicated that higher banks profits would tend to signal increased bank soundness, which could make it easier for these banks to attract deposits.

- **Deposit Interest Rate**

According to (Sandhu & Goswami, 1986) people are interested to deposit more in a situation where the expected rate of interest on deposit. Theoretically, it is argued that for

depositors, the expected rate of interest on deposits is more meaningful rather than current interest rate (Sandhu & Goswami, 1986). The higher the rate of interest, the more money will be saved, since at higher interest rates people will be more willing to forgo present consumption. With increase in interest rate, people are encouraged to save more income and consume less in order to earn more return on bank deposits in the long run.

- **Bank Size**

(Smirlock, 1985) bank size is measured by the natural logarithm of total asset. It is one of the control variables used in analyzing performance of the bank system. This is included to control for the possibility that large banks are likely to have greater product and loan diversification. For large firms their size permits them to bargain more effectively, administer prices and in the end realize significant higher prices for the particular product, Agu (1992). Herald and Heiko (2009) investigate that although insignificant; bank size once controlled by other variables has an effect on deposits.

- **Quality of banking services**

Quality services are services that can fulfill the needs and demands of customers. Different factors are affecting banking service quality, like providing accurate information to customers, regulatory and complaints systems, politeness and courtesy in dealing with employees, customers, and privacy being confidants to the customer information, all employees are attracting more funds (Hossein & Ali, 2014).

2.3. Empirical Literature Review

In this section studies made on different countries regarding the determinants of commercial banks deposit was reviewed. The literature proposes that there are a number of factors which determine commercial banks deposit like; branch expansion, interest rate, money supply, transaction cost, inflation rate, loan growth, per capital income, government policy, capital adequacy, demographic factors. The significance of each factor, however, differs across the continent, countries, and time Period as well.

2.3.1. Related Empirical Studies in Developed Countries

Many efforts were exerted by different researchers across the country in order to determine the determinant factors affecting deposit mobilization. Loayza et al. (2000); Lambert and Hoselitz (1963) were among the first researchers who compiled works of others pertaining to savings behavior. They edited the works of researchers who studied the savings behavior of households in Ceylon (now Sri Lanka), Hong Kong, Malaya (now Malaysia), Pakistan, India, Philippines, and Vietnam. Browning and Lusardi (1996) also presented an excellent review on micro theories and facts on households saving. A comprehensive list of papers and publications on the savings determinants of a particular country was compiled by Loayza et al. (2000).

Keynes (1936) has conducted an empirical study concerning bank deposits. He tries to determine how the impact of rate of interest and inflation determines commercial banks deposit. He advocates individuals prefer to hold their savings in most liquid form in the absence of a rate of interest. Because converting financial assets to cash will have a conversion cost, individuals will not want to part with their liquidity without the payment of interest, most especially during inflationary periods. He asserted that it is the rate of interest that customers consider before saving part of their surplus with commercial banks.

Paul and Bhattacharyay (1986) propose various factors are affecting commercial banks deposit growth among them some are: higher industrial and agricultural production, increasing savings rate in the economy, development program of the government to boost rural economy and small scale industries and Factors having adverse effect on deposit mobilization are: Setback in the agricultural sector during poor monsoon years, Rising cost of hiring, Government reducing its budget and restricting money supply, Growing competition from other channels of investment which offer higher interest rates, Government's control on branch expansion of banks and Non-recovery of loans.

2.3.2. Related Empirical Studies in Asia

Venkatesan (2012) conducted the study in India covering the period 1985-98 in relation with the overall deposit mobilization performances of all the scheduled commercial banks and he found out that that the GDP and Branch expansion were among the significant factors of time deposits mobilization during the period under consideration.

The study conducted by Erna and Ekki (2004) in Indonesia, the main objective of this study was to find out the factors affecting mudaraba deposits in Indonesia using a well recognized econometrics cointegration method. The researcher considers four variables; number of Islamic bank's branch offices, GDP profit sharing rate, and interest rate are expected to have influence on the volume of mudaraba deposits. The finding of the research shows, the number of Islamic bank's branch offices and profit sharing rate are significantly affects the volume of mudaraba deposits in Indonesia in the long run, while GDP and interest rate are not.

A study made in Malaysia by Haron and Nursofiza (2006) looked at the structural determinants of deposit level of commercial banks by using co-integration techniques. The decisive objective of the study was to find out the effect of selected economic and financial variables on deposits placed at the commercial banks in Malaysia. The results put forward that determinants such as rates of profit of Islamic bank, rates of interest on deposits, base lending rate, Kuala Lumpur composite index, consumer price index, money supply and gross domestic product have significant impact on deposits.

Athukorala et al., (2004) observed the determinants of aggregate saving in India. The study has made a conclusion that saving rate rises with the level and rate of growth of disposal income. In addition, real interest rate, inflation and banking facilities have positive impact on bank deposits in India. Furthermore, with special emphasis on rural branches, Khalily et al. (1987) scrutinize the pattern and trend of rural deposit of Bangladesh. The study implement simultaneous equations model. The reached in a conclusion that, permanent income and inflation indirectly influence deposit through their

effect on bank branches whereas availability of roads and vehicles directly influence deposit through their effect on transaction cost.

Mohammed (2014) had conducted a research in Bahrain. The main objective of the study was determining the effect of interest rate, real GDP, and inflation rate on national saving rate. The study adopted Augmented Dickey-Fuller unit root test and co integration test to examine the long run relationship between the variables under study. The result shows that, the Real GDP growth rate has positive impact on national saving in the short run and significant at 5% level in the long run. Nominal interest rate has positive and significant effect on national saving rate at 1%level on the short run; however, its effect in the long run appears to be positive but insignificant, whereas the rate of inflation has positive and significant effect on national saving rate in both the short run and the long run.

Humyra (2014) in his part looked in to the saving behavior of Bangladesh. He considered time series data to shed light on the saving behavior of Bangladesh in long run horizon and short run dynamic adjustment by employing co-integration test and vector error correction model. The study result confirms there is a great deal of diversity between urban and rural sector. Interest rate is not the only factor that stimulates depositors to save, although it has received noticeable attention. Rather, high volatility regarding income, banking facilities and inflation influence savers to increase interest-bearing deposit.

Athukorala and Sen (2003) have studied the determinant factors of deposit mobilization in India. The result shows that, the spread of banking facilities, real interest rate on bank deposits and inflation were positively correlated with savings. Additionally saving rate rises with the level and rate of growth of disposal income. Furthermore, banking facilities, inflation and real interest rate have positive impact on bank deposits of India.

As discussed by Khalily, Meyer and Hushak (1987), major factors were identified which determines banks deposit growth these are: interest rate, individual income, transaction

costs, access to banking facilities, and yields on alternate investments. Nevertheless, the researchers identified other factors such as the quality of services provided to depositors, the awareness of banking services by the public and perceptions of the safety of depositors as affecting deposit mobilization by banks.

The research conducted by Mohammed and Mansur (2014) in Malaysia selects the macro economic variables and investigates its impact on deposits in the Islamic banking system. The study periods covers January 2007 to December 2013. They adopts Auto Regressive Distributive Lag mode. They tried to measure both long and short run relationships among the dependent variable (total saving deposit of Islamic banks in Malaysia) and dependent variables (GDP, inflation and Kuala Lumpur composite Index). The research outcome shows, inflation rate has strong impact on deposits of Islamic banking system while other macroeconomic variables GDP and Kuala Lumpur composite Index do not have significant impact.

2.3.3. Related Empirical Studies in Africa

Extensive studies also conducted with the focus of determinant factors of banks deposit mobilization in developing countries. The study made by Ngula (2012) on the determinants of savings mobilization and its role in promoting economic growth in Ghana. The study period covers 1980 - 2010. Time series characteristics of the data were investigated by applying unit root tests to examine the stationary of each variable. The selected independent variables were deposit interest rate, exchange rate, inflation rate and broad money supply. The result indicates that exchange rate, inflation rate and money supply (M2) significantly affects deposit mobilization in Ghana. Deposit interest rate however, proofed to be a weak determinant of bank deposit mobilization.

Tafirei and Linda (2014) have researched the relationship between commercial banks' deposit interest rates and deposit mobilization in Zimbabwe for the period 2000-2006. They adopted an Ordinary Least Squares (OLS) model to show the relationship between the deposit mobilization and explanatory variables and they used Pearson's correlation

coefficient to demonstrate the strength of the relationship. The result shows there is a significant and positive relationship that exists between deposit rates and banks' deposits for the study period and all the other explanatory variables were statistically significant.

Hassen (2016) had also made a research in Nigeria focusing on the effect of interest rate on commercial banks deposit. The study period covers from the year 2000 to 2013. The data was collected from secondary sources; Central Bank of Nigeria statistical bulletin and the National Bureau of Statistics. The selected explanatory variables were the interest rates and the Gross Domestic Product (GDP). By using OLS multiple regression techniques; the study revealed that there was a negative relationship between the interest rates and the commercial bank deposits suggesting that interest rates has not been responsible for customers deposits in commercial banks in Nigeria while the GDP has a positive relationship with commercial bank deposits.

Orji (2012) examined the determinant factors of commercial banks saving in Nigeria from 1970- 2006. He adopted two impact models; Distributed Lag-Error Correction Model (DLECM) and Distributed Model (DM). The result indicates GDP and interest rate have a positive relation with bank saving whereas inflation has insignificant effect on the size of private domestic saving

Ukinamemen (2010) studied on factors which affect the deposit mobilization of commercial banks in Nigeria, particularly the Union Bank of Nigeria PLC. The study examined the relationship between dependent variable (total volume of commercial bank deposits) and independent variables; interest rate, inflation rate, loans and advances and the number of bank branches. The diagnostic statistic used in the study was the ordinary least square (OLS). The result indicates that there is a positive and moderately significant relationship between bank deposit and loans and advances with a coefficient of 0.53. Number of bank branches and inflation rate, have a positive but weak relationship with bank deposit. Whereas real interest rate has a negative weak relationship with bank deposit with the value of -0.05.

Maende (1992) examined the determinants of commercial banks deposit in Kenya obtaining time series data between 1968 and 1991 and using Ordinary Least Squares (OLS), Two-Stage Least and the Granger test of causality. It was revealed that the number of branch network and national income levels and stability were the main determinants of deposits in the banking industry. He also practical that there is a uni-directional relationship between branch network expansion and volumes of bank deposits.

2.3.4. Related Empirical Studies in Ethiopia

Andinet (2016) factors determining deposit mobilization performance by taking a case of private commercial banks operating in Ethiopia. The study period covers from 2005 to 2015. The study adopted quantitative methods research approach using secondary data. Seven explanatory variables were regressed with deposit mobilization; deposit interest rate, liquid asset to deposit ratio, number of bank branches, lagged value of bank deposits, net interest margin, inflation rate and economic growth (GDP). The data for these variables were collected from the selected private commercial banks' financial statements, national bank of Ethiopia, central statistical authority and MOFEC. The result indicates that, deposit interest rate, number of bank branches, net interest margin and GDP were significantly and positively correlated with the explained variable. Lagged value of bank deposit was significantly and negatively correlated with total deposit. However, liquid asset to deposit ratio and inflation rate were insignificantly negatively correlated with bank deposit.

Giragn (2015) explores the theoretical as well as empirical analysis of those factors having an impact on deposit volume in banks and even assesses which ones are more significant or less significant. The researcher considers twelve years of data from 2001/2 to 2012/13. He also used questionnaires and interviews from senior bank officers of seven banks for triangulation purpose. The data is analyzed through the econometric analysis using SPSS software. The result shows that the money supply, the branch expansion, , the exchange rate of Birr to USD and general inflation are the most

significant factors of deposit mobilization activity. The other variables-deposit rate and real per capita GDP growth rate have insignificant power to influence the dependent variable. In this research, to the contrary of conventional economic theory, the deposit rate is found to have negative relation against the deposit volume for the period under study. The study also exposes that the deposit mobilization activity is becoming challenging, its associated costs are escalating and the competition is also becoming stiff-the outcome of the competition favoring the big size state banks. Beyond that the government policies are also favourng the latter in an effort to mobilize huge fund for a national development activities. The research recommends that banks have to do much in branch expansion studying potential deposit areas.

Wubitu (2012) investigated factors determining commercial banks deposit by taking CBE as evidence. The selected three explanatory; deposit rate, inflation and bank branches were regressed with the dependent variable (commercial bank deposit). The study considers 12 years of data from the year 2000-2011 G.C. The data for the selected variables were gathered from Commercial Bank of Ethiopia, national bank of Ethiopia and central statistics authority. Multiple regression models were used for the dependent and the three independent variables. To determine whether the model is valid or not different diagnostic test are tested, regression analysis and hypothesis testing is done using EViews software. The result shows that branch expansion had positive and significant effect on total deposit whereas deposit rate and inflation rate had positive and insignificant effect on total deposit.

Hibret (2015) observes the determinants of commercial banks deposit growth in Ethiopia from the period 1974/75-2013/14 by taking commercial bank of Ethiopia as evidence by using Vector Error Correction Model (VECM). The study checked the casual relationships that exist between deposit growth and its determinant factors. In this model, control variables are; Economic Growth, Inflation, Interest Rate, Exchange Rate, Population Growth and Branch Expansion. The result in this study shows, the interest rate has positive but insignificant impact on deposit growth both in the long run and short

run. Whereas exchange rate and branch expansion significantly increases bank deposit both in the short run and long-run. Population and Economic growth also has a positive relationship with deposit growth and it is significant in the long run but insignificant in the short run. On the other hand, inflation has positive and significant impact on deposit in the long-run and negative impact in the short run.

Shemsu (2015) studied the determinants of commercial bank deposit in Ethiopia in the case of Commercial Bank of Ethiopia from the period 1974/75 to 2013/14 using Vector Error Correction Model (VECM). The selected explanatory variables were interest rate, exchange rate, and number of bank branches, GDP, and inflation rate. The result shows that interest rate have positive but insignificant impact on deposit growth both in the long run and short run. Whereas and branch expansion and exchange rate have positive and significant impact both in the short run and long-run. Economic growth also has a positive relationship with deposit growth and it is significant in the long run but insignificant in the short run. However, Inflation has positive and significant impact on deposit in the long-run and negative impact in the short run.

Bahredin (2016) study the determinants of commercial banks deposit growth in Ethiopia. To achieve the objective quantitative research approach was adopted. The study period covers from the year 2000-2014. Eight commercial banks were purposively been selected out of eighteen commercial banks in existence as of 2014. Seven independent variables were selected; inflation, deposit interest rate, loan-to-deposit ratio, bank branches, money supply growth, per capita income growth, and lagged bank deposit. Different diagnostic tests were conducted to check the appropriateness of the model. The final result of the study shows, bank branches and per-capita-income growth influence is positively and statistically significant on bank deposit growth; whereas, lagged bank deposit and loan-to-deposit ratio influence is negatively and statistically significant on bank deposit growth. Money supply growth had insignificant negative influence on bank deposit growth; whereas deposit interest rate and inflation had insignificant positive influence on bank deposit growth.

2.4. Summary and Knowledge Gap

Facts from prior studies, a range of internal and external factors has an effect on commercial banks deposit. Nevertheless, the significance of each factor differs across the continent, countries, and the study period covered.

The study made by Venkatesan (2012) in India Origi (2012) in Nigeria Hassen (2016) in Nigeria Mohammed (2014) in Bahrain Hibret (2015) Andinet (2016) Shemsu (2015) in Ethiopia reveled that GDP has positive influence on commercial banks deposit mobilization. However the study conducted by Giragn (2015) in Ethiopia and Erna & Ekki (2014) in Indonesia, shows that GDP has not significant influence on the volume of commercial bank deposits.

Moreover, the study made by Athukorala and Sen (2003) in India, Haron and Nursofia (2006) in Indonesia Mohammed (2014) in Bahrain, Ngula (2012) Ghana, Hibret (2015), Shemsu (2015) and Behredin (2016) in Ethiopia, research result shows that inflation has significant effect on commercial banks deposit mobilization. However Orji (2012) Nigeria, Khalily et al. (1987) in Bangladesh, Andinet (2016) shows that inflation has insignificant impact on deposit mobilization.

Athukorala and Sen (2003) India, Tafirei and Linda (2014) Zimbabwe, Mohammed (2014) in Bahrain and Andinet (2016) in Ethiopia had found that nominal interest rate had significant influence on commercial banks deposit growth. Whereas Hassen (2016) Nigeria and Ukinamemen (2010) in Nigeria, Ngula (2012) Ghana, Wubitu (2012), Hibret (2015), Shemsu (2015) and Behredin (2016) in Ethiopia had reach in a conclusion that interest rate had insignificant influence in commercial banks deposit.

Venkatesan (2012) in India, Andinet (2016), Bahredin (2016), Hibret (2015), Shemsu (2015) and Wubitu (2012) in Ethiopia found bank branch expansion has significant influence in commercial banks deposit growth. However Ukinamemen (2010) in Nigeria

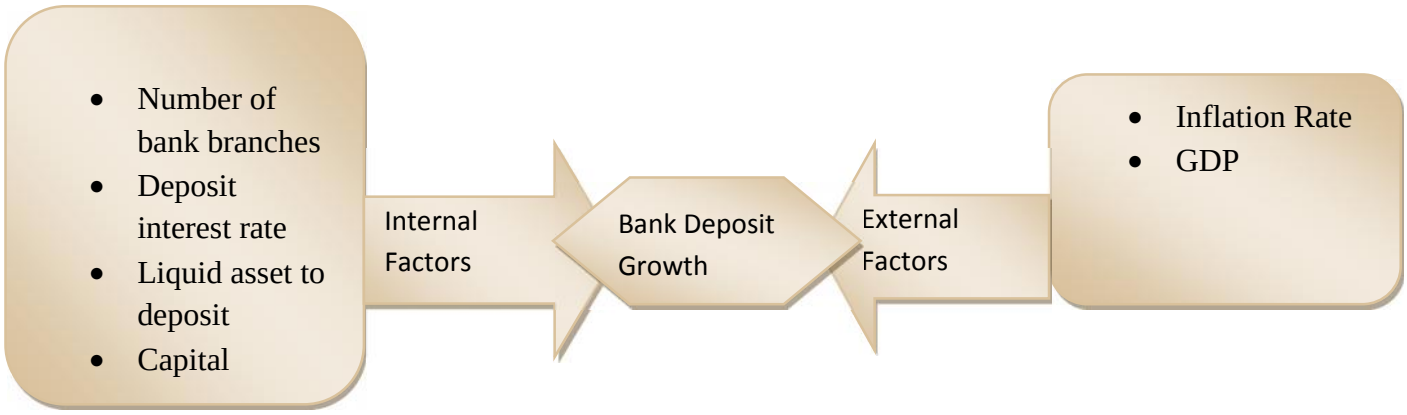
has concluded number of bank branch has insignificant influence in deposit mobilizations.

These contradictory results lead the researcher that there is inconsistency among research findings on factors affecting deposit mobilization. This study is initiated to fill the research gap by considering appropriate variables which can go the condition and situation in Ethiopian banking industry role on deposit to come up with concrete result.

2.5. Conceptual Framework

According to Mugenda (2003), a conceptual framework helps the reader to easily and quickly see and understand the proposed relationship between variables in the study. Here is a conceptual framework on factors determining commercial banks deposit in the selected commercial banks. Bryman et al (2007) discuses variables are referred to as the building block of theory. In this research it comprises of six independent variables in which the researcher thinks which had an impact on deposit.

Figure 2.1 Conceptual framework diagrams



Source; Self extracted

CHAPTER THREE

3. Research Methodology

This chapter gives a detailed account of the methodology used to carry out the study. The chapter discusses about model specification, the variables used and diagnostic tests to be conducted. The chapter also presents the data presentation and analysis plan.

3.1. Research Design

Manheim and Rich (1995), define research design as a plan of the study that organizes observations in such a way as to establish a sound logical basis for casual influence. The choice of research design depends on objectives that the researchers want to achieve (John, 2007). The main objective of this paper is investigating the determinants of commercial banks deposit growth in Ethiopia and explanatory type of research design with quantitative approach method was employed. The explanatory type of research design helps to identify and evaluate the causal relationships between different variables under consideration (Creswell, 2009). So that, in this study the explanatory research design is employ to examine the relationship of the dependent variable (commercial banks deposit) and independent variables (number of bank branches, deposit interest rate, liquid asset to deposit, capital adequacy, inflation and GDP). To address the research objective and to test the hypothesis quantitative research approach was adopted. Quantitative method addresses research objectives through empirical assessments that involve numerical measurement and analysis. Creswell, (2009) quantitative research is an appropriate approach for testing objective theories by examining the relationship among variables. The quantitative methods can be of great value to the researcher who is attempting to draw meaningful results from a large body of qualitative data (Mwituria, 2012).

3.2. Target Population

According to Grinnell and Williams, (1990) population is defined as the totality of objects or persons, in which the study is concerned. The target population of the study comprises the group of persons, objects or institutions that defines the object of the investigation. As per the annual report of NBE (2014/15) there are 18 banks operating in Ethiopia of which 16 were private and the remaining 2 State-owned. Seven commercial banks, out of the eighteen commercial banks were selected the names of the selected banks in alphabetical order were: Awash International bank, Bank of Abyssinia, Commercial bank of Ethiopia, Dashen bank, Nib international bank, united bank, and Wogagen bank. The banks have purposively been selected based on the criterion of having large asset size. Based on the report of NBE (2014/15) these six private banks have total assets more than birr 9 billion and CBE is much more than 9 billion. The study period covers 17 years of data from year 1999/2000-2015/2016 the selection of year 1999/2000 is used based on the beginning of operation.

3.3. Data and Data Sources

The data used for this particular study was secondary panel data set for Ethiopian commercial banks covering the period from 1999/2000-2015/2016. Quantitative type of data can best fit to the panel data analysis. Six private banks and one state owned banks operating in Ethiopia were included in the panel data set. The researcher prefers to use panel data because panel data can take heterogeneity among different units into account over time by allowing for individual-specific variables. Besides, by combining time series and cross-section observations, it gives more informative data. According to Gujarati (2004) panel data can better detect and measure effects which cannot be observed in cross-section or time series data. Moreover Hsiao (2003) panel data models provide much more insights than time series models or cross section data models because it is theoretically possible to isolate the effects of specific effects and actions.

The required secondary data was gathered from the selected commercial banks annual report, National bank of Ethiopia and Ministry of Finance and Economic cooperation. The data which is driven from the selected commercial banks are their financial statements and the number of bank branches operating in Ethiopia, from National bank of Ethiopia; which regulates the banking sector of the country, the bank's financial ratio, balance sheet, income and loss statement of the seven Commercial banks, and the data obtained from Ministry of Finance and Economic Commission is the Inflation rate and the real GDP.

3.4. Model Specification

The literature discussed above indicates that various factors are determining commercial banks deposit. This section shows frame work of analysis on the basis of different studies and involves adopting a model that would help demonstrate the responsiveness of certain key variables that influence banks deposit in Ethiopia. Various theories and hypotheses; the life-cycle hypothesis of savings, bank led theory, the McKinnon-Shaw hypothesis, the Permanent-Income hypothesis of savings and other studies so far discussed in empirical studies shows a way in identifying variables that may affect deposit.

A general function accommodating all the hypotheses that explain deposit and the variables obtained there from, the study can therefore be adopt following Herald and Heiko (2009). The panel regression model was adopted to test the relationships that exist between the dependent (bank deposit growth) and explanatory variables.

To decompose the model into its actual variables to be estimated, the equation can be presented as below.

$DEP_{it} = \alpha_i + \beta1*NBB_{it} + \beta2*DIR_{it} + \beta3*LQATD_{it} + \beta4*INF_{it} + \beta5*GDP + \beta6*CAP_t + E_{it}$

Where;

i=1, 2… N is the i-bank; t=1,2… T corresponds to the year t

α_i, β1, β2, β3, β4, β5, β6, and β7 are vectors of parameters and represents random effect.

DEP_{it}= Bank Deposit (Dependent Variable) of bank i at time t

NBB_{it}= Number of bank branches of bank i at time t

$DIR_{it=}$ Deposit interest rate of bank I at time t

$LQATD_{it}$ = Liquid asset to deposit of bank i at time t

INF_t= Inflation measured as percentage change in consumer price index in Ethiopia on the year t.

GDP_t= Economic growth (GDP) measured as change in the real domestic product/GDP growth of Ethiopia on the year t. The proxy will be change in growth rate of real GDP

CAP= Capital adequacy i at time t

$E_{it=}$ is the error term

3.5. Definition and Measurement of Variables

According to Creswell (2009), quantitative research approach is applied in order to clearly determine what groups are receiving the experimental treatment and what outcome are being measured and hence the variables are needed to be specified. Bank deposit can be influenced by internal and external factors. The internal variables are bank specific factors whereas the external variables are environmental factors that are expected to influence commercial banks deposit.

3.5.1 Dependent Variable

In this study, the total commercial banks deposit, including current account balance, savings account balance and fixed deposit balance is used as a dependent variable.

3.5.2 Independent Variables

The explanatory variables that are proposed in this study were; number of bank branches, deposit interest rate, liquid asset to deposit, capital adequacy, GDP and Inflation.

3.6 Hypothesis of the Study

Hypotheses are driven from various theories and empirical findings that have a relation with banks deposit growth developed over the years. This study has tested the following hypotheses, which were building based on the connections between the explanatory variables and the dependent variable:

3.6.1 Number of Bank Branches

It is the opening of new branches outlet within or out of the country (Venkatesan, 2012). This can be measured by the total number of bank branches. Banks by opening many branches they can get many customers particularly in reaching of the unbanked society (Ekki, 2004). A good bank site has the ability and positive impact in attracting deposit. This is due to the difficulty of movement of people from one place to another. Conveniently located bank branches can reduce transaction costs significantly and thereby increases the net return earned on deposits.

More recently the branch expansion by the existing banks is fast increasing to reach out distant locations in order to snatch or mobilize the resources available particularly deposits. This practice shows that branch expansion has positive and significant relation with deposit volume. The studies made by Giragn(2015) Shemsu(2015), Andinet (2016), Wubitu(2012) in Ethiopia, Erna & Ekki(2004) in Indonesia and Nathanael(2014) in Nigeria shows that the number of branches has positive and significant effect on commercial bank deposit.

Hypothesis 1*: Number of Branch has a positive and significant effect on deposits of Ethiopian commercial banks.*

3.6.2 Liquid Asset to Deposit Ratio

It is measured by the ratio of liquid asset to total asset or total loan to total deposit. Banks liquidity position should be daily ascertained, monitored and controlled. The liquidity of an entity requires that its ability to pay its debts when due and the ability of its debtors to pay the amount they owe to the entity are of great importance. However, the liquidity or solvency of a firm is usually measured by liquidity ratios, which are a class of financial ratios used to determine a company's ability to honor its short-term debt obligation.

An increase in liquidity reduces the bank liquidity risk, which, reduces the interest spread due to a lower liquidity and have a negative impact on deposit. According to NBE establishment proclamation (No. 591/PP418) liquid asset of banks includes cash on hand, deposit in other bank, and short term government securities that are acceptable by NBE as collateral (for instance Treasury bill). The research made by Aberu (2002), Vong (2009), Herald & Heiko (2009) found that there is a positive and significant relationship between Liquid asset to deposit ratio and banks deposit volume. However Behredin (2016) concludes LTD has negative and significant relation with deposit volume.

Hypothesis 2*: Liquid asset to deposit ratio has a positive and significant effect on deposits of Ethiopian commercial banks.*

3.6.3 Deposit interest rate

When deposit interest rate is high people are motivated to deposit more money by forgo their consumption. To the contrary at a time of low deposit interest rate, depositors are forced to withdraw their idol money and look for other high yield interest investment.

According to the study made by Paul (2013) in Nigeria, interest rate were affecting customer bank saving in the banking sector in a positive manner and driving up saving deposits in banks. And another study made by Nathanael (2014) concluded that interest rate is positively and significantly influence bank deposits in Nigeria. The study made by Bruce and George (1965) indicates that deposits are related positively to changes the rate

of interest paid. Hence, the deposit rate and deposit volume at banks have a positive relationship.

Hypothesis 3*: Deposit interest rate has a positive and significant effect on deposits of Ethiopian commercial banks.*

3.6.4 Inflation

Inflation rate is the rate at which the level of price increases; whereas deflation is a sustained decline in the price level. Macroeconomists typically look at two measures of the price level, at two price indexes: the GDP deflator and the consumer price index. According to Deaton (1991) inflation can be measured by Consumer price index. The first theory he assumed that greater uncertainty should raise savings since risk-averse consumers set resources aside as a precaution against possible adverse changes in income and other factor. Hence inflation may increase precautionary savings by individuals. Precautionary saving is additional saving that result from the knowledge that the future is uncertain (D. Carroll, 2006). The second theory was, inflation can influence saving through its impact on real wealth. As inflation accelerates, deposits become less attractive, depending on the interest rate. When the spread between deposit rates and inflation gets narrow, the less attractive it should be to hold deposits above the required level.

Different studies show there is different results regarding the relationship between inflation and deposit volume. The study made by Andinet (2016), Oriji (2012), Hossein & Ali (2014) shows that there is negative relationship between inflation and deposit. Whereas Ukinamemen (2010), (2014) Behredin (2016), Shemsu (215) Ngula (2012), Prema-chandra and Kunal (2001), Mohammed(2014), Shemsu (2015), Wubitu (2012) and Giragn (2015) revealed that inflation rate has a positive influence on the growth of deposit.

Hypothesis 4*: Inflation rate has a negative and significant effect on deposits of Ethiopian commercial banks.*

3.6.5 Economic Growth

Theoretical and empirical evidence advocates that, economic growth is the main source of banks deposit growth. According to Herald and Heiko (2009), economic growth is one of the determining factors for commercial banks deposits. Economic performance of a country is measured by GDP that has also become the de facto universal metric for 'standards of living (Yanne et al, 2007). GDP is calculated by adding up the value-added at each stage of production (deducting the cost of produced inputs and materials purchased from an industry's suppliers) (Jim, 2008). Herald and Heiko (2009) one of the assumptions would be that as incomes rise, deposits with banks do so as well. Technically speaking, per capita income captures upswings and downswings manifesting in the business cycles.

Different researchers have reached different conclusions in relation with GDP and deposit. The study made by Oriji (2012,)Hassen (2016) in Nigeria, Andinet (2016), Hibret (2015) in Ethiopia concludes a positive relationship between GDP and deposit volume. However the study made by Mohammad & Mansur (2014), in Malaysia, Giragn (2015) in Ethiopia and Erna & Ekki (2014) in Indonesia result shows insignificant relationship between GDP and deposit volume.

Hypothesis 5*: GDP has a positive and significant effect on deposits of Ethiopian commercial banks.*

3.6.6 Capital Adequacy

According to Naceur et al. (2003) capital adequacy measures the bank's ability to meet regular capital standards and it is measured by the ratio of equity to total asset. Banks having a high ratio of capital to assets can better opportunity to withstand a sudden loss than a bank with a low capital-asset ratio. This ratio also refers to the amount of own funds available to support a bank business and acts as a safety net in the case of adverse selection. Capital adequacy therefore describes the sufficiency of the amount of equity that can absorb shocks that banks may experience. Thus it is expected that the higher the Capital to Asset ratio, the lower the need for external funding, therefore the higher the

liquidity of the bank. They stated that, depositors will be charged a nominal fee for the intermediary service of loaning out their respective deposits. Therefore, the higher is the commercial bank's capital ratio; the lower is its liquidity creation. This study considered there is a negative relationship between increment of Capital adequacy & bank's deposit and draws the following hypothesis. Well capitalized banks may need to borrow less in order to support a given level of assets, and tend to face lower cost of funding due to lower prospective bankruptcy costs.

Hypothesis 6*: Capital adequacy has a negative and significant effect on deposits of Ethiopian commercial banks.*

3.5 Measurement of the Study Variables

This section describes the measurements that have been used to operationalize the variables. These factors are selected by the availability of data and their great impact on banks deposit.

Table 3.1 Definitions of Variables, Symbols and Expected Signs.

	Variables	Proxy/Measurement	Notation	Expected Sign.
Dependent Variable	Deposit	Total deposit to total asset	DEP	
	Number of Bank Branches	the total number of bank branches at the end of the year	NBB	+
	Deposit interest rate	deposit interest rate of the banks	DIR	+
	Liquid asset to deposit	The ratio of liquid asset to total deposit	LTD	+
	Capital adequacy	The ratio of equity to total asset	CAP	-
Macro Environment	Inflation Rate	Annual Inflation Rate	INF	-
	Economic Growth	Growth of per capital income	GDP	+

3.6 Data Analysis and Regression Methodology

As noted by Kothari (2004), the collected data has to be analyzed in line with the research plan. Secondary data which were collected from the selected commercial banks financial statements, NBE and MoFEC were analyzed to determine its adequacy, reliability and accuracy. Thus this research adopts both descriptive and econometric analysis based on panel data from the year 1999/2000-2015/16 to determine the relationship between the selected commercial banks deposit and its determinant factors. Descriptive analysis was used to determine the behavior of the individual variables.

Panel data regression methodology was used to examine the relationship between dependent and independent variables in order to conclude based on the collected data about the influential determinants of commercial bank deposits in Ethiopian; the P-value was used to determine the significance of the constant term and the coefficients terms for the regressions. The coefficient of determination R2was used to measure the strength to which independent variables explain the variations in the dependent variables.

3.7 Diagnostic Test Procedure

Panel regression analysis has been conducted using E-VIEW 9 data analysis econometric package to analyze the exact nature of the relationship between the dependent variable and independent (explanatory) variables. Correlation matrix was employed to demonstrate the strength of the relationship. Before running the regression equation the data has first been tested; multicollinearity using correlation matrix, Heteroscedasticity and autocorrelation using the Durbin-Watson statistic, normality uses Bera-Jarque (BJ) test uses to know the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance. Some other times in the case of large observations and smaller time period, fixed and random effects model may give disagreeing results. In this scenario the study has conduct Housman test.

Every estimator of the model should have to meet the Ordinary Least Squares (OLS) assumptions before the estimation is carried out. If the estimators of the model satisfy the OLS assumptions it is possible to say the estimators are BLUE (Best Linear Unbiased Estimators) (Brooks, 2008). The regression starts with the Ordinary Least Squares (OLS) analysis which shown the coefficients of the variables and the fit of the model. Although OLS is mostly used for analyzing cross-sectional data, it can be used for analyzing panel data, provided that the following assumptions, known as the Gauss-Markov assumptions, are not violated.

The OLS method assumes the following:
Linearity in parameters;

- The mean of the errors terms is zero;
- No perfect collinearity, which is already described above;
- Homoscedasticity - the variance of the error is constant across all observations;
- No serial correlation, which means that the covariance between error terms is zero;
- Exogeneity - the error term and explanatory variables are not correlated with each other (Wooldridge, 2000)

Although some of the assumptions mentioned above will be violated because this study contains panel data, the OLS analysis will give insights in the relationship between deposit and the independent variables. In the following analyses, all the assumptions described above have presumed, unless it is stated otherwise.

Heteroscedasticity

According to (Brooks, 2008), It has been assumed thus far that the variance of the errors is constant, this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. The OLS standard errors will be too large for the intercept when the errors are heteroscedastic. The effect of heteroscedasticity on the slope standard errors will depend on its form. For example, if

the variance of the errors is positively related to the square of an explanatory variable (which is often the case in practice); the OLS standard error for the slope will be too low. On the other hand, the OLS slope standard errors will be too big when the variance of the errors is inversely related to an explanatory variable. The OLS method assumes no heteroscedasticity, hence this issue is not taken into account in the OLS method. This means that in the OLS method, the variances in the unobservable error are constant across all observations (Wooldridge, 2000). Since the data used in this study are panel data, heteroscedasticity could become an issue.

The presence of heteroscedasticity, while not causing bias or inconsistency in the coefficients, does invalidate the usual standard errors, t statistics and F statistics. Hence it could bias the statistical significance concluded from the OLS analysis (Wooldridge, 2000). To test for heteroscedasticity, the Breusch-Pagan / Cook-Weisberg test and the White's general test are conducted. The White's general test is a general test which does not presume a particular form of heteroscedasticity. Panel data is likely to the presence of out layers. In order to detect heteroscedasticity in the data the data was conducted by using Breuch Pagan-Cook Wesiberg test for heteroscedasticity.

Serial Correlation (Autocorrelation)

The violation of the basic assumption that residuals are mutually independent results in serial autocorrelation. In time series data the successive residuals tend to be highly correlated. Autocorrelation can also be extended to cross section data where the residuals are correlated with those of the neighbouring units (Maddala, 1977). The Durbin-Watson method is used to test for autocorrelation. A Durbin Watson statistic around two is generally accepted though there are zones of indifference and zones of both positive and negative correlation.

Normality

Descriptive statistics was undertaken to examine the distribution of data. Upon examination the Bera-Jarque (BJ) test uses to know the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance. The standardized third and fourth moments of a distribution are known as its skewness and *kurtosis*. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are**.** A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. It is possible to define a coefficient of excess kurtosis, equal to the coefficient of kurtosis minus 3; a normal distribution will thus have a coefficient of excess kurtosis of zero. (Brooks, 2008)**.**

Correlation Matrix & Multicollinearity

First, there is a correlation matrix created in which all variables are included. This matrix shows the correlations and their corresponding significance between the variables. The correlation matrix gives a first insight in the direction and the strength of the relationships between the variables. When the correlation between two or more independent variables is (too) high, the problem of multicollinearity occurs (Wooldridge, 2000). The problem of multicollinearity may lead to less accurate results in the analyses; the coefficients may have very high standard errors and perhaps even incorrect signs or implausibly large magnitudes. Multicollinearity can be detected by calculating the variance inflation factors (VIF) for each independent variable. Multicollinearity is present when VIF values are larger than 10. Furthermore, the critical value can be calculated by 1/VIF. If this value is below 0.1, this would mean that more than 90% of the variation in the variable is explained by the other variables. The variable(s) with VIF values larger than 10 or 1/VIF values below 0.1 should be excluded from the analyses (Rabe-Hesketh and Everitt, 2004)

Different empirical studies show different argument towards the mulitcolinarity problem. Mashotra (2007) stated that multilicolliantory problems exist when the correlation

coefficient among variables greater than 0.75. Cooper and Schindler (2009) suggested that a correlation above 0.8 between explanatory variables should be corrected for. Lastly, Hair et al. (2006) argued that also correlation coefficient below 0.9 may not cause serious multicolinary problem. A correlation matrix was used in this study to ensure the correlation between explanatory variables. Then balanced panel data models are applied to control for multicollinearity.

3.8 Choice of Random Effects (RE) or Fixed Effects (FE) Model

Panel data may have unobserved group effects, time effects or both included in the error term. These effects are either fixed effects, random effects or both. These effects may lead to heterogeneity or even endogeneity and the OLS estimators will be biased and inconsistent (Baddeley & Barrowclough, 2009). The panel data models, fixed effects (FE) model and random effects (RE) model, allow for heterogeneity across panel units (and possibly across time) but confines that heterogeneity to the intercept terms of the relationship (Baum, 2006).

There must be determined model, the random effects (RE) model or the fixed effects (FE) model is most suitable for this dataset. The RE model assumes that the unobserved effect is uncorrelated with the independent variables; the individual-specific effects are parameterized as additional random disturbances (Baum, 2006). In the FE model the unobserved bank effects are permitted to correlate with the explanatory variables, hence this model allows a limited form of endogeneity (Cameron & Trivedi, 2009). The fixed effects model can be used to control for omitted variables that differ between the banks but are constant over time, hence it are bank fixed effects. The random effects model can be used to control for some omitted variables that are constant over time and vary between banks and other omitted variables that vary over time and are constant between banks. The Housman test has conducted to test which model, RE or FE, fits the data best.

CHAPTER FOUR

4. Results and Discussion

This chapter concerns the results and analysis of the findings. There are five sections. The first sections discusses the descriptive analysis on variables of the study; the second section focuses correlation analysis between the dependant and independent variables; the third section presents the result of the classic linear regression model assumptions; the fourth section discusses the result of regression and the fifth section discusses interpretation of the regression result.

4.1. Summary of Statistics

Table 4.1 below shows the summary of descriptive outcome for all the variables used in the study such as mean, maximum, minimum, standard deviation and number of observation. The dependent variables used in this study was bank deposit and the explanatory variables are, number of bank branches, deposit interest rate, liquid asset to deposit, inflation and GDP and capital adequacy

Table 4.1: Descriptive statistics – Dependent and Independent Variable

	DEP	NBB	DIR	LQATD	INF	GDP	CPA
Mean	0.763294	106.4790	0.038824	0.446202	0.116471	0.089776	0.134365
Median	0.778656	47.00000	0.040000	0.440000	0.097000	0.103500	0.128900
Maximum	0.871518	2045.000	0.050000	1.115400	0.364000	0.126000	0.294400
Minimum	0.493671	4.000000	0.030000	0.024000	-0.106000	0.016000	0.037400
Std. Dev.	0.064505	229.3889	0.009036	0.171071	0.113916	0.033605	0.049152
Observations	119	119	119	119	119	119	119

Source: EView 9 Output descriptive statistics

As indicated in the above table the minimum and maximum value of commercial banks deposit is 49.36 percent and 87.15 percent respectively and the mean value is 76.32 percent. Thus deposit fluctuates in commercial banks between 49.36 and 87.15. The standard deviation among the commercial banks was 6.4 percent; this confirms that there were lower variations of deposit among commercial banks during the study period. Though the performances of deposit among commercial banks conform to supply the loanable fund, the trend of deposit is increasing year to year at increasing rate. Among others one of the main reasons for this increasing deposit may attribute to increase the users of banking services and or intermediation of commercial banks in the country.

The result shows, there were higher differences among commercial banks regarding branch expansion. The mean value of number of bank branches was 106 units; the standard deviation was 229, while 2045 and 4 observed as maximum and minimum values, respectively, exhibits higher dispersion. The minimum number of branch among the selected commercial bank was NIB bank during the stated period whereas the highest branch was recorded by CBE.

The mean value of deposit interest rate on the study period was 3.9 percent with the maximum and minimum value of 5.0 (from the year 20011-2016) and 3.0 (from the year 2000-2007) percent respectively. The standard deviation was 0.9 percent which confirms, there were little variation of interest rate towards its mean value. This shows that the stability of deposit interest rate for subsequent years under the study periods in a sense there is a control of minimum and maximum deposit interest rate by the government body.

The mean value of liquid asset to deposit ratio was 44.6 percent and there was somehow low dispersion of liquid asset to deposit ratio towards its mean value among banks that is shown by the standard deviation of 17.1%. The maximum value of liquid asset to deposit ratio was 115 percent, which is very far above the standard (70%) whereas the minimum value was 2.4 percent, which is far below the standard (30%) (Basel III, 2013). This

indicates that there were some commercial banks in Ethiopia having extra liquidation (banks around 115%) and others were facing bank liquidity risk (banks around 2.4%). Thus, liquid asset to deposit ratio was highly dispersed among commercial banks in Ethiopia.

The capital adequacy ratio of the selected commercial banks for the studied period was 13.44 percent. As per the result of mean value result 13.44 percent of the total assets of commercial banks was financed by shareholders fund whereas the remaining 86.56 percent was covered or financed by external funds/deposit liabilities. This implies that there is high dependency on external funds that arises from higher deposit mobilization. The mean value of 13.44 % was above the international standard for capital adequacy that is 8.265% (Basel III, 2016) with the maximum and minimum values of 29.44% and 3.7% respectively. The standard deviation of capital adequacy ratio was 4.9 percent. This implies that there is little dispersion towards the mean among commercial banks operating in Ethiopia. In general, although the bank with minimum capital adequacy ratio of 3.7% would be exposed to liquidity risk, the capital adequacy of Ethiopian commercial banks was at a good position since the mean capital ratio of 13.44 % was more than the National Bank of Ethiopia (NBE) requirement.

The remaining independent variables were macroeconomic indicators (i.e. GDP and Inflation rate) which could affected banks deposit mobilization over time and these variables were the same for all sampled banks at a given period. Inflation rate was measured by percentage change in CPI. The mean percentage change in CPI was 11.65 % for the sampled period; this implies that on average inflation was increased by 11.65 in each year. The maximum inflation was 36.4 percent and minimum inflation rate was -10.6 percent. Here the maximum value for inflation rate (i.e. 36.4%) was recorded in the year 2009 which was known with very inflated period in Ethiopia whereas the minimum value of inflation rate (i.e. -10.6%) was recorded in the year 2002. The standard deviation was 11.3 percent; this implies the existence of moderate difference in the change in inflation rate each year.

The other macroeconomic factor was economic growth which is measured by GDP. The annual GDP of the country range between a maximum of 12.6 percent to minimum of -2.1 percent. The average GDP was 8.7 percent and the standard deviation was 3.9 percent, which is low desperation rate to its mean value.

4.2. Correlation Analysis

Table 4.2 Correlation Matrix of Dependent and Independent Variables

	DEP	NBB	DIR	LQATD	INF	GDP	CPA
DEP	1.000000						
NBB	0.055133	1.000000					
DIR	0.095463	0.355884	1.000000				
LQATD	-0.279325	-0.374904	-0.367307	1.000000			
INF	0.030788	0.033390	0.382620	0.102929	1.000000		
GDP	0.245706	0.068306	0.285318	-0.064124	0.374831	1.000000	
CPA	-0.694623	-0.275547	0.203394	0.169827	0.074762	-0.040422	1.000000

Source: EViews 9 Output correlation matrix

Correlation is a way to indicate the degree in which two or more variables are associated with or related to each other. The sample size is the main element to determine whether or not the correlation coefficient is different from zero or statistically significant. The values of the correlation coefficient are always in between -1 and +1. A correlation coefficient of +1 means the two variables are perfectly related in a positive linear sense, whereas a correlation coefficient of -1 shows the two variables are perfectly related in a negative linear sense. A correlation coefficient of 0, shows that there is no relationship between two variables (Brooks, 2008). The correlation matrix in table 4.2 predicts the likely relationship among variables in the study.

The correlation result in the table shows that deposit (dependent variable) was positively correlated with number bank branches, deposit interest rate, inflation and GDP with a

coefficient of 0.0551, 0.0954, 0.0307 and 0.2457 respectively and negatively correlated with liquid asset to deposit and capital adequacy with a coefficient of -0.2793 and -0.6946 respectively.

In general, even though the correlation shows the direction and degree of associations between variables, it does not allow the researcher to make cause and effect inferences regarding the relationship between the identified variables, is simply stated that there is evidence for a linear relationship between the two variables, and that movements in variables are on average related to an extent given by the correlation coefficient. Therefore, in examining the impact of selected independent variables on commercial bank deposit, the econometric regression analysis that is discussed in the final section of this chapter is shown.

4.3. Diagnosis Tests

Diagnostic tests were performed to check for the validity of the parameters. The researcher is to test for heteroscedasticity, normality, multicollinearity, and autocorrelation.

Tests for Heteroscedasticity Assumption

It has been assumed that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heteroscedasticity. The Breusch-Pagan-Godfrey test was used to check for the presence of heteroscedasticity in the residuals

Table 4.3: Heteroscedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.673622	Prob. F(6,112)	0.1339
Obs*R-squared	9.791454	Prob. Chi-Square(6)	0.1337
Scaled explained SS	7.249224	Prob. Chi-Square(6)	0.2984

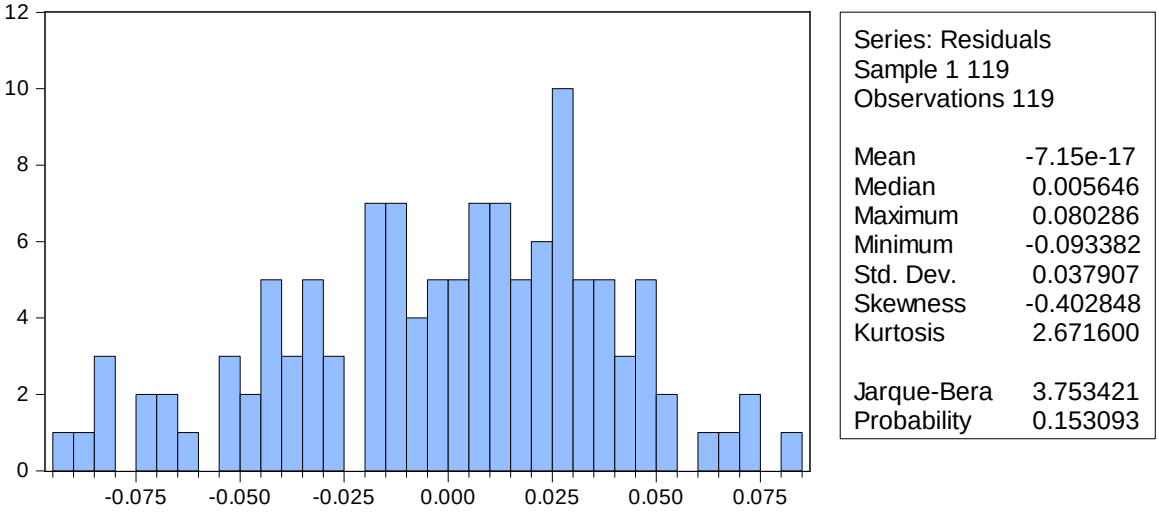
Source: E-views 9 output

As shown in Table 4.3 both *F*- and $\chi 2$ test give the same conclusion that there is no evidence for the presence of heteroscedasticity since the p-values in all of the cases were above 0.05. The third version of the test statistics "Scaled explained SS", which is, as the name suggests, based on a normalized version of the explained sum of squares from the auxiliary regression also give the same conclusion. Generally, in the regression models used in this study was proved that the test statistics is not significant and the variance of the error term is constant or homoscedastic and we had sufficient evidence to accept the null hypothesis of Homoscedasticity. The linear model is also correctly specified.

Normality test: Bera-Jarque (BJ) test

A normal distribution is not skewed and is defined to have a kurtosis coefficient of 3. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of Skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. The Bera-Jarque P-value is expected not to be significant even at 10% significant level (Brooks, 2008).

Figure 4.1-Normality Test result



As shown in the above histogram, kurtosis approaches to 3 (i.e. 2.671600) and skewness approaches to -0 (i.e. -0.402848) and the Jarque-Bera statistics was not significant even at 10% level of significance as per the P-values shown in the histogram in the appendix (i.e. 0.153093). Hence, the null hypothesis that is the error term is normally distributed should not be rejected and it seems that the error term in all of the cases follows the normal distribution. Also, it indicates that the inferences made about the population parameters from the sample parameters tend to be valid.

Test for Multicollinearity

This assumption is concerned with the relationship between explanatory variables. If an independent variable is an exact linear combination of the other independent variables, then we say the model suffers from perfect Collinearity, and it cannot be estimated by OLS (Brooks, 2008).The result of the test for existence multicollinearity between independent variable is presented in the test analysis using only independent variables.

Table 4.4 Correlation Matrix of Explanatory Variables

	NBB	DIR	LQATD	INF	GDP	CPA
NBB	1.000000					
DIR	0.355884	1.000000				
LQATD	-0.374904	-0.367307	1.000000			
INF	0.033390	0.382620	0.102929	1.000000		
GDP	0.068306	0.285318	-0.064124	0.374831	1.000000	
CPA	-0.275547	0.203394	0.169827	0.074762	-0.040422	1.000000

Source: E-views 9 output

According to Lewis-Beck (1993) suggestion in order to find out the multicollinearity problem, the bivariate correlations among the independent variables should be examined and the existence of correlation of about 0.8 or larger indicates a problem of multicollinearity. Hair et al (2006) argued that correlation coefficient below 0.9 may not

cause serious multicollinearity problem. I.e. if pair-wise or zero-order correlation coefficient between two regressors is out of the recommended range of multicollinearity which is -0.9 or 0.9. In the above correlation matrix there is no pair-wise relation, which suggests for not rejecting the + null hypothesis (H0), which states that there is no perfect pair-wise relation among regressors. Therefore, it can be concluded that in this study that there is no problem of multicollinearity or the results showed that the problem of multicollinearity did not exist between variables in the model. Hence all the variables were retained for use in the estimations.

Choosing Random Effect versus Fixed Effect Models

According to Brooks (2008); Verbeek (2004) and Wooldridge (2004), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model and random effect model Gujarati (2004). Hence the choice here is based on computational convenience. Therefore the Hausman Test is used to determine the suitability of random effects model over fixed effects model. A rejection of the null hypothesis is when *Prob > chi2 = α*, confirmed the efficiency and consistency of the RE in estimating the model.

H0= Random effect model is appropriate
H1= Fixed effect model is appropriate

Table 4.5 Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

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

Source: EViews Out Put

Table 4.5 above shows Hausman specification test, the P-value of a model is 1.00, which is more than 5% level of significance. Hence, the null hypothesis of the random effect model is appropriate is failed to reject at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model and gives more comfort that random effects model results are valid.

4.4. Results of the Regression Analysis

This section presents the regression result of random effect model that examines the determinant of commercial banks deposit.

Operational model: the operational panel regression model used to find the statistically significant determinants of Ethiopian commercial banks deposit:

$DEP_{it} = \alpha_i + \beta1*NBB_{it} + \beta2*DIR_{it} + \beta3*LQATD_{it} + \beta4*INF_{it} + \beta5*GDP_{it} + \beta6*CAP_{it} + E_{it}$

Accordingly, Table 4.6 below presents the result of random effect regression model that examines the impact of explanatory variables on bank deposit. Hence, DEP is dependent variable whereas number of bank branches (NBB), deposit interest rate (DIR), liquid asset to deposit ratio (LQATD), Inflation rate (INF), economic growth (GDP), and capital adequacy (CAP) are explanatory variables.

Table 4.6-Results of random effect regression model

Dependent Variable: DEP
Method: Panel EGLS (Cross-section random effects)
Date: 11/30/17 Time: 16:14
Sample: 2000 2016
Periods included: 17
Cross-sections included: 7
Total panel (balanced) observations: 119
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.823478	0.022951	35.87999	0.0000
NBB	1.563115	0.792140	3.113967	0.0023
DIR	1.953410	0.448717	4.353323	0.0000
LQATD	-0.031372	0.020979	-1.495412	0.1376
INF	-0.034834	0.030766	-1.132197	0.2600
GDP	0.319781	0.097151	3.291579	0.0013
CPA	-1.047546	0.086550	-12.10341	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.022637	0.3327
Idiosyncratic random	0.032057	0.6673

Weighted Statistics

R-squared	0.633320	Mean dependent var	0.247946
Adjusted R-squared	0.613676	S.D. dependent var	0.051843
S.E. of regression	0.032223	Sum squared resid	0.116291
F-statistic	32.24052	Durbin-Watson stat	1.086954
Prob(F-statistic)	0.000000		

The starred coefficient estimates are significant at the 1 % (*)
Source: EViews out put

Interpretation of R-squared

As shown in Table 4.6, R-squared coefficient of 0.633 obtained from the estimated model; revealing that 63.3 percent of variation in deposit (DEP) is explained by the selected explanatory variables; number of bank branches (NBB), Deposit interest rate (DIR), Liquid asset to Deposit (LQATD), inflation rate (INF), per capita income growth (GDP) and capital adequacy (CAP)

Interpretation of Adjusted R-squared

An adjusted R-squared value, which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. In other words, the adjusted R-squared shows satisfactory levels, which mean that nearly 61.36 percent of the volatilities in deposit, are explained by the volatilities of independent variables included in the equation. Therefore, an adjusted R square having value of 0.6136 shows that 61.36 percent of dependent variable is explained by the independent variables included in the model.

Interpretation Results of the Regressors Values

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

Deposit interest rate (DIR)

The result from the above table indicates deposit interest rate was found to have a positive relationship with bank deposit and the relationship is significant at 1%. Thus citrus paribus, a one unit increase in deposit interest rate of the sampled commercial banks would lead to 1.95 unit increase in deposit and concludes that deposit interest rate do significantly contribute to bank deposit. This finding is in line with the classical economists which argue, the higher the rate of interest, the more money will be saved, since at higher interest rates people will be more willing to forgo present consumption. The result was also supported by the findings of Sen (2003); Linda (2014); Mohammed (2014); and Andinet (2016) have shown that interest rate has positive and significant impact on commercial banks deposit growth.

Herald and Heiko (2009) also advocate interest is one of the determining factors for commercial banks deposits. Philip (1968), also states that the offering of attractive interest rate on bank deposits may be considered to have had a beneficial effect. Additionally, Mustafa and Sayera (2009) argued that low deposit rates are discouraging saving mobilization. V. V. Bhatt (1970) said that the banking system is unlikely to be in a position to meet the demand for bank credit unless concerted policy is pursued to raise the rate of saving generally and the rate of saving in the form of deposits in particular. This implies that deposit interest rate is a major factor in explaining the commercial banks' deposit in Ethiopia meaning that interest rate more plays an important role in deposit growth.

Liquid asset to Total Deposit (LQATD)

Banks liquidity can be measured in three ways: liquid asset to deposit, liquid asset to total asset and loan to deposit ratios. The researcher has measured liquidity by liquid asset to deposit ratio, the result confirms there is negative and insignificant impact on commercial banks deposits. The coefficient of this relationship of -0.031372 indicates that citrus paribus, a unit increase in liquid asset to deposit will lead to a 0.031-unit reduction and vice versa in commercial bank deposit development at an insignificant level of greater than 10 %. According to Herald and Heiko (2009), the liquidity situation of the bank plays a significant role in determining banks deposit. Nada (2010), banks seeming as risky should have had more difficulty in attracting deposits and making loans than banks perceived as safe. When banks fail to pay for its depositors then it faces liquidity risk that makes other depositors not to deposit in that particular bank. In general, the finding was in line with Devinga, (2010), loans to deposit ratio is inversely related to liquidity and consequently the higher the loans to deposit ratio the lower the liquidity indirectly affect deposit and vice versa. However the research made by Vong et al. (2009) indicates a positive relationship between loan to deposit ratio and deposit. Moreover Abreu and Mends (2002), found that there is appositive and significant relationship between banks liquidity to bank profits indirectly to bank deposit. Note that the financing position of banks with high liquid to deposit ratios can still be weaker overall. As there is no national

standard for this variable to put implication it is better to let this variable for further research.

Capital Adequacy (CAP)

Capital adequacy which was measured by the ratio of equity to total asset was statistically significant variable that affected deposit of Ethiopian commercial banks at 1% significant level. And has a negative coefficient value of -1.047546 which indicated that when the ratio of capital to total asset rises by 1%, the deposit of Ethiopian commercial banks decreases by 1.047 units holding other variables constant. This finding was confirms to the hypotheses of this study and in line with the findings of Vodová (2012); Subedi and Neupane (2011); and Laurine (2013). The negative and statistically significant impact of capital adequacy on deposit growth of Ethiopian commercial banks were supported the arguments of the financial fragility-crowding out hypotheses. More importantly, the bank may also keep back effort, which restrictions the bank's ability to raise financing. A deposit contract mitigates the bank's holdup problem because depositors can run on the bank if the bank threatens to withhold effort and therefore maximizes liquidity creation.

Number of bank branches (NBB)

The result from the above table indicates that number of bank branches has statistically significant and positive impact on deposit. The result is in line with the findings of Hibret (2015); Shemsu (2015); Khalily et al (1987); Wubetu (2012) and Nathanael (2014). This shows that branch expansion over the country directs to have more deposit, banks having many branches have high deposit. Thus null hypothesis is accepted and conclude that bank branches have causality relationship with growth of bank deposit; meaning that it is one of the major factors that banks can use as a strategy to attain deposit growth via a proper management of branch expansion. The researcher proposes that much research is required to directly trace and measure the contribution of branch expansion to deposit and to what optimal level the branch has to be opened.

Inflation (INF)

Inflation is a sustained increase in the general level of prices whereas; deflation is a sustained decline in the price level. The result indicated that inflation rate has insignificant negative impact in bank deposit. The coefficient of this relationship of -0.034834 indicates that holding other things constant, a unit increase in inflation rate will lead to 0.034-unit decrease in bank deposit at an insignificant level of more than 10 percent. The result implies that whenever there exist a persistent inflation, it would have a negative insignificant impact on commercial banks deposit. So higher inflation induces savers to save less, perhaps households get stable price prediction from deposit. This result is consistent with the precautionary motive, suggesting that increased macroeconomic uncertainty induces people to save a less proportion of their incomes.

Economic Growth (GDP) on Bank Deposit Growth

The other macroeconomic variable, GDP is calculated by adding up the value-added at each stage of production (deducting the cost of produced inputs and materials purchased from an industry's suppliers) (Jim, 2008). Theories and empirical evidence shows that, GDP is one of the main sources of bank deposit growth. If there is a real economic growth in a country, deposit will grow as well. This hypothesis was proved by the chakravarty committee in 1985. The committee reported that the growth of Indian deposit in 1985 at an increasing speed was attributed to the higher real growth achieved by the economy (chakravarty committee, 1985). The result of this study indicates that the economic growth of the country proxy by GDP had highly statistical and positive impact on deposit at 1% significance level. An increase of 1 unit in GDP will increase deposit by 0.319781 units. The economic growth will lead individuals and corporate income to increase. So this increment fronts to increase earnings, which will intern to increase saving. The result is similar with the finding of Demirguc-Kunt*et al.,* (1998), Bikker*et al.,* (2002) and Athanasoglou*et al.,*(2008) Tizita (2014), Hadush (2012). The study of the chakravarty committee in 1985 clearly identified that the existence of real growth in the economy will definitely leads to increase deposit.

CHAPTER FIVE

5. Summary, Conclusions and Recommendations

5.1. Introduction

The study is established to determine factors affecting commercial banks deposit in Ethiopia covering the period from 1999/2000 – 2015/2016. The independent variables considered in this study were number of bank branches (NBB), Deposit interest rate (DIR) Liquid asset to deposit ratio (LQATD), Inflation (INF), Economic growth (GDP), and capital adequacy (CAP). This chapter outlines the summary, conclusions and possible recommendations.

5.2. Summary of the Study

The drive of the study was on identifying factors which are affecting deposit in commercial banks operating in Ethiopia. The study employed quantitative approach which is based on secondary data. The result from the regression analysis estimated by random effect regression model showed below.

- Number of bank branch has positive and significant impact on commercial banks deposit
- Deposit interest rate has positive and significant impact on commercial banks deposit
- Liquid asset to deposit ratio has negative and insignificant impact on commercial banks deposit
- Inflation has negative and insignificant impact on commercial banks deposit
- Economic growth has positive and significant impact on commercial banks deposit
- Capital adequacy has negative and significant impact on commercial banks deposit.

5.3. Conclusions

The study empirically analyzed the determinants of commercial banks deposit growth operating in Ethiopia by constructing an economic model to study the impact of various factors such, number of bank branches, deposit interest rate, liquid asset to deposit, inflation, GDP and capital adequacy.

To comply with the research question, quantitative research approaches were used for the selected variables. The researcher gathered the data from secondary sources; National bank of Ethiopia, Ministry of Finance and Economic Commission office (MoFEC), Central Statistics Agency (CSA) and the 7 selected commercial banks. To measure the effect of the 6 explanatory variables, multiple regression analysis was adopted with the help of Eview-9 software. The findings show that four of the selected variables show statistically significant and the remaining two insignificant impacts on deposit.

- The result indicates that deposit interest rate is one of the major factors in explaining Ethiopian commercial banks deposit that means interest rate plays a great role in mobilizing deposit. The effect of deposit interest rate on commercial bank deposit is higher as compared with other variables.

- The result related with liquid asset to deposit indicates negative and insignificant impact on deposit of commercial banks in Ethiopia. This result implies that when the amount of liquid asset is high there is high amount of money in the banks and small amount of money is circulating in the country. Therefore this small amount of money in the country may lead to decrease the deposit of commercial banks.

- The result indicates that number of bank branch had positive and significant impact on commercial banks deposit. This suggests opening new branches increases the accessibility of more customers as a result a more deposit will be

collected. Public banks takes the line shares in this regard so that the private banks are still a big challenge on computation of these public banks

- The result in relation with capital adequacy negative and significant impact on commercial banks deposit growth. This result is in line with "financial fragility-crowding out theories" which predicts higher capital reduces liquidity creation and lower capital tends to favor liquidity creation. This implication shows that better capitalized banks tends to create less liquidity that leads to mobilize little amount of deposit. More importantly, the bank may also keep back effort, which restrictions the bank's ability to raise financing

- Inflation rate had a negative and insignificant effect on commercial banks deposit. The relationship is similar to the expected sign. It implies inflation could influence savings through its impact on real wealth. In the study period the country had experienced double digits inflation that result in higher costs of doing business; which leads to decrease in deposit mobilized by commercial banks.

- Economic growth which is measured by GDP had a positive and significant effect on commercial banks deposit which is in line with the expected sign. It indicates that when there is strong and sustainable economic growth in a country, commercial banks deposit will be higher because it increases the lifetime earnings of the people.

5.4. Recommendations

Based on the research findings, the study makes the following recommendations:

- By considering the result there is a positive and significant relationship between number of bank branches and deposit. This suggests that Ethiopian commercial banks specifically private commercial banks have to open more branches to compete with the public banks and access the society as a result deposit will be

increased. The branch managers have to aggressively work on opening new branches when they set deposit mobilization strategy. Rural areas have more potential to save but it is not exploited much.

- Opening new branches should be rational to do so when banks want to open branches in urban area, NBE should order the bank to open in a rural area to reach the unbanked area.

- In relation with capital adequacy of Ethiopian commercial banks it become better if regulatory bodies like NBE make a periodic supervision and check up on capital strength of respective banks.

- With respect to bank liquidity, as measured by the ratio of liquid asset to total deposits, a negative and insignificant relationship with deposit growth is confirmed (Molyneaux and Thornton, 1992). The estimated coefficient corresponding to this particular proxy suggests that an increase in liquidity will cause a decline in commercial banks deposit growth. These findings highlight the trade-off between liquidity and deposit growth. *Ceteris paribus*, the more resources that are tied up to meet future liquidity demands, the lower the banks deposit growth. Thus Ethiopian commercial banks have to give loan by considering the risk of high loan to deposit ratio and their deposit.

- On the macro economic impact to bank deposit growth, bank managers should be responsive to risks associated with changing macroeconomic factors such as GDP growth and inflation, among others. The result shows during inflationary period customers are not willing to deposit much. Thus NBE should give appropriate strategies and policies to increase depositors' confidence. The result also confirms that, rise in per capital income will lead to increase deposit. Thus the branch manager and marketing managers has to design different strategies and increase deposit.

5.5. Suggestions for Future Studies

The main focus of this study was identifying factors determining deposit mobilization in commercial banks in Ethiopia using the selected variables. However there are a number of bank specific and macro economic variables that has to be considered like in relation with technology advancement, urbanization of people and other variables. Thus, further researches are recommended to undertake similar study by considering additional bank specific and macro economic factors.

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Appendixes

Appendix A: Descriptive statistics

	DEP	NBB	DIR	LQATD	INF	GDP	CPA
Mean	0.763294	106.4790	0.038824	0.446202	0.116471	0.089776	0.134365
Median	0.778656	47.00000	0.040000	0.440000	0.097000	0.103500	0.128900
Maximum	0.871518	2045.000	0.050000	1.115400	0.364000	0.126000	0.294400
Minimum	0.493671	4.000000	0.030000	0.024000	-0.106000	0.016000	0.037400
Std. Dev.	0.064505	229.3889	0.009036	0.171071	0.113916	0.033605	0.049152
Observations	119	119	119	119	119	119	119

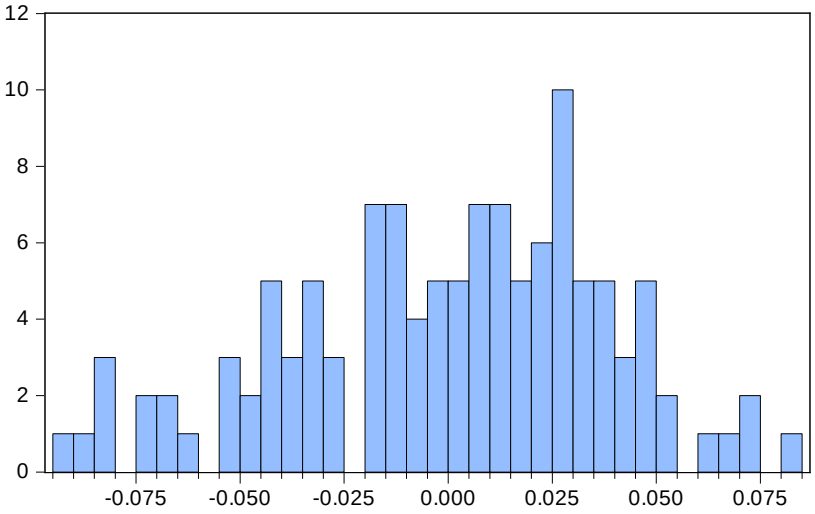
Appendix B: Correlation Analysis

	DEP	NBB	DIR	LQATD	INF	GDP	CPA
DEP	1.000000						
NBB	0.055133	1.000000					
DIR	0.095463	0.355884	1.000000				
LQATD	-0.279325	-0.374904	-0.367307	1.000000			
INF	0.030788	0.033390	0.382620	0.102929	1.000000		
GDP	0.245706	0.068306	0.285318	-0.064124	0.374831	1.000000	
CPA	-0.694623	-0.275547	0.203394	0.169827	0.074762	-0.040422	1.000000

Appendix C: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.673622	Prob. F(6,112)	0.1339
Obs*R-squared	9.791454	Prob. Chi-Square(6)	0.1337
Scaled explained SS	7.249224	Prob. Chi-Square(6)	0.2984

Appendix D: Normality Test result



Series: Residuals	
Sample 1 119	
Observations 119	
Mean	-7.15e-17
Median	0.005646
Maximum	0.080286
Minimum	-0.093382
Std. Dev.	0.037907
Skewness	-0.402848
Kurtosis	2.671600
Jarque-Bera	3.753421
Probability	0.153093

AppendixE: Correlation Matrix of Explanatory Variables

	NBB	DIR	LQATD	INF	GDP	CPA
NBB	1.000000					
DIR	0.355884	1.000000				
LQATD	-0.374904	-0.367307	1.000000			
INF	0.033390	0.382620	0.102929	1.000000		
GDP	0.068306	0.285318	-0.064124	0.374831	1.000000	
CPA	-0.275547	0.203394	0.169827	0.074762	-0.040422	1.000000

Appendix F: Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

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

Appendix G: Results of random effect regression model

Dependent Variable: DEP
Method: Panel EGLS (Cross-section random effects)
Date: 11/30/17 Time: 16:14
Sample: 2000 2016
Periods included: 17
Cross-sections included: 7
Total panel (balanced) observations: 119
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.823478	0.022951	35.87999	0.0000
NBB	1.563115	0.792140	3.113967	0.0023
DIR	1.953410	0.448717	4.353323	0.0000
LQATD	-0.031372	0.020979	-1.495412	0.1376
INF	-0.034834	0.030766	-1.132197	0.2600
GDP	0.319781	0.097151	3.291579	0.0013
CPA	-1.047546	0.086550	-12.10341	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.022637	0.3327
Idiosyncratic random	0.032057	0.6673

Weighted Statistics

R-squared	0.633320	Mean dependent var	0.247946
Adjusted R-squared	0.613676	S.D. dependent var	0.051843
S.E. of regression	0.032223	Sum squared resid	0.116291
F-statistic	32.24052	Durbin-Watson stat	1.086954
Prob(F-statistic)	0.000000		