Addis Ababa University

College of Business and Economics

Department of Accounting and Finance

Determinants of Deposit in Ethiopian Private Commercial Banks

Thesis Submitted In Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

By

Dereje Hailemariam Amene

February, 2017

Addis Ababa, Ethiopia

Addis Ababa University

College of Business and Economics

Department of Accounting and Finance

Determinants of Deposit in Ethiopian Private Commercial Banks

Thesis Submitted In Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

By

Dereje Hailemariam Amene

Advisor

Dr. Sewale Abate

February, 2017

Addis Ababa, Ethiopia

DECLARATION

I, Dereje Hailemariam Amene, hereby declare that this research work entitled; "Determinants of Deposit in Ethiopian Private Commercial Banks" submitted by me for the award of the degree of Master of Science in Accounting and Finance, is my original work and that all sources of materials used for the study have been duly acknowledged. I have carried out independently with the advice and comments of my advisor of the research, Dr. Sewale Abate.

Dereje Hailemariam Amene	_____	_____
Name of Student	Signature	Date

Addis Ababa University School of Graduate Studies

This is to certify that this thesis prepared by Dereje Hailemariam Amene, entitled; ***"Determinants of deposit in Ethiopian private commercial banks"*** and submitted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by:

Internal Examiner: Dr. Alem Hagos **Signature** _____ **Date** _____

External Examiner: Dr. Mehari Mekonnen Signature _____ **Date** _____

Advisor: Dr. Sewale Abate **Signature** _____ **Date** _____

Abstract

Understanding the nature of national savings behavior is critical in designing policies to promote savings and investment which in turn enhance economic growth through capital formation. This paper empirically examines the determinants of savings in private commercial banks of Ethiopia for the 2001-2015 periods. From total of sixteen private Banks which are engaged in commercial activities, six selected based on the historical time formation of banks. The conceptual framework for this study is originally derived from Life-Cycle model and appropriately modified to accommodate the peculiarities of a developing country and builds on the existing cross-country literature on determinant of saving mobilization. The researcher adopted Quantitative research approach. Bank specific and macroeconomic variables were analyzed by using the balanced panel fixed effect regression model. Different diagnostic tests (test for assumption of Homoscedasticity, Autocorrelation, Normality, average value of the error is zero and independent variables are non-stochastic) were conducted to check the appropriateness of the model. The results reveal that disposable income, real GDP growth, branch expansion, are positively and statistically significant on bank deposit growth; whereas, loan to deposit ratio (bank's liquidity)influence is negatively and statistically significant on bank deposit growth. Deposit rate and profitability had insignificant positive influence on bank deposit growth. Whereas population growth and capital to loan ratio (capital adequacy) had insignificant negative influence on bank deposit growth. The study implies that stimulation of economic growth is most important factors that affect bank deposit growth. The research recommends that private commercial banks should have to intensify branch expansion to areas where there are potential deposit sources even to remote locations .moreover, private commercial banks required to have enough liquid assets to meet the demand for cash outflows so as to generate and sustain public confidence of the depositors.

Keywords: Private commercial Banks, Bank deposit, Regression Analysis

Acknowledgements

First and foremost, the Almighty God shall be praised for he has been with me on all my way to date. This accomplishment was never started without the power and patience he has poured on me.

My sincere and deepest gratitude goes to my Advisor and Instructor, Dr. Sewale Abate, for his important and valuable advice throughout the study.

My grateful thanks also go to the employees of the National Bank of Ethiopia and MoFED for giving me the relevant financial data for the study.

My deepest gratitude goes to my family who are assisted me to accomplish this work. At last but not the least, my great thanks go to all my friends and workmates those who provided me all the necessary assistance when doing my thesis

Acronyms& Abbreviations

AIB:	Awash International Bank S.C.
BCBS:	Basel Committee for Banking Supervision
BLUE:	Best Linear Unbiased Estimator
BOA:	Bank of Abyssinia S.C
CAP:	Capital adequacy
CBB:	Construction and Business Bank
CBE:	Commercial Bank of Ethiopia
CLRM:	Classical Linear Regression Model
DB:	Dashen Bank S.C
Dep:	Natural logarithm of annual deposits increment
DW:	Durbin-Watson
FEM:	Fixed Effect Model
GTP:	Growth and Transformation Plan
HP:	Hypotheses
JB:	Jarque-Bera
LIQ:	Liquidity Coverage Ratio
MOFED:	Ministry of Finance and Economic Development
NBE:	National Bank of Ethiopia
NIB:	Nib International Bank S.C
OLS:	Ordinary Least Square
REM:	Random Effect Model
ROA:	Return on Assets
ROE:	Return on Equity
SSA:	Sub Saharan Africa
UB:	United Bank S.C
WB:	Wegagen Bank S.C

Table of Contents

List of Tables

List of Figures

CHAPTER ONE

1.1 Background of the Study

Resources for development can be mobilized from domestic or external sources. The external sources can be foreign direct investment and other forms of private foreign investment; export earnings from international trade; foreign aid and technical cooperation; and the proceeds of debts forgiven by international creditors. Domestic resources, on the other hand, stem from households, firms, and governments (Culpeper & Bhushan, 2008). Households generate savings; firms generate profits and net earnings; and governments generate taxes and other public revenues. However, it is argued here that the crucial difference between domestic and external resource mobilization rests not only on the origin, but also on the application, of the resources in question. In other words, there are typically significant differences between the motivations for, and impact of. For example, most of foreign aid and debt relief motivated by political objective of the donors and creditors, foreign direct investment responds to the commercial profit opportunities of, and retained earnings flow to, foreign investors. So it would be difficult, indeed impossible, to meet domestic development objectives principally through mobilizing external resources.

Resource mobilization is an integral part of banking activity. Bank deposits have certain peculiar features which combine the cannons of liquidity, profitability and security. Deposit mobilization is the most important function of commercial banks since their successful functioning depends on the extent of funds mobilized.

Saving and investment are two main macroeconomic variables that are closely related with one of the main problems of economics growth. Investment requires saving obtained either from national or international source. In examining the relation of national saving and investment, (Kayıkçı, 2012) have confirmed the predictions about the behavior of saving and investment; they move together in the long run. Knowing the nature of national savings behavior is a fundamental thing in designing policies to promote savings and investment which in turn enhance economic growth through capital formation(Kudaisi, 2013). Based empirical evidence cited (Carroll, Overland, & Weil, 2000) indicates that increases in growth tend to be followed by increases in saving. (Feldstein & Charles, 1980) found empirical evidence against the capital

mobility for the Organization of Economic Cooperation and Development (OECD) countries that domestic investment is largely determined by the national savings. (Ozcan, Gunay, & Ertac, 2003) has also indicate despite the importance of international flows of capital, the most important factor for a country's investment is indeed its own savings. Studies indicate that unsatisfactory growth performance in developing countries has been attributed to poor saving and investment (Nwachukwu & Odigie, 2011), (Loayza, Schmidt-Hebbel, & Servén, 2000), (Khan & Villanueva, 1991).

As financial intermediaries, banks are in the business of attracting deposits from individuals, businesses, and other organizations and then lending such funds to their customers with current credit needs. A bank's success in finding depositors consequently plays a critical role in its ability to satisfy customer credit demands and perform other banking functions. Moreover, much of a bank's profitability is derived from gathering deposits at one set of interest rates and then lending or investing these funds at higher rates. These key roles that deposits play in overall bank performance have thus drawn much attention to bank funding practices and the ability of individual banks to maintain or expand their deposit base (Harvey & Spong, 2001). On the other hand, (Browning & Lusardi, 1996) list eight depositor's motives in saving which are identified by M.J(1936) . These are

i. To Building up a reserve against unforeseen contingencies (the precautionary motive)
ii. To provide for an anticipated future relationship between the income and the needs of the individual (the life –cycle motives),
iii. To enjoy interest and appreciation (the inter-temporary substitution motive),
iv. To enjoy a gradual increase in expenditure (the improvement motive),
v. To enjoy sense of independence and the power to do thing , though with out a clear idea of definite intention of specific action (the independence motive),
vi. To secure a masse de maneuver to carry out speculative or business projection (the enterprise motive),
vii. To bequeath a fortune (the bequest motive),and
viii. To satisfy pure miserliness, i.e., unreasonable but insistent inhibition against acts to expenditure as such (the avarice motive)

Compared to most countries, Ethiopia has taken a cautious approach toward the liberalization of its banking industry. For all intents and purposes, its industry is closed and generally less developed than its regional peers. The industry comprises one state-owned development bank and dominant Commercial Bank of Ethiopia (CBE) with assets accounting for more than 70 percent of the industry's total holdings and sixteen private domestic commercial bank. ((IMF), 2013). The banking industry's nonperforming loan ratio is commendably low, and profitability is good, but the dominance of public sector banking certainly restricts financial intermediation and economic growth. It contrasts with regional and international peer countries where banking industries have a much higher share of private sector and foreign participation.

The underdevelopment of the banking industry in Ethiopia can be seen in the small proportion of the population that has a deposit account, less than 8 percent. This underdevelopment restricts economic growth because it dramatically reduces the ability of the banking industry to offer savings products, which in turn hinders greater bank lending to business and entrepreneurial developments (Keatinge, 2014).

Before ten years, According to (Amha & Alemu, 2014) Commercial banks of Ethiopia focused on the delivery of credit and failed to focus on the provision of saving services for a number of reasons. These include:

I. The limited investment opportunities in the economy which limited the opportunities to convert deposit or saving into investment ;
II. The excess liquidity in formal financial institution which discouraged finance providers from mobilizing saving;
III. The limited number of financial intermediaries in Ethiopia focusing in urban areas and hardly reaching the excluded population in rural areas, particularly in remote areas;
IV. Misguided notion of finance providers, particularly formal banks, that low-income people are too poor to save and are un-bankable;
V. Practitioner believe that the transaction costs to mobilize from the poor and in remote areas is high;

VI. The unsubstantiated belief that poor households aren't creditworthy ,risky and financial service cannot be provided to the poor on a profitable basis at low transaction costs contributed to the exclusion of poor households from accessing financial services;

VII. Subsidized loans provided to financial intermediaries discourage saving mobilization ;

VIII. Limited understanding and education on the role of household saving ;

IX. Lack of financial intermediaries which the client trust and finance providers which trust the financially excluded population has also limited financial access to poor household ;

X. Inadequate financial infrastructure has limited the capacity of financial intermediaries to mobilize public saving .particularly in rural and remote areas; and

XI. The limited technical and financial capacity of financial intermediaries to mobilize public saving .These include lack of client-centered saving product ,inadequate incentive system for staff and Branches mobilizing savings, lack of back and front—office technology, inadequate risk management system etc.

Currently there is an increasingly growing public and private investment in Ethiopia in the area of infrastructure, agriculture, manufacturing, and processing etc. which seeks for continues supply of finances. Financial assistance from other is not dependable and unfortunately decisions are made beyond the financial criteria. Moreover, the donation of funding is unpredictable and difficult to plan for long term investment in the economy. This calls for urgent mobilization of financial resources domestically. Thus, banks have a major responsibility to mobilize deposit to reduce dependence on external resources.

1.2 Statement of Problem

In developing economy, the commercial banks are recognized for their vital role in the economy to enable to continue to meet the ever growing demand for credit. Commercial banks have assumed greater responsibilities in mobilizing domestic resources for financing the priorities of the economy.

In this regard, Public sector banks will inevitably lead investment in key developmental projects such as those involving infrastructure, but broad-based development is required in order to create sustainable economic growth, and this investment typically comes from private sector banks as their deposit base grows. Expanding private sector banking needs to be encouraged so that the

national savings rate increases dramatically. As a result, investment in businesses and the broader economy can be undertaken from this base of funding stability rather than through the use of international borrowing.

Expanding private sector banking and increasing financial intermediation are key elements of this much-needed reform that will underpin economic growth. The most recent available data indicate that Ethiopia is falling behind its sub-Saharan African peers, with credit to the private sector equal to only 14 percent of gross domestic product (GDP), a reduction of 5 percentage points since 2004, compared with the rising-peer average of 23 percent (Keatinge, 2014).

Currently, total deposit of private commercial banks is 34 % of total deposit of all banks in Ethiopia. This is also very small when it compares with sub –Saharan peers. (addisfortune.net)

Hence, commencing from the year 2009 the government of Ethiopia has forced to take further steps to strengthen the financial sector in order to achieve the five years Growth and Transformation Plan (GTP). However, some of the measures that had been taken by the government were likely to weaken financial intermediation and make the playing field between private and public banks more uneven as the public banks have a competitive advantage over private banks. For instance, National Bank of Ethiopia (NBE, 2011) issued a directive effective from April 4, 2011 that requires private commercial banks to hold 27 percent of the gross loan extension in a 5 year bill at an interest rate of 3 percent per annum. This bring private commercial Bank's loanable fund tied up in a less profitable investment. However, CBE and DBE are gaining competitive advantageous as they are set free from purchasing of bonds. In addition, Households partial saving for low cost house of condominium projects are allowed to be deposited only in CBE. This is also other competitive advantage given to public Bank. Data accessed from the financial statements of private commercial banks indicated that liquidity (Loan to Deposit ratio) of private commercial banks after the directives enactment is higher than before the directive enactment reflecting that the reduction of liquid asset of banks to repay its liability. It was 62%, on average before the enactment of the directive and 76% on average after the enactment of the directive marking 14 percentage increases (Shibiru, 2014).

These indicates that discriminatory policies likely to decrease the deposit mobilization of private Banks and made the Banks unable to fulfill the credit demand of their clients.

Moreover, in the contexts of Ethiopia, the related research has mostly focus on only one public Bank (Commercial Bank of Ethiopia) and little attention is given to Private commercial Banks. In addition to this, there is also inconsistency finding among researcher. According to Hibret (2015) and Shemsu (2015) finding , interest rate has positive relation with deposit however Giragn (2015) reveals that deposit interest has negative relation with deposit . Giragn (2015) and Wubitu (2012) found that Branch expansion had positive and significant effect on total deposit. As opposed to this finding, Tizita (2014) reported that branch expansion has negative effect on private saving in the short term. According to Yitbarek &Hibret (2015) and Giragn (2015) finding economic growth has positive and insignificant to deposit mobilization however Bahredin (2016) revalues that economic growth is the most important factors to deposit mobilization.

This is therefore; the number of studies conducted so far on deposit mobilization are limited in number , scope and have inconsistency funding further study is required. So this study is helpful in filling this research gap by identifying the factors that affect the deposit mobilization of the Private commercial banks of Ethiopia in order to manage and control through different strategies in the future.

In order to increase deposit of private commercial Banks of Ethiopian, understanding the nature of households saving behavior is critical so senior Managers of private Commercial Banks would benefit from the research by understanding the real determinant factors that affect deposit mobilization and design strategies to minimize tradeoffs. Academicians will also use it in examining the relationship between bank deposit and its stated factors

1.3 Objective of Study

The main objective of this study is to examine what determine private commercial banks' deposit in Ethiopia economy. The specific objectives of the study are

- To examine the effect of Disposable income and real GDP on private commercial banks' deposit
- To examine the effect of Population growth rate and deposit rate on private commercial banks' deposit
- To examine the effect of capital adequacy and Bank's liquidity on private commercial banks' deposit

- To examine the effect of Branch Expansion and profitability on private commercial banks' deposit

1.4 Research Questions

- How does deposable income affect private commercial banks' deposit?
- How does population growth rate affect private commercial banks' deposit?
- How does deposit rate affect private commercial banks' deposit?
- How does GDP growth rate affect private commercial banks' deposit?
- How does Branch expansion affect private commercial banks' deposit?
- How does profitability affect private commercial banks' deposit?
- How does Bank liquidity affect private commercial banks' deposit?
- How does adequacy capital affect private commercial banks' deposit?

1.5 Hypotheses of the Study

The purpose of this study mainly focuses on to identify the determinants of deposit on Ethiopian private commercial banks. In order to evaluate and identify the determinants and to break down the research questions, the following major hypotheses will be tested in the case of Ethiopian private commercial banks.

H1: Disposable income has positive and significant impact on bank's deposit

H2: Real GDP growth has positive and significant impact on bank's deposit

H3: Population Growth has positive and significant impact on bank's deposit

H4: Deposit rate has positive and significant impact on bank's deposit

H5: Branch expansion has positive and significant impact on bank's deposit

H6: Bank's liquidity has negative and significant impact on bank's deposit

H7: Capital adequacy has negative and significant impact on bank's deposit

H8: profitability has positive and significant impact on bank's deposit

1.6 Scope and Limitation

The scope of the study extends up to examining determinant of deposit mobilization of private Commercial Bank of Ethiopia. As it is well-known, most private commercial Banks are established recently and if sample of population want to be increased then the frequency of observation will decreased .This may create difficulties to find out the true relation between dependent variable and independent variables. In order to make generalization from sample to population, and to increase number of observation of the study, a combination of the maximum number sample of population (private commercial bank) and frequency of observation (Year of operation) were taken into account. As a result, the researcher used 15 years data by taking sample of 6(six) private commercial banks that have been operating 2001 to 2015 while deposit mobilization activity in Ethiopia is made by the entire seventeen commercial banks.

1.7. Significant of Study

This study has significant role to play in filling gap in understanding of private commercial Bank's deposit determinate which is basic to become profitable in banking industry by ensuring the provision of the ever demanding loans and facilities for investment. And hence, serve as reference for senior managers of commercial Banks of Ethiopia to equip them with applied knowledge of factors which have an impact on deposit mobilization so as to design and implement effective deposit attraction strategies. Academicians will also use it as point of reference in examining the relationship between bank deposit and its stated factors.

1.8. Organization of the Study

The study is organized into five chapters. First chapter includes back ground of the study, statement of the problem, objective of the study, research questions**,** hypothesis, scope and limitation, and significance of the study .Second chapter is literature review on both theoretical and empirical studies regarding the bank deposits and the factors that determine deposit mobilization activity more ever conceptual framework of the study also presented in this chapter. Chapter three presents research design, sample & population, data type & source, model specification, method of data analysis, variable description and hypotheses. Then, chapter four presents the results and discussion of the study and finally, chapter five presents conclusions and possible recommendations.

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with review of both theoretical and empirical literature on the subject under study. It also outlines a historical overview of banks in Ethiopia, discusses conceptual framework of the study and type of bank deposits.

2.1. Theoretical and Conceptual Literature Review

The theoretical basis for understanding the crucial position of bank deposit is related to consumer choice and banking activities. There are also four widely accepted theories related to consumer choice. These theories are Absolute Income Hypothesis (AIH) by Keynes (1936), Relative Income Hypothesis (RIH) by Duesenberry (1949), Permanent Income Hypothesis (PIH) by Friedman (1957), and Life-Cycle Hypothesis (LCH) by Modigliani (1963). There are four theories related to banking activities, these are Real Bill theory, Portfolio regulation theory, Shiftability Theory and the liability management theory.

2.1.1 The Keynesian Theory of Absolute Income Hypothesis

Keynes in his theory argues that consumption and savings are an increasing function of absolute/disposable income. Keynes postulates that consumption will increase at a decreasing rate as the income increases other things being constant. This implies 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) (Equation 1).

$S_t = C + \beta Y_t$

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 Duesenberry Relative Income Hypothesis

According to Duesenberry (1949) cited in Epaphra (2014) ,an household consumption function depends on household income in relation to other household income, as a result, for any given relative income distribution, the percent of income saved by a household will tend to be unique, invariant, and increasing function of its percentile position in the income distribution. The Relative Income Hypothesis assumes that the percent of income saved will be independent of the absolute level of income. This implies that the MPS (marginal propensity to save) of an individual would be higher if his percentile position in the income distribution is higher.

2.1.3 Milton Friedman's Permanent Income Hypothesis

The core of Friedman's PIH is that individuals are rational and they seek to maximize their lifetime utility subject to the constraint that all their lifetime resources must be spent. In this hypothesis, income and Consumption are divided into two major components, the transitory and permanent components. The permanent income is defined as the lifetime income an individual is expected to earn out of the physical and human assets that he possesses while transitory income has been defined as the difference between actual income and permanent income over a specified period of time. This is because an individual economic agent is thought to plan his expenditures on both income received during the current period and income expected during his lifetime. Therefore, consumers plan their expenditure on the grounds of a long-run view of the resources that will accrue to them in their lifetime. Friedman argues that, permanent income should be considered when studying the saving and consumption behavior of economic agents, not absolute income as Keynes suggests (Epapher 2014).

According to Friedman's PIH, the saving function at time t in its simplest form given the transitory and permanent income can be expressed as (Equation 2).

$St=C+\Phi Y\ (p) +\Phi Y(T)$

Where,

Φ is the marginal propensity to save given permanent income Y(p)

Φ is the marginal propensity to save given transitory income Y(t)

C= constant with value less than zero

2.1.4 Life-Cycle Hypothesis

Ando and Modigliani (1963) postulate a life-cycle hypothesis of consumption of an individual in a specified period of time the life-cycle hypothesis has been utilized extensively to examine savings and retirement behavior of older persons. This hypothesis begins with the observation that consumption needs and income are often unequal at various points in the life cycle. Younger people tend to have consumption needs that exceed their income. Their needs tend to be mainly for housing and education, and therefore they have little savings. In middle age, earnings generally rise, enabling debts accumulated earlier in life to be paid off and savings to be accumulated. Finally, in retirement, incomes decline and individuals consume out of previously accumulated savings. This model suggests that in the early years of a persons' life they are net borrowers. In the middle years, they save to repay debts and provide for retirement. The life cycle model predicts that a higher interest rate increases the current price of consumption visà-vis the future price, thus leading to an increase in savings.

According to Tochukwu (2009), the life –cycle hypothesis theory are more focus on what happens in developed economies but little or no regard to the peculiarities of developing countries. So it needs to modeled separately from that in developed economies because

- Households in developing countries tend to be larger than those in developed ones, and there is a greater tendency for several generations to live together. Such a household has no need for retirement saving because resources are shared between workers and dependents, and ownership is passed from parents to children. This kind of household can internalize many of the insurance activities that would otherwise require saving
- Developing-country households tend to be large and poor. They have a different demographic structure, more of them are likely to be engaged in agriculture, and their income prospects are much more uncertain. Uncertainty at low income poses a real threat to consumption levels, a threat that is likely to exert a powerful influence on the way in which income is saved and spent.
- Borrowing is not permitted. This is an extreme simplifying assumption, but more appropriate than it's opposite, that households are free to borrow and lend at a fixed real interest rate.

- Saving provides a buffer between uncertain and unpredictable income and an already low level of consumption. Saving here is inter temporal smoothing saving, not life-cycle intergenerational saving. The analysis is different, and so are the welfare issues, which are focused on the protection of consumption, particularly among those whose consumption levels may not be far above subsistence.

Based on the above point, Deaton (1989) modifies the life-cycle theory by developing a model of households which cannot borrow but which accumulate assets as a buffer stock to protect consumption when incomes are low. Such households dissave as often as they save, do not accumulate assets over the long term, and have on average very small asset holdings. However, their consumption is markedly smoother than their income.

2.1.5 Real Bills Theory

This is one of the oldest theories in banking and it is also referred to as the "commercial loan theory". According to the Real Bills Doctrine, unrestricted intermediation either by private banks or by a central bank has a beneficial economic effect. The doctrine asserts that one function of banks is to issue notes or similar liabilities that are more convenient and easily held as assets than the bills being discounted. 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). 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.

2.1.6 Portfolio Regulation Theory

Regulatory policies typical for the banking sector may include Deposit interest rate ceilings, Portfolio restrictions, Deposit insurance, Capital requirements and Regulatory monitoring. The study also uses the theory of portfolio regulation to gauge the performance of banking firms. The theory opined that the regulation of banks is necessary to maintain safety and soundness of the banking system, to the extent, which put them in a position to meet its liabilities without

difficulty. This made it imperative for the regulatory authorities to compel greater solvency and liquidity on individual banks than making it optional.

2.1.7 Shiftability Theory

Shiftability theory is developed in 1918 by M.G Mouton. Central theme:

- Bank must arrange portfolio in such a way that it can have desired liquidity.
- Most investment is made in secondary money market securities so that liquidity can be achieved at a little/very insignificant amount of loss of value.
- Here investment money market securities includes, treasury bill, commercial paper and securities issued by reputed companies.
- Bank can also get cash from central bank in case of difficulty simply by keeping the instruments as security. (Mutton, 1981).

Assets shiftability refers to the ability of financial assets to move between persons or institutions (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 and the more liquid the banks are, the better they attract deposits .It 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.

2.1.8 The Liability Management Theory

Liability management is the use and management of liabilities, such as customer deposits, by a bank in order to facilitate lending and allow for balanced growth. Management of money accepted from depositors as well as funds secured from other institutions constitute liability management. 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

2.1.9 The Determinants of Commercial Banks Deposits- Theory

These are macroeconomic factors and micro economic factories that can affect the growth of commercial banks deposits. There are discussed as follows:-

- **Macroeconomic Factors**

The external or macro determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and deposit positions of Banks. The macroeconomic factors that can affect bank's deposit include factors such as Economic growth; disposable income, deposit rate and population growth among others.

Economic Growth

Economic growth is an increase in the capacity of an economy to produce goods and service, compared from one period of time to another. It is generally being measured through GDP (Gross Domestic Product), a variable that has also become the de facto universal metric for 'standards of living (Yanne et al, 2007).

The relevant literature generated a mixed view regarding the relationship between savings and Economic growth. Some of the researches explain that savings cause to economic growth; however some other certain works argue that economic growth granger causes savings. Different countries also have different effect of saving; income source of a country does play an important role in determining the direction of causality.

In the light of life-cycle analysis, GDP growth will result in an increase of aggregate savings, because it increases the lifetime earnings and savings of younger age groups relative to older age

groups (Athukorala and Sen, 2004).Thus, Countries with higher GDP growth rates are expected to have higher savings than countries with lower growth rates. However, the size of this effect is likely to decline as GDP growth rises and may even become negative for rich countries where investment opportunities and growth are relatively lower (Masson et al, 1998 cited in Epapher 2014)

Disposable Income

Income received by households can be disposed of in three ways: it can be paid in tax, consumed or saved. Income after tax is disposable income. Household disposable income is the income available to households for consumption or saving.

Life cycle hypothesis emphasized that income varies systematically over people's lives and that saving allows consumers to move income from those times in life when income is high to those times when it is low. The life-cycle hypothesis suggests a positive relationship between saving and income. High incomes improve the per capita income of the households, which will induce them to save more. Thus, richer people can afford the luxury of saving for their future consumption. The poor on the other hand, have low incomes that only allow them to consume at the maximum level. It therefore follows that higher incomes enhance the saving's ability of households and consequently raises the national savings (Epaphra 2014).

Changes in real disposable income over time are often interpreted as a measure of changes in the average standard of living of a country. If households and firms desire to hold more money, deposits will increase. So the relationship between income and deposits is positive that is as the income of the society increases the same happens for the commercial bank' deposits. Income is expected to have a positive effect on deposits (Khaliy, Meyer & Hushak 1987)

Deposit Rate

The main focus of every financial system is financial intermediary, that is, mobilizing financial resources from the surplus sector and lend to the deficit outlets to facilitate business transactions and economic development based on the monetary and fiscal policy of the nation. The attraction for getting the deposit from the surplus sector is interest payment, which must be reasonable and acceptable to the owner of the money.

The classical theory of interest otherwise called the demand and supply theory of interest, maintains that the rate of interest is determined by the demand for and the supply of funds by businessmen and households respectively. The supply of funds is governed by the time preference and the demand for capital by the expected productivity of capital.

McKinnon (1973) and Shaw (1973) argue that for the typical developing country, the net impact of a change in real interest rate on saving is likely to be positive. This is because, in the typical developing economy where there is no robust market for stocks and bonds, cash balances and quasi-monetary assets usually account for a greater proportion of household saving compared to that in developed countries.

Population Growth

If saving is hump saving, accumulated during the working years to finance retirement, then population growth provides more savers than dissevers, and positive aggregate saving. For many people, population growth is the issue in economic development, and the relation between population growth and capital accumulation is one of the most important of the possible link between population policy and economic welfare.

The life cycle and permanent income models of consumption and savings suggest that population growth affect the savings rate. Assuming that the bequest motive for saving is of little importance, the young and the old thus tend to have low saving rates, whereas the highest saving rates are observed among people who are at or around the peak of their earnings.

- **Bank Specific Factors**

The Bank specific factors are factors that are related to internal efficiencies and managerial decisions. Such factors include determinants such as Branch expansion, capital adequacy, bank liquidity, bank profitability and the like.

Capital Adequacy

Capital of a bank includes paid up capital, undistributed profit (retained earnings), legal reserve or other reserves and surplus fund which are kept aside for contingencies. Though capital adequacy ratio is measured by the ratio of total capital to risk weight asset, in some literatures it can be also measured by the ratio of capital to total asset and then in this study, the proxy for capital adequacy is the ratio of total capital of the bank to total loan and advance of the bank.

Capital adequacy refers to the extent to which the assets of a bank exceed its liabilities, and is thus a measure of the ability of the bank to withstand a financial loss.

Rajan (2002) under the theory of financial fragility-crowding out suggest that higher capital commercial bank reduces liquidity creation and lower capital commercial Bank tends to favor liquidity creation, Furthermore, Gorton and Winton (2000) show that a higher capital ratio may reduce liquidity creation through another effect: "the crowding out of deposits". They consider that deposits are more effective liquidity hedges for agents than investments in bank equity. Indeed, deposits are totally or partially insured and withdrawable at par value. Consequently, higher capital ratios shift investors‟ funds from relatively liquid deposits to relatively illiquid bank capital.

Bank's Liquidity

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

According to Olagunju, Olanrewaju, Olabode and Samuel (2011) Liquidity involves three elements or characteristics namely Marketability, Stability and Conservatism. Liquid assets should be more marketable or transferable. That means, they are expected to be converted to cash easily and promptly, and are redeemed prior to maturity. All assets that cannot be redeemed at maturity are said to be illiquid. the fact that the prices of the former are fixed and have lesser variability than the prices and value of the later that experience considerable fluctuation. Conservatism quality of liquidity refers to the ability of the holders of liquid assets to recover the cost of the asset on the time of resale. On the basis, common stocks are not considered highly liquid asset despite its ready marketability. This can be attributed to the fact that on certain periods, the current prices are lower than their initial or original prices. In consideration of these qualities, people and firms decide to hold cash which is the only perfectly liquid asset. Another quality of liquid asset is price stability. Based on this characteristic, bank deposits and short term securities are more liquid than equity investments such as common stocks and real estates due to Banking liquidity is the ability to meet obligations when they come due without incurring unacceptable losses.

The more liquid banks can attract the deposits. When banks fail to pay for its depositors then it faces liquidity risk that makes other depositors not to deposit in that particular bank.

Bank Profitability

One of the reason as to why people deposit in 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), finds that the long run relationship between commercial banks deposits and the profitability of the banks. The long run 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.

Branch Expansion

Branch expansion is opening new branches or service outlets in and outside the country. (Carlson and Mitchener, 2005), found from theoretical literature on banking regulation that branch banking leads to more stable banking systems by enabling banks to better diversify their assets and widen their deposit base. An argument commonly articulated in the literature is that branch banking stabilizes banking systems by reducing their vulnerability to local economic shocks; branching enables banks to diversify their loans and deposits over a wider geographical area or customer base. According to (Erna & Ekki, 2004), there is a long run relationship between commercial bank branch and commercial banks deposits.

Rangarajan (1982) explained that branch expansion, by spreading the banking habit over a wider geographical area, induced a large number of people to use bank deposit. Besides, a wide network of branches by facilitating transactions across different geographical areas reduced the need for holding larger amount of cash. This prevented the outflow of reserves from the banking system leading to a larger expansion of secondary deposit; therefore, the author observed that one of the structural changes to be expected from a massive branch expansion program was raising deposit

Lewis (1955) noted that people would save more if saving institutions were nearer to them than if they were farther. As a result, a negative relationship is assumed to exist between population per bank branch and household financial saving. However, whether increased financial

intermediation itself significantly increases the overall propensity to save depends also on the degree of substitution between financial saving and other items in the household's asset portfolio. Consequently, the expected sign of this relationship in the private saving function is ambiguous.

2.2 Type of Bank Deposit

Deposit account is a savings account, current account or any other type of bank account that allows money to be deposited and withdrawn by the account holder. These transactions are recorded on the bank's books, and the resulting balance is recorded as a liability for the bank and represents the amount owed by the bank to the customer. Some banks may charge a fee for this service, while others may pay the customer interest on the funds deposited**.** The account holder has the right to withdraw any deposited funds, as set forth in the terms and conditions of the account. The following are most common type of bank deposit.

- **Demand Deposit:** it consists of funds held in an account from which deposited funds can be withdrawn at any time without any advance notice to the depository institution. Demand deposits can be "demanded" by an account holder at any time. Many checking accounts today are demand deposits and are accessible by the account holder through a variety of banking options, including teller, ATM and online banking.
- **Savings Account:** is a deposit account held at a bank or other financial institution that provides principal security and a modest interest rate. Depending on the specific type of savings account, the account holder may not be able to write checks from the account (without incurring extra fees or expenses) and the account is likely to have a limited number of free transfers/transactions.
- **Time Deposit**: time deposit or certificate of deposit (CD) held for a fixed-term, with the understanding that the depositor can make a withdrawal only by giving notice. A time deposit is an interest-bearing bank deposit that has a specified date of maturity. Generally speaking, the longer the term the better the yield on the money.

2.3 Banking History in Ethiopia

Modern banking in Ethiopia was introduced after the agreement that was reached in 1905 between Emperor Minilik II and Ma Gillivray, representative of the British owned National Bank of Egypt. Following the agreement, the first bank called Bank of Abyssinia was inaugurated in

Feb.16, 1906 by the Emperor. (Samuel, 2005) .The State Bank of Ethiopia was established in 1943. Until 1963 the Bank of Ethiopia was operating as both a commercial and central bank. In 1963 it was remodeled into today's National Bank of Ethiopia (NBE). It was also re-established in 1976 and the Commercial Bank of Ethiopia (CBE) too. (Giragn, 2015) .Following the declaration of socialism in 1974, the three private owned banks, Addis Ababa Bank, Banco di Roma and Banco di Napoli Merged in 1976 to form the second largest Bank in Ethiopia called Addis Bank with a capital of Eth. birr 20 million and had a staff of 480 and 34 branches. Then Addis Bank and Commercial Bank of Ethiopia S.C were merged by proclamation No.184 of August 2, 1980 to form the sole commercial bank in the country until the establishment of private commercial banks in 1994.

Proclamation No. 84/1994 that allowed the private sector to engage in the banking business marked the beginning of a new era in Ethiopian banking. Following this proclamation Ethiopia witnessed a proliferation of domestic private banks. Currently, the one state-owned banks – Commercial Bank of Ethiopia (CBE) and the sixteen private commercial banks' assets at end of June 2015, have grown to nearly 474.2 billion Br, accounting for 37.9pc of GDP. Total deposits of all commercial banks depicting has shot up to 366 billion Br, accounting for 29pc of GDP. All Private commercial Banks represented less than 35pc of total assets; nearly 30pc of total loans, advances and bonds; 34 pc of total deposits; and 64 pc of total capital of the commercial banking industry (35.7 billion Br) in the country over the past fiscal 2014/15 The total number of employee and branches under private commercial Banks has reached more than 35, 000.00 and 2,000 respectively at the end of June 2016. (addisfortune.net/columns/what-a-year-for-banks).

2.4 An Empirical Review

Saving is fundamentally about choosing between current and future consumption. Saving is part of one's current income that is not spent on current consumption. There are a number of empirical studies that have been done in developed and developing countries trying to examine the key determinants of commercial banks deposit mobilization. The reviewed studies used different model like, Distributed Lag-error correlation and vector error correlation model .They also used different software like Spss and E-view software to analyze data. Some studies concentrate mainly on fixed-effect models using Ordinary Least Squares (OLS) estimates to explain the variations in savings performance among countries. Other studies apply co-

integration analysis, which allow for heterogeneity in parameters and dynamics across countries, to arrive at their conclusion. For easy of reference, it categorized in to three part and present as follows

Empirical review about determinant Ethiopian's Commercial Bank deposit

One of an early attempts was made by Abu (2005) to investigate the determinates of domestic saving in Ethiopia. The study used data collected from NBE, MOFED, UNCTAD, world Bank and IMF Statistical publication for the period 1960/61-2002/03.His result indicated that the domestic saving rate in Ethiopia has been too low to sustain robust capital accumulation and economic growth .The main factors behind the declining rate of saving were unsustainable expansion of public sector consumption expenditure and lack of sustained economic growth.

Ayalew (2013) attempted to empirically investigate the significance of selected macroeconomic variable in determining domestic saving in Ethiopia, using time series data from 1970/71-2010/11. Applying an autoregressive distributed lag (ARDL) bounds testing approach he found out that the growth rate of income was positively and significantly influencing domestic saving in the long run , Whereas deposit interest rate, was found to be statistically insignificant determinates of domestic saving. He argued that domestic saving rate increases with income growth, which is consistent with life cycle hypothesis and the result of previous studies in Ethiopia. The insignificance of deposit interest rate and degree of financial depth variables might show that financial development did not contribute to the increase in savings. This is because of the low financial sector development in the country, where banking sectors expansion and competition were very low discouraging saving mobilization.

Kidane (1989) examine income and external capital flows on aggregate savings behavior in Ethiopia. He argued that contrary to theoretical belief, GDP had a negative sign. Taking the period of review into consideration, there was the implication that there were no savings from GDP and the national income level was not enough to meet the current consumption. He also observed that one of the determinants of savings in the economy could be structural change. Such change could be a change in monetary policy, investment policy or interest rates. Such changes would constitute minor changes whilst major changes would comprise changes in government or the economic system. Ethiopia experienced the changes in 1974. Breaking the period into two parts – 1960 to 1973 and 1974 to 1985 respectively, he tested for structural

breaks using consumption instead of savings to test for the structural break. His conclusion was that a stable government with consistent policies is essential for improving the savings rate.

Yitbarek and Hibret(2015) investigated short and long run impacts of endogenous and exogenous factors on deposit growth of Commercial Bank of Ethiopia for the period 1974/75 - 2013/14. The paper also established the causal relationships that exist between the antecedents and the consequent. In the empirical VECM model, the control variables: Economic Growth, Interest Rate, Population Growth and Branch Expansion were used to establish the causal relationship and measure their impact on the outcome variable. The estimated results suggest Interest Rate has positive but insignificant impact on deposit growth both in the long-run and short-run while Branch Expansion significantly increases bank deposit contemporaneously both in the short run and long-run. Moreover, Population and Economic Growth have a positive relationship with deposit growth but significant only in the long-run.

Bahredin (2016) aims to find the determinants of commercial banks deposit growth in Ethiopia. The study used annual data spanning from 2000 to 2014. Random effects technique had been applied to find out the most significant variables. The estimated results suggest, 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 had insignificant positive influence on bank deposit growth. The study implies that stimulation of economic growth, banks presence and financial intermediation are most important factors that affect bank deposit growth.

Jembere (2014) Empirical examine determinants of deposit mobilization in private commercial banks of Ethiopia using panel data of six private commercial banks from year 2002 to 2012. The empirical results showed that bank branches, and real gross domestic product affects deposit of the bank positively whereas, capital adequacy and liquidity affects the deposit of the private banks negatively.

Giragn (2015) investigate the determinants of deposit mobilization and related costs of commercial Banks in Ethiopian during the (2001/2-2012/13) period .The study reveals that the branch expansion is the most significant factors of deposit mobilization activity. Deposit rate and real per capita GDP growth rate have insignificant power to influence the dependent variable. In

this research, as opposed to the conventional economic theory, the deposit rate is found to have negative relation against the deposit volume for the period under study. Similarly, Shemsu (2015) investigate the determinants of commercial bank deposits in Ethiopia: a case of commercial bank of Ethiopia. The researcher adopts mixed research approach. Regarding to the secondary data; time series data covering 1998 - 2014 was analyzed .The study reveal that Branch expansion significantly affect deposit mobilization. However, GDP growth and deposit rate positively affect deposit mobilization .With regard to deposit rate, Wubetu (2012) examines factors that determining commercial bank deposit: an empirical Study on Commercial Bank of Ethiopia and points out that deposit rate had positive and insignificant effect on total deposit.

Empirical review about determinant others African's commercial Banks deposit

Epapher (2014) Empirical examine the Determinants of Tanzania's National Savings during the period of 1970-2010. The study reveals that disposable income, real GDP growth and population growth have a positive impact on savings in Tanzania. Regarding to interest rate, Tochukwu E. Nwachukwu and Peter (2009) examines the determinants of private saving in Nigeria during the period covering 1970 – 2007 and suggested that it is positively influences on domestic saving on Nigeria. Similarly Mashamba, Magweva & Linda (2014), study the relationship between banks' deposit interest rates and deposit mobilization in Zimbabwe for the period 2000-2006, found that deposit rate have positive effect on bank's deposit in Zimbabwe. Likewise, the study by Eriemo (2014), on Macroeconomic Determinants of Bank Deposits in Nigeria using data covering the period between 1980 and 2010, suggested that interest rate and bank branches are important determinant of bank deposit. However, Simon & Jolaosho (2013) found real interest rate has negatively impacted on the level of savings mobilization in Nigeria while they undertaking empirical assessment on the impact of real interest rate on savings mobilization in Nigeria using the time series data from 1980 to 2008 by using The Vector- Auto Regression (VAR).On other study in same country, Musa, Iyaji, Success (2014), examines the determinants of private domestic savings in Nigeria during the period covering 1986 – 2010.The study reveals per capita income are strong determinants of private domestic savings but interest rate impotent to drive savings mobilization.

Tafirei, Rabson and Linda (2014) examine the relationship between banks' deposit interest rates and deposit mobilisation in Zimbabwe for the period 2000-2006. The study was used developed

an Ordinary Least Squares (OLS) model to show the relationship between the response and explanatory variables and they used Pearson's correlation coefficient to demonstrate the strength of the relationship. The data was first tested for; stationarity using the Augmented Dicker-Fuller Test, multicollinearity using correlation matrix and autocorrelation using the Durbin-Watson statistic. The study found a positive relationship between deposit rates and banks' deposits for the period under study and all the other explanatory variables were statistically significant. Also, the coefficient of determination was found to be significantly high showing that the explanatory variables were able to account for the total variation of the dependent variable – deposits.

Ngula (2012) study on determinants of deposit mobilization and its role in economic growth in Ghana during period of 1980 to 2010, the study reveals deposit interest weak determinate of bank deposit mobilization.

Orji(2012) investigated determinants of bank savings in Nigeria as well as examined the impact of bank savings and bank credits on Nigeria's economic growth from 1970- 2006, the study adopted ARDL-ECM models and It revealed positive influence of values of GDP per capita (PCY) and negative influence of Real Interest Rate (RIR) on the size of private domestic savings.

Maende (1992) investigated the determinants of demand for commercial bank deposits in Kenya obtaining time series data between 1968 and 1991. He used Ordinary Least Squares, 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 observed that there is a uni-directional relationship between volumes of bank deposits and branch network expansion.

Ukinamemen (2010) study the factors that affect deposit mobilization operations of commercial banks in Nigeria, particularly the Union Bank of Nigeria Plc. The study tried to find out the relationship between total volume of commercial bank deposits and interest rate, loans and advances and the number of bank branches. The study relied primarily on secondary data published by official sources. The diagnostic statistic used in the study was the ordinary least square (OLS). From the study, it was found out that all the independent variables were positively related to bank deposit (dependent variable). The result also shows that there is a positive and moderately significant relationship between bank deposit and loans and advances. Number of

bank branches has a positive but weak relationship with bank deposit .Real interest rate has a negative – weak relationship with bank deposit. The standard errors for the four explanatory variables were all very low. Hence, all the variable coefficients were all significant and accepted.

Fadare (2011) through linear least square model and time series data from 1980 to 2009 examine the determinants of Banking Sector liquidity in Nigeria and assesses the extent to which the recent financial crises affected liquidity in deposit money banks in the country. The findings indicate that only liquidity ratio, monetary policy rate and lagged loan-to-deposit ratio are significant for predicting Banking Sector liquidity; and that a decrease in monetary policy rates, liquidity ratios, volatility of output in relation to trend output, and the demand for cash, leads to an increase in current loan-to-deposit ratios; while a decrease in currency in circulation in proportion to Banking Sector deposits; and lagged loan-to-deposit ratios leads to a decline in current loan-to-deposit ratios. The result suggests that during periods of economic or financial crisis, deposit money banks are significantly illiquid relative to benchmarks, and getting liquidity monetary policies right during these periods is crucial in ensuring the survival of the Banking Sector.

Opoku (2011) study to identify the most effective and efficient ways to maximize the volume of domestic deposits in the environment of high rural population, dominant informal sector employment and macroeconomic instability. The study used secondary data of nine sample banks out of twenty seven commercial banks of the period of 2000 to 2004. The result of study indicated that deposits mobilization of Commercial Banks in Ghana show increasing trend that is increases at a decreasing rate. Hence, the present level of deposits as a ratio of the total amount of money in circulation is woefully inadequate. The study also reveals certain basic facts about commercial banks in Ghana. Their concentration in the cities and a few urban areas as well as their product design and services are targeted to the literate formal sector employees. In addition, unfavorable macroeconomic conditions have resulted in negative real interest rate on deposits while unnecessary government intervention has reduced the confidence in the banking sector. The effects of these factors are the low deposits that commercial banks receive.

Empirical review about determinant of commercial Banks deposit outside Africa

Samantaraya and patra (2014)'s study for Determinants of Household Savings in India: An Empirical Analysis Using ARDL Approach, reveal GDP, interest rate, and inflation have statistically significant influence on household savings in India, both in the long run and short run. On other study in the same country, Athukorala and Sen (2004) examine the determinants of private saving during the 1954-1998 period. The result reveal real interest rate, the growth and the level of per capita income on domestic saving have a statistically positive effect on saving deposit mobilization. Similarly, Ozcan,Guny and Ertac (2012) Macro and Socioeconomic determinants of Turkish private saving during the period of 1975-2008, found that Income level, Interest rate are increase saving. In same country study, Mevlüt (2014) attempts to ascertain the determinants of private saving level in Turkey, which experienced a sharp decline in private saving rates in the 2000s, the result shows real interest rates influence private saving . Relate to deposit interest Nabar (2011) assesses how interest rate affects household savings in Chinese 31 provincial level administrative units between 1996 and 2009. A strong positive correlation between household savings and interest rates was established; suggesting that Chinese save to meet a number of needs e.g. retirement consumption and durables purchases. As such high savings rates enable them to meet their target savings.

Nishat and Bilgrami(1989) investigated determinants of growth of bank deposits in Pakistan , the result identifies increase Income level has increase the demand of the deposit and interest rate influence demand time deposit .

Baharumshah et al.(2003) investigated the saving behavior in fast growing Asian economies (Singapore, south Korea, Malaysia, Thailand and Philippines) and found positive impact of income and negative impact of capital inflows on savings in short run in all Asian countries except Thailand but mixed results were found in long run.

Teriba (1993) also investigated the hypothesis that interest rate and income levels are strong determinants of bank deposits in West Africa. Although Teriba recognized the fact that other variables tend to change in the same direction as the level of income and volume of transactions to reinforce their positive effects on the volume of deposits, the community environment which a bank serves is the most important factor because it is the level of the income of the community

that ultimately determines how much would be saved or deposited with the bank. The findings concluded that interest rate and the level of income are strong determinates of bank deposits.

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

Rachmawati and Syamsulhakim (2004) examined factors Affecting Mudaraba Deposits in Indonesia by using quarterly time series in the period of 1993 – 2003, the study shows 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.

Bersales and Grace (2006) investigated Patterns and Determinants of Household Saving In the Philippines, The study identified the determinants of household saving rate using an econometric model. The study used instrumental variable estimation techniques using a pseudo-panel data constructed from FIES years from 1988 to 2003. It estimated two specifications of the econometric model, using the Generalized Least Squares Estimation and Instrumental Variable Estimation. Both procedures produced the same significant determinants for the two specifications. The study is found that level of income significant determinants of household saving rate .Unexpectedly, factors such as number of banks had insignificant effects.

Raut and Virmani (1989) examined the determinate of consumption and saving decisions and tested Hall's random-walk hypothesis of consumption on aggregate data from twenty – three developing countries. The Hall hypothesis states that individuals select a level of consumption in each period based on expected lifetime income, rather than on current income. Since income in any term can be seen to move stochastically while consumption is smoothed over time, the ratio of consumption to current income will appear to vary randomly. Their result reveals that while the real interest rate has a positive effect on consumption, the nominal interest has a positive effect on consumption.

According to Daniel, (2005) cited by Jember Hambissa (2014), a deposit holds 63% of commercial bank liabilities. This indicates that factors that affect deposits mobilization have a huge impact on the performance of commercial banks. Developing economies are characterized by unstable macroeconomic environments such as inappropriate fiscal and monetary policies, interest rate controls. The net effect is the change in liquidity which affects savings and capital formation. Where the macroeconomic environment is favorable to savings then the commercial banks are in a better position to increase savings. On the contrary, where macroeconomic policies erode liquidity from the hands of the people then deposits reduce and may negatively impact on capital growth and investment in the country.

Finger and Charles (2009) to examine the demand for commercial banks deposits in Lebanon, a regional financial center classified the variables into two, i.e. macro and micro level variables. The study used quarterly data from 1993 to 2008 and estimated a number of vector error correction model (VECMs) to take account of co integration in the non-stationary time series. At the macro level, they found that domestic factors such as economic activity, prices, and the interest differential between the Lebanese pound and the U.S. dollar are significant in explaining deposit demand, as are external factors such as advanced economic and financial conditions and variables proxying the availability of funds from the Gulf. At the micro level, they found that in addition, bank-specific variables, such as the perceived riskiness of individual banks, their liquidity buffers, loan exposure, and interest margins, bear a significant influence on the demand for deposits.

As discussed by M. A. Baqui, Richard and Leroy (1987) five major factors are found in the literature of deposit determination functions: income, interest rates, access to banking facilities, transaction costs and yields on alternate investments. Dadzie, Winston and Afriyie (2003) provided empirical support of factors affecting deposit to be the level of income, customers' satisfaction, service quality and demographic factors such as number of dependents and location. The deposit and lending activities of banks determine to a large extent, the profitability of banks. This is because banks generate their income from the interest differentials from what they pay for deposit and what they charge for their loans and advances.

2.5 Conceptual Framework

The conceptual framework for this study is originally derived from Life-Cycle model. This model incorporates the issue of time in explaining the saving behavior. It is appropriately modified to accommodate the peculiarities of a developing country and builds on the existing cross-country literature on determinate of saving mobilization.

The conceptual schema of the relationship between the dependent variable (private commercial bank of Ethiopian deposit) and independent (Disposal income, GDP growth rate, population growth, deposit rate, Bank expansion, Bank's liquidity, capital adequacy and profitability) variables is depicted here below:

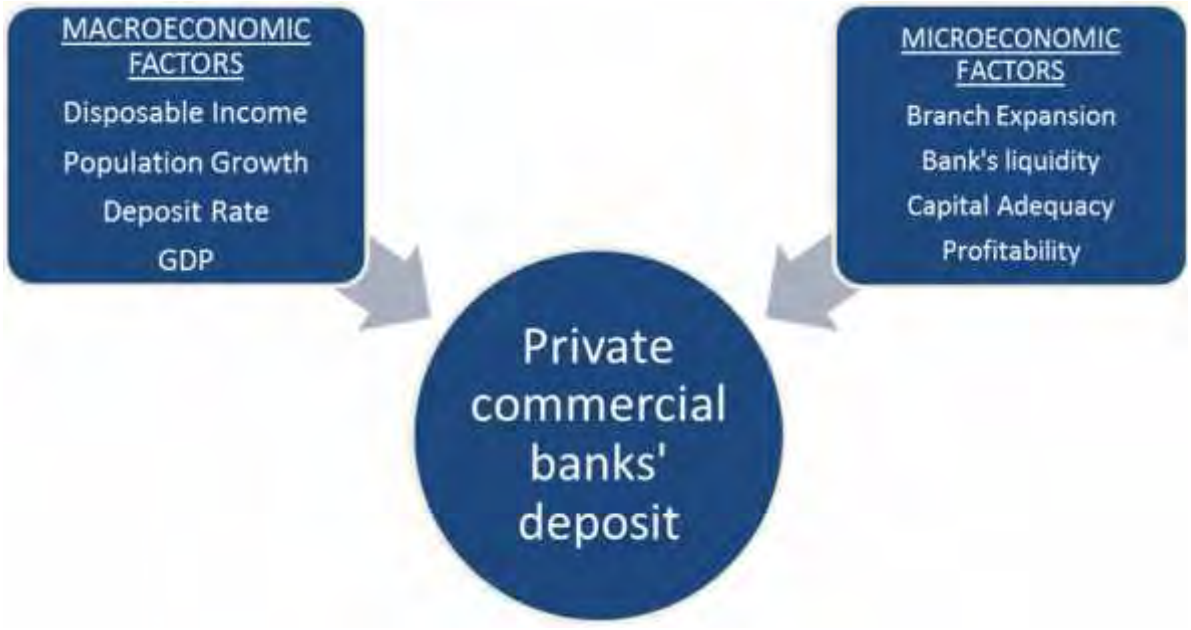


Fig. 2.1 Conceptual framework of the study

Source: Developed by the researcher

2.6 Knowledge Gap

The growth of any economy depends on capital accumulation, which in turn depends on investment and an equivalent amount of savings to match it. Two key issues for developing

countries are how to stimulate investment and increase the level of saving to fund increased investment.

Banks play a central role in providing the capital for productive enterprises. Therefore, assessing the performance of banks and providing solutions to optimize their functions can make a substantial contribution to the economic development of the country and prevent the squandering of resources. In the area of financing services, private banks have a high potential for directing financial resources toward new markets.

Mobilization of deposits is one of the important functions of banking business. It is an important source of working fund for the bank. Deposit mobilization is an indispensable factor to increase the sources of the banks to serve effectively. Mobilization of deposit plays an important role in providing satisfactory service to different sectors of the economy. The success of the banking greatly lies on the deposit mobilization. Performances of the bank depend on deposits, as the deposits are normally considered as a cost effective source of working fund.

As it was discussed in the literature review part, Most of study undertaken in our country related to the topic of factors of deposit mobilization focus on a public Bank, commercial Bank of Ethiopia and some internal and external factors that are reviewed by different researchers indifferent research techniques also showed different effect on Bank deposit. Thus, the inconsistency funding among researchers and little attention given by researcher on the determinate of deposit mobilization in private commercial banks of Ethiopia, motivated the researcher to undertake a research in this particular area to fill these gap.

CHAPTER THREE

RESEARCH METHODOLOGIES

3.1. Research Design

As noted in Creswell (2003), there are three type of research design. These are quantitative, qualitative and mixed methods approach. Decisions about choice of a design are influenced by the research problem or issue being studied, the personal experiences of the researcher, and the audience for whom the researcher writes.

Considering the research problem and objective along with the philosophy of the different research approaches, the quantitative nature of the data collected, quantitative research approach is found to be appropriate for this study. Quantitative research is a systematic and scientific investigation of quantitative properties and phenomena and their relationships (Abiy, 2009)

The main objective of the study is to investigate the determinant of private commercial banks deposit in Ethiopia. To meet the objectives of the study, explanatory research design is adopted.

The study used fifteen years Panel data of six commercial banks .According to (Hsiao, 2005; Plasmans, 2006) cited in Onuonga (2014), Panel data set have several advantages over the usual cross sectional or time series data. To mention some: its efficiency with respect to random sampling and ease of identification, its ability to reduce co linearity among explanatory variables and its ability to aggregate as aggregation may vary over time .

3.2. Sample & Population

There are eighteen banks in Ethiopia, out of which, seventeen are commercial banks and the other is Development bank. Among the total eighteen banks, two of them are owned by the government and the remaining sixteen are privately owned (Birritu 2015) Hence, The main objective of the study is to investigate the determinant of private commercial banks deposit in Ethiopia, the sixteen private commercial banks can be treated as population of the study.

In line with balanced panel data approach, to meet the desired objective of this study and to make generalization from sample to population, the researcher used maximum combination of years and number of banks and achieved the maximum number of observations through purposive sampling technique. Thus, out of sixteen private commercial banks that are registered and

operated in Ethiopia, six are selected. Sampled private commercial Banks have contribution of more than 67% of total asset and profit, 66% of total loan granted and 69% total deposit of all private commercial Banks of Ethiopia. More ever it covers above 38% of the total population. So the researcher believed that the sample size is sufficient to make sound conclusion about the population.

The banks are selected based on the purposive sampling methodology taking maximum combination of years and number of banks and achieved the maximum number of observations. Therefore, the matrix for the frame is 15*6 that includes 90 observations.

Table 3.1 List of sampled private commercial Bank with year of formation.

Ser.No.	Selected private commercial Bank	Year of formation
1	Awash International bank	1994
2	Dashen Bank	1995
3	Bank of Abyssinia	1996
4	Wegagen Bank	1997
5	United Bank	1998
6	Nib International Bank	1999

Sources: NBE

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

3.3 Data Type & Source

The sources of data for this research were secondary sources. In order to carry out any research activity information should be gathered from proper sources. Bank specific data were collected from financial statements (i.e. Balance Sheet and Profit & Loss Statement) of each selected commercial banks included in the sample and macroeconomic data were collected from NBE and MoFED. The data were collected from 2000 to 2015 on annual base and the figures for the

variables were on June 30th of each year under study. Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increase the credibility and value of research findings (Koul, L 2006).

3.4 Method of Data Analysis

To achieve the objectives the study, fifteen Years (2001 to2015) panel data of six commercial banks is used. The collected panel data are analyzed using the descriptive statistics and multiple regressions. The analysis of the descriptive statistics, the mean, and standard deviation, maximum and minimum values are used to analyze the trends of the data. The study used statistical package EViews version 8.1software. Furthermore, diagnostic tests has been used in order to check the validity of the model based on the assumption of the Classical Linear Regression

3.5 Model Specification

Model for this study is specified using the variables identified by life-cycle/permanent income hypothesis with some additional and deduction variables suggested by previous studies, which might be important in determining deposit mobilization of private commercial bank of Ethiopia. The model is presented as follows:

$$DEP_t = \beta 0 + \beta 1\ BRA + \beta 2DES_t + \beta 3GDP_t + \beta 4\ CAP + \beta 5INT_t + \beta 6LIQ_t + \beta 7POP_t + \beta 8ROA_t + \mu$$

Where,

DEP = Natural logarithm of annual incremental of deposit

BRA = Branch expansion rate

DES = Disposable income growth rate

GDP= Economic growth rate

CAP = Capital adequacy

INT = Deposit rate

LIQ= Bank's liquidity

POP = Population growth rate

ROA= Bank's profitability,

β1……β5, are Parameters to be estimated and

μ is Disturbance (error) term

3.6 Variable Description and Hypotheses

Before ten years, the lack of investment opportunities in Ethiopia discouraged financial intermediaries from mobilizing saving and result in excess liquidity in bank which even limited their ability to maximize the benefits of access to public savings .As a result, the banks did not target additional deposit, especially poor people's deposits, which tend to be perceived as short-term, unstable and costly. Despite the growth of banking activities in the last ten years, they are currently facing an immense challenge of meeting the growing demand for loan.

This study aim to identify the determinate factors of deposit mobilization in Private commercial Bank.The main variables in the analysis for which data collected are dependent and Independent. Independent variables are expected to affect dependent Variable. Dependent variable of this study is private commercial banks deposit and independent variables are disposal income, population growth rate, deposit rate, GDP growth rate, Bank expansion, capital adequacy, Bank's liquidity, Bank profitability. Private commercial banks deposit includes all type deposit i.e. demand, time and saving. The study uses the multiple regression technique to show the relationship between dependent and independent variable. The rationale for including different variables in the savings function and the hypotheses of the regression are explained as follows;

Bank Expansion

Banks usually make decisions on expanding their branch by considering different factors. Some of the factors could be; level of competition, deposit potential, regional income and existence of infrastructure and transport facilities. As deposit potential is one thing that banks consider in expanding its branches, the deposit can also be a reason for branch expansion strategy that the banking sector uses.

Increase in the number of bank branches will have an effect on getting many customers particularly those in far remote areas who are unbanked society. As more and more people are accessible to banking system, more people would be willing to deposit their idle cash holding or at least a part of their wealth into deposits. More recently the branch expansion by the existing banks is fast increasing to reach out remote locations to seize the resources available particularly

deposits. This practice shows that branch expansion has positive and significant relation with deposit volume then draws the following hypothesis.

H1: *Bank expansion has positive & significantly effected on private commercial Bank's deposi*t.

Disposable Income

Households with stable income are expected to make their projection of future consumption and saving. On the other hand, household with relatively unstable and lower income focus on smoothing consumption. Even when the poor households save, they tend to save in-kind, purchase food and other necessities and store them for future uses. According to Keynes in the General Theory, and in particular by his well-known "fundamental psychological [rather than 'economic'] law" to the effect that an increase in income can be counted on to lead to a positive but smaller change in consumption. Even when the analysis followed the more traditional line of demand theory, it relied on a purely static framework in which saving was seen as one of the many "goods" on which the consumer could spend his income. Thus, income was seen as the main systematic determinant of both individual and national saving, and, in line with Keynes ' "law", it was regarded as a superior commodity (i.e., one on which "expenditure" rises with income) and most likely a luxury, for which expenditure rises faster than income. Also, in contrast to other goods, the "expenditure" on saving could be negative - and, accordingly, dissaving was seen as typical of people or countries below some "break even" level of income. All these features could be formalized by expressing consumption as a linear function of income with a substantial positive intercept (Modigliani 1986).

Household disposable income is probably the most important variable determining the level of saving .An increase in disposable income is expected to raise the ability of households to acquire surplus fund and they would be more willing and ability to save. Based on prior studies, it is expected that there is a Positive relationship between Increment of disposable income & Bank's Deposit and as a result the following hypothesis is drawn.

H2: *Increment of Deposal Income has positive and significant impact on private commercial Bank's deposit.*

GDP Growth Rate

Economic performance is generally being measured through GDP (Gross Domestic Product), a variable that has also become the de facto universal metric for 'standards of living. It is universally applied according to common standards, and has some undeniable benefits mainly due to its simplicity (Yanne et al, 2007).

Jagadeesh (2015) point out that GDP growth will result in an increase of aggregate savings. Countries with higher GDP growth rates are expected to have higher savings than countries with lower growth rates.

In most developing countries, the economic growth Granger causes the private saving. The lifecycle theory of saving and consumption predicts that changes in an economy's rate of economic growth will affect its aggregate saving rate. In the simplest version of the model—in which young people save for retirement and old people consume their previously accumulated assets—an increase in the rate of economic growth will unambiguously increase the aggregate saving rate, because it increases the lifetime resources (and saving) of younger age groups relative to older-age groups. It is expected positive relationship between GDP growth and Bank's deposit and then draws the following hypothesis.

H3: *GDP growth has positive and significant impact on private commercial Bank's deposit*.

Capital Adequacy

Bank regulators care about capital adequacy because their mandate is to prevent bank panics and contagions. A bank with a high ratio of capital to assets will, all else equal, be better able to withstand a sudden loss than a bank with a low capital-asset ratio. As a result, such a bank is less likely to be thrown into insolvency or subject to a run**.**

The recent theories suggest that, bank capital may also affect banks‟ ability to create liquidity. These theories produce opposing predictions on the relationship between capital and liquidity creation**.** According to Rajan (2002), under the first view, the "financial fragility-crowding out" theories predicts that, higher capital reduces liquidity creation and lower capital tends to favor liquidity creation. They stated that, depositors will be charged a nominal fee for the intermediary service of loaning out their respective deposits.

Thus, the higher is the 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.

H4.*Capital adequacy has negatively & significantly effected on private commercial Bank's deposit.*

Deposit Rate

The deposit rate of interest is intended to capture the relationship between interest rate liberalization and savings .The effect of interest rate on savings is ambiguous and remains an empirical issue. On one hand, higher real interest rate on saving raises the stream of future income and wealth, thus raising the current consumption level. On the other hand, higher returns on savings are expected to encourage households to increase savings because postponing the current consumption would imply larger future consumption out of current income.

According to McKinnon [1973] and Shaw [1973] high real interest rate promotes both financial and total saving in the economy. Raising present price of consumption relative to the future price, through substitution effect, higher interest rates provide an incentive to increase saving. However, higher interest income raises the permanent income of net lenders and, thus, tend to increase their consumption and decrease savings through the income effect. Thus, higher interest rates can raise overall savings, only if the substitution effect is stronger than the income effect and, hence, the expected sign of real interest rate on savings is theoretically ambiguous.

This study considered, there is a positive relationship between deposit rate & Bank's deposit and draws the following hypothesis.

H5*: Deposit rate has positive and significant impact on private commercial Bank's deposit*.

Bank's Liquidity

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

Bank liquidity can be measured with different liquidity ratio. For the purpose of this study, Total loan and advance to deposit liquidity ratio is used. The ratio serves as a useful planning and

control tool in liquidity management since commercial banks use it as a guide in lending and investment decision. Loans & Advances are the major portion of a bank's asset and it is the most earning asset of a bank. This ratio tells us the percentage of funding sources tied up by illiquid asset. It relates illiquid asset with liquid liability. This ratio also indicates the percentage of deposit locked in to illiquid asset. The ratio reflects the proportion of the customers' deposits that has been given out in the form of loans and the percentage that is retained in the liquid forms. As this liquidity ratio decreased, Bank can easily able to respond to their withdrawal needs, thus the following hypothesis is drawn

H6: *Bank Liquidity has negatively & significantly effected on private commercial Bank's deposit*.

Population Growth

The effects of population growth are ambiguous, even if adults would like their own consumption streams to be constant over the life cycle, their expenditure may exceed income not only during retirement but also when there are children in the household. Population growth expand the ratio of workers to retires, but also the ratio of children to adults and saving may be decreased more by latter than it is increased by the former .The net effect depends on the costs and benefits of children, a balance that may itself change (from net benefit to net cost)with economic growth (Angus 1989).

In an extension of the life-cycle model that accounts for the impact of children on household income, Mason as cited by Allen (1988) shows not only that such an effect can be important but also that there is a notable systematic relationship. In particular, in slow-growing economies the positive "income effect" of faster population growth is likely to dominate the "dependency effect," and savings in the aggregate will be increased. (Saving is assumed to be higher out of transitory income, so upward deviations of income due to population growth can have a stimulating effect on saving). This study considered there is a positive relationship between Increment of Population growth & Bank's Deposit and draws the following hypothesis.

H7: *population growth has positive and significant impact on private commercial Bank's deposit.*

Profitability

Profitability accounts for the impact of better financial soundness on bank risk bearing capacity and on their ability to perform liquidity transformation (Rauch et al. 2008 and Shen et al. 2010).

Most commonly, profitability is measured by return on asset (ROA) and return on equity (ROE). For the purpose of this study, the proxy of profitability is return on asset that measures the overall financial performance of banks and the return on asset (ROA) is measured by the ratio of net profit after tax to total Asset. Bhalla (2006), in his book, explains ROA as a ratio which is used to measure the company's efficiency in the use of its assets to generate profit. It means that a more efficient company will generate a higher level of profit from a given level of total asset than its less efficient competitor.

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

H8: *Profitability has positively & significantly effected on private commercial Bank's deposit*

In general, the study considered the above eight independent variables as a determinant for banks deposit of Ethiopian private commercial banks. Table 3.1, below summarizes the dependent and independent variables of the study with their respective operational definition and expected signs

Table 3.2 Description of the variables and their expected relationship

Variable	Symbol	Definition	Expected sign
Deposit	DEP	Natural logarithm of annual incremental of deposit	N/A
Disposable Income	DES	Annual increment rate of Disposable income	+
Population Growth rate	POP	Annual Population growth rate	+
Deposit Rate	INT	Average deposit Rate	+
Real Growth domestic product	GDP	Annual real Growth rate of gross domestic product	+
Branch Expansion	BRA	Annual Branch expansion rate	+
Bank's Liquidity	LIQ	The ratio of loan to deposit	-
Capital Adequacy	CAP	The ratio of Capital to loan and advance	-
Profitably	ROA	The ratio of net profit after tax to total asset	+

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

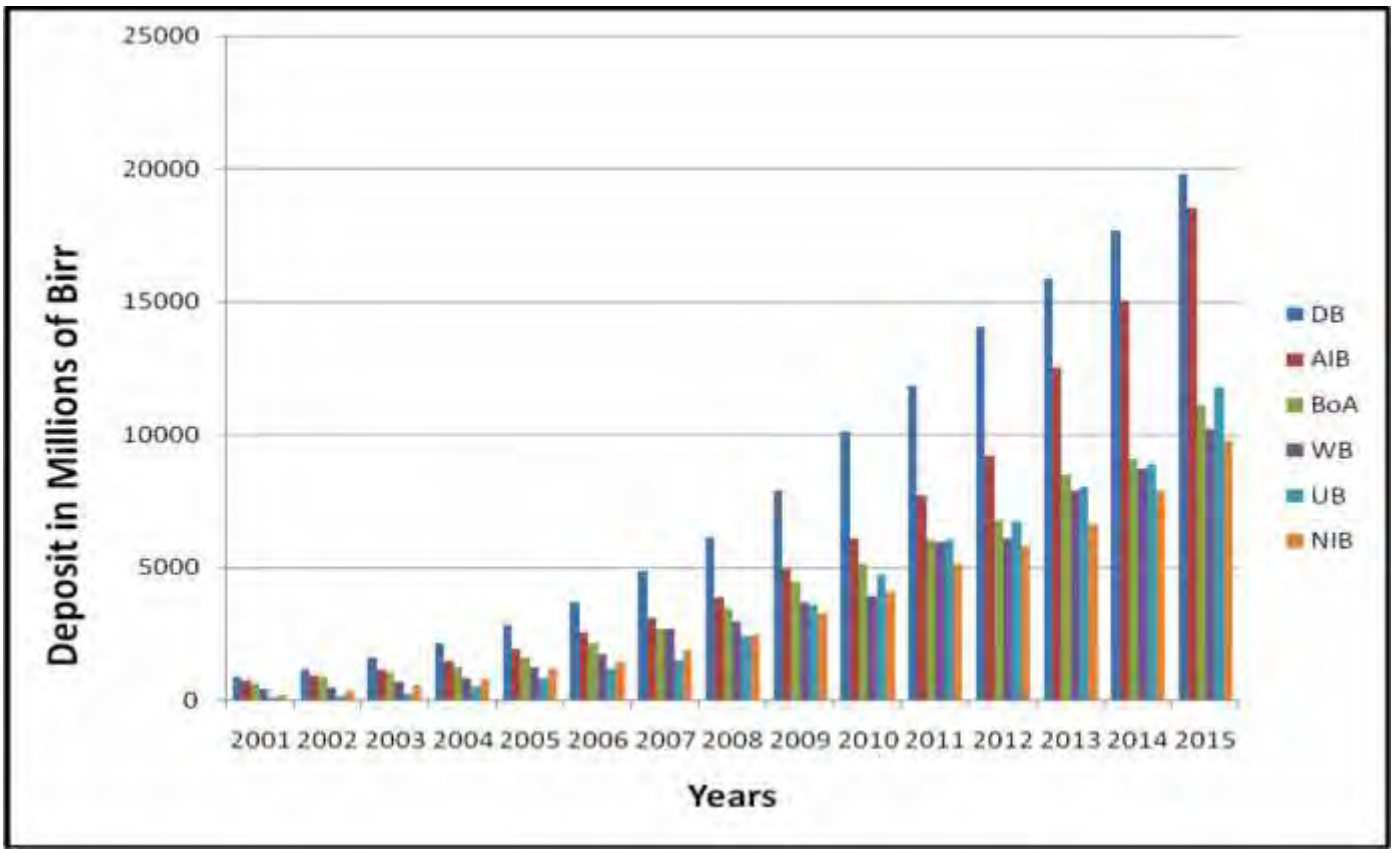
This chapter consists of the analysis of quantitative data identified in the previous chapter. It has five sections. The first section presents descriptive analysis of the dependent and independent variables using graphs and tables to provide an insight on the distribution of the data by bank and across time. Section two presents the classical linear regression model assumptions diagnostic test results. Section three presents the correlation analysis result of dependent and independent variables. The Fourth section presents the results of the regression analysis and finally discussion of the regression results are presented under section five.

4.1. Descriptive Statistics

4.1.1. Trend of Sampled Private Commercial Banks of Ethiopia Deposit

As mentioned previous chapter, sampling is made based on taking maximum combination of years and number of banks to achieve the maximum number of observations. Accordingly six private commercial banks are selected. These are Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank and Nib International Bank. Since the study involves six private commercial banks in Ethiopia as a sample, then total deposit of the selected banks are analyzed.

Figure 4.1 Trend deposit of studied banks



As shown above Figure, the total deposit amount of the selected six private commercial banks indicated increasing trend from year to year with different rates. Also deposit of the selected banks depicted that from Year 2002 to year 2006, deposit of Awash International Bank was increased continuously with increasing rate while other bank's deposit increments rate showed fluctuation from year to year. More ever from Year 2006 to year 2009, except Wegagen Bank which was increased with 9% in year 2008, deposit all sampled private commercial Bank increased with minimum of 21%. For Year 2009 to year 2010 Private Commercial Banks deposit have been increased for more than 23% except Bank of Abyssinia and Wegagen Bank showed increment of 14% and 5% respectively in year 2010. Deposit of all sampled private commercial banks except Bank of Abyssinia showed increase with declining trend in year 2012 and then showed incremental trend in year 2013. On the other hand, the deposit increment trend of most of sampled commercial banks showed declining trend at high rate in the year 2014.This may be

deposit report to National Bank of Ethiopia required against Anti-money laundering policy and partial deposit allowed to be deposited only in CBE for Condominium house projects in 2013.

4.1.2 Descriptive Analysis of Independent Variables and dependent Variable

In this section, the summary statistics of each variables of the study has been discussed. The variables included the dependent and independent. The dependent variable used in this study in order to measure the sampled commercial banks deposit is bank deposit growth whereas the explanatory variables are: Branch expansion, Disposable income, Economic growth, Capital Adequacy, Deposit rate, Bank's liquidity, Population growth are discussed here under.

Table 4.1 Summary statistics – Dependent and Independent Variable

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
DEP	8.76496	8.82461	9.54167	7.72428	0.42937	90
BRA	0.19381	0.15790	0.66667	0.00000	0.13575	90
DES	0.19098	0.18414	0.38271	-0.04107	0.12273	90
GDP	0.09134	0.10348	0.12644	-0.02099	0.03963	90
CAP	0.24773	0.22905	0.53988	0.04790	0.09486	90
INT	0.04067	0.04000	0.06000	0.03000	0.01003	90
LIQ	0.71251	0.69631	1.05530	0.48847	0.14563	90
POP	0.02664	0.02594	0.03453	0.02299	0.00322	90
ROA	0.02501	0.02700	0.04028	-0.00175	0.00884	90

Sources Basic Data**:** National Bank of Ethiopia and MOFID

The above table indicates the mean, maximum, minimum and standard deviation values of variables. A data sets of 90 observations provides the basis for descriptive analysis. Hence, the increment of deposit is presented in natural Logarithm in the above table. It is better to refer the original data to analyze the annual increment of Bank's deposit. As per the trend of Private commercial Bank's deposit table in Appendix-I, the bank deposit growth fluctuates between 2.66 and 167 percent. The minimum deposit growth rate was recorded in the year 2012 by Wgagagen

Bank and the maximum deposit growth rate was recorded in the year 2001 by Nib International Bank (after a year of its establishment) . The average deposit growth rate of Bank for the last fifteen years was 30 percent. As Sylvester, cited Bahredin (2016) theoretically, a growth rate of 32.1 percent in deposits may be considered sufficient to increase supply of loanable funds. Though the performance of deposit among commercial banks conforms to supply the loanable fund, the trend of deposit is increasing year to year at increasing rate. The reason of this increasing deposit growth may attribute to increase the users of banking services and or intermediation of commercial banks in the country.

The mean value of number of bank branches rate was around 19.38 percent. The minimum value of zero percent Bank expansions rate were recorded in the year 2002 and 2010 whereas, the maximum value of 66.67 percent Bank expansion rate was recorded in the year 2002. The standard deviation for Branch expansion rate was 13.57 percent; this implies that high variation Branch expansion rate from its mean value during the period of 2001 to 2015. As shown in the result, there were higher differences among banks regarding branch expansion. This implies that the effort of some banks to expand branching network.

National Disposable Income for a country is in the same way as Personal Disposable Income (Personal Income – Personal taxes) is for an individual .The average Disposable income growth was 19 percent during the last fifteen years. The maximum Disposable income growth rate of 38.27 percent was recorded in the year 2008 and the minimum disposable income rate of -4.10 percent was recorded in the year 2002. The standard deviation for disposable income growth was 12.27 percent.

The average GDP growth rate of Ethiopia for the last sixteen years was 9.1 percent. The maximum real GDP growth rate was recorded in the year 2005 (i.e. 12.6 percent) and the minimum GDP which was also negative growth rate was recorded in the year 2003 (i.e. -2.1 percent). As it is shown in table 4.1, the country has recorded on average a double digit (above10 percent) growth rate from 2004 onwards except for the year 2012 & 2013 which was 8.7 percent and 9.9 percent respectively. The standard deviation of 0.04 also indicates that there was little dispersion on the real GDP growth rate towards its mean.

The average capital adequacy ratio of the studied banks for the studied period was 24.7 percent. United Bank showed both the lowest average capital adequacy ratio of 4.79 percent in year 2014

and the highest average capital adequacy ratio of 53.9 percent in year 2002 of the last fifteen years. The standard deviation of capital adequacy ratio was 9.4 percent.

The mean value of the bank deposit interest rate over the period under study was 4 percent with the maximum and minimum values of 6 percent in the years 2001 and 3 percent (in the year 2002-2007) respectively. There was little variation of interest rate towards its mean value over the periods under study with the value of standard deviation 1 percent. This implies that the stability of deposit interest rate for subsequent years under the study periods in a sense there was a control of minimum and maximum deposit interest rate by the government body. So there was no competition between commercial banks to attract the customers with a motive of return on deposit under the study period.

The average loan to deposit ratio of the studied commercial banks was 71.25 percent. The maximum loan to deposit ratio of 105.5 % was registered in the year 2001. This indicates that, on average private commercial banks in Ethiopia have higher amount of volatile deposits which are tied up with illiquid loans. On the other hand, the minimum loan to deposit ratio of 48.84 percent was registered in the year 2011. The standard deviation of 14.56 percent shows there was moderate dispersion of loan to deposit ratio from its mean value.

The average estimated population growth rate of Ethiopia for the last fifteen years was 2.7 percent. The maximum population growth rate was estimated in the year 2008(i.e. 3.45 percent) and the minimum population growth which was estimated in the year 2015 (i.e. 2.66 percent). The standard deviation of 0 .3 percent indicates that there was little dispersion on the population its mean.

Profitability is the likelihood of a business earning the desired level of income within a specific period of time under certain prevailing business conditions. Average return on asset of studied banks for the period from 2001 to 2015 was 2.5 percent. The minimum return on asset of -0.17 percent was registered in the year 2003 and the maximum return on asset of 4 percent was registered on the year 2012. The standard deviation of 0.8 percent reveals that there was very little dispersion of average return on asset of studied banks towards their mean value.

4.2 Testing the Classical Linear Regression Model (CLRM) Assumptions

To make the regression analysis, the researcher computed the year on year percentage changes of each variable to simplify the numbers. Then log of year on year change deposit value of six private commercial banks which is the dependent variable is regressed against four macroeconomic independent variables (deposit rate, real GDP growth rate, disposable income, population growth) and four micro economic independent variable (liquidity, capital adequacy, Branch expansion and profitability). The regression analysis is used to test if an independent variable influences a dependent variable and whether this effect is positive or negative. For that to be applied and workable, diagnostic testing has to be done.

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

The Assumption of Average Value of the Error is Zero

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. In our case the model have constant term which is proved that the line did not pass through the origin and the first assumption of CLRM is not violated. Therefore the variation in the dependent variable, deposit of private commercial banks, is explained by the independent variables.

The Assumption of Homoscedasticity

It has been assumed so 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 researcher uses Breusch Godfrey test (BG test) to test for heteroskedasticity. In this test the null hypothesis is that there is no evidence for the presence of heteroskedasticity (homoscedasticity does exist) and the alternate hypothesis is that there is evidence for the existence of heteroskedasticity. Therefore, if this hypothesis is rejected it is said to be the variance of the errors are no longer constant or the assumption of homoscedasticity is violated, on the other hand there is evidence for the existence of heteroskedasticity.

Table 4.2 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.629570	Prob. F(8,81)	0.7507
Obs*R-squared	5.268576	Prob. Chi-Square(8)	0.7285
Scaled explained SS	4.609035	Prob. Chi-Square(8)	0.7984

Source: E-views output from banks financial statements

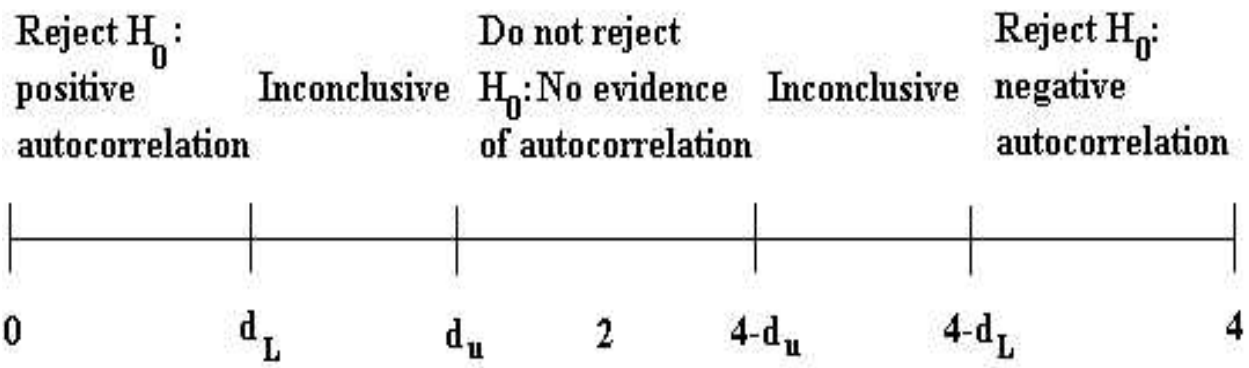
The test statistics give us the information we need to determine whether the assumption of homoscedasticity is valid or not. All the three version that are F-, χ2 ('LM') and Scaled explained SS', give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05. Therefore it can be concluded that the variance of error term is constant or the second assumption is not violated

The Assumption of Autocorrelation

Covariance between the error terms overtime (or cross sectionally, for the type of data) is zero, It is assumed that the errors are uncorrelated with one another. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'autocorrelated' or that they are 'serially correlated'. The study uses Durbin-Watson test (DW test) to test autocorrelation. The null hypothesis for this test is the error at the current time and the error at previous time is independent of one another(there is no autocorrelation) and the alternative hypothesis is that the error at the current time is dependent on the error of the previous time(there is evidence for the presence of autocorrelation). Therefore if the null hypothesis is rejected then it is said that there is an evidence for the presence of autocorrelation.

According to Brooks (2008), the DW test does not follow a standard statistical distribution such as a t, F, or χ2. DW has 2 critical values: an upper critical value (dU) and a lower critical value (dL), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 4.2 below

Figure 4.2 Rejection and non-rejection regions for DW test



The null hypothesis is rejected and the existence of positive autocorrelation presumed if DW is less than the lower critical value (dL); the null hypothesis is rejected and the existence of negative autocorrelation presumed if DW is greater than 4 minus the lower critical value (4-dL); the null hypothesis is not rejected and no significant residual autocorrelation is presumed if DW is between the upper critical value (dU) and 4 minus the upper critical limits (4-dU) (Brooks 2008).

The study has eight explanatories variables (k) and 15 years period of time .So it has total of ninety observations and as per the DW table in Appendix-II for 90 observations with eight explanatory variables at 1% level of significance, the dL and dU values are 1.336 and 1.714, respectively Accordingly, the value of 4-dU and 4-dL are 2.286 and 2.664, respectively. The DW value of this study is 1.954889, (Appendix-II) which lies in the no evidence of autocorrelation region where the null hypothesis of no autocorrelation do not be rejected. Therefore, given these result it can be concluded that there is no evidence for the existence of autocorrelation

The Assumption of Independent Variables are Non Stochastic

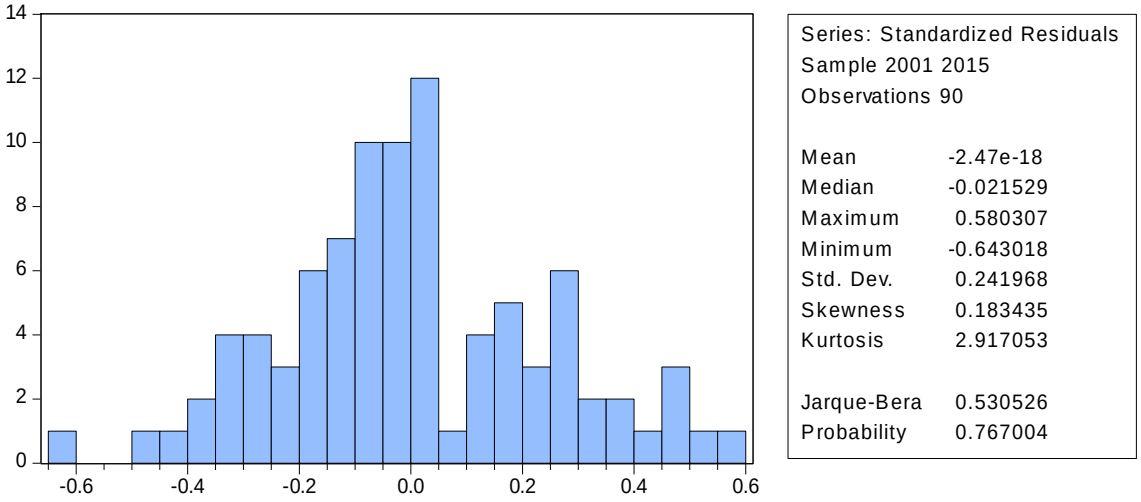
The assumption of Independent Variables are Non Stochastic OLS estimator is consistent and unbiased in the presence of stochastic regressors, provided that the regressors are not correlated with the error term of the estimation equation. However, if one or more of the explanatory variables is contemporaneously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

This study has a constant term in its model, therefore it can be concluded that it protected from the violation of assumption number one and four

The Assumption of Disturbances are normally Distributed

The fifteenth important diagnostic test conducted in this paper is the normality assumption. According to Brooks (2008), one of the most commonly applied test for normality is the Bera-Jarque (BJ) test. According to Brooks (2008), if the residuals are normally distributed, the histogram should be bell-shaped and the Bera Jarque statistic would not be significant. This means that the p-value given at the bottom of the normality test screen should be greater than 0.05 to support the null hypothesis of presence of normal distribution at the 5 percent level. Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. On the other hand, if the test is less than 0.05 which proves significance, then the data are non-normal. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are close to 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 null hypothesis is that the distribution is normal and the alternate hypothesis is that the distribution is not normally distributed. Therefore if the null hypothesis is rejected then the distribution is not normally distributed.

Figure 4.3 Normality Test for Residuals



In this study, Bera-Jarque normality tests has been used for normality test. As shown in the above histogram, kurtosis approaches to three which is 2.91. On the other hand the p-value for the BJ test is 0.767004 which is not significant to reject the null hypothesis. Thus the result of the test implies that the data were consistent with a normal distribution assumption.

4.3 Test of Multicollinearity

Test for multicollinearity helps to identify the correlation between explanatory variables and to avoid double effects of the independent variables. It describes the relationship between explanatory variables. When the explanatory variables are highly correlated with each other, there exists multicollinearity problem (Brooks, 2008). Though, there is no consistent argument on the level of correlation that causes multicollinearity, Hair et al(2006) cited in Habtamu (2012) argues that correlation coefficient below 0.9 may not cause serious multicollinearity problems. In this study correlation matrix for eight explanatory variables had been estimated. The results in the following correlation matrix show that the highest correlation of 0.5907 existed between Real GDP and return on asset followed by correlation coefficient of 0.5248 which is existed between Real GDP and deposable income

Table 4.3 Correlation Matrix of Explanatory Variable

	BRA	CAP	DES	GDP	INT	LIQ	POP	ROA
BRA	1							
CAP	0.066125	1						
DES	-0.03388	0.048863	1					
GDP	0.053562	0.015724	0.524863	1				
INT	0.24348	0.397098	0.018671	0.152713	1			
LIQ	0.230902	-0.21796	-0.28854	-0.23086	-0.3898	1		
POP	0.155607	-0.23048	0.341834	0.211444	-0.28937	0.372958	1	
ROA	0.092782	0.394068	0.509743	0.590779	0.270202	-0.21491	0.061292	1

Source: E-view results of sample private commercial banks

The above table reports the correlation matrix of the variables of the estimation model. The correlation matrix also shows that the pair-wise correlations between explanatory variables are not quite high, indicating that multicollinearity is not a serious problem

4.4 Fixed Effect Versus Random Effect Model

The collected data were estimated based on panel model, which includes cross sectional and time series observations for six private commercial banks that ranges over 15 years .The estimation technique was carried out on the basis of balanced panel data regression. A balanced panel data have equal time series observations for the study entities. In this study, the cross sectional units are six and the time series (period taken for the study) is 15 years. The commonly used models for panel data are fixed effects and random effects amodels. The random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population while fixed effect model is more appropriate when the entities in the sample effectively constitutes the entire population (Brooks, 2008). On the other hand, according to Gujarati (2004) cited in Mekbib (2016), if the number of time series data is large and 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.

Accordingly in this study, the number of cross section units is six and the number of time series data is fifteen which is more than the cross section unit and as the sample of private commercial banks were not selected randomly, the fixed effect model is more appropriate than the random effect model and then the fixed effect model is used in this study.

4.5 Results of Regression Analysis

This section discusses the regression results of fixed effect model that determines deposit mobilization in private commercial banks of Ethiopia. This regression analysis is based on the data collected from National Bank of Ethiopia and MOFED. The relationship between one dependent variable and six independent variables is regressed using econometric software called EViews 8.1. Thus, the model used to examine statistically significant determinants of private commercial banks deposit measured by

$$DEP_t = \beta_0 + \beta_1 BRA + \beta_2 DES_t + \beta_3 GDP_t + \beta_4 CAP + \beta_5 INT_t + \beta_6 LIQ_t + \beta_7 POP_t + \beta_8 ROA_t + \mu$$

Table 4.4 The Result of fixed Effects Model for Regression Results

Dependent Variable: DEP
Method: Panel Least Squares
Date: 01/10/17 Time: 15:46
Sample: 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.735782	0.358153	27.18328	0.0000
BRA	0.629601	0.237492	2.651043	0.0098
DES	0.663824	0.328939	2.018078	0.0471
GDP	2.472297	1.002921	2.465096	0.0160
CAP	-0.315046	0.428947	-0.734464	0.4649
INT	0.847715	3.550959	0.238728	0.8120
LIQ	-1.647813	0.285853	-5.764539	0.0000
POP	-10.42642	11.45130	-0.910501	0.3654
ROA	1.998580	5.340043	0.374263	0.7093

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.682426	Mean dependent var	8.764961
Adjusted R-squared	0.628104	S.D. dependent var	0.429374
S.E. of regression	0.261846	Akaike info criterion	0.299918
Sum squared resid	5.210829	Schwarz criterion	0.688777
Log likelihood	0.503712	Hannan-Quinn criter.	0.456728
F-statistic	12.56264	Durbin-Watson stat	1.954889
Prob(F-statistic)	0.000000		

As mentioned earlier, the purpose of regression analysis in this study was to examine the importance of each independent variable in explaining the variation of private commercial banks deposit. Accordingly, the estimation result of the operational panel regression model used in this study is presented in table 4.4. As shown in table 4.4, the R-squared statistics and the adjusted-R squared statistics of the model were 68.24% and 62.81 % respectively. The adjusted- R2 of this study indicates that, 62.84 % of the variation on the dependent variable (deposit of private commercial Bank) was explained by the changes in the independent variables. Thus it can be concluded that, all the independent variables used in this study collectively, were good explanatory variables of private commercial banks deposit. Hence the p-value of F-statistics is zero at six digits, the null hypothesis is rejected and the model is significant even at 1% significant level, which enhanced the reliability and validity of the model.

As it shown on above table 4.4, Branch expansion (BRA) and Bank liquidity (LIQ) are statistically significant at 1% significant level moreover Disposable income (DES) and real GDP have statistically significant impact on banks deposit at 5% significant level. Whereas, capital adequacy (CAP), deposit rate (INT), population growth (POP) and return on asset (ROA) have statistically insignificant impact on private banks deposit.

As it can be seen from the above table, among the independent variables, bank liquidity (LIQ) has negatively related private bank deposit. The other variables, Branch expansion (BRA), deposable income (DES), real GDP have positively related to Bank deposit .When Bank liquidity which measured by loan to deposit ratio has negatively related to bank deposit mean that increasing liquidity of bank that is decrease the bank liquidity ratio, has positive impact to bank deposit . The coefficient sign of bank liquidity, branch expansion, deposable income, real GDP are in-line with our expectation.

In general among the macroeconomic variables, real gross domestic product (GDP) and deposable income (DES) have statistically significant effect on deposit Ethiopian private commercial banks and Bank liquidity (LIQ) and Branch expansion (BRA) are among of the Bank specific factories that have statistically significant impact on deposit of Ethiopian private commercial banks.

Discussion of the Regression Results

In this section, the relationship between the dependent variable and each independent variable are discussed on the basis of the findings on this study. The dependent variable is private commercial banks of Ethiopia deposit and independent variables are disposable income, deposit rate, population growth, real GDP, Branch expansion, Bank liquidity calculated as Ratio of loan to deposit amount, Capital adequacy calculated as ratio of capital amount to asset amount ,Return on asset calculated as ratio of net profit after tax to total asset.

Branch Expansion and Bank's Deposit

Branch expansion is one of the Bank specific factories that affect deposit of commercial banks in Ethiopia and it was measured by annual growth rate of Branch expansion. It was hypothesized that Branch expansion has positive and significant impact on bank's deposit. Based on the regression result, Branch expansion is positive and statistically significant impact on deposit of Ethiopian private commercial banks at 1% significant level. The coefficient of 0.629601

revealed that, taking other independent variables constant, a one percent change on growth rate of Branch expansion has a 62.96% change on deposit of Ethiopian private commercial banks . The result of this study was consistent with the findings of Wubetu(2012),Giragn, Hibret and Shemsu (2015) on commercial Bank of Ethiopia .Thus the study fail to reject the hypothesis of Branch expansion has positive and significant impact on bank's deposit

Disposable Income Growth and Bank's Deposit

In this study, the annual growth rate of disposable income is used as a proxy disposable income growth. It was hypothesized that disposable income has positive and significant impact on bank's deposit. Based on the regression result, disposable income was statistically significant impact on the determination of deposit of Ethiopian private commercial banks. The coefficient sign of 0.66 reveals that, there is a positive relation between deposit of private commercial banks and disposable income growth. The value coefficient (0.66) indicates that when deposable income is increased by 1 %, the deposit of Ethiopian private commercial banks is also increased by 66% being other variables remain constant. This positive relation disposable income and Bank's deposit is consistent with the assumption of Saving is primary function of disposable income which implies that part of the income will be saved at an increasing rate as the disposable income increases (Keynes, 1936). The result of study is also in line with the funding of Athukorela and Sen (2004) on Indian commercial Bank and Elbadawi and Mulega (2000) on sub-Saharan Africa, Latin America, East Asian and Caribbean commercial Banks . Thus, the hypothesis: disposable income growth has positive and significant impact on bank s deposit should not be rejected.

Real GDP and Bank's Deposit

GDP was one of the macroeconomic variables that affect deposit of private commercial banks in Ethiopia and it was measured by the real growth rate. It was hypothesized that real GDP growth has positive and significant impact on bank's deposit. As per the regression result, GDP have positive and statistically significant impact on Bank deposit at 5% significant level. This implies that during the study period, the growth rate of GDP of Ethiopia have impact on the deposit of Ethiopian private commercial banks. The coefficient of 2.47 implies, other factors being constant, a 1 unit increase in GDP growth rate may lead to a 2.47 unit increase in Bank's deposit. This supports the argument that, for countries in the initial stages of development such as

Ethiopia, the level of income is an important determinant of the capacity to save. In general, the result of this study was consistent with the findings of Girma (2005), Hibret, and Shemsu (2015) on Ethiopian commercial banks and Metin and Ozcan (2005) on Middle East and North African commercial Bank. Therefore, the study fails to reject the hypothesis of real GDP has positive and significant impact on bank's deposit

Capital Adequacy and Bank's Deposit

In this study, Ratio of total capital to total deposit is used as a proxy Capital Adequacy .As regression result shows, Capital adequacy has negative and statistically insignificant impact on Bank's deposit. The negative relation was consistent with financial fragility-crowding out" theories, higher capital reduces liquidity creation Rajan (2002) and the findings of Jember (2015) on private commercial Bank of Ethiopian. This implication show that better capitalized banks tend to create less liquidity that leads to mobilize little deposit amount. As a result, the hypothesis, capital adequacy has negative and significant impact on liquidity should be rejected.

Deposit Rate and Bank's Deposit

Interest rate on deposit as a fraction of total deposit is taken as a measure for interest rate on deposit. It was hypothesized that deposit rate has positive and significant impact on bank's deposit. The result of the regression shows that, interest rate on deposit has positive and insignificant impact on commercial banks deposit. Thus, there is no empirical evidence that supports the influence of interest rate liberalization on bank's deposit in Ethiopia. The positive relation was consistent with the findings of Hibret and Shemsu (2015) on commercial Bank of Ethiopia. Although, McKinnon (1973) and Shaw (1973) point out that interest rate is key factor that influences savings of a country, a general implication drawn in this paper is that deposit rate would not bring about automatic improvement in bank's deposit. Therefore, the study reject the hypothesis of deposit rate has positive and significant impact on bank's deposit

Bank's Liquidity and Bank's Deposit

In this study, Ratio of total loan and advance to total deposit is used as a proxy bank liquidity. The ratio of loan and advances to deposits reflects the quantity or proportion of the customers' deposits that has been given out in form of loans. When the ratio is high it means that large portion deposit is given out in the form of loan. The study was hypothesized that Bank liquidity has negative and significant impact on bank's deposit. The result in this study found that Bank

liquidity is negatively and statistically significant impact on deposit of Ethiopian private commercial banks at 1% significant level. According to the regression result, a one unit change in the Bank's liquidity, keeping other things constant, has resulted in 1.6478 unit change on the level of deposit of commercial banks in opposite direction. In other word, it means that the depositors are concerned with liquidity position which determines a bank's ability to respond to the withdrawal needs which are normally on demand or on a short notice as the case may be. This positive relation Bank's liquidity and deposit is consistent with the funding of Jemeber (2012) and Bahredin (2016). Therefore, the study fails to reject the hypothesis of Bank's liquidity has negative and significant impact on bank's deposit.

Population Growth and Bank's Deposit

The other macroeconomic variable included in this study was population growth. According to the regression result of this study, Population has negative and statistically insignificant impact on deposit of Ethiopian private commercial. The negative relation of the population growth and Bank's deposit is not consistence with our expectation but it is supported by assumption of Cincotta and Engelman (1997) that rapid population growth produces large proportions of children and youth relative to the labor force .Families spend far more on children than the children can quickly repay in economic production, especially as modern schooling and health care replaces child labor so It is expected consumption related to children to retard household savings. Thus, the hypothesis: population growth has positively and significant impact on deposit should be rejected.

Profitability and Bank's Deposit

Profitability in this study is measured by the return on asset (ROA). Most time private commercial banks met the minimum standards that is set by the Basel accord which indicate the minimum return on asset to be equal or greater than 1% are banks in better performance . Profitability of a concern indicates the financial stability and the greater the possibility of profit-earning the easier it is to attract deposit .The regression result shows that, profitability has positive and statistically insignificant impact on Bank's deposit. The positive sign of the coefficient indicates a directly relationship between profitability and banks deposit. This positive relationship profitability and Bank's deposit is consistent with the funding Finger and Hesse (2009). Thus, the hypothesis: bank profitability has positive and significant impact on banks deposit should be rejected.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the major conclusions and recommendations based on the findings of the study. The chapter is organized in to two sub-sections the first section presents the major conclusions of the study and the second section deals with the recommendation drawn from the study.

5.1 Conclusion

Nowadays, finding deposit is becoming a challenging job for the banks in Ethiopia compatible with the growing need of loans. Owing to the growing need for finances from new and existing businesses of the country coupled with the banks own desire to make profits from those finances, deposit mobilization is becoming the critical success factor for banks. The main objective of this study was to identify the macroeconomic and bank specific determinants of deposit of Ethiopian private commercial banks. To comply with the objectives of the study, four bank specific and macroeconomic variables were used. The bank specific variables includes; capital adequacy, bank Liquidity , profitability, Branch Expansion and the macroeconomic variables were real GDP, deposit rate ,population growth and disposable income . The study was used panel data for the sample of six private commercial banks in Ethiopia which had fifteen years of banking service over the period 2001 to 2015. The bank specific data were mainly collected from annual audited financial reports of the respective sample banks and the macroeconomic data were collected from NBE and MoFED.

Data was presented and analyzed by using descriptive statistics, correlation analysis and balanced fixed effect regression analysis to identify the determinants of deposit of Ethiopian private commercial banks. Before performing OLS regression the model was tested for the classical linear regression model assumptions. From eight explanatory variables, 50% of them proved to be statistically significant.

The study reveals that from four macroeconomic variables, 50% of them proved to be statistically significant. This is a clear signal to private commercial banks of Ethiopia that they cannot ignore the macroeconomic indicators when strategizing to improve on their deposit

position. Thus, banks in Ethiopia should not only be concerned about internal structures and policies/ procedures, but they must consider both the internal environment and the macroeconomic environment together in developing their strategies to increase their deposit position.

The result of this study showed that, among the macro-economic variables disposable income and real GDP has statistically significant impact on deposit of Ethiopian private commercial banks. Whereas deposit rate, population growth have no statistically significant impact on the determination of deposit of Ethiopian private commercial Banks. Branch expansion and Bank liquidity are among the bank specific variables that have statistically significant impact on the determination deposit of Ethiopian. Whereas capital adequacy and return asset are the other bank specific which has no statistically significant impact on the determination of deposit of Ethiopian private commercial banks.

The result reveals a positive relationship between branch expansion and deposit with strong statistical significant. Aggressive branch opening that has positive correlation with deposit mobilization with respect to widening customer base and increased financial inclusion through creating accessibilities to the unbanked rural and urban areas. This result was in line with our expectation and findings of Wubetu(2012), Giragn, Hibret and Shemsu (2015). The coefficient sign for bank liquidity (Ratio of total loan to total deposit) revealed negative relationship with Bank deposit and it was in line with our hypothesis. It is shows that Banks need to have adequate amount cash to satisfy the withdrawal needs of the customers. The Negative relation between Bank's liquidity and deposit consistent with funding of Jemeber (2014) on private commercial banks of Ethiopia. Disposable income and GDP growth rate have a positive impact on the savings of private commercial Banks of Ethiopia. This finding is consistent with the empirical results of the cross country studies, which indicate, ceteris paribus, that more advanced countries tend to save a higher percentage of their GDP.

5.2 Recommendation

This study was intended to identify the empirical determinants of deposit of Ethiopian private commercial banks; and hence on the basis of the findings of the study, the following recommendations are drown.

- It is well known that deposits are the critical resource for the banks to stay profitable, by the same analogy commercial Banks major activity is mobilizing deposit. Therefore the bank should give due emphasis to its deposit mobilizing tasks by considering mobilizing deposit is a way to survival.
- Since branch expansion has positive and significant effect on total deposit of commercial banks, private commercial banks should have to intensify branch expansion to areas where there are potential deposit sources even to remote locations.
- The results of this paper help to understand the effectiveness of policy variables in raising the national savings in terms of their magnitude and direction. Some major recommendations for policy can be drawn from the analysis. Policies geared towards improvement in economic growth and disposable income as suggested by Keynes (1936) would improve saving rates.
- There is a well-established positive relationship between economic growth and deposit mobilization. This calls for a continued policy support and investment in enhancing economic growth that would not only increase the capacity of banks to mobilize resources, but also trigger the overall growth of the economy.
- A lack of liquidity can put a quick and final end to a financial institution's efforts to mobilize deposits and, in the worst case, can cause it to collapse or close. Deposit mobilization requires clients to trust that they will always be able to access their savings when they want or need them. As the study point out, private commercial bank required to have enough liquid assets to meet the demand for cash outflows, so as to generate and sustain public confidence of the depositors.
- Expanding private sector banking and increasing financial intermediation are key elements of this much-needed reform that will underpin economic growth. The government has to give equal playing ground for all banks and its policies should be impartial to all banks operating in the country. The existing institution of the banks, Ethiopian Bankers Association, has to

broaden its authorities and responsibilities and instigate fair practices among individual banks.

Recommendation for further study: As this study identifies only limited bank specific and macroeconomic variables for a sample of six private commercial banks in Ethiopia, there have to be further researches which include more bank specific variables, macroeconomic variables that affect the deposit of Ethiopian commercial banks.

Reference

ABIY, Z. A. 2009. *Introduction to Research Methods (Preparatory module for Addis Ababa University graduate programs)*, Graduate Studies and Research Office AAU.

ABU, G. 2005. On the determinate of domestic saving in Ethiopia. *second international Conference on the Ethiopian economy*.

ADEM, S. B. 2015. *Determinants of commercial bank deposits in Ethiopia: a case of commercial bank of Ethiopia.* MSc., A.A.U.

AMHA, W., & ALEMU, T. 2014. *Household saving behavior and saving mobilization in Ethiopia*. Addis Ababa: Ethiopian inclusive finance training and research institute (ELFTRI)

ANDO, A. & MODIGLIANI, F. 1963. The" life cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review,* 53**,** 55-84.

ANTHONY, O. 2012. Bank Savings and Bank Credits in Nigeria: Determinants and Impact on Economic Growth. *International Journal of Economics and Financial* 2**,** 357-372.

ATHUKORALA, P.-C. & SEN, K. 2004. The determinants of private saving in India. *World Development,* 32**,** 491-503.

AYALEW, H. A. 2013. Determinants of domestic saving in Ethiopia: An autoregressive distributed lag (ARDL) bounds testing approach. *Journal of Economics and International Finance,* 5**,** 248.

BAHARUMSHAH, A. Z., THANOON, M. A. & RASHID, S. 2003. Saving dynamics in the Asian countries. *Journal of Asian Economics,* 13**,** 827-845.

BAHREDIN, A. 2016. *Determinate of commercial Bank's deposit growth (evidence from Ethiopia).* MSc, A.A.U.

BANK, W. 2012. Document of The World Bank. Ethiopia Country Management Unit, Africa Region.

BANK, W. 2013. Ethiopia Economic Update II - Laying the Foundation for Achieving Middle Income Status. The World Bank.

BERSALES, L. G., MAPA, D. & GRACE, L. 2006. Patterns and determinants of household saving in the Philippines. *prepared under the EMERGE Project of USAID*.

BHALLA, V. K. 2006. *Financial Management and Policy,* New Delhi, Anmol Publications, Pvt. Ltd.

BRISTY, H. J. 2014. Saving Behavior of Bangladesh. *International Review of Business Research Papers,* 10.

BROOKS, C. 2008. *Introductory Econometrics for Finance.* , Cambridge University Press.

BROWNING, M. & LUSARDI, A. 1996. Household saving: Micro theories and micro facts. *Journal of Economic literature,* 34**,** 1797-1855.

C.KELLEY, A. 1988. population pressure ,saving and investment in the third world. *Economic development and cultural change,* 36**,** 449-464.

CARLSON, M. & MITCHENER, K.J. 2005. Branch Banking, Bank Banking Competition, and Financial Stability. National Bureau of Economic Research.

CARROLL, C. D., OVERLAND, J. & WEIL, D. N. 2000. Saving and growth with habit formation. *American Economic Review***,** 341-355.

CINCOTTA, R. P. & ENGELMAN, R. 1997. Economics and Rapid Change: The Influence of Population Growth. Population Action International.

CRESWELL, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approaches*, Sage publications.
CULPEPER, R. & BHUSHAN, A. 2008. Domestic resource mobilization : A Neglected Factor in Development Strategy Background Paper.
DADZIE, K. Q., WINSTON, E. & AFRIYIE, K. 2003. The effects of normative social belief systems and customer satisfaction on rural savings programs in Ghana. *Management Decision,* 41**,** 233-240.
DEATON, A. 1977. Involuntary saving through unanticipated inflation. *The American Economic Review,* 67**,** 899-910.
DEATON, A. 1989. Saving in developing countries: Theory and review. *The World Bank Economic Review,* 3**,** 61-96.
ELBADAWI, I. A. & MWEGA, F. M. 2000. Can Africa's saving collapse be reversed? *The World Bank Economic Review,* 14**,** 415-443.
ELSER, L., ET AL 1999. Strict Dollarization and Economic Performance: An Empirical Investigation". *Journal of Money, Credit & Banking*.
EPAPHRA, M. 2014. Empirical Investigation of the Determinants of Tanzania's National Savings. *Journal of Economics and Development Studies,* 2**,** 223-241.
ERIEMO, N. O. 2014. Macroeconomic Determinants of Bank Deposits in Nigeria. *Journal of Economics and Sustainable Development,* 5.
ERNA, R., & EKKI, S. 2004. Factors Affecting Mudaraba Deposits in Indonesia. Working Paper in Economics and Development Studies . *Padjadjaran University of Indonesia.*
ETHIOPIAN-GOVERNMENT 1994. Proclamation that allowed the private sector (owners have to be Ethiopian nationals, however) to engage in the banking business. Addis Ababa.
FADARE, S. O. 2011. Banking sector liquidity and financial crisis in Nigeria. *International Journal of Economics and Finance,* 3**,** 3.
FINGER, H. & HESSE, H. 2009. Lebanon-determinants of commercial bank deposits in a regional financial center. *IMF Working Papers***,** 1-21.
GEMEDU, W. E. 2012. *Factors determining commercial bank deposit: an empirical Study on Commercial Bank of Ethiopia.* M.Sc., A.A.U.
GIRAGN,G. 2015. *Determinants of Deposit Mobilization and Related Costs of Commercial Banks in Ethiopia"* MSc, A.A.U.
GORTON, G. B. & WINTON, A. 2000. Liquidity provision, bank capital, and the macroeconomy.
HABTAMU.N 2012. *Determinates of Bank Profitability; An Empirical Study on Ethiopian private Commercial Banks.* MSc., A.A.U.
JEMBERE, H. 2014. *Determinate of deposit of mobilization in private commercial Bank of Ethiopia.* MSc., St. Marry University.
HARVEY, J. & SPONG, K. 2001. The decline in core deposits: what can banks do? *Financial Industry Perspectives***,** 35.
HIBRET B. 2015. *Determinate of commercial Bank's deposit growth in Ethiopia: case study on the commercial Bank.* MSc., A.A.U.
IMF 2013. The Federal Democratic Republic of Ethiopia: 2013 Article IV Consultation.
JAGADEESH, D. 2015. The Impact of Savings in Economic Growth: An Empirical Study Based on Botswana. *International Journal,* 10.
KAYıKÇı, F. 2012. Saving investment correlations and capital mobility: evidence from transition economies. *International Journal of Social Sciences and Humanity Studies,* 4**,**

191-198.
KEATINGE, T. 2014. The Role of Public and Private Sector Banking in Ethiopia's Future Economic Growth. *Global Center on Cooperative Security*.
KHALILY, M. A. B., MEYER, R. L. & HUSHAK, L. J. 1987. Deposit Mobilization in Bangladesh: Implications for Rural Financial Institutions and Financial Policies. *The Bangladesh Development Studies,* 15**,** 85-117.
KHAN, M. S. & VILLANUEVA, D. 1991. Macroeconomic policies and long-term growth: A conceptual and empirical review.
KIDANE, A. 1989. Demographic consequences of the 1984–1985 Ethiopian famine. *Demography,* 26**,** 515-522.
KOUL, L. 2006. *Methodology Of Educational Research, 5th*, Vikas Publishing House Pvt Ltd.
KUDAISI, B. V. 2013. Savings and Its Determinants in West Africa Countries. *Journal of Economics and Sustainable Development,* 4**,** 107-119.
LEWIS, A. 1955. *Theory of Economic Growth,* London, Allen and Unwin.
LOAYZA, N., SCHMIDT-HEBBEL, K. & SERVÉN, L. 2000. Saving in developing countries: an overview. *The World Bank Economic Review,* 14**,** 393-414.
MAENDE, C. 1992. Role of commercial bank deposits in Kenya. *African Economic Research Consortium (AERC) Research*.
MASHAMBA, T., RABSONMAGWEVA & GUMBO, L. C. 2014. Analyzing the relationship between Banks' Deposit Interest Rate and Deposit Mobilisation: Empirical evidence from Zimbabwean Commercial Banks. *Journal of Business and Management,* 16**,** 64-75.
MCKINNON, R. I. 1973. *Money and Capital in Economic Development,* Washington, DC, USA, Brookings Institute,.
MEDIA, I. N. 2015. What a Year for Banks! *Fortune New Paper,* sep 14, 2015.
METIN_ÖZCAN, K. & ÖZCAN, Y. Z. 2005. Determinants of Private Savings in the Middle East and North Africa in: Money and Finance in the Middle East: Missed Opportunities or Future Prospects? *Research in Middle East Economics,* 6**,** 95-117.
MEVLÜT, T. 2014. *Determinants of private saving level : evidence from turkey in 2000s.* istanbulmedipol university.
MIAN, A. 2003. Foreign, private domestic, and government banks: New evidence from emerging markets. *Journal of Banking and Finance,* 27**,** 1219-1410.
MODIGLIANI, F. 1986. Life cycle, individual thrift, and the wealth of nations. *The American Economic Review,* 76**,** 297-313.
MOULTON ,M.G 1981. General Principle of Financial Economics". *The Journal of Political Economy,* 6.
MUSA S. J, IYAJI D. & SUCCESS E.B. 2014. Private Domestic Savings Mobilization by Commercial Banks and Economic Growth in Nigeria. *Beykent University Journal of Social Sciences,* 7**,** 1307-5063.
NATIONAL-BANK 2012. Birritu -. *Birritu* 113 ed.
NATIONAL-BANK 2015. Biritu -. *Biritu.* 199 ed.
NBE 2011. Directives on the Establishment and Operation of National Bank of Ethiopia Bills Market. Addis Ababa Ethiopia.
NGULA, I. B. 2012. *Determinants of deposit mobilization and its role in economic growth in Ghana.* Kwame Nkrumah University of Science and Technology.

NISHAT, M. & BILGRAMI, N. 1989. Determinants of growth of bank deposits in Pakistan savings and development. 13**,** 391-400.

NWACHUKWU, T. E. & ODIGIE, P. 2011. What drives private saving in Nagera.

OLAGUNJU, A., OLANREWAJU, A., OLABODE, D. & SAMUEL, O. 2011. Liquidity Management and Commercial Banks' Profitability in Nigeria. *Research Journal of Finance and Accounting*

OLUSOJI, M. O. 2003. Determinants of Private Savings in Nigeria: An Error Correction Approach. *NDIC Quarterly,* 13**,** 85-96.

ONUONGA, S. M. 2014. The Analysis of Profitability of Kenya's Top Six Commercial Banks: Internal Factors Analysis". *American International Journal of Social Science,* 3**,** 91-103.

OPOKU, S. 2011. *Mobilizing deposits; the role of commercial banks in Ghana, An Unpublished M.A.thesis.* M.A., Kwame Nkrumah University of Science and Technology.

OZCAN, K. M., GUNAY, A. & ERTAC, S. 2003. Determinants of private savings behaviour in Turkey. *Applied Economics,* 35**,** 1405-1416.

OZCAN, K. M., GUNAY, A. & ERTAC, S. 2012. Macro and Socioeconomic Determinants of Turkish Private Savings. *Journal of Economic Cooperation & Development,* 33**,** 93A.

ÖZCAN, K. M., GUNAY, A. & ERTAC, S. 2003. Determinants of Private Savings Behavior in Turkey. *Applied Economics,* 25**,** 1405-1416.

RACHMAWATI, E. & SYAMSULHAKIM, E. 2004. Factors Affecting Mudaraba Deposits in Indonesia. Working Paper in Economics and Development Studies. *Padjadjaran University of Indonesia*.

RAJAN, D. A. Year. Banks and Liquidity. *In:* The American Economic Review 2002. 8-23.

RANGARAJAN, C.1982. *Innovations in Banking- The Indian experience: impact on deposit and credit* , Oxford and IBH .

RAUCH, C., STEFFEN, S., HACKETHAL, A. & TYRELL, M. 2008. Determinants of bank liquidity creation, Evidence from savings banks. Working paper . Germen.

SAMANTARAYA, A. & PATRA, S. K. 2014. Determinants of Household Savings in India: An Empirical Analysis Using ARDL Approach. *Economics Research International,* 2014.

SHAW, E. S. 1973. Financial deepening in economic development.

SHEN, C., CHEN, YK, KAO, LF AND YEH, CY 2010. Bank liquidity risk and performance

SHIBIRU, A. 2014. *Assessing the implications of regulatory policy on the development of private commercial banks in Ethiopia, A case of NBE bills Purchase.* A.A.U.

SHUMET, M. 2016. *Determinants of Liquidity in Commercial Banks of Ethiopia: The Case of Selected Private Banks.* MSc., A.A.U.

SIMON-OKE, O. O. & JOLAOSHO, O. M. 2013. Real interest rate and savings mobilization in Nigeria. *International journal of development and economic sustainability,* 1**,** 28-40.

TEKLE, Y. & BALAY, H. 2015. *Determinates of commercial Bank deposit Growth in Ethiopia.* M.Sc., A.A.U.

TERIBA, O. 1993. *Economics for West Africa,* Ibadan, Publishing Consultant Ltd.

TESFAHUNEGN, S. 2005. *Challenges of Deposit Mobilization for Private Commercial Banks in Ethiopia (The Case of Awash International Bank S.C.).* M.Sc., A.A.U.

VIRMANI, L. R. A. A. 1989. Determinants of consumption and saving behaviour in developing countries. *The world bank economic review*, 3.

YANNE GOOSENS, P., SCHEPELMANN, H. & SAND, I. V. D. 2007. Alternative Progress indicators to Gross Domestic Product(GDP) as a means towards sustainable development. *European Parliament*.

YISMAW, T. G. 2014. *Determinants of Private Saving In Ethiopia* M.Sc., Arbaminch University.

http//:www.nabard.org/databank/IARD%20web/csidfiles/perspectives%20deposits%mobilisation.pdf.

Appendix I: Trend of private commercial Bank's deposit

year	Dashen Bank	Awash Inter. Bank	Bank of Abyssinia	Wegagen Bank	United Bank	Nib Inter. Bank
2001	886	751	651	449	129	208
2002	1191	930	909	515	189	345
2003	1621	1164	1076	704	287	588
2004	2178	1493	1275	876	532	832
2005	2833	1940	1627	1288	865	1223
2006	3692	2567	2177	1778	1220	1452
2007	4861	3112	2721	2724	1541	1879
2008	6152	3870	3478	2966	2443	2470
2009	7925	4962	4494	3728	3616	3296
2010	10145	6106	5139	3923	4725	4127
2011	11841	7744	6075	5957	6066	5157
2012	14066	9204	6771	6116	6758	5838
2013	15851	12545	8496	7908	8063	6655
2014	17681	15040	9096	8742	8905	7923
2015	19814	18520	11118	10228	11804	9774

Appendix II:

Durbin-Watson Statistic: 1 Per Cent Significance Points of dL and dU

*k' is the number of regressors excluding the intercept

	k'=1		k'=2		k'=3		k'=4		k'=5		k'=6		k'=7		k'=8		k'=9		k'=10	
N	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU
6	0.390	1.142	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
7	0.435	1.036	0.294	1.676	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
8	0.497	1.003	0.345	1.489	0.229	2.102														
9	0.554	0.998	0.408	1.389	0.279	1.875	0.183	2.433	----	----	----	----	----	----	----	----	----	----	----	----
10	0.604	1.001	0.466	1.333	0.340	1.733	0.250	2.193	0.170	2.690	----	----	----	----	----	----	----	----	----	----
11	0.653	1.010	0.519	1.297	0.396	1.640	0.236	2.030	0.183	2.453	0.124	2.892	----	----	----	----	----	----	----	----
12	0.697	1.023	0.569	1.274	0.449	1.575	0.339	1.913	0.244	2.280	0.161	2.665	0.105	3.053						
13	0.738	1.038	0.616	1.261	0.499	1.526	0.391	1.826	0.294	2.150	0.211	2.490	0.140	2.838	0.090	3.182	----	----	----	----
14	0.776	1.054	0.660	1.254	0.547	1.490	0.441	1.757	0.343	2.049	0.257	2.354	0.183	2.667	0.122	2.981	0.078	3.287	----	----
15	0.811	1.070	0.700	1.252	0.591	1.465	0.487	1.705	0.390	1.967	0.303	2.244	0.226	2.530	0.161	2.817	0.107	3.101	0.068	3.374
16	0.844	1.086	0.738	1.253	0.633	1.447	0.532	1.664	0.437	1.901	0.349	2.153	0.269	2.416	0.200	2.681	0.142	2.944	0.004	3.201
17	0.875	1.102	0.773	1.255	0.672	1.432	0.574	1.631	0.481	1.847	0.395	2.078	0.313	2.318	0.241	2.566	0.179	2.811	0.127	3.053
18	0.902	1.118	0.805	1.259	0.708	1.422	0.614	1.604	0.522	1.803	0.435	2.015	0.355	2.238	0.282	2.467	0.215	2.697	0.160	2.925
19	0.928	1.133	0.835	1.264	0.742	1.416	0.650	1.583	0.561	1.767	0.475	1.963	0.396	2.169	0.322	2.381	0.255	2.597	0.196	2.813
20	0.952	1.147	0.863	1.270	0.774	1.410	0.684	1.567	0.598	1.736	0.516	1.918	0.436	2.110	0.362	2.308	0.294	2.510	0.232	2.714
21	0.975	1.161	0.889	1.275	0.803	1.408	0.718	1.554	0.634	1.712	0.552	1.881	0.474	2.059	0.400	2.244	0.331	2.434	0.268	2.625
22	0.997	1.174	0.915	1.284	0.832	1.407	0.748	1.543	0.666	1.691	0.587	1.849	0.510	2.015	0.437	2.188	0.368	2.367	0.304	2.548
23	1.017	1.186	0.938	1.290	0.858	1.407	0.777	1.535	0.699	1.674	0.620	1.821	0.545	1.977	0.473	2.140	0.404	2.308	0.340	2.479
24	1.037	1.199	0.959	1.298	0.881	1.407	0.805	1.527	0.728	1.659	0.652	1.797	0.578	1.944	0.507	2.097	0.439	2.255	0.375	2.417
25	1.055	1.210	0.981	1.305	0.906	1.408	0.832	1.521	0.756	1.645	0.682	1.776	0.610	1.915	0.540	2.059	0.473	2.209	0.409	2.362
26	1.072	1.222	1.000	1.311	0.928	1.410	0.855	1.517	0.782	1.635	0.711	1.759	0.640	1.889	0.572	2.026	0.505	2.168	0.441	2.313
27	1.088	1.232	1.019	1.318	0.945	1.413	0.878	1.514	0.808	1.626	0.738	1.743	0.669	1.867	0.602	1.997	0.536	2.131	0.473	2.269
28	1.104	1.244	1.036	1.325	0.969	1.414	0.901	1.512	0.832	1.618	0.764	1.729	0.696	1.847	0.630	1.970	0.566	2.098	0.504	2.229
29	1.119	1.254	1.053	1.332	0.988	1.418	0.921	1.511	0.855	1.611	0.788	1.718	0.723	1.830	0.658	1.947	0.595	2.068	0.533	2.195
30	1.134	1.264	1.070	1.339	1.005	1.421	0.941	1.510	0.877	1.606	0.812	1.707	0.748	1.814	0.684	1.925	0.622	2.041	0.552	2.160
31	1.147	1.271	1.085	1.345	1.022	1.425	0.960	1.509	0.897	1.601	0.834	1.698	0.772	1.800	0.710	1.906	0.649	2.017	0.589	2.131
32	1.160	1.283	1.100	1.351	1.039	1.428	0.978	1.509	0.917	1.597	0.856	1.690	0.794	1.788	0.734	1.889	0.674	1.995	0.615	2.104
33	1.171	1.291	1.114	1.358	1.055	1.432	0.995	1.510	0.935	1.594	0.876	1.683	0.816	1.776	0.757	1.874	0.698	1.975	0.641	2.080
34	1.184	1.298	1.128	1.364	1.070	1.436	1.013	1.511	0.954	1.591	0.896	1.677	0.837	1.766	0.779	1.860	0.722	1.957	0.665	2.057
35	1.195	1.307	1.141	1.370	1.085	1.439	1.028	1.512	0.971	1.589	0.914	1.671	0.857	1.757	0.800	1.847	0.744	1.940	0.689	2.037
36	1.205	1.315	1.153	1.375	1.098	1.442	1.043	1.513	0.987	1.587	0.932	1.666	0.877	1.749	0.821	1.836	0.766	1.925	0.711	2.018
37	1.217	1.322	1.164	1.383	1.113	1.446	1.058	1.514	1.004	1.585	0.950	1.662	0.895	1.742	0.841	1.825	0.787	1.911	0.733	2.001
38	1.227	1.330	1.176	1.388	1.124	1.449	1.072	1.515	1.019	1.584	0.966	1.658	0.913	1.735	0.860	1.816	0.807	1.899	0.754	1.985
39	1.237	1.337	1.187	1.392	1.137	1.452	1.085	1.517	1.033	1.583	0.982	1.655	0.930	1.729	0.878	1.807	0.826	1.887	0.774	1.970
40	1.246	1.344	1.197	1.398	1.149	1.456	1.098	1.518	1.047	1.583	0.997	1.652	0.946	1.724	0.895	1.799	0.844	1.876	0.749	1.956
45	1.288	1.376	1.245	1.424	1.201	1.474	1.156	1.528	1.111	1.583	1.065	1.643	1.019	1.704	0.974	1.768	0.927	1.834	0.881	1.902
50	1.324	1.403	1.285	1.445	1.245	1.491	1.206	1.537	1.164	1.587	1.123	1.639	1.081	1.692	1.039	1.748	0.997	1.805	0.955	1.864
55	1.356	1.428	1.320	1.466	1.284	1.505	1.246	1.548	1.209	1.592	1.172	1.638	1.134	1.685	1.095	1.734	1.057	1.785	1.018	1.837
60	1.383	1.449	1.351	1.484	1.317	1.520	1.283	1.559	1.248	1.598	1.214	1.639	1.179	1.682	1.144	1.726	1.108	1.771	1.072	1.817
65	1.407	1.467	1.377	1.500	1.346	1.534	1.314	1.568	1.283	1.604	1.251	1.642	1.218	1.680	1.186	1.720	1.153	1.761	1.120	1.802
70	1.429	1.485	1.400	1.514	1.372	1.546	1.343	1.577	1.313	1.611	1.283	1.645	1.253	1.680	1.223	1.716	1.192	1.754	1.162	1.792
75	1.448	1.501	1.422	1.529	1.395	1.557	1.368	1.586	1.340	1.617	1.313	1.649	1.284	1.683	1.256	1.714	1.227	1.748	1.199	1.783
80	1.465	1.515	1.440	1.541	1.416	1.568	1.390	1.595	1.361	1.624	1.338	1.653	1.312	1.683	1.285	1.714	1.259	1.745	1.232	1.777
85	1.481	1.529	1.458	1.553	1.434	1.577	1.411	1.602	1.385	1.630	1.362	1.657	1.337	1.685	1.312	1.714	1.287	1.743	1.262	1.773
90	1.496	1.541	1.474	1.566	1.452	1.587	1.429	1.611	1.406	1.636	1.383	1.661	1.360	1.687	1.336	1.714	1.312	1.741	1.288	1.769
95	1.510	1.552	1.489	1.578	1.468	1.596	1.446	1.618	1.425	1.641	1.403	1.666	1.381	1.690	1.358	1.715	1.336	1.741	1.313	1.767
100	1.522	1.562	1.502	1.587	1.482	1.604	1.461	1.625	1.441	1.647	1.421	1.670	1.400	1.693	1.378	1.717	1.357	1.741	1.335	1.765
150	1.611	1.637	1.598	1.651	1.584	1.665	1.571	1.679	1.557	1.693	1.543	1.706	1.530	1.722	1.515	1.737	1.501	1.752	1.486	1.767
200	1.664	1.684	1.653	1.693	1.643	1.704	1.633	1.715	1.623	1.725	1.613	1.735	1.603	1.746	1.592	1.757	1.582	1.768	1.571	1.779

Appendix III

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.629570	Prob. F(8,81)	0.7507
Obs*R-squared	5.268576	Prob. Chi-Square(8)	0.7285
Scaled explained SS	4.609035	Prob. Chi-Square(8)	0.7984

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 01/10/17 Time: 16:35
Sample: 1 90
Included observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.050677	0.134375	0.377130	0.7071
BRA	0.018462	0.089539	0.206194	0.8372
DES	-0.079503	0.125042	-0.635809	0.5267
GDP	0.097317	0.378069	0.257405	0.7975
CAP	-0.021960	0.139668	-0.157229	0.8755
INT	1.686387	1.375948	1.225618	0.2239
LIQ	0.023546	0.100728	0.233762	0.8158
POP	-2.916571	4.376042	-0.666486	0.5070
ROA	0.710740	1.839375	0.386403	0.7002

R-squared	0.058540	Mean dependent var	0.067958
Adjusted R-squared	-0.034444	S.D. dependent var	0.100438
S.E. of regression	0.102153	Akaike info criterion	-1.630051
Sum squared resid	0.845254	Schwarz criterion	-1.380070
Log likelihood	82.35230	Hannan-Quinn criter.	-1.529244
F-statistic	0.629570	Durbin-Watson stat	1.689036
Prob(F-statistic)	0.750667		

Appendix IV: Raw Data Associated With Regression Analysis											
Bank			DEP	CAP	LiQ	INT	DES	POP	ROA	GDP	BRA
Awash	1	2001	8.20412	0.185383	0.747004	0.06	0.001679	0.026667	0.012128	0.07418	0.157895
	1	2002	8.252853	0.205651	0.684946	0.03	-0.04107	0.025974	0.010791	0.016339	0.136364
	1	2003	8.369216	0.17125	0.687285	0.03	0.104021	0.025316	0.009993	-0.02099	0.04
	1	2004	8.517196	0.163848	0.633624	0.03	0.12985	0.026235	0.014689	0.117294	0.115385
	1	2005	8.650308	0.176744	0.664948	0.03	0.240364	0.027068	0.017071	0.126442	0.137931
	1	2006	8.797268	0.162393	0.729256	0.03	0.198305	0.02489	0.026405	0.115394	0.060606
	1	2007	8.736397	0.172771	0.807198	0.03	0.276285	0.034286	0.037342	0.117949	0.228571
	1	2008	8.879398	0.218042	0.707494	0.04	0.382711	0.03453	0.029625	0.111872	0.186047
	1	2009	9.038573	0.276447	0.546755	0.04	0.307775	0.025367	0.020045	0.100413	0.117647
	1	2010	9.058248	0.298792	0.515231	0.04	0.13524	0.026042	0.027436	0.105671	0.070175
	1	2011	9.214271	0.32811	0.514781	0.05	0.311679	0.024112	0.032521	0.114	0.114754
	1	2012	9.164524	0.292482	0.598067	0.05	0.381122	0.024783	0.030051	0.086995	0.294118
	1	2013	9.523857	0.26083	0.614587	0.05	0.122579	0.025393	0.02854	0.099	0.329545
	1	2014	9.396984	0.275164	0.779375	0.05	0.184143	0.025943	0.027955	0.103475	0.316239
	1	2015	9.541668	0.247586	0.673961	0.05	0.129951	0.022989	0.025598	0.102	0.344156
Dashen	2	2001	8.448706	0.130252	0.805869	0.06	0.001679	0.026667	0.019091	0.07418	0.222222
	2	2002	8.4843	0.139908	0.732158	0.03	-0.04107	0.025974	0.016151	0.016339	0.181818
	2	2003	8.633468	0.101815	0.781616	0.03	0.104021	0.025316	0.013561	-0.02099	0.115385
	2	2004	8.745855	0.101775	0.775941	0.03	0.12985	0.026235	0.020919	0.117294	0.103448
	2	2005	8.816241	0.108871	0.787857	0.03	0.240364	0.027068	0.02076	0.126442	0.0625
	2	2006	8.933993	0.121997	0.856988	0.03	0.198305	0.02489	0.029256	0.115394	0.088235
	2	2007	9.067815	0.136535	0.820407	0.03	0.276285	0.034286	0.030955	0.117949	0.135135
	2	2008	9.110765	0.166729	0.712344	0.04	0.382711	0.03453	0.030535	0.111872	0.190476
	2	2009	9.248877	0.204132	0.56169	0.04	0.307775	0.025367	0.025675	0.100413	0.1
	2	2010	9.346224	0.222496	0.49769	0.04	0.13524	0.026042	0.026231	0.105671	0.090909
	2	2011	9.229603	0.224591	0.525075	0.05	0.311679	0.024112	0.030741	0.114	0.1
	2	2012	9.347205	0.225004	0.577566	0.05	0.381122	0.024783	0.037215	0.086995	0.121212
	2	2013	9.251799	0.230831	0.559092	0.05	0.122579	0.025393	0.030728	0.099	0.486486
	2	2014	9.26247	0.275475	0.53331	0.05	0.184143	0.025943	0.032441	0.103475	0.290909
	2	2015	9.328944	0.253656	0.581757	0.05	0.129951	0.022989	0.029443	0.102	0.15493
Wegagen	3	2001	8.227887	0.213974	1.0553	0.06	0.001679	0.026667	0.021205	0.07418	0.625
	3	2002	8.41162	0.210762	0.735974	0.03	-0.04107	0.025974	-0.00175	0.016339	0
	3	2003	8.222716	0.184178	0.751859	0.03	0.104021	0.025316	0.004216	-0.02099	0.076923
	3	2004	8.298853	0.200624	0.75451	0.03	0.12985	0.026235	0.023002	0.117294	0.357143
	3	2005	8.546543	0.205835	0.758451	0.03	0.240364	0.027068	0.029655	0.126442	0.157895
	3	2006	8.740363	0.204789	0.9017	0.03	0.198305	0.02489	0.029993	0.115394	0.136364
	3	2007	8.735599	0.174837	0.847115	0.03	0.276285	0.034286	0.019731	0.117949	0.16
	3	2008	8.878962	0.148973	0.810047	0.04	0.382711	0.03453	0.003414	0.111872	0.413793
	3	2009	9.007073	0.19167	0.602771	0.04	0.307775	0.025367	0.018344	0.100413	0.121951
	3	2010	8.809331	0.185678	0.613609	0.04	0.13524	0.026042	0.022387	0.105671	0
	3	2011	8.971467	0.199282	0.545769	0.05	0.311679	0.024112	0.024861	0.114	0.304348
	3	2012	8.842735	0.232614	0.575564	0.05	0.381122	0.024783	0.026253	0.086995	0.016667

	3	2013	9.236711	0.235562	0.553436	0.05	0.122579	0.025393	0.021291	0.099	0.409836
	3	2014	8.77839	0.302107	0.55637	0.05	0.184143	0.025943	0.039678	0.103475	0.27907
	3	2015	9.305715	0.306601	0.531133	0.05	0.129951	0.022989	0.021346	0.102	0.245455
BOA	4	2001	7.880814	0.168605	0.766147	0.06	0.001679	0.026667	0.010292	0.07418	0.117647
	4	2002	7.792392	0.157635	0.78835	0.03	-0.04107	0.025974	0.009288	0.016339	0.105263
	4	2003	8.285557	0.162872	0.81108	0.03	0.104021	0.025316	0.012373	-0.02099	0.047619
	4	2004	8.235528	0.174797	0.842466	0.03	0.12985	0.026235	0.02807	0.117294	0.045455
	4	2005	8.614897	0.179641	0.77795	0.03	0.240364	0.027068	0.029703	0.126442	0.26087
	4	2006	8.690196	0.160075	0.895951	0.03	0.198305	0.02489	0.03143	0.115394	0.103448
	4	2007	8.975662	0.187007	0.791261	0.03	0.276285	0.034286	0.032189	0.117949	0.1875
	4	2008	8.385295	0.257989	0.79114	0.04	0.382711	0.03453	0.033659	0.111872	0.052632
	4	2009	8.881986	0.395957	0.566568	0.04	0.307775	0.025367	0.035291	0.100413	0.225
	4	2010	8.28873	0.425133	0.63064	0.04	0.13524	0.026042	0.038897	0.105671	0.040816
	4	2011	9.308497	0.459557	0.48847	0.05	0.311679	0.024112	0.040105	0.114	0.039216
	4	2012	8.2001	0.449882	0.619237	0.05	0.381122	0.024783	0.040283	0.086995	0.132075
	4	2013	9.253455	0.390271	0.621157	0.05	0.122579	0.025393	0.033032	0.099	0.3
	4	2014	8.921072	0.465687	0.549159	0.05	0.184143	0.025943	0.026448	0.103475	0.25641
	4	2015	9.172155	0.397629	0.61513	0.05	0.129951	0.022989	0.025705	0.102	0.214286
united	5	2001	7.724276	0.470149	1.03876	0.06	0.001679	0.026667	0.023364	0.07418	0.285714
	5	2002	7.778151	0.539877	0.862434	0.03	-0.04107	0.025974	0.012739	0.016339	0
	5	2003	7.991226	0.313793	1.010453	0.03	0.104021	0.025316	0.010661	-0.02099	0.444444
	5	2004	8.389166	0.25	0.721805	0.03	0.12985	0.026235	0.010386	0.117294	0.076923
	5	2005	8.522444	0.210793	0.685549	0.03	0.240364	0.027068	0.028891	0.126442	0.214286
	5	2006	8.550228	0.190239	0.822951	0.03	0.198305	0.02489	0.027517	0.115394	0.294118
	5	2007	8.506505	0.255319	0.91499	0.03	0.276285	0.034286	0.029317	0.117949	0.318182
	5	2008	8.955373	0.251547	0.761113	0.04	0.382711	0.03453	0.02801	0.111872	0.241379
	5	2009	9.069078	0.241597	0.595238	0.04	0.307775	0.025367	0.020116	0.100413	0.138889
	5	2010	9.044971	0.243935	0.553162	0.04	0.13524	0.026042	0.029587	0.105671	0.073171
	5	2011	9.12742	0.275061	0.540233	0.05	0.311679	0.024112	0.030009	0.114	0.159091
	5	2012	8.839911	0.269673	0.604568	0.05	0.381122	0.024783	0.033898	0.086995	0.352941
	5	2013	9.11593	0.254979	0.58421	0.05	0.122579	0.025393	0.021421	0.099	0.130435
	5	2014	8.925058	0.047904	0.560841	0.05	0.184143	0.025943	0.017424	0.103475	0.269231
	5	2015	9.462305	0.245804	0.581148	0.05	0.129951	0.022989	0.019589	0.102	0.292929
NIB	6	2001	8.113943	0.295238	1.009615	0.06	0.001679	0.026667	0.035714	0.07418	0.2
	6	2002	8.136721	0.305556	0.93913	0.03	-0.04107	0.025974	0.024345	0.016339	0.666667
	6	2003	8.385606	0.227273	0.935374	0.03	0.104021	0.025316	0.012795	-0.02099	0.1
	6	2004	8.38739	0.220102	0.944712	0.03	0.12985	0.026235	0.025072	0.117294	0.272727
	6	2005	8.592177	0.197705	0.92641	0.03	0.240364	0.027068	0.026559	0.126442	0.214286
	6	2006	8.359835	0.19322	1.01584	0.03	0.198305	0.02489	0.028614	0.115394	0.117647
	6	2007	8.630428	0.233902	0.967004	0.03	0.276285	0.034286	0.029152	0.117949	0.263158
	6	2008	8.771535	0.282957	0.85582	0.04	0.382711	0.03453	0.030969	0.111872	0.625

	6	2009	8.917221	0.328255	0.673552	0.04	0.307775	0.025367	0.031969	0.100413	0.128205
	6	2010	8.919496	0.35996	0.616918	0.04	0.13524	0.026042	0.033647	0.105671	0.068182
	6	2011	9.012927	0.423147	0.536418	0.05	0.311679	0.024112	0.034652	0.114	0.085106
	6	2012	8.832973	0.411967	0.635289	0.05	0.381122	0.024783	0.034587	0.086995	0.137255
	6	2013	8.912268	0.366703	0.682622	0.05	0.122579	0.025393	0.032737	0.099	0.258621
	6	2014	9.103146	0.363249	0.682512	0.05	0.184143	0.025943	0.027669	0.103475	0.260274
	6	2015	9.267365	0.315824	0.705337	0.05	0.129951	0.022989	0.025428	0.102	0.228261