

**ADDIS ABABA UNIVERSITY  
COLLEGE OF BUSINESS AND ECONOMICS  
DEPARTMENT OF ACCOUNTING AND FINANCE**

**THE ROLE OF BANKS' DEPOSIT  
MOBILIZATION AND CREDIT FINANCING ON  
CAPITAL FORMATION IN ETHIOPIA**

**BY: Muluneh Lemma**

**June, 2015**

**Addis Ababa**

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**BY: Muluneh Lemma**

**Advisor: Habtamu Berhanu(PhD)**

A thesis submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Masters of Science in Accounting and Finance.

**June 2015**

**Addis Ababa**



## Statement of Declaration

I, Muluneh Lemma, declare that this thesis entitled "The Role of Banks' Deposit Mobilization and Credit Financing on Capital Formation in Ethiopia" is my own original work, which has not been presented for degree in this or any other universities and that all sources of materials used for the thesis have been properly acknowledged.

Declared By; Name: Muluneh Lemma

Signature: \_\_\_\_\_

Date: June 2015

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## ACRONYMS

|              |  |
|--------------|--|
| <b>ADF</b>   | <b>Augmented Dickey–Fuller Test</b>        |
| <b>BC</b>    | Bank Credit                                |
| <b>BD</b>    | Bank Deposit                               |
| <b>BI</b>    | Bank Investment                            |
| <b>CBE</b>   | Commercial Bank of Ethiopia                |
| <b>DBE</b>   | Development Bank of Ethiopia               |
| <b>ESA</b>   | European System of Accounts                |
| <b>GDP</b>   | Gross Domestic Product                     |
| <b>GFCF</b>  | Gross Fixed Capital Formation              |
| <b>GMM</b>   | Generalized Method of Moments              |
| <b>GNP</b>   | Gross National Product                     |
| <b>MOFED</b> | Ministry of Finance & Economic Development |
| <b>NBE</b>   | National Bank of Ethiopia                  |
| <b>NS</b>    | National Saving                            |
| <b>OLS</b>   | Ordinary Least Square                      |
| <b>RESET</b> | Ramsey Regression Specification Error Test |
| <b>RIR</b>   | Real Interest Rate                         |
| <b>SNA</b>   | System of National Accounts                |
| <b>UNSNA</b> | United Nations System of National Accounts |
| <b>VIF</b>   | Variance Inflation Factor                  |

## ACKNOWLEDGMENTS

First, I would like to thank almighty God, the Most sympathetic, source of Knowledge & Wisdom, who bestowed upon me the strength and the wisdom to accomplish this thesis.

I would like to sincerely thank my advisor Habtamu Berhanu(PhD) for his constructive comments, valuable suggestions and exceptional guidance,

My sincere gratitude goes to my Lovely Wife, Bemnet Meressa for her continued support and indispensable encouragement for accomplishment of this MSC program as well as all my 14 years pleased partnership and getting me a father of three cute children( Yididia(Didi), Eldana(Sweet) and Bamlak(Fikir). Furthermore, my heartfelt thanks go to my father, my mother, my brothers and my sisters, who always are my best support and without whom I would not be the person I am today. My work is the result of your assistance.

Lastly, my appreciation also goes to my employer Organization, CBE for financial support, and some of my colleagues & staff mate Megbaru Misikir( MSC) & Frezer Agegnehu (MSC) for their unreserved comment and support, Amanuel Mekonnen (MSC & MPP), H/Mariam Desalegn( MSC ) and Elias Gebru( MBA) for supporting me in collecting data and all the staff of Commercial Bank of Ethiopia Finfine Branch specially my direct reports Customer Service Managers Habtamu Mengistu, Mitiku Chimdi (MA), Solomon Gurumu, & my immediate supervisor Henok Kebede District Manager of CBE South Addis Ababa District for their contribution and encouragement to accomplish this task.

I love you all!!!

Mulneh Lemma. June, 2015

## **ABSTRACT**

*Capital formation or real investment is an essential component for economic development and growth. Capital formation may take place for many reasons. In any of the cases, capital formation or real investment can only be realized if adequate funds are available. To finance investment required for economic growth and capital formation, the economy needs to generate sufficient savings. This requires an institutional arrangement that encourages savings, which will result into productive investment. Bank play vital role in the economic development of a country by promoting capital formation through rising of the financial resources. These savings are made available to the businessman; make use of them for productive purposes in the country. Therefore, banks' participation in the financial sector of developing nations raises many questions which remain unanswered. Key among them is the issue of how effective they have been in mobilizing domestic savings and in channeling the savings to enhance capital formation through the distribution of credit. Thus, this research paper investigated the role of bank deposit mobilization and credit financing in Capita Formation of banking industry in Ethiopia. The study was undertaken based on an ordinary least square (OLS) model by employing annual time series data of 21 years for the period of 1994 t0 2014. The study used Gross fixed capital formation (GFCF) as dependent variable, representing bank credit (BC), bank deposit (BD), bank investment (BI) as independent variables, and national saving (NS) and real interest rate (RIR) as control variables . The findings of analysis showed that bank deposit, bank credit and national saving has a great role on capital formation in Ethiopia since the coefficients of the variables are statistically significant. However; bank investment and real interest rate become insignificant effect on capital formation in Ethiopia, since the coefficients of the variables are turned out to be statistically insignificant. Therefore; Needless to mention, Ethiopia needs to continuously build a strong cooperation between banks and all concerned government bodies in order to take the major role to sustain the saving culture through financial literacy, should design and implement credit policy that promotes capital formation in the economy in order to finance medium and long term projects, and also enhance banks to contribute significant role on security portfolio investment in a country that leads to capital formation which is an essential component for economic development and growth.*

*Key Words: Capital formation, banking industry in Ethiopia, Bank Deposit, Bank Credit*

# **CHAPTER ONE – INTRODUCTION**

## **1. INTRODUCTION**

This chapter highlights background of the research, statement of the problem, objectives of the research, hypothesis of the research, significance of the research, scope of the research, limitation of the research, Operational definition and organization of the research paper.

### **1.1 Back Ground of the Research**

Capital formation or real investment is an essential component for economic development and growth. Capital formation may take place for many reasons. The existing capital stock may need to be replaced due to normal wear and tear, plants may need to be expanded in order to take advantage of economies of scale and to be competent with growing market demand. The intensification of the competition would dictate investment on latest technologies, plant assets and inventories may be required where supply of input or market for the end product reveal a high degree of seasonality. Social facilities have to be expanded and upgraded to improve the standard of the living of the population. In addition; infrastructure have to be laid in order to support productive investment of the country. In any of the cases, real investment can only be realized if adequate funds are available.

For developing any nations, citizens need to mobilize adequate financial resources, which will aid economic development. In order to sustain economic development, government and other economic agents' especially financial institutions should make a conscious effort to ensure that

adequate funds are available to drive sustainable development. This is indispensable because the mobilization of financial resources will lead to capital formation and capital formation requires the release of domestic goods and services, which promote the real investment. Therefore, any economy that wants to increase its capital formation must be able to provide a climate receptive to the resource from overseas and the encouragement of domestic savings. This requires an institutional arrangement that encourages savings, which will result into productive investment. An example of such an institutional arrangement is the establishment of banks that will serve as intermediaries in the financial market (Jude A.A & Ekundayo, 2014)

Access to financial services is important for growth and poverty reduction. Access to credit that enables an individual to accumulate funds in a secure place over time can strengthen productive assets by enabling investment in micro- enterprises, in new tools, equipment or fertilizers, or in education or health, all of which can play an important role in improving their productivity and income.(Bigstein and Soderbom, 2005)

To finance investment required for economic growth and capital formation, the economy needs to generate sufficient savings or borrow from abroad. However, borrowing from abroad may not only have adverse effects on the balance of payment as these loans will have to be serviced in the future but it also carries a foreign exchange risk. (Uremadu, 2002). Therefore, domestic savings are necessary for economic growth because they provide the domestic resource needed to fund the investment effort of a country. Banks are statutorily vested with the primary responsibility of financial intermediation in order to make funds available to all economic agents.

The intermediation process involves moving funds from surplus economic units of the economy to deficit economic units (Uremadu, 2002; Nnanna et al., 2004)

In developing countries, low level of capital formation has made it difficult for firms to invest in modern machines, information technology and human resources development which are critical in reducing production costs, raising productivity and improving competitiveness. Low investments have been traced largely due to low saving culture of the community and unwillingness of banks to make credits available to manufacturers, owing partly to the mis-match between the short-term nature of banks' funds and the medium to long term nature of funds needed by industries. In addition, banks perceive manufacturing as a high risk venture in the developing countries environment, hence they prefer to lend to low-risk ventures, such as commerce, in which the returns are also very high. (Nwasilike, 2006)

According to Ethiopian legislation proclamation number 591/08 & 592/08 defines "banking" as a business activity consisting of activities such as receiving funds from public in line with the directives and proclamations of the central bank, using the funds for investment and lending, buying and selling of gold and silver bullion and foreign exchange, transfer of funds locally and internationally, discounting and negotiation of promissory notes, drafts, bill of exchange and other evidence of debt.

Ethiopian Banking industry composed of Commercial banks, Development Bank of Ethiopia (DBE), Business and construction bank (CBB). Currently there are 19 banks operating in Ethiopia of which three banks namely commercial bank of Ethiopia (CBE), Development Bank of Ethiopia (DBE) and Business and Construction Bank (CBB) are Government (state) owned

banks while the remaining 16 are private bank. The researcher interchangeably used banking industry and/or commercial banks for the purpose of this research because of majority or almost all banks in the industry are engaged in commercial banking activities

## **1.2 Statement of the Problem**

Banks play several vital roles in any economy by mobilizing and channeling the deposited money through creating credit, and these roles are aimed at ensuring sound financial system and economic stability. Thus, banking system is the engine of growth in any economy, given its function of financial intermediation. Through this function, banks facilitate capital formation, which enhance to improve productive capacity of the economy. However, banks' ability to engender economic growth and development depends on the health, soundness and stability of the banking system itself (Alex E.O, 2012).

The relationship between bank deposit mobilization, bank credit financing and capital formation is through the banking industry activities such as deposit mobilization, and credit creation. Yet it has been argued in the public domain that banks have not been performing the desired roles in improving capital formation to ensure sound financial system (Jhingan M. L. (2001)

Therefore, banks' participation in the financial sector of developing nations raises many questions which remain unanswered. Key among them is the issue of how effective they have been in mobilizing private domestic savings and in channeling the savings to enhance capital formation through the distribution of credits. As capital formation is an important factor in economic growth, countries that are able to accumulate high level of capital tend to achieve

faster rates of economic growth and development. The effects of investment on economic growth are three-fold. Firstly, demand for investment goods forms part of aggregate demand in the economy. Thus a rise in investment demand will, to the extent that the demand is not satisfied by imports, stimulate production of investment goods which in turn leads to high economic growth and development. Secondly, capital formation improves the productive capacity of the economy. Thirdly, investment in new plant and machinery raises productivity growth by introducing new technology and innovation which would also lead to faster economic growth (Orji Anthony, 2012).

A studies conducted by Greenwood and Jovanovich (1990) show that domestic savings, bank credits and bank investment provides a vehicle for diversifying and sharing risks, inducing capital allocation shift towards risky but “high expected return” projects. This shift then spurs productivity improvement, economic growth and promotes capital formation.

This research has been conducted in Ethiopian banking industry role of Banks deposit mobilization and credit financing on capital formation by taking three explanatory variables (industry specific variables) representing bank saving, bank credit and bank investment of Ethiopian Banking industry, and additional two control variables (macro level variables) of National Saving and Real interest rate.

Thus, by considering the above situation, the researcher motivated to conduct this research by taking appropriate variables which can go with the condition and situation in Ethiopian banking industry role on capital formation to come up with concrete results. Generally, this study is conducted with the aim of providing answers to the following basic research questions:

1. Does Ethiopian Banking industry Bank deposit/ deposit liability has a significant role on capital formation in Ethiopia?
2. Does Ethiopian Banking industry Credit/loan has a significant role on capital formation in Ethiopia?
3. Does Ethiopian Banking industry Bank investment has a significant role on capital formation in Ethiopia?

### **1.3 General and Specific Objectives**

The main objective of the study is to investigate the role of bank deposit mobilization and credit financing on Capital Formation in Ethiopia.

The specific objectives are:

- i. To analyze the effect of banks' deposit mobilization on capital formation in Ethiopia.
- ii. To analyze the effect of banks' credit financing on capital formation in Ethiopia
- iii. To analyze the effect of bank investment on capital formation in Ethiopia

### **1.4 Hypothesis of the Research**

In many quantitative researches, writers use research questions. However, a more formal statement of research employs hypotheses. These hypotheses are predictions about the outcome of the results, and they may be written as alternative hypotheses specifying the exact results to be expected (more or less, higher or lower of something). They also may be stated in the null form, indicating no expected difference or no relationship between groups on a dependent variable as stated by (Creswell 2009). Therefore, this research develops the following null hypotheses:

Hypothesis 1, H0: Bank deposit has no significant & positive effect on Gross Fixed Capital Formation in Ethiopia.

Hypothesis 2, H0: Bank Credit has no significant & positive effect on Gross Fixed Capital Formation in Ethiopia

Hypothesis 3 H0: Bank Investment has no significant & positive effect on Gross Fixed Capital Formation in Ethiopia

### **1.5 Significance of the Study**

The study will have a great contribution to the body of knowledge by identifying the potential relationship between bank deposit and credit with capital formation in Ethiopia as well as it will serve as a good base for the forthcoming researchers who want to do a further research on this topic in Ethiopia or elsewhere. Thus, by developing a conceptual framework regarding the relationship between capital formation and explanatory variables, this research will contribute to the current literature. Moreover, the study will benefit stakeholders such as researchers, policy makers( Government, Bank supervisory organs, bank industry leaders), and professionals using the research as guide for future research, reappraise current economic practices, and provide basic guidelines for promoting bank deposit and credit in Ethiopia in a dynamic macro-economic environment

### **1.6 Scope of the Research**

The work of this research is delimited to the role of banks' deposit mobilization and credit financing on capital formation a case in Ethiopian banking industry for the period of 1994 to 2014. The researcher aimed to deal this reaserech by using gross fixed capital formation as a

dependent variable, Banks' Deposit, Banks' Credits, and Investments by Banks as independent variables, National Savings and Real Interest Rate as control Variables. The methodology of this study delimited on quantitative method with descriptive statistics, correlation and regression analysis.

### **1.7 Limitation of the Research**

Due to time constraint, the researcher is limited only on quantitative research analysis and the aggregate role of banks on capital formation in Ethiopia. However; this research can be taken as a base to investigate the role of bank on capital formation in Ethiopia for future research work by taking in to account the role on private and public sector capital formation and the role of private and state owned banks separately.

### **1.8 Operational Definition of Key Terms**

#### **Gross Fixed Capital Formation:**

This paper used Gross Fixed Capital Formation as a percentage (%) of GDP, which measures Nation's investment on fixed asset or produced assets used in production for more than one year. Values are gross because not deducting the consumption of fixed capital.

#### **Bank Deposit:**

Deposits are funds that customers place with a bank and that the bank is obligated to repay on demand, after a specific period of time or after expiration of some required notice period. Deposits are the primary funding source for most banks and, banks use deposits in a variety of ways, primarily to fund loans and investments. Current (demand) Deposit, Saving Deposit and Fixed Time Deposits are the major categories of Deposit products in Ethiopian Banking Industry.

The Ratio of Bank deposit/ Deposit Liabilities as percentage (%) of GDP (BD/GDP) measures the degree to which banks collect cash and generate deposits stand for the degree of financial intermediation. Which measures Aggregate Banking industry deposit liability as of a given balance sheet date as percentage of GDP.

### **Bank credit /loan:**

Bank credit/loan is the amount of money (fund) available to a company or individual from the banking system. It is the aggregate of the amount of funds financial institutions are willing to provide to an individual or organization. A company or individual's bank credit depends on both the borrower's capacity to repay and the overall amount of credit available in the banking system. Loan is the major item in the asset side of the consolidated balance sheet of the financial sector; it measures the asset size of the financial sector (Odedokum, 1989)<sup>1</sup>. Majority of banks especially private commercial banks in Ethiopia currently are financing short and medium term loans where as the three state banks are financing short term, medium and long term loans to customers. These state banks are engaged in financing National development priority agendas as can be seen from their mission statement. Development Bank of Ethiopia (DBE's) distinguishing feature is its “project” based lending tradition.

The researcher used the Ratio of Bank Credit as percentage (%) of GDP (BC/GDP), as loan is the major item in the asset side of the consolidated balance sheet of the financial sector; it measures the asset size of the financial sector. The data used for the purpose of computation is

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<sup>1</sup> As cited in Kar and Pentecost (2000).

aggregate banking industry outstanding loan or credit granted as of a given balance sheet date as percentage of GDP.

### **Bank Investment:**

Banks provide services such as accepting deposits, making business loans, and offering basic investment products. As per the National Bank of Ethiopia (NBE) directives, currently banks are allowed to involve in security investment of NBE-bills rather than in other portfolio investments. According to NBE directives of MFA/NBEBILLS/002/2013, NBE-Bill is long-term obligation of National Bank of Ethiopia having maturity period of five (5) years plan. Since 2011, NBE compels Private Banks to purchase government bonds equivalent to 27 percent of their annual loans to help fund development in the country since banks are meant to contribute toward development projects.

The researcher used the Ratio of Bank Investment as percentage (%) of GDP (BI/GDP). The data used for computation of this paper is bank's investment on NBE-Bill and Government bonds of aggregate outstanding balance as of a given balance sheet date as percentage of GDP.

### **National Saving:**

National saving is the amount of income left over after subtracting consumption costs and expenditures. In another word country's national savings is the sum of private and public (Government) savings. It is generally equal to a nation's income minus consumption and government expenditure. National savings rate includes government savings, and they are usually reporting deficits which lower the national savings rate.

**Real Interest Rate:**

An interest rate that has been adjusted to remove the effects of inflation to reflect the real cost of funds to the borrower, and the real yield to the lender. The real interest rate of investment is calculated as the amount by which the nominal interest rate is higher than the inflation rate.

**Gross Domestic Product (GDP):**

According to metadata – European System of Accounts (ESA 2010) definition Gross domestic product at market prices is the final result of the production activity of resident producer units. It can be defined in three ways:

a) Production approach: GDP is the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products (which are not allocated to sectors and industries). It is also the balancing item in the total economy production account;

b) Expenditure approach: GDP is the sum of final uses of goods and services by resident institutional units (final consumption and gross capital formation), plus exports and minus imports of goods and services;

c) Income approach: GDP is the sum of uses in the total economy generation of income account (compensation of employees, taxes on production and imports less subsidies, gross operating surplus and mixed income of the total economy). (Metadata – European System of Accounts) Values are gross when not deducting the consumption of fixed capital.

For the purpose of this research the researcher apt with the expenditure approach hence the approach clearly indicates the interrelationship between Gross capital formation and GDP.

### **1.9 Organization of the Reseach paper**

The paper is organized in five main chapters, the first chapter is introduction which gives a background of the research paper, the research problem and scope and other basic issues of the paper, the second chapter deals with literature review which includes related theoretical, conceptual and empirical literature reviews.

The third chapter presents Research Design and Methodology. This chapter highlights methodology of the Research, Research Design, Data Source, Model specification and methods of data collection and Methods of Data Analysis.

The fourth chapter presents analysis and presentation. This section of the research paper concerned on analysis and interpretation, which shows and explains the descriptive statistics analysis, goodness test, Pearson correlation coefficients matrix among identified variables.

The final chapter (Chapter five) is concerned with summary, conclusions and recommendations. A “Reference” of related literature is cited while writing the paper and appendices are included after chapter five.

# **CHAPTER TWO- LITERATURE REVIEW**

## **2. LITRATURE REVIEW**

Under this chapter the theoretical and empirical evidences focusing on the role of bank deposit mobilization and credit financing on capital formation is presented. Accordingly, the first section, 2.1 presents conceptual and theoretical frame work; while the second section 2.2 present empirical literature reviews.

### **2.1 Conceptual and Theoretical Frame work**

#### **2.1.1 Overview of capital formation**

In its account of the historical evolution of the concept, Bohem Bawerk (1888) states that capital originally meant "an interest-bearing sum of money" and later in the physio-cratic period it meant accumulated goods since all other kind of goods represent money. In classical thinking, since some accumulated goods that are used for immediate consumption do not give off some kind of income, only those goods meant to bring income to their owners were named capital. The definition of "capital" as group of products that serve towards production or as groups of produced means of production falls under this conception. The classical definition excludes not only products that serve for immediate satisfaction of wants but also land since it is not a produced item.

Still others have defined capital as a source of income that includes every durable foundation of utility having exchange value. Thus this conception incorporates land, furniture, houses even if they are personally used by the owner. The other variations of the definition of capital identified

by Bohem Bawerk are, in short, capital as economic good of higher rank , capital as that which lightens the toil of acquisition or productive labor ( capital as tools of production only), capital that enables the laborer to await the result of any long lasting work, capital as 'instruments for the exploitation and enslaving of the laborer', capital as available stock of goods (whether for consumption, acquisition, or production) which may be applied to satisfying wants in the future'. With emphasis on the need for the settlement of the confusion over the definition of capital, as it is difficult for economics to call different things by the same name, Bohem Bawerk(1888) chose what he considered the most appropriate definition as "A group of products which serve as means to the acquisition of goods".

Academicians come across narrower and broader definitions of capital, reflecting the historical conceptual variations and the practical difficulties in holding economic statistics. In contrast to the narrower definition of capital as physical-produced items that are used in the production process and providing income generating service, which have an extended concept of capital with a broader definition that includes stocks of physical-produced items, knowledge and skills (human capital) and stocks of natural and environmental assets (Atlaw Alemu et al. 2011)

The widely applied literature that provides conceptual and accounting framework on capital and capital formation is the System of National Accounts (SNA) of the United Nations. The SNA is an internationally agreed standard for accounting economic activities based on economic principles and as such provides guidance for national accounts. This evolving standard since 1953, with major updates in 1968, 1993 and 2008, frames the concept of capital in

the concept of economic asset, which is a store of value for the owner who holds or uses the entity over a period of time. In this system of accounts the coverage of asset extends only to those assets subject to ownership rights from which economic benefits flow. As such it excludes from the category of asset consumer durables, human capital and natural resources that are not capable of bringing economic benefits to their owners (UNSNA, 2008).

Bakare A.S (2011) defined capital formation which refers to the proportion of present income saved and invested in order to augment future output and income. It usually results from acquisition of new factory along with machinery, equipment and all productive capital goods. Capital formation is equivalent to an increase in physical capital stock of a nation with investment in social and economic infrastructure. Gross fixed capital formation can be classified into gross private domestic investment and gross public domestic investment. The gross public investment includes investment by government and public enterprises. Gross domestic investment is equivalent to gross fixed capital formation plus net changes in the level of inventories ( Bakare A.S 2011).

### **2.1.2 Financial Intermediation and the Role of Banks'**

Finance is required for different purposes by different organizations, individuals and other economic agents. In order to provide the needed finance, there are varieties of institutions rendering financial services. Such institutions are called financial institutions. Commercial banks are among such institutions that render financial services. They are mainly involved in financial intermediation, which involves channeling funds from the surplus unit to the deficit unit of the economy, thus transforming bank deposits into loans or credits (Afolabi, 1998).

In the primitive stages before evolution for financial intermediation, anyone who needs to spend more than he could himself provide would have to look for a wealthy person or persons from whom he could borrow. This is known as a system of direct or un-intermediated finance. Afolabi (1998) posits that as crude as this system was, it probably satisfied the need of that time because financial requirements then were limited to such personal uses like marriages, burial ceremonies and minor commercial activities like farming. He further argued that at that time, intermediation was neither necessary nor sufficient for capital formation to take place. Financial intermediation will thus, not be necessary for instance, if the lender and the borrower can come into direct contact and would in fact not be necessary if there is no deficit or surplus sector. However, modern economic transactions will be difficult, if not impossible, with un-intermediated finance as the business world nowadays is much more complex and financial requirements are too large.

Even without considering the complexity of modern times, un-intermediated finance has its inherent problems such as high tendency for subjectivity, unattractive interest rates, method of security was too crude and at times inhuman, repayment periods were usually too short for any meaningful long-term use, such that it became difficult for long-term projects to be financed from money raised from such medium amongst others. According to Bencivenga and Smith (1991), in the absence of banks i.e. financial intermediation, too much investment is self-financed and long delays exist between investment expenditure and receipts of profits from capital invested. They further argued that the absence of intermediary sector results in a composition of savings that is unfavorable to capital formation. Thus, an intermediation industry permits an economy to reduce the fraction of the savings held in the form of unproductive liquid assets, and to prevent misallocations of invested capital due to liquidity needs. Thus, one of the

activities of financial institutions (Banks) involves intermediating between the surplus and deficit sectors of the economy. (Nwaeze, et.al. 2012)

Theoretically, it is assumed that financial intermediation promotes growth by directing resources from saver to investment projects. Based on empirical findings by different authors, financial intermediation plays four major roles in economic growth. Firstly, financial intermediation improves the selection of funds-seeking investors and then scrutinizes the funds-receiving investor that improves the allocation of resources. Secondly, financial sector encourages the mobilization of savings. Thirdly, by screening and monitoring costs through economies of scale, financial intermediaries lower cost of transaction and finally, financial intermediaries provide for risk management and liquidity. (Atlaw Alemu et.al 2011)

According to the “new view” the essential function of financial intermediaries including commercial bank, is to satisfy simultaneously the portfolio preferences of two types of individuals or firms (William, 2000). On one side are, borrowers who need to expand their holdings of their real asset- inventories, residential real estate, productive plants and equipment etc. beyond the limit of their own net worth and on the other side are lenders, who wish to hold some or all part of their net worth in asset of stable money value with negligible risk of default.

Domestic savings mobilization by commercial banks and credit allocation functions stem from their role as the financial intermediaries in the domestic economy. Deposits are funds that customers place with a bank and that the bank is obligated to repay on demand, after a specific period of time or after expiration of some required notice period. Deposits are the primary

funding source for most banks and, banks use deposits in a variety of ways, primarily to fund loans and investments

Financial institutions are institutions whose primary function is to intermediate between lenders and borrowers in the economy. ([www.rba.gov.au/Glossary/text\\_only.asp](http://www.rba.gov.au/Glossary/text_only.asp)). Financial institutions perform the essential functions of channeling funds from those with surplus funds to those with shortages of funds such commercial banks, savings banks, credit unions, savings associations, insurance companies, mutual funds, pension funds, stock and bond markets. Financial markets such as stock and bond markets are also part of institutions (Saunders and Cornett, 2004).

Financial intermediaries' special banks are the cornerstones, the linchpin of the economy of a country. Economic activity cannot be smooth sailing without the continuing flow of money and credit. The economies of all market-oriented nations depend on the efficient operation of complex and delicately balance systems of money and credit. Banks are an indispensable element in these systems. They provide the bulk of the money supply as well as the primary means of facilitating the flow of credit." Consequently is assumed that the economic well-being of a nation is a function of advancement and development of the banking industry (Agu, C.C.1988)

The argument just given suggests that financial intermediaries may naturally tend to alter the composition of savings in a way that is favorable to capital accumulation. Then, if the composition of savings affects real growth rates, intermediaries will tend to promote growth. Here, the analysis draws heavily on the contributions of the "endogenous growth" literature, as

exemplified by Romer (1986). One of the many insights of this literature is that savings behavior will generally influence equilibrium growth rates. In particular, to the extent that intermediaries tend to promote capital investment, they will also tend to raise rates of growth and capital formation.

The finance literature provides support for the argument that countries with better/efficient financial systems grow faster while inefficient financial systems bear the risk of bank failure Kasekende (2008). In a review of finance literature, the study opined that better functioning financial systems ease the external financing constraints that impede firm and industrial expansion. Banks accept deposit from individuals and institutions thus transferring funds from the surplus sector to the deficit sector of the economy. Though they are subject to certain regulations by the regulatory authorities, financial intermediaries still determine the rules for allocating funds, and as such they play a significant role in determining the type of investment activities, the level of job creation and the distribution of income.

In their role as allocators of funds from savers to borrowers, banks have a central role in financial sector development. They bridge the gap between savers and entrepreneurs while also reducing some of the transactional and financial risk for both parties. By making funding available to the market, banks typically facilitate a reduction in barriers to entry for entrepreneurs.

Effective banking systems expand financing opportunities for both large and small companies, while also supporting financial sector development and the expansion of access to funding among low-income retail customers and micro-enterprises. Beyond funding, banks also provide

essential financial services to individuals and enterprises including the collection, custodianship, safeguarding of deposits made by savers and the provision of payment services.

### **2.1.3 Process of Capital Formation<sup>2</sup>**

Capital formation is not an automatic process; the rate of capital formation is different in different countries. This shows that capital formation is conditioned by certain factors and as well as process. In most literatures, the process of capital formation involves three steps:

- i. Stage of mobilizing saving: increase in the volume of real saving
- ii. Stage of Channelization of Saving: Mobilization of Saving through Financial intermediaries
- iii. Investment of Saving.

The above process of capital formation is discussed here under one by one.

#### **I) Increasing Real Savings**

A high rate of savings is possible if people are-prepared to put forth effort to maximize output even with the resources available and are willing to keep down their expenditure within reasonable limits. In other words, the level of savings in a nation relies on certain factors. Some factors that affect real savings are:

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<sup>2</sup> This part of literature review is Cited with some modification from Jacob & Frank (2013), Brian & Janette( 2002) & Abu Girma(2011)

### **(a) Ability (capacity) and Will to Save**

According to Jacob & Frank (2013), to permit an efficient and sustainable mobilization of savings, a number of issues must be satisfied. They classified these into the willingness to save and ability to save.

The capacity to save of the community depends upon the size of the average income, the size of the average family, and the standard of living of the people. Other things being equal, if the income of the people increases, or the size of the family is small, or people get accustomed to a particular standard of living which does not lean towards conspicuous consumption, the power to save increases. (Jacob & Frank, 2013)

The capacity to save also depends upon the level of employment in the country. If employment opportunities increase, and existing techniques and resources are employed fully and efficiently, incomes increase, and so do the propensity of the people to save.

Savings also depend upon the will to save. People may themselves forego consumption in the present and save. They may do so to meet emergencies, for family purposes, or for social status. But they will save only if certain facilities or inducements are available. Voluntary savings are fundamental to sustainable economic development. They are the most frequent source of funding for microenterprise startup and expansion. Voluntary savings enable households to smooth consumption in the face of uneven income flows, to accumulate assets for the future, to invest in education, and to better prepare for emergencies. (Brian & Janette 2002)

People save if the government is stable and there is peace and security in the country. People do not save when there is lawlessness and disorder, and there is no security of life, property and business. The existence of banking and financial institutions paying rates of interest on different term-deposits also induces people to save more.

The taxation policy of the government also affects the savings habits of the people. Highly progressive income and property taxes reduce the incentive to save. But low rates of taxation with due concessions for savings in provident fund, life insurance, health insurance, etc. encourage savings.

### **(b) Perpetuation of income inequalities**

Perpetuation of income inequalities had been one of the major sources of capital formation in 18th century in England and early 20th century Japan. In most communities, it is the higher income groups with a high marginal propensity to save that do the majority of savings. If there is unequal distribution of income, the society's upper level incomes accrue to the businessmen, the traders and the landlords who save more and hence invest more on capital formation. But this policy of deliberately creating inequalities is not favored now either in developed or developing economies when all countries aim at reducing income inequalities.

### **(c) Increasing profits**

The ratio of profits to national income should be increased by expanding the capitalist sector of the economy, by providing various incentives and protecting enterprises from foreign

competition. The essential point is that profits of business enterprises should increase because they know how to use them in productive investment.

#### **(d) Government Measures**

Like private households and enterprises, the government also saves by adopting a number of fiscal and monetary measures. These measures may be in the form of a budgetary surplus through increase in taxation (mostly indirect), reduction in government expenditure, expansion of the export sector, raising money by public loans, etc. If people are not saving voluntarily, inflation is the most effective weapon. It is regarded as hidden or invisible tax. When prices rise, they reduce consumption and thus divert resources from current consumption to investment. Besides, the government can increase savings by establishing and running public undertakings more efficiently so that they earn larger profits which are utilized for capital formation. In these days, the role of government has greatly increased. In an under-developed country like Ethiopia, government is very much concerned with the development of the economy. Ethiopian Government is also involved in Mega Projects, building dams, roads & rail ways, making factories such as Metal & sugar industries and other forms of real capital in the country. Thus, capital formation takes place not only in the private sector by individual entrepreneurs but also in the public sector by government.

#### **ii) Mobilization of Savings**

Mobilization of savings through banks, investment trusts, deposit societies, insurance companies, and capital markets is the subsequently walk of increasing saving in the process of capital

formation. Obviously, the prime pre-requisite for mopping up of existing savings resources is the availability of suitable agencies and institutions. Measures for the satisfactory mobilization of domestic savings should take into account the following criteria: safety of investment, yield, liquidity, accessibility, simplicity, divisibility and transferability.

In the urban areas, institutional facilities for savings are greater and the savings habit among the classes who can afford to save is quite well-developed. Measures to improve the mobilization of savings have, therefore, to concentrate on rural areas. Such measures can be Promotion of Small Savings, Popularizing Government Bonds, popularizing Insurance Habit, and Encouragement to Co-operative Institutions.

The Kernal of Keynes's theory is that decisions to save and decisions to invest are made largely by different people and for different reasons. To bring the savers and investors together there must be well-developed capital and money markets in the country. In order to mobilize savings, attention should be paid to the starting of investment trusts, life insurance, provident fund, banks, and cooperative societies. Such agencies will not only permit small amounts of savings to be handled and invested conveniently but will allow the owners of savings to retain liquidity individually but finance long-term investment collectively.( Atlaw Alemu et.al(2011)

Most of the saving potentials of rural communities in developing economies remain not mobilized especially in respect to the formal financial system on which an economy depends for growth. In addition to factors discussed above that influence the ability to save such as the level of growth of incomes, per capita income, income distribution and population age structure; the willingness to save to them mainly depend on the nation's financial

structure through variables such as the level of inflation and financial deepening. Thus, nearness and variety of financial institutions serving a range of needs of depositors play a central influence over the primeval factor of the ability to save. However, there emerge to be a strong relation between the rates of growth of financial circuits and how extend and resourceful a nation's financial structure can sustainable assemble domestic savings. (Jacob & Frank (2013)

### **iii) Investment of Savings**

The third step in the process of capital formation is the investment of savings in creating real assets. The profit-making classes are an important source of capital formation in the agricultural and industrial sectors of a country. They have an ambition for power and save in the form of distributed and undistributed profits and thus invest in productive enterprises.

Besides, there must be a regular supply of entrepreneurs who are capable, honest and dependable. To perform his economic function, the entrepreneur requires two things, that is; first, the existence of technical knowledge to produce new products; second, the power of disposal over the factors of production in the form of bank credit.

The role of credit is to bridge the gap between enterprise owner's financial assets and the required financial assets of the enterprise. Due to persistence of this imbalance, enterprises are forced to demand credit. Demand for credit, according to Aryeetey et al (1994) can be categorized into perceived, potential and revealed demand. Perceived demand is represented by a situation where enterprises that assume to be in need of cash, mention finance as a constraint. Potential demand is characterized by a desire for credit which is not actualized

due to market imperfections and institutional barriers. Revealed demand is characterized as written application for financial support at a given rate of interest. The researcher agrees with the above classification of demand for credit. But, in the case of revealed demand definition which is of basic importance to both lenders and borrowers, a further division needs to be underscored because the application for credit, even if backed by a bankable project, may not necessarily be translated into effective demand since effective demand is the amount of loans that lending institutions are prepared to release to borrowers.

The existence of infrastructure as well-developed means of transport, communications, power, water, educated and trained personnel, etc. further, the social, political and economic climatic conditions in the country must be conducive for the emergence of a growing supply of entrepreneurs.

To sum up the process of capital formation, as meaning of capital formation is that society does not apply the whole of its current productive activity to the needs and desires of immediate consumption, but directs a part of it to the tools and making of capital goods: tools and instruments, machines and transport facilities, plant and equipment— all the various forms of real capital that can so greatly increase the efficacy of productive effort. The essence of the process, then, is the diversion of a part of society's currently available resources to the purpose of increasing the stock of capital goods so as to make possible an expansion of consumable output in the future,

According to Abu Girma, (2011) any economy with problem of mobilizing and using investable resources is due to failures in one of the above three stages( Increasing real saving specially

domestic saving, mobilizing saving through financial institution and investment of saving in real asset) . Thus the problem of capital formation becomes two-fold: one, how to save more (stage one & two); and second, how to utilize the current savings of the community for capital formation (stage three).

However, banks' participation in the financial sector of developing nations raises many questions which remain unanswered. Key among them is the issue of how effective they have been in mobilizing private domestic savings and in channeling the savings to enhance capital formation through the distribution of credits.

#### **2.1.4 The importance of Deposit (Savings) and Credit**

Savings, which is define as the part of incomes not immediately consumed, but reserved for future consumption, investment or for unforeseen contingencies is considered as an indispensable weapon for economic growth and development when banks allocate mobilized resources through credit in productive sectors of the economy. The role of saving and credit is reflected in capital formation through increased capital stock and the impact it makes on the capacity for an economy to generate more and higher incomes (Adam,1985).

Saving is the means by which resources are made available for capital development. Everyone who is earning an income has the choice, after the essential is of life is met of consuming or saving. Saving entails sacrifice of immediate consumption possibilities and can make sense only on the basis of an expectation that the application of the incomes saved will increase the ability to consume at some future time. This expectation can itself be realized only if the income saved

issued for productive investment in the sense of building up capital assets which will enlarge the flow of income in the future. (T .K. Whitaker, 1956)

Adam (1985) considers that most of this domestic savings will come from the rural areas especially in countries with a dominant rural because there is a greater saving capacity and growth potentials if the financial institution extends the mobilized saving in to more productive and priority areas of the economy .

Thillairajah (1994) and Padmanabhan(1988) sharing the same opinion, explain the high marginal propensity to save by the unstable economic conditions that generally prevails in these areas (unstable incomes, fluctuations in harvest etc). But unfortunately, in spite of these advantages, most of the saving potentials of rural communities in developing economies remain not mobilized especially in respect to the formal financial system on which an economy depends for growth.

Rose (1986) sees the importance of savings and credit beyond capital formation. To her, savings and extending of credit are a catalyst for capital formation but, equally a major determinant of the cost of credits based on the law of scarcity, which holds that ‘when the former is low and scarce, it becomes more costly to obtain’. The classics as well as modern growth models hold that savings and credit constitute the principal parameter, and determinant of economic growth. This idea is upheld by which showed that on the average, third world countries with higher growth rates incidentally are those with higher saving rates. Capital mobilized from domestic sources is very fundamental for a country’s development not only because it has a low cost, but also due to the fact that it is durable and permanent.

### 2.1.5 Capital formation, saving & financing <sup>3</sup>

In 1961, Simon Kuznets and Elizabeth Jenks have defined the commonly used terms capital formation, saving, financing—which stand for fundamental processes in the economy—and have pointed to the lines of relation among them in a situation similar to the complex institutional network of a modern economic society(Simon Kuznets and Elizabeth Jenks, 1961)

1. The fundamental purpose of the complex economic system of modern society is to increase the economic welfare of the country's inhabitants—that is, to provide more goods to satisfy their material wants, present and future. This purpose is pursued within a given social and legal framework which society maintains.
2. The pursuit of the basic purpose requires an increasing stock of capital goods within the country for the extension of the volume of production by the application of technological knowledge or even without any technical changes. Such nationwide capital formation is indispensable for economic growth—that is, for increased economic production, total and per capita, and, hence, economic welfare.
3. To a given economic unit, savings may be essentially a provision for economic security. But unless such savings are channeled into capital formation and serve to increase production, that unit's security will be at the expense of another unit's economic welfare. From the nationwide standpoint the rationale for saving is capital formation; and that rationale, if realized, contributes to the economic security of the given unit, at no cost to others.

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<sup>3</sup> This part cited from Simon Kuznets and Elizabeth Jenks (1961)

4. The main social purpose of the complicated and elaborate structure of financial institutions, practices, and so forth, is to facilitate greater production. Its more immediate purpose is the channeling of savings into nationwide capital formation to ensure an effective use of savings. This complex and ramified structure of claims and counterclaims, of gross and net flows—discussed only briefly in the comments above—originated as a means of increasing economic production through additions to the stock of capital goods.

### **2.1.6 Capital Formation and Economic Growth**

As capital formation is an important factor in economic growth, countries that are able to accumulate high level of capital tend to achieve faster rates of economic growth and development. The effects of investment on economic growth are three-fold. Firstly, demand for investment goods forms part of aggregate demand in the economy. Thus a rise in investment demand will, to the extent that the demand is not satisfied by imports, stimulate production of investment goods which in turn leads to high economic growth and development. Secondly, capital formation improves the productive capacity of the economy. Thirdly, investment in new plant and machinery raises productivity growth by introducing new technology and innovation which would also lead to faster economic growth (Orji Anthony, 2012).

According to Orji (2012) Capital formation or accumulation plays a predominant role in any types of economies. Development may not possible without capital formation for which Capital formation refers to all the produced means of further production, such as roads, railways, bridges, canals, dams, factories, seeds, fertilizers, etc.

In developing countries, low level of capital formation has made it difficult for firms to invest in modern machines, information technology and human resources development which are critical in reducing production costs, raising productivity and improving competitiveness. Low investments have been traced largely due to low saving culture of the community and unwillingness of banks to make credits available to manufacturers, owing partly to the mis-match between the short-term nature of banks' funds and the medium to long term nature of funds needed by industries. In addition, banks perceive manufacturing as a high risk venture in the developing countries environment, hence they prefer to lend to low-risk ventures, such as commerce, in which the returns are also very high. (Nwasilike, 2006)

As between countries, differences in climate, political institutions, educational and technical facilities, individual attitude to work, trade union outlook and policy can be as important as differences in natural resources or in the volume of investment in causing divergent rates of development. Economic growth is, in fact, a complex process depending on social, psychological and political as well as economic and technical factors. Although; there are differences in natural resources as well as in other factors as between countries, is not inappropriate to seek an explanation of different degrees of Economic progress partly in differences in the rate of capital formation. (T .K. Whitaker, 1956)

Economic theories have shown that capital formation plays a crucial role in the models of economic growth. This view called capital fundamentalism by Youopoulos and Nugent (1976)<sup>4</sup> has been reflected in the macroeconomic performances of many countries. It is clear that even

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<sup>4</sup> Cited on Hernandez-Cata (2000)

mildly robust growth rates can be sustained over long periods only when countries are able to maintain capital formation at a sizeable proportion of GDP. It has been discovered that any proportion less than 27 percent cannot sustain economic growth. It is estimated that the ratio of gross capital formation to GDP in the sub-Saharan African countries which has experienced poor growth in the 1990s was less than 17 percent compared to 28 percent in advanced countries (Hernandez-Cata 2000).

### **2.1.7 Deposit, Credit/loan and Investment in Ethiopia**

Ethiopian Banking industry composed of Commercial banks, Development Bank of Ethiopia (DBE), Business and construction bank (CBB). Currently there are 19 banks operating in Ethiopia of which three banks namely commercial bank of Ethiopia (CBE), Development Bank of Ethiopia (DBE) and Business and Construction Bank (CBB) are Government (state) owned banks while the remaining 16 are private banks. The majority or almost all banks in the industry are engaged in commercial banking activities.

#### **Bank Deposit**

Deposits are funds that customers place with a bank and that the bank is obligated to repay on demand, after a specific period of time or after expiration of some required notice period. Deposits are the primary funding source for most banks and, banks use deposits in a variety of ways, primarily to fund loans and investments. Current (demand) Deposit, Saving Deposit and Fixed Time Deposits are the major categories of Deposit products in Ethiopian Banking Industry. Saving products like Regular savings, Youth Savings, Teen youth Savings, Women Savings, are among Commercial Bank of Ethiopia currently offers for customers with different features

and benefits; Enat Bank offers Saving products like Regular Saving, Children Saving, Premium Saving, Saving account for Golden Age, Non interest bearing saving, Hydride Saving with ample benefits and features. While Zemen Bank provides three types of saving accounts such as personal savings, prestige savings and z club savings with different features and benefits to customers. Other Government owned and private banks also provide a variety of saving and deposit products to their customers.

Bank credit/loan is the amount of money (fund) available to a company or individual from the banking system. It is the aggregate of the amount of funds financial institutions are willing to provide to an individual or organization. A company or individual's bank credit depends on both the borrower's capacity to repay and the overall amount of credit available in the banking system. Loan is the major item in the asset side of the consolidated balance sheet of the financial sector; it measures the asset size of the financial sector (Odedokum, 1989)<sup>5</sup>. Majority of banks especially private commercial banks in Ethiopia currently are financing short and medium term loans where as the three state banks are financing short term, medium and long term loans to customers. These state banks are engaged in financing National development priority agendas as can be seen from their mission statement. Development Bank of Ethiopia (DBE's) distinguishing feature is its “project” based lending tradition.

Banks provide services such as accepting deposits, making business loans, and offering basic investment products. As per the National Bank of Ethiopia (NBE) directives, currently banks are allowed to involve in security investment of NBE-bills rather than in other portfolio investments.

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<sup>5</sup> As cited in Kar and Pentecost (2000).

Since 2011, NBE compels Private Banks to purchase government bonds equivalent to 27 percent of their annual loans to help fund development in the country since banks are meant to contribute toward development projects. Under the central bank directive, five-year National Bank bonds will be bought by lenders at the end of each month. State-owned banks including Commercial Bank of Ethiopia, the country's biggest lender, are exempted as they routinely finance long-term projects.

## **2.2 Empirical Literature Review**

Domestic savings mobilization by banking industry and credit allocation functions stem from their role as the financial intermediaries in the domestic economy. The link between domestic savings, commercial bank credits and capital formation is not a new discovery. Its debate has a long pedigree and is marked with conflicting conclusions. The difference in conclusion is due not only to differences in theoretical perspectives, but also to the way in which the link between them is taken into account by researchers.

Hao (2006) seeks to establish the relationship between financial intermediation and capital formation, using a country-specific data from China. The study focused on the post-1978 reform period, using provincial data (28 Provinces) over the period 1985 to 1999. The study employed linear model, which expresses capital formation as a function lagged gross fixed capital formation, financial development indicators (banks, savings, and loan). The study uses the one-step parameter estimates for the Generalized Method of Moments (GMM) estimation and finds that financial intermediation has a causal effect and positive impact on capital formation through the channels of house-holds' savings mobilization and loans for private sector.

McCaig and Stengos (2005)<sup>6</sup> introduced more instrumental variables with a view to establishing a more robust empirical relationship between financial intermediation, economic growth and capital formation. The study uses a cross-country analysis of 71 countries for the period 1960 to 1995. This study also supports the argument that a positive relationship exist between financial intermediation and capital formation. However, it emphasized that this will be true if financial intermediation is measured by liquid liabilities(private deposits) and private credit as a ratio of GDP, while it will be weaker if it is measured using the Commercial-Central Bank ratio.

Orji (2012) has conducted a study on the impact of bank savings and bank credits on capital formation and economic growth in Nigeria. The study adopted two impact models; Distributed Lag-Error Correction Model and Distributed Model. The empirical results showed a positive impact exists between the lagged values of total private savings, private sector credit, public sector credit, interest rate spread, exchange rates on capital formation and economic growth. Hence, the study recommend, among others, that government's effort should be geared towards improving per capita income by reducing the unemployment rate in the country in a bid to accelerate growth through enhanced savings.

Alex (2009) has conducted a study on the role of banks in capital formation and economic growth in developing nations using ordinary linear square (OLS) regression technique. The explanatory variables employed include commercial banks deposit liability, maximum lending rate, commercial banks' credit and investment by banks. The dependent variables are gross fixed capital formation and gross domestic product, which is a measure of a nation's economic

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✓ <sup>6</sup> As cited on Shittu, Ayodele Ibrahim(2007), Financial intermediation and Economic Growth in Nigeria, British Journal of Arts and Social Sciences ISSN: 2046-9578 pp 167

performance – economic growth in this instance from the various test carried out, it was find out that commercial banks deposit liabilities is elastic to gross fixed capital formation. This positivity of the coefficient of commercial banks deposit liabilities is in conformity to the economic a prior expectation of a positive impact of commercial banks deposit liabilities on gross fixed capital formation. Also, the regression result shows that a commercial banks credit has a positive impact on gross fixed capital formation. It is therefore, the study recommended that efforts should be made by the monetary authorities to effectively manage the banks’ maximum lending. This policy thrust will most likely result into increased investment activities which will enhance capital formation in developing nations needed for its real sector investments and industrial growth

One of the activities of financial institutions mainly Banks’ involves intermediating between the surplus and deficit sectors of the economy. Hence, Nwaeze, et.al (2012) has empirically investigated on role of financial intermediation on economic growth and capital formation. Under the study, time series data for the twenty years period 1992 – 2011 were collated from secondary sources and the Ordinary Least Squares (OLS) regression technique was used to estimate the hypotheses formulated in line with the objectives of the study. Real gross domestic product and gross fixed capital formation, proxy for economic growth and capital formation respectively was adopted as the dependent variable while the independent variables included total bank deposit and total bank credit. The empirical results of this study shows that both total bank deposit and total bank credit exert a positive and significant impact on the economic growth and capital formation in developing nations. Finally, the study recommend amongst others that banks should increase the interest paid to customers on the different bank accounts they operate

to encourage more patronage from them and as well ensure that a major part of their credit is channeled to the productive sectors of the economy such as agriculture, industry and power.

Empirically, Sanjib (2008) has concerned with the analysis saving and capital formation which is the two major macro-economic indicators of the National Accounts Statistics. An accurate measure of the domestic saving and capital formulation helps in formulation of the monetary and fiscal policy. Some issues related to the present methodology of compilation of domestic saving and capital formation has been discussed in the paper. Empirically, it has been found that the domestic capital formation in India is mainly financed by the domestic saving. Evidence of existence of long-run equilibrium relationship between domestic capital formation and domestic saving has been found through the application of co integration analysis.

Using the co integration and Vector Error Correction Modeling, Abdulsalam (2013) has conducted a study on banking sector development on economic growth and capital formation. Hence, the findings of the study revealed that in the long-run, liquid liabilities of commercial banks and trade openness exert significant positive influence on economic growth and capital formation. Conversely, credit to the private sector, interest rate spread and government expenditure exert significant negative influence. The findings implied that, credit to the private sector is marred by the identified problems and government borrowing and high interest rate are crowding out investment and growth. The study recommends that financial reforms should focus more on deepening the sector in terms of financial instruments so that firms can have alternatives to banks' credit which proved to be inefficient and detrimental to growth, moreover, government

should inculcate fiscal discipline so as to reduce excessive borrowing from the financial sector and thereby crowding out private investment.

Shittu, Ayodele Ibrahim (2007), in the study focused on capital formation and growth; the ordinary least square multiple regression analytical method was used to examine the relationship between capital formation, economic growth, bank saving and credit. The study tested the stationary and co- integration of Nigeria's time series data and used an error correction mechanism to determine the long-run relationship among the variables examined. The paper reviewed the literature and found that Harrod-Domar model has scarcely been used to test the relationship between capital formation and economic growth. The empirical study found that the data were stationary and co integrated and showed that there is a significant relationship between capital formation and economic growth in Nigeria. The results supported the Harrod-Domar model which proved that the growth rate of national income will directly or positively be related to saving ratio and capital formation (i.e. the more an economy is able to save-and invest-out of given GNP, the greater will be the growth of that GDP). The econometric results suggested the need for the government to continue to encourage savings, create conducive investment climate and improve the infrastructural base of the economy to boost capital formation and promote sustainable growth.

Some authors, including McKinnon (1973), Shaw (1973), and Athukorala and Sen (2004) have argued that the relationship between real interest rate and saving is positive for a developing economy. They hinge their argument on the fact that the financial markets of these countries are not well developed. The result shown in study of Orji (2012) in Nigeria that real interest rate

in Nigeria has a statistically significant negative relationship with savings in the long run. This result does not conform to a priori expectation because theoretically, interest rate is expected to be positively related to savings.

Finally, As per the researcher's knowledge there is no research that has been conducted in this area to provide empirical evidence on the role of bank deposit mobilization and credit financing on capital formation in Ethiopia. Given this lack of empirical studies, it is hoped that this study fills a gap and provide useful support for better understanding the banking industry's role on capital formation given their primary functions and some other macro economic variables.

# **CHAPTER THREE- RESEARCH METHODOLOGY AND DESIGN**

## **3. RESEARCH METHODOLOGY AND DESIGN**

This chapter highlights methodology of the Research, Research Design, Data Source, Model specification and methods of data analysis.

### **3.1 Research Methodology**

There are three research paradigms; these are quantitative research, qualitative research, and mixed research. Quantitative research is generally made using scientific methods, which can include: the generation of models, theories and hypotheses, the development of instruments and methods for measurement, experimental control and manipulation of variables, collection of empirical data modeling and analysis of data evaluation of results. Quantitative research uses the deductive or confirmatory or “top down” scientific method; it is used primarily for description, explanation, and prediction. It is based on quantitative data, in particular on the analysis of variables. The results are statistical and a goal is to generalize the results.

A quantitative approach is one in which the investigatory primarily uses postpositive claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories), employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistics data (Creswell, 2002).

Since the researcher intention was to investigate the role of Banks' deposit mobilization and credit financing on capital formation of Ethiopian Banking Industry, to achieve this objective and to test the hypotheses, the researcher used quantitative research approach because it is the best approach to use to test a theory or explanation (Creswell, 2002) since this study tested three variables which stated in the hypotheses section which makes this approach better than other.

### **3.2 Research Design**

The main objective of this research is to investigate the role of bank deposit mobilization and credit financing on Capital Formation in Ethiopia and this study adopted an explanatory approach by using time series data of 21 years to realize a stated objective. As quoted from Chris Brooks (2008) while longitudinal (time series) studies are often more time consuming and expensive than cross-sectional studies, they are more likely to identify causal relationships between variables. Thus, it is the most appropriate design for identifying the relationships between the level of capital formation and three explanatory variables representing bank saving, bank credit and bank investment. To increase the confidence of the results of estimation most researchers used control variables, which are specific to business firms and general to the economy as a whole (Amir, 2009; Adusei, 2011). Accordingly, in addition to independent variables National Saving and Real interest Rate were included in this study as control variables.

### **3.3 Data Source**

The research was employing quantitative research approach by using secondary data. The data is collected from published reports and official web pages of (National Bank of Ethiopia) NBE,

World Bank and MoFED (Ministry of Finance & Economic Development) for the period of 1994-2014. Gross fixed Capital formation (GFCF) data is Macro level data collected from annual report of MOFED while Bank deposit, Bank Credit and Bank investment data are industry level data collected from central bank annual financial report of Banks operating in Ethiopia.

Ethiopian Banking industry composed of Commercial banks, Development Bank of Ethiopia (DBE), Business and construction bank (CBB). Currently there are 19 banks operating in Ethiopia of which three banks namely commercial bank of Ethiopia (CBE), Development Bank of Ethiopia (DBE) and Business and Construction Bank (CBB) are Government (state) owned banks while the remaining 16 are private bank. Commercial Bank of Ethiopia (CBE) is the largest, controlling the majority of asset of the industry while DBE is specialized state owned Bank operates with a number of branches. All commercial banks offer savings and checking accounts; extend short-term loans; handle foreign exchange transactions; provide mail and cable money transfer services; participate in equity investment; provide guarantee services and perform all other commercial banking activities.

The Development Bank of Ethiopia (DBE) extends short, medium and long-term loans for viable development projects, including industrial and agricultural projects. It also provides other banking services, such as checking and saving accounts to its clients (borrowers).

### **3.4 Model Specification**

In the model specified below, the researcher attempted to investigate the roles of Ethiopia banking industry deposit mobilization and bank credit financing in capital formation to ensure sound financial system and economic stability in Ethiopia from the period of 1994 to 2014.

There are many variables that are essential in explaining Gross Fixed Capital Formation (GFCF) in developing countries. However, it is not possible to include all of them. The variables in this study were chosen because of their significance and availability of data.

The model is derived on the basis of previous studies of Orji Anthony (2001), and Dunning, (1993) with some modification to examine roles of Ethiopia banking industry deposit mobilization and bank credit financing in capital formation from the period of 1994 to 2014 by using Multiple Linear Regression Model by employing Ordinary least square (OLS) method.

In a modern business environment banks do perform a number of functions which are classified into two major parts, primary functions and secondary functions. ( Jhingan,2001 and Agu, 1988) Primary or principal functions are three types such as Acceptance of Deposit, Lending and Investment.

Thus, the econometric model is specified based on the relation outlined in the hypothesis, on the basis of previous studies of Orji Anthony (2001) and Dunning (1993) and based on principal (primary) functions banks do perform. The chosen model is strongly believed to capture the essence of the subject under research.

The explanatory variables include Banks Deposit (BD), Banks' Credit (BC) and Investment by banks in Ethiopia (BI) and additional macro level control Variables of National Saving (NS) and Real Interest Rate (RIR).

The econometric model is specified as:

GFCF =  $f$  (Bank Deposit, Bank Credit, Bank Investment, National Savings, Real Interest Rate)

$$GFCF = \beta_1 + \beta_2BD + \beta_3BC + \beta_4BI + \beta_5NS + \beta_6RIR + \varepsilon \text{ ----- (1)}$$

Where:

GFCF = Gross Fixed Capital Formation

BD = Banks' Deposit

BC = Banks' Credits

BI = Banks' Investment

NS= National Savings

RIR= Real Interest Rate

$\beta_1$  =Coefficient of Intercept

$\beta_2$ - $\beta_4$ = Coefficient of Independent variables

$\beta_5$ - $\beta_6$ = Coefficient of Control Variables

$\epsilon$ = Error Term

**Table 3.1: Variable-Indicator List**

| <b>Dependent Variable</b>     | <b>Indicator</b>             |
|-------------------------------|------------------------------|
| Gross Fixed Capital Formation | Percentage of GFCF as % GDP  |
| <b>Independent Variable</b>   |                              |
| Bank Deposit                  | Bank Deposit as % of GDP     |
| Bank Credit                   | Bank Credit as % of GDP      |
| Bank Investment               | Bank Investments as % of GDP |
| <b>Control Variable</b>       |                              |
| National Savings              | National Saving as % of GDP  |
| Real Interest Rate            | RIR as % of GDP              |

*Source: researcher own computation.*

### **3.5 Method of Data Analysis**

The study used Multiple Linear Regression Model in order to check the role of Banks deposit mobilization and credit financing on capital formation. To analyze the data, statistical package STATA software version 11 was employed. Further STATA software was used to tests stationary, co-integration, model accuracy and other econometric problems like test for multicollinearity, heteroscedasticity, and autocorrelation.

## CHAPTER FOUR- DATA ANALYSIS AND INTERPRETATION

### 4. DATA ANALYSIS AND INTERPRETATION

This section of the study concerned on analysis and interpretation, which shows and explains the descriptive statistics analysis, goodness test, Pearson correlation coefficients matrix among identified variables and the final hypotheses test is based on time series regression analysis.

#### 4.1 Summary of Descriptive Statistic

The following summary of descriptive statistics of all dependent and explanatory variables gives the general distribution of the data set and used in order to get insight into the trend of capital formation in Ethiopia and for those variables incorporated in this study over a period of time.

| VARIABLE | OBS | MEAN     | STD. DEV. | MIN       | MAX      |
|----------|-----|----------|-----------|-----------|----------|
| GFCF     | 21  | 26.81868 | 6.185783  | 16.70772  | 40.27009 |
| BC       | 21  | 11.78557 | 6.606523  | 6.639567  | 18.44365 |
| BD       | 21  | 23.99847 | 7.007823  | 18.561748 | 34.02213 |
| BI       | 21  | 7.295615 | 3.188731  | 3.788262  | 13.23522 |
| NS       | 21  | 12.55499 | 4.956885  | 3.438776  | 20.68316 |
| RIR      | 21  | 2.012404 | 8.912168  | -17.12178 | 17.63548 |

Table 4.1 Summary of Descriptive Statistics

The above table shows descriptive statistics which includes the mean distribution, the standard deviations, minimum and maximum values of the study variables for the study period, (i.e., 1994 to 2014). The study has used six key variables for the analysis purpose including three independent variables, two control variables and one dependent variable. Those are gross fixed capital formation (GFCF) as a dependent variable and bank credit (BC) and bank deposit (BD), bank investment (BI) as an independent variable and national saving(NS) and real interest rate as a control variable.

As indicated in Table 4.1, the average capital formation is 26.81 percent in proportion to GDP, which is nearly equivalent to minimum requirement for economic development. However, the standard deviation of gross fixed capital formation accounts 6.18 percent. This deviation shows that the capital formation varies over the sample period. The minimum GFCF to GDP over the sample period were 16.70 percent and the maximum of 40.27 percent.

Correspondingly, the average bank deposit (BD) is 23.99 in proportion to GDP. It means that on average banks mobilize deposit from the public around 23.99 percent out of total GDP of the country. On the other hand, the standard deviation of bank deposit was 7 percent in proportion to GDP with the minimum proportion to GDP was 18.56 percent and the maximum of 34 percent.

Likewise, the descriptive statistics for bank credit (BC) is also presented in the same table 4.1 which is measured by the amount money granted by banks. The mean value of bank credit in proportion to GDP is 11.78 percent and a standard deviation of 3.9 percent. This deviation shows that the BC fluctuates by 3.9 percent from its mean. The minimum proportion of BC to GDP is 6.63percent and the maximum is 18.4 percent

The other independent variable used in this study was bank investment (BI). On average the bank investment over sample period was 7.2 percent of total gross domestic product with the dispersion of 3.1 percent. The minimum bank investment over sample period was 3.78 percent and the maximum was 13.23 percent.

Moreover, this study also used control variables in order to clearly reveal the role bank of banking industry on capital formation; this study has used two control variables that is represented by NS and RIR. National saving (NS) of the country over the sample period was recorded an average of 12.55 percent in proportion to GDP and shows slightly a big gap of percentage between the highest national saving of 20.68 percent and the smallest of 3.4 percent. Regarding to real interest rate (RIR), the mean value is 2.02 percent in proportion to GDP with the standard deviation of 8.9 percent. The minimum RIR over sample period is -17.12 percent and the maximum of 17.63. A gap between the highest and the smallest percent may be due to the high volatility over a sample period.

This descriptive analysis supports the regression result that on average the bank deposit and Bank credit over the sample period per GDP, shows upward trend over the sample period and indicated that banks has the largest financial intermediaries role in Ethiopia because the role in mobilizing domestic resource in raising the national saving was remarkable.

## 4.2 Goodness of Fit Test

### 4.2.1 Test for Stationary

Stationary in a time series means that if mean, variance, and auto-covariance remain the same no matter at what point we measure them; that is, they are time invariant. Such a time series will tend to return to its mean and fluctuations around this mean will have broadly constant amplitude. If a time series is non stationary, we can study its behavior only for the time period under consideration. Consequently, it is not possible to generalize it to other time periods. Therefore, for the purpose of forecasting, such non stationary time series may be of little practical value. If the time-series is non-stationary, the mean, variance or covariance will not be constant and one is likely to end up with spurious regression where statistical inference on the basis of the classical regression model will be invalid. It is essential to test for stationary to confirm that the process by which data could have been generated is a stochastic one. This is done by using Augmented Dickey–Fuller Test. The null hypothesis in the Augmented Dickey-Fuller test is that the underlying process which generated the time series is non-stationary. If the null hypothesis is rejected, it means that the series is stationary i.e. it is integrated to order zero. If, on the other hand, the series is non-stationary, it is integrated to a higher order and must be differenced till it becomes stationary. A variable is stationary if the absolute term ADF statistic is greater than the absolute term of critical value for rejection of hypothesis for unit root. Otherwise it is non stationary (Gujarati, 2003).

Table 4.2: Unit root test on variables:

|      | Levels             |                     | First difference   |                    |
|------|--------------------|---------------------|--------------------|--------------------|
|      | ADF                |                     | ADF                |                    |
|      | Without trend      | With trend          | Without trend      | With trend         |
| GFCF | -2.630<br>(-3.000) | -2.374<br>(-3.600)  | -3.750<br>(-3.000) | -4.380<br>(-3.600) |
| BC   | -2.513<br>(-3.000) | -2.374<br>(-3.600)  | -3.341<br>(-3.000) | -4.101<br>(-3.600) |
| BD   | -1.836<br>(-3.000) | -1.571<br>(-3.600)  | -4.215<br>(-3.000) | -4.039<br>(-3.600) |
| BI   | -1.946<br>(-3.000) | -2.668 (-<br>3.600) | -4.023<br>(-3.000) | -3.903<br>(-3.600) |
| NS   | -2.545<br>(-3.000) | -2.839<br>(-3.600)  | -3.060<br>(-3.000) | -3.696<br>(-3.600) |
| RIR  | -1.858<br>(-3.000) | 2.839<br>(-3.600)   | -3.675<br>(-3.000) | -4.517<br>(-3.600) |

\* 95 % critical values in brackets

Table 4.2 shows that all the variables are non stationary. The variables are not stationary because the absolute value ADF statistic is less than the absolute value critical value for rejection of hypothesis for unit roots and therefore they had to be differenced to make them stationary. This means that the null hypothesis for unit root is not rejected for these variables.

As can be seen from the test results on the first difference given in Table 4.2, the null hypothesis has been rejected for GFCF, BC, BD, BI, NS, and RIR Variables indicating that variables become stationary at their first difference. Thus, the stationary that the study conducted, suggest that the model (2) should be estimated, using the differenced variables. The model estimated has the following form:

$$\Delta GFCF = \beta_1 + \beta_2 \Delta BC + \beta_3 \Delta BD + \beta_4 \Delta BI + \beta_5 \Delta NS + \beta_6 \Delta RIR + \Delta \varepsilon \text{ ----- (2)}$$

#### 4.2.2 Test for Co-integration

After determining the order of integration of the variables, the study followed the two-step estimation procedure for dynamic modeling suggested by Engle and Granger (1987). In a first step, the so-called "co-integrating regression", in which all the variables would be in levels and no dynamics included, would be estimated by ordinary least squares, and the residuals from this regression will be tested for the presence of a unit root (Rubio and Rivero, 1994). If the residuals were found to be stationary, the co-integrating regression might be taken as a long-run relationship and we could then proceed to the second step, where an Error Correction Model, including those lagged residuals as an error-correction term would be postulated in order to consider the short-run dynamics (Dauti, 2009). When the study test for the presence of unit root on the residuals obtained, after OLS estimation of the Equation (2) ( $\Delta GFCF = \beta_1 + \beta_2 \Delta BC + \beta_3 \Delta BD + \beta_4 \Delta BI + \beta_5 \Delta NS + \beta_6 \Delta RIR + \Delta \varepsilon$ ), the study find that the residuals are non stationary. This suggests that the variables in equation (2) are not co-integrated. In other words an error correction model is not required.

Table 4.3 indicates that absolute value  $t$  statistic less than the absolute term of critical value suggest unit root. The residuals are non stationary, thus confirming the series are not co-integrated and, therefore, the modeling of equation (2) should proceed with the differenced time-series.

Table 4.3 Root tests results on Residuals

|           | Levels             |                    |
|-----------|--------------------|--------------------|
|           | ADF                |                    |
|           | Without trend      | With trend         |
| Residuals | -2.232<br>(-3.000) | -3.233<br>(-3.600) |

95 % critical values in brackets

### 4.2.3 Test for Heteroskedasticity

In Breusch-Pagan / Cook-Weisberg test for heteroskedasticity, if the p-value is sufficiently small, that is, below the chosen significance level, then heteroskedasticity is a problem for the model otherwise heteroskedasticity is not a problem for the model (Wooldridge, 2005). The insignificant result from the Cook-Weisberg test indicates that the regression of the residuals on the predicted values reveals insignificant heteroskedasticity which is a P value greater than 1%, 5% and 10% levels of significance. Thus, there is no heteroskedasticity problem for the values fitted values of  $\Delta$ GFCF.

Table 4.4 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

| Variables: fitted values of $\Delta$ GFCF |        |
|---|--------|
| chi2(1)                                   | = 0.02 |
| Prob > chi2                               | 0.9008 |

#### 4.2.4 Test for Multicollinearity

##### The VIF Technique

The variance inflation factor, VIF, is a measure of the reciprocal of the complement of the inter-correlation among the predictor variables:  $VIF = 1 / (1 - r^2)$  where  $r^2$  is the multiple correlations between the predictor variable and the other predictors. Multicollinearity is said to be a problem when the variance inflation factors of predictors becomes large. How large appear to be a subjective judgment. According to Haan (2002) & Robert (2007); VIF values greater than 10 indicate possible problem of multicollinearity. Thus, in table 4.5 below there is no VIF score above value 10; i.e., there is no perfect co-linearity among independent variables.

**Table 4.5 variance inflation factor**

| VARIABLE | VIF  | 1/VIF    |
|----------|------|----------|
| GFCF     | 8.50 | 0.117647 |
| BC       | 4.85 | 0.206185 |
| BD       | 3.74 | 0.267499 |
| BI       | 2.11 | 0.474678 |
| NS       | 4.62 | 0.216332 |
| RIR      | 1.69 | 0.590944 |
| MEAN VIF | 4.25 |          |

#### **4.2.5 Test of Autocorrelation.**

DW statistics has 2 critical values: an upper critical value ( $d_U$ ) and a lower critical value ( $d_L$ ), and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. (Brooks, 2008)

For the given sample size and given number of explanatory variables, the critical  $d_L$  and  $d_U$  values at 95 percent are 0.552 and 1.881 respectively. So, the result revealed that Durbin-Watson  $d$  statistic i.e. 1.339124 is between  $d_L$  and  $d_U$  which indicates that it's where the null hypothesis of no autocorrelation can neither be rejected nor not rejected for serial correlation. Thus in order to solve the inconclusive result of autocorrelation, the dynamic model which is stated in equation (2) is used.

Table 4.6 Durbin–Watson *d* statistic

|                                     |          |
|-------------------------------------|----------|
| Durbin-Watson d-statistic = (6, 21) | 1.339124 |
|-------------------------------------|----------|

### 4.3 Test for Model Specification

#### 4.3.1 Link Model Specification Test

Link test creates two new variables, the variable of prediction, ( $\hat{y}$ ), and the variable of squared prediction, ( $\hat{y}^2$ ). The model is then refitted using these two variables as predictors.  $\hat{y}$  should be significant since it is the predicted value. On the other hand,  $\hat{y}^2$  shouldn't. This is because if our model is specified correctly, the squared predictions should not have much explanatory power. That is we wouldn't expect  $\hat{y}^2$  to be a significant predictor if our model is specified correct (yesuf, 2009).

Table 4.7 below reveals that the regression model is correctly specified, since the coefficient of the predicted dependent variable ( $\hat{y}$ ) is statistically significant and the coefficient of the predicted dependent variable square ( $\hat{y}^2$ ) is statistically insignificant. The Link test accepts that the model is correctly specified.

Table 4.7 link test on variables

| GFCF        | Coef      | T    | P>  t |
|-------------|-----------|------|-------|
| $\hat{y}$   | .073067   | 2.17 | 0.043 |
| $\hat{y}^2$ | -2.868368 | 1.60 | 0.127 |

### 4.3.2 Ramsey Omitted Variable Test

The Ramsey omitted variable test runs the Ramsey regression specification error test (RESET) for omitted variables. If p value is insignificant, say, at the 5 percent level, one can accept that the model has no omitted variables (Gujarati, 2004); (Wooldridge, 2005).

Table 4.8 Ramsey RESET test using powers of the fitted values of  $\Delta$ GFCF

|            |        |
|------------|--------|
| F(3, 12) = | 1.82   |
| Prob > F = | 0.1967 |

It is clear from the above table that the p value is insignificant, greater than 5 percent level of significance, so, the model has no omitted variables using any of the standard significance levels.

### 4.4 Correlation Analysis

The correlation analysis was done to analyze the relationship between GFCF and BC, BD, BI, NS and RIR. To examine the relationship among these variables, Pearson correlation coefficients were calculated. In this section of the study, the analysis and interpretations of the correlation results between dependent and explanatory variables are presented.

As indicated in the correlation analysis between Bank deposit and Bank Credit has strong relation. This strong correlation between Bank deposit and Bank Credit suggests that performance of the latter is directly tied with increased deposit.

The correlation matrix in Table 4.9 resulted in a positive correlation between GFCF and national saving, bank credit and, bank deposit. And thus, these relations are statistically significant at 1, 5 and 10 percent level. Nevertheless, variable bank investment and real interest rate resulted insignificant positive relationship with gross fixed capital formation

Table 4.9 Correlation Matrix

|      | GFCF                | BC      | BD      | BI     | NS      | RIR    |
|------|---------------------|---------|---------|--------|---------|--------|
| GFCF | 1.0000              |         |         |        |         |        |
| BC   | 0.5160<br>(0.0166)  | 1.0000  |         |        |         |        |
| BD   | 0.4098<br>(0.0650)  | 0.6637  | 1.0000  |        |         |        |
| BI   | 0.2020<br>(0.3799)  | 0.1755  | 0.5703  | 1.0000 |         |        |
| NS   | 0.3698<br>(0.0090)  | -0.3163 | -0.1533 | 0.2121 | 1.0000  |        |
| RIR  | 0.2759<br>(0.2260 ) | 0.2570  | 0.4834  | 0.4968 | -0.3474 | 1.0000 |

On the other hand, Table 4.9 reveals the extent of relationship between dependent and explanatory variables. The correlation coefficients for bank deposit, bank credit, and bank investment with GFCF are 40.98 percent, 51.60 percent and 20.2 percent respectively. Likewise

the correlation coefficients for control variables represented by national saving and real interest rate with GFCF are 36.98 percent and 27.59 percent respectively

Moreover, pair-wise correlation matrix is one method of detecting multicollinearity among explanatory variables. If the pair-wise correlation among two regressors is in excess of 0.8, we suspect that multicollinearity poses serious challenge to our estimates (Gujarati, 2003). Thus, according to Table 4.9, the maximum correlation coefficient above 60% is correlation between BD and BC which equals to 66.37%. Even that it is not problem for the study, when compared to the standard which is more than 80% coefficient.

To sum up the correlation analysis, although the pair wise correlations give proof of relationship between two variables; these measures do not allow us to identify causes and effect relationships between such variables. From the results of correlation analysis, it is difficult to say whether independent variables have effect on capital formation. Simply the correlation result shows the coefficient and the direction of relationship between two variables with the level of significance. Another shortcoming of correlation analysis is that it does not provide reliable indicators or coefficients of association in a manner which control for additional explanatory variables. However, it should be noted that a complete assurance about the significance of the relationship between the endogenous and exogenous variables can be obtained from the regression results which are discussed in the forthcoming section.

## 4.5 Regression Analysis

This section of the study presents the results and discussions of the econometric regression analysis. So far, frameworks of literature review and data analysis of descriptive statistics and correlation analysis were established in order to investigate role of bank deposit and credit on capital formation in Ethiopia. To investigate more formally the relationship between the role of banking and capital formation in Ethiopia (in order to answer the research questions of the study properly and to test hypothesis) time series regression models were computed.

Before running the regressions, the data sets were tested for stationary, co-integration, multicollinearity, heteroscedasticity, autocorrelation and for model specification to test goodness of data collected and where fitness of the model specified were discussed above.

As result revealed in the test of unit root and co-integration of Engle-Granger approach, since the original series are non-stationary and the variables are co integrated, consequently; obviously there would be no sense in forming an Error Correction model (ECM), and it's appropriate to form a model in first differences only.

The dynamic model as signified in model specification test is  $\Delta GFCF = \beta_1 + \beta_2\Delta BC + \beta_3\Delta BD + \beta_4\Delta BI + \beta_5\Delta NS + \beta_6\Delta RIR + \Delta\epsilon$ . Thus, the regression analysis based on the model is presented here under table 4.10.

Table 4.10 reveals that three variables BD, BC & NS are statistically significant while, BI and RIR are insignificant. The intercept is statistically significant at 1 percent. The adjusted R squared values show higher explanatory powers of the explanatory variables. In the regression

independent variables explain the variability of the dependent variable to the extent of 56.22 percent. In addition, the overall significances of the regressions when measured by their respective F statistics are 38.9 with P-values of 0.0001 indicated that the model is well fitted at 1 percent level of significance. Accordingly Table 4.10 gives the main findings of the study on the role of bank deposit and credit on capital formation over a sample period of 1994-2014. Thus, its detail interpretation on each variable based on the findings of regression analysis can be discussed in paragraphs as below.

Table 4.10 OLS Estimation of capital formation as percent of GDP using time series data

|              | Specification (1)     |
|--------------|-----------------------|
| $\Delta BC$  | .9121279*<br>(0.000)  |
| $\Delta BD$  | 3.756348**<br>(0.016) |
| $\Delta BI$  | -.7549615<br>(0.278)  |
| $\Delta NS$  | 1.254795*<br>(0.003)  |
| $\Delta RIR$ | -.4586974<br>(0.378)  |
| _cons        | -33.68848*<br>(0.000) |
| R-squared    | 0.5622                |
| F statistics | 38.9*<br>(0.0001)     |
| N            | 21                    |

Figures in parenthesis denote p-values, \* significant at 1 percent, & \*\*significant at 5 percent

*Hypothesis testing H1:*

***H<sub>0</sub>:** Bank Deposit has no significant and positive effect on Gross Fixed Capital Formation in Ethiopia.*

***Result:** the null hypothesis is rejected at 5% percent level of significance (95% level of confidence)*

The finding on bank deposit, measured amount of money mobilized by banks as a share of GDP, indicated that bank deposit has significant positive effect on capital formation. Holding other variables constant, each percentage increase in bank deposit will lead to an average 3.75 percentage increases in capital formation. Thus, the null hypothesis regarding bank deposit is rejected because bank deposit has significance positive effect on capital formation at 5% percent level of significance. This significant and positive effect of bank deposit on capital formation reveals that bank deposit had significant contribution on capital formation on the sample period in Ethiopia and then boost the capital formation in the country. This finding is supported by empirical studies in developing countries in general and in African countries particularly by Alex (2009), Ayodele (2007) and Nwaeze, et.al (2012), which reveals that bank deposit has a significant positive effect on capital formation in Ethiopia.

*Hypothesis testing H<sub>2</sub>:*

***H<sub>0</sub>:** Bank Credit has no significant and positive effect on Gross Fixed Capital Formation in Ethiopia.*

***Result:** the null hypothesis is rejected at 1% percent level of significance (99% level of confidence)*

The bank credit, represented by BC, had a positive and significant effect on capital formation. The result indicates that, one percent (1%) increase in bank credit granted to investors will lead

to an average 0.91% percent increase in capital formation. Thus, the null hypothesis regarding bank credit is rejected because bank credit has significance positive effect on capital formation at 1% percent level of significance. The positive influence of credit granted by banks in Ethiopia on capital formation may signify that the growth of the economy with emergent and undiscovered market potentials coupled with the double digit economic growth over the years of 1994-2014 in Ethiopia was promoting banking sector growth and creating availability of fund for loan that is mobilized by banks from public. Thus, promotes the production of more goods and services and then investors are eager to borrow invest in a productive sector of the economy that promotes the production more goods and services, capital formation and employment opportunities. The previous studies in developing countries, and Africa countries revealed that bank credit had a significant positive effect on the capital formation. Thus, the significant positive effect of bank credit on capital formation in Ethiopia is consistent with the empirical studies by Orji (2012), Alex (2009) and Sanjib (2008).

*Hypothesis testing: H3*

***H0:*** *Bank Investment has no significant and positive effect on Gross Fixed Capital Formation in Ethiopia.*

***Result:*** *the null hypothesis is not rejected even at 10% percent level of significance i.e. the alternative hypothesis is rejected.*

The bank investment had statistically insignificant and negative effects on the capital formation in Ethiopia. Thus, the null hypothesis regarding bank investment is not rejected because bank investment has insignificance effect on capital formation. Thus, the insignificant effect of bank

investment on capital formation in Ethiopia is consistent with prior studies in Nigeria particularly and in developing countries in general by Orji (2012) and Abdulsalam (2013).

The finding of national saving as a control variable, measured by amount of money mobilized by depository financial institution as a share of GDP, indicated that national saving has significant positive effect on capital formation. Holding other variables constant, each percentage increase in national saving will lead to an average 1.25 percentage increases in capital formation. This positive impact of national saving may signify that expansion of modernization and accessible the saving institution, rise of income level of the society, climb awareness and saving habit among the society, and availability of appropriate saving products enhance the national saving rate to be increased from year to year and then increases the capital formation of the country through making loanable funds in banking industry. This finding is supported by empirical studies in developing countries in general and in African countries particularly by Alex (2009), Ayodele (2007) and Nwaeze, et.al (2012), which reveals that national saving has a significant positive effect on capital formation.

Real interest rate had a negative insignificant effect on capital formation. The insignificance effect of a variable real interest rate may be due to that real interest rate may correlated with other factors that also influence capital formation which are not included in the model of the study. This conclusion is consistent with prior studies in developing countries by Hao (2006), McCaig and Stengos (2005) and Ayodele (2007) and the studies revealed that real interest rate has insignificant effect on capital formation.

## **CHAPTER FIVE- SUMMARY, CONCLUSION AND RECOMMENDATION**

### **5. Summary, Conclusion and Recommendation**

This chapter presents summary of the research paper, the conclusions and recommendations that were drawn from the study results.

#### **5.1 Summary**

Banks play vital role in the economic development of a country by promoting capital formation through rising of the financial resources. They encourage saving by giving various types of incentives to the saver. They expand branches in rural and urban areas. These savings are made available to the businessman; make use of them for productive purposes in the country Ethiopia has made a significant progress towards becoming a functioning market economy and establishing a satisfactory track record of macroeconomic stabilization and performance and also good progress has been made in capital formation. Thus, this study investigated the role of bank deposit mobilization and credit financing in Capital formation of banking industry in Ethiopia. The study was undertaken based on an ordinary least square (OLS) model by employing time series data of 21 years. The study used one dependent, three independent variables, and two control variables i.e., the dependent variable representing gross fixed capital formation (GFCF) and five explanatory variables representing bank credit (BC), bank deposit (BD), bank investment (BI), national saving (NS) and real interest rate (RIR).

## 5.2 Conclusion

Descriptive statistics was used to examine the trend of the chosen variables over the sample periods. Both correlation analysis and OLS models of time series data were used to analyze the relationships among dependent and independent variables and identify the role of bank on capital formation. Finally, the study findings are discussed in the subsequent paragraphs as follows:

The findings of correlation analysis reveals that there exist strong significance positive relationships between capital formation and national saving, bank credit and, bank deposit. On the contrary, correlation analysis reveals that there exist insignificance relationships between capital formation and bank investment and real interest rate.

The research questions were to explore whether the independent variables bank deposit, bank credit and bank investment had significant positive effect on capital formation in Ethiopia, which was investigated through the regressions analyses. Accordingly, the findings of regression analysis are discussed below as follows:

Bank deposit has a positive and significant effect on capital formation. This result of the study conforms to a prior expectation since increased bank deposit will lead to greater availability of investment fund which will lead to greater productivity, and higher growth of capital formation in the economy. This regression finding is supported by descriptive analysis that on average the bank deposit over the sample period accounted to be 23.9 percent as compared to GDP, shows upward trend over the sample period and indicated that banks has the largest financial

intermediaries role in Ethiopia because the role in mobilizing domestic resource in raising the national saving was remarkable.

Bank credit had statistically significant positive effects on capital formation in Ethiopia. This result in this study implies that bank loans granted to the productive sector of the economy exhibit increased over the sample period, hence, this progress of bank loan influences a rational consumer to put that into good use, enhance private sector transactions level and investments, and reinforces the significance of private sector development within the economy. Which was subsequently accelerated the growth of the capital formation in Ethiopia over the sample period of the study. This regression finding is supported by descriptive analysis that on average the bank credit over the sample period accounted to be 11.78 percent as compared to GDP and also shows upward trend over the sample period.

The finding on bank investment indicated that bank investment had insignificant effect on capital formation. This result of the study implies that banks were not directly involved invested in productive sector of the economy. Hence, as per the national bank directives currently banks are allowed to involved in security investment such as Treasury bond and great renaissance dam bond rather than in other portfolio investments.

National saving had significant positive effect on capital formation. The positive effect of national saving on capital formation conforms a prior expectation since increased national savings will lead to greater availability of investment fund which will lead to greater productivity, and higher growth of capital formation in the economy. This regression finding is supported by descriptive analysis that on average the national saving over the sample period

accounted to be 12.55 percent as compared to GDP and also shows upward trend over the sample period.

Lastly, real interest rate had insignificant effect on capital formation in Ethiopia. This result of the study implies that depositors are not sensitive on real interest rate. Thus, accumulation of financial saving in Ethiopia is determined more by the desire to invest than the desire to live on interest income.

To sum up, the findings of regressions analysis showed that bank deposit (BD), bank credit (BC) and national saving (NS) has a great role on capital formation in Ethiopia because the coefficients of the variables were statistically significant. However; bank investment and real interest rate become insignificant effect on capital formation in Ethiopia, because the coefficients of the variables were turned out to be statistically insignificant.

### **5.3 Recommendation**

On the basis of the findings and conclusions reached, the following recommendations are forwarded in order to boost capital formation in Ethiopia than the past.

Even though, bank deposit has significant role on capital formation in Ethiopia over the sample periods, it is appropriate to continuously build a strong cooperation between banks and all concerned government bodies in order to take the major role in installing the saving culture through financial literacy. In addition the government should continue in stabilization of inflation, stabilization of the income level of the society. On the same way, bank should also continuously implementing innovative saving schemes, introduce modernization and new saving

products and increase their accessibility. Banks should also expand their branch networks in rural, Semi urban and urban areas in order to mobilize savings all over the country. In addition, a regulatory body, National Bank of Ethiopia should also encourage banks to expand their branch network all over the country and to apply policy directions for banks to implement attractive schemes for savings to suit different savers like special scheme for mobilizing rural savings, children savings, and student savings and so on. Deposit insurance is also an important tool to inspire more confidence in banking among the people; the deposit insurance scheme should be introduced. It will encourage people to deposit more and more of savings in the bank and dispel the fear of failure of bank and also uphold public confidence. Thus, lead to greater availability of investment fund and higher growth of capital formation in the economy than the past.

Although; bank credit is found to be the main driver to capital formation in Ethiopia, however; financial liberalization and free market forces may not be sufficient in achieving the desired objective in capital formation where most of the key sectors that requires huge capital such as industry and agriculture are still at low level of development due to lack of available fund, un monetized sector domination in the economy and conservative loan policy of banks. Thus, government should intervene in the area of credit allocation, provision of incentive and supporting the bank financing activity. In line with, banks also should design and implement credit policy that promotes capital formation in the economy that helps to finance medium and long term projects rather than focusing on short term finance. Banks should also establish and expand their branch networks in rural area and provide cheap credit facility. The National Bank of Ethiopia (NBE) should also regulate and adopt policy direction and should implement

different methods of credit control mechanism in order to enhance the rate of investment in the Ethiopian economy which will aid in sustaining economic development.

Even though; Bank investment (BI) has statically insignificant and negative effect on capital formation in Ethiopia, this insignificant result mainly due to low level investment of banking industry in Government bonds and Treasury bills. Low level of investment opportunity is due to lack of government policy on capital markets in Ethiopia. Access to and ease in movement of financial resources fundamentally influences the prospects for private sector growth in developing countries' economies. The extent to which existing firms can borrow and grow the ability of emerging firms to act entrepreneurially, their willingness to invest in assets, and the ability to allocate their assets freely are all determining factors to economic growth and capital formation. Thus, clear government policy and strategy for the development of a capital market would help in bringing confidence among the business community and the public at large and also enhance banks to contribute significant role on security portfolio investment in a country

Even if, National saving (NS) has a significant role on capital formation in Ethiopia over the sample periods and this will put in banks to envisage their role in capital formation, banks and financial institution should pay special attention in mobilizing savings by creating awareness to the public in both rural and urban area in collaboration with concerned government bodies. It is also inevitable to continuously build a strong cooperation between banks and all concerned government bodies in order to take the major role in installing the saving culture through financial literacy, broaden bank accessibility, and the government should also continuously improve the income level of the citizens and uphold the level of employment in the country.

Taxation policy of the government should encourage the saving habits of the citizens with concessions for savings in provident fund, life insurance health insurance and the like.

Besides; there are also other factors that may influence the correlation of real interest rate and capital formation; the government should continuously take conscious effort in order to lower the inflation premium by maintaining unfailing commitment to policies of non-inflationary growth in the long run.

In general, as many literatures supports banking industry in Ethiopia is still in its early stages even by the standards of other low-income countries including in Africa, even though; Ethiopia has made a significant progress towards becoming a functioning market economy and establishing a satisfactory track record of macroeconomic stabilization and performance and also good progress in capital formation. Needless to mention, Ethiopia needs to continuously build a strong cooperation between banks and all concerned government bodies in order to take the major role to sustain the saving culture through financial literacy and by expanding accessibility in rural and urban areas of the country to mobilize funds available to the economy that leads to capital formation which is an essential component for economic development and growth.

At last, this study investigates the role of Bank deposit mobilization and credit financing on capital formation in Ethiopia. But, the variables included in the study were not exhaustive. Future researchers could include other bank specific and macroeconomic variables in the regression models. This research can be taken as a base to investigate the role of bank on capital formation in Ethiopia for future research work by taking in to account the role on private and public sector capital formation and the role of private and state owned banks separately.



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# APPENDICES

## Appendix A: Bank industry Deposit per GDP

| <b>Year</b> | <b>Deposit/GDP</b> |
|-------------|--------------------|
| <b>1994</b> | 18.56174812        |
| <b>1995</b> | 20.91548076        |
| <b>1996</b> | 22.21030588        |
| <b>1997</b> | 24.80274832        |
| <b>1998</b> | 31.73157142        |
| <b>1999</b> | 25.91500349        |
| <b>2000</b> | 29.18660896        |
| <b>2001</b> | 34.02212798        |
| <b>2002</b> | 33.48190033        |
| <b>2003</b> | 31.74103147        |
| <b>2004</b> | 30.32967415        |
| <b>2005</b> | 29.03953535        |
| <b>2006</b> | 25.73940545        |
| <b>2007</b> | 21.67762167        |
| <b>2008</b> | 18.8085112         |
| <b>2009</b> | 20.48366782        |
| <b>2010</b> | 19.0414034         |
| <b>2011</b> | 18.7483816         |
| <b>2012</b> | 21.57887801        |
| <b>2013</b> | 22.57705934        |
| <b>2014</b> | 33.75102166        |

## Appendix B: Bank Industry Credit/loan per GDP

| <b>Year</b> | <b>Credit/ GDP</b> |
|-------------|--------------------|
| <b>1994</b> | 6.639567214        |
| <b>1995</b> | 10.31780528        |
| <b>1996</b> | 13.48988483        |
| <b>1997</b> | 14.89007274        |
| <b>1998</b> | 17.58508875        |
| <b>1999</b> | 15.57673446        |
| <b>2000</b> | 16.79954269        |
| <b>2001</b> | 18.44364671        |
| <b>2002</b> | 15.50125029        |
| <b>2003</b> | 12.39676807        |
| <b>2004</b> | 11.16754921        |
| <b>2005</b> | 11.84134761        |
| <b>2006</b> | 11.43411068        |
| <b>2007</b> | 9.569973071        |
| <b>2008</b> | 10.57753448        |
| <b>2009</b> | 10.23980878        |
| <b>2010</b> | 9.241999812        |
| <b>2011</b> | 8.279020214        |
| <b>2012</b> | 10.94252025        |
| <b>2013</b> | 10.92088689        |
| <b>2014</b> | 16.41959402        |

## Appendix C: Bank Industry Investment per GDP

| <b>Year</b> | <b>BI/ GDP</b> |
|-------------|----------------|
| <b>1994</b> | 6.544608895    |
| <b>1995</b> | 5.48251398     |
| <b>1996</b> | 5.292028959    |
| <b>1997</b> | 3.844678945    |
| <b>1998</b> | 4.12325992     |
| <b>1999</b> | 3.788262662    |
| <b>2000</b> | 4.303578269    |
| <b>2001</b> | 10.66092723    |
| <b>2002</b> | 11.7529593     |
| <b>2003</b> | 12.33826807    |
| <b>2004</b> | 13.23522364    |
| <b>2005</b> | 8.080305216    |
| <b>2006</b> | 10.21400685    |
| <b>2007</b> | 8.636001643    |
| <b>2008</b> | 5.555312293    |
| <b>2009</b> | 6.073488072    |
| <b>2010</b> | 6.06020228     |
| <b>2011</b> | 6.572603139    |
| <b>2012</b> | 9.012993117    |
| <b>2013</b> | 10.03453738    |
| <b>2014</b> | 16.02154502    |

## Appendix D: Gross Fixed Capital Formation per GDP

| <b>Year</b> | <b>GFCF/ GDP</b> |
|-------------|------------------|
| <b>1994</b> | 21.50452087      |
| <b>1995</b> | 23.57684505      |
| <b>1996</b> | 21.79988284      |
| <b>1997</b> | 16.70772263      |
| <b>1998</b> | 18.90952904      |
| <b>1999</b> | 22.19713273      |
| <b>2000</b> | 23.56312453      |
| <b>2001</b> | 26.39805752      |
| <b>2002</b> | 24.30298612      |
| <b>2003</b> | 29.02331002      |
| <b>2004</b> | 26.00104349      |
| <b>2005</b> | 27.58451363      |
| <b>2006</b> | 24.21115685      |
| <b>2007</b> | 24.46997185      |
| <b>2008</b> | 24.86297657      |
| <b>2009</b> | 27.00964037      |
| <b>2010</b> | 32.10772727      |
| <b>2011</b> | 37.09806892      |
| <b>2012</b> | 35.79694618      |
| <b>2013</b> | 40.27008778      |
| <b>2014</b> | 35.79694000      |

## Appendix E: National Saving per GDP

| <b>Year</b> | <b>NS/ GDP</b> |
|-------------|----------------|
| <b>1994</b> | 7.811945578    |
| <b>1995</b> | 7.29678985     |
| <b>1996</b> | 14.22356118    |
| <b>1997</b> | 16.11454976    |
| <b>1998</b> | 12.00654538    |
| <b>1999</b> | 4.806564693    |
| <b>2000</b> | 8.826485202    |
| <b>2001</b> | 3.438776214    |
| <b>2002</b> | 11.70173956    |
| <b>2003</b> | 15.35778712    |
| <b>2004</b> | 16.84559758    |
| <b>2005</b> | 17.52705066    |
| <b>2006</b> | 19.07222973    |
| <b>2007</b> | 10.24378361    |
| <b>2008</b> | 6.004412258    |
| <b>2009</b> | 14.90246793    |
| <b>2010</b> | 13.07371756    |
| <b>2011</b> | 9.504097464    |
| <b>2012</b> | 15.79596634    |
| <b>2013</b> | 20.68315745    |
| <b>2014</b> | 18.41751300    |

## Appendix F: Real Interest Rate per GDP

| <b>Year</b> | <b>RIR/ GDP</b> |
|-------------|-----------------|
| <b>1994</b> | 2.807315        |
| <b>1995</b> | 0.393303        |
| <b>1996</b> | 2.642189        |
| <b>1997</b> | -10.9874        |
| <b>1998</b> | -6.51959        |
| <b>1999</b> | 0.549615        |
| <b>2000</b> | 11.07756        |
| <b>2001</b> | 2.108988        |
| <b>2002</b> | 13.6449         |
| <b>2003</b> | 10.27212        |
| <b>2004</b> | 10.66616        |
| <b>2005</b> | 8.177187        |
| <b>2006</b> | 1.303569        |
| <b>2007</b> | 17.63548        |
| <b>2008</b> | 12.74395        |
| <b>2009</b> | -5.11491        |
| <b>2010</b> | 2.972377        |
| <b>2011</b> | -2.61706        |
| <b>2012</b> | -4.08091        |
| <b>2013</b> | -8.29255        |
| <b>2014</b> | -17.1218        |

