ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS & ECONOMICS

PROGRAM OF MBA

THE EFFECT OF THE BANKING SECTOR ON THE ETHIOPIAN ECONOMY: AN EMPERICAL ANALYSIS

BY: Worku Yitayew Adane

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A thesis submitted to college of Business and Economics of Addis Ababa University in partial fulfillment of the requirement for a Master of Business Administration

Advisor: Sewale Abate (PhD)

June, 2017

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Statement of Certification

I certify that the thesis entitled “The impact of the banking sector on the real economy in Ethiopia: an Empirical Analysis” is the work of Mr. Worku Yitayew. He carried out the research under my guidance and I certified that, to the best of my knowledge, the work reported herein doesn’t form part of any other project report or dissertation on the bases of which a degree or other award was conferred on an earlier occasion on this or any other candidate.

Advisor: Sewale Abate (PHD) _____

Date: _____

Statement of Declaration

Worku Yitayew, hereby declare that the thesis on the topic entitled “The impact of the banking sector on the real economy in Ethiopia: an Empirical Analysis”submitted for partial fulfilment of M.A. degree in Business Administration specialization in Finance at Addis Ababa university is my original work and it hasn’t been presented for the award of any other Degree, Diploma, or other similar titles of any other university or institution.

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Acknowledgment

First of all I would like to praise my Lord for giving me the chance and courage to attend this MBA program and complete my project successfully. Then, I would like to thank my advisor, Dr. Sewale Abate for his valuable comments and guidance. Finally I would like to thank my family and my friends those who are helped me throughout to accomplishment of the program.

Acronyms:

ADF	Augmented Dicky-Fuller
ARDL	Autoregressive lag model
CBE	Commercial bank of Ethiopia
DBE	Development bank of Ethiopia
ECM	Error correction model
GDP	Gross domestic product
GTP	Growth and Transformation Plan
IMF	International monetary fund
LM	Lagrangian multiplier
NBE	National bank of Ethiopia
RGDP	Real Gross domestic product
UAE	United Arab Emirates

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Abstract

The main objective of the study was to examine empirically the effect of banking sector on the real economy in Ethiopia over the period 1980-2015. The ARDL approach to Co-integration and Error Correction Model are employed to investigate both the long run and short run relationships. Goodness of fit of the estimated equation, Stability of the estimated model, Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity test: Breusch-Pagan-Godfrey and Normality Test has been also conducted and the model did not experience any problem. The Bounds test showed there is a stable long run relationship between real GDP, private sector credit, domestic credit to the government. Gross capital formation and regime change/system change. The estimated ARDL model has confirmed significantly positive effect of proxies on real GDP. However, private sector credit to GDP(%) has shown negative contribution to real GDP. The short run, coefficient of error correction term justified about 28 percent of disequilibrium annually converge towards long run equilibrium in the current year.

Key words: *banking sector, economy, Ethiopia, Empirical Analysis*

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CHAPTER ONE

2. Introduction

2.1. Background of the Study

Financial development, domestic capital formation and effective financial institutions are important facilitators and principal driving forces behind any country's sustainable growth. As Thiel, (2001) in his paper 'Finance and economic growth – a review of theory and the available evidence' depicted the link between finance and economic growth may run through various transmission channels. Growth models already illustrates that there are three important connections between financial variables and economic activity. Financial development might first reduce the loss of resources required to allocate capital; second increase the savings ratio; and third raise capital productivity.

Even though the direct impact of financial institutions related to other firms is relatively small share on real assets or outputs but indirect impact of financial markets and institutions on economic performance is extremely important.

Although the financial system is complex in both structure and function throughout the world as affirmed by Mishkin and Eakins, (2012) in their renowned book 'Financial Market and Institutions', it includes many different types of institutions: banks, insurance companies, mutual funds, stock and bond markets, and so on". In addition, the role of banks and other financial institutions, to the efficiency of the economy by channeling funds from people who might not put them to productive use to people who can do so and thus play a crucial role in improving the efficiency of the economy.

Because the banking system plays an important role in the economy of any country having market economy, requires the existence of a banking system able to ensure the mobilization of available money and guiding them towards the pursuit of efficient economic activities. Driga and Dura (2014) have conducted a research on the financial sector and the role of banks in economic development and concluded that financial intermediaries channel funds from those who have savings to those who have more productive uses for them. They perform financial services that reduce the costs of moving funds between borrowers and lenders, leading to a more efficient allocation of resources and faster economic growth. Banks are essential component for modern

economy, not only in terms of turnover, but also as the primary financier of the national economy directly, by increasing balance sheet items, and indirectly, through financing due to the two grounds banking is considered as mirror of economic growth.

Birla, (2016) has worked on the issue and he demonstrated the Economic Development of a nation is highly depends upon a sound banking system which can facilitate mobilization of financial resources and channel them towards productive purpose which will results to higher degree of economic growth and capital formation.

Sergeant, (2001) puts commercial banks role for a nation's economy as a vital financial intermediary serving the general public in any society. In most countries, commercial banks hold more assets than any other financial institutions whereas in some countries, even more than central banks; apart from their many functions, commercial banks facilitate growth and development. Banks lend in many areas or sectors of the economy. Viewed from the real sector, they contribute to investments, employment creation, and by extension, the process of economic growth.

As indicated on the above, banks play the major role from all the financial system in many countries especially countries like Ethiopia the financial system is highly dominated by the banking industry.

In Ethiopia the financial sector constitutes banking, microfinance and insurance companies; of which the banking sector plays the dominant role. According to the national bank of Ethiopia (2016), the banking sector takes 92.8 percent of the asset, and 76.8 percent of capital. Currently, there are 17 commercial banks of which 1 public and 16 private banks and 1 specialized bank (Development bank of Ethiopia) operating under one regulatory body.

According to many source such as the World Bank (2016) and IMF (2016) the Ethiopian economy has experienced impressive growth performance over the last decade with average GDP growth rate of 11 %, which is about double of the average growth for Sub Saharan Africa. In addition the government of Ethiopia has planned and implemented the first five years growth and transformation plan and transferred to the second five years growth and transformation plan which will be put into practice from 2015/16 to 2019/20.

It is discussed that the financial sector has a huge role for countries economic growth and capital formation. In Ethiopia also the government has expected and expecting a huge role from the sector particularly from commercial bank of Ethiopia as an enormous source of finance.

"In the GTP period the financial sector will be strengthened with the aim of establishing an accessible, efficient and competitive financial system. One purpose of this initiative is to increase domestic saving so as to sustain the fast and sustainable growth required to provide resources for expanding and improving public services, GTP(2010/11)".

Focusing on the financial sector and the banking industry continued in both the two periods of the GTP to mobilize recourses and gather working capital to sustain the fast economic growth.

"With regard to mobilization of credit, during GTP II period, the Commercial Bank of Ethiopia is expected to provide credit for public investment projects in infrastructure and working capital for industrial sector. The total credit allocated for the service sector is to be obtained from CBE and private banks, (GTP II, (2015/16)".

This paper will assess mainly the role of the banking sector in Ethiopia on Economic Growth of the country and explain the impact of financial intermediation both by the state owned commercial bank and private commercial banks and by the state owned specialized bank on the Ethiopian economy to facilitate economic growth and transformation in Ethiopia on the basis of financial parameters using empirical analysis.

2.2. Statement of the problem

Theoretical arguments and pragmatic evidence support the proposition that enhancing countries financial sector performance results in higher economic growth. One of the forerunners of the subject Levine (2005) has on looked that better developed financial systems ease external financing constraints facing firms, which illuminates one mechanism through which financial

development influences economic growth. The theoretical argument for linking financial sector development to growth is that a well-developed financial system performs several critical functions to enhance the efficiency of intermediation by reducing information, transaction and monitoring costs. A contemporary financial system promotes investment by identifying and funding excellent business opportunities; enables the trading, hedging, and diversification of risk; and facilitates the exchange of goods and services. These functions results in more efficient allocation of resources, a more rapid accumulation of physical and human capital, and faster technological progress, which in turn feed economic growth. As a result, getting the financial system of developing countries to function more effectively is advisable in providing the full range of financial services to promote high sustainable economic growth.

If theoretical arguments and pragmatic evidence support the financial sector play such a vital role, for a country such as Ethiopia, its financial sector highly depend on the banking sector, the banking sector performance will remain critical for high sustainable economic growth. So that the impact of the banking sector on the real economic performance has to be studied meticulously, so as to understand the magnitude of its contribution and expand its positive impacts to the future.

There are empirical researches conducted to see the role of the financial sector in general and the banking sector in particular on different nation's economic growth individually or as a group in different approaches and techniques. This paper will contribute to fill the gap by conducting research empirically to see the effect of banking sector on the economy in Ethiopia.

Thus, considering the above issues the researcher tried to empirically examine the effect of banking sector on the Ethiopian economy and economic growth by raising research questions as stated below and providing answer to these questions.

2.3. Research Questions

The paper addressed the following research questions.

- What is the effect of private credit to GDP (%) on the economy in Ethiopia?
- What is the effect of domestic credit to the government and state owned enterprises to GDP (%) on the economy in Ethiopia?

2.4. Objective of the study

i. General objective

The main objective of this study is to analyze empirically the effect of the banking sector on the economy in Ethiopia.

ii. The specific objectives of this study:

- ❖ To examine the effect of private credit to GDP (%) on the economy in Ethiopia.
- ❖ To examine the effect of domestic credit to the government and state owned enterprises to GDP (%) on the economy in Ethiopia.

2.5. Significance of the Study

- The study helps to identify empirically the effect of private credit to GDP (%) on the economy in Ethiopia.
- The study helps to identify empirically the effect of domestic credit to the government and state owned enterprises to GDP (%) on the economy in Ethiopia.
- The result of this study will provide valuable inputs and directions for the government to set policies regarding to the role of the financial sector in general and banking industry in particular towards the contribution to the real economy.
- Furthermore, other interested researchers may take this study as a base for detailed and further studies.

2.6. Scope of the study

The study is restricted in analyzing empirically the impact of the banking sector on the real economy in Ethiopia within the period (1980-2015) by using thirty five years of annual data time

series. The study included all the commercial banks private 16 and state owned 1 and specialized state owned bank (development bank of Ethiopia)

2.7. Limitations of the study

The study has encountered some sort of problems. In excess of the considered variables, there would be other variables to be included in the model. In fact, the study has considered stochastic error term to capture the effect of unobservable factors. But, the effect of those unobserved variables could not fully be incorporated in the stochastic error terms so this would have little effect on the overall findings of the present study.

2.8. Organization of the paper

For a systematic and scientific approach, this research work has divided into five chapters. Therefore, chapter one, introduces the research subject briefly and outlines the research background, incorporating the problems and results from past studies. The problem statement is given and research objectives have been clearly described. Furthermore, research questions, significance, scope and limitations of the study are included. In chapter two, both relevant theoretical and empirical literature are discussed. The methodology of the research is presented in chapter three. Chapter four concentrates on the presentation, analysis, and discussions of the data. Chapter five presented conclusions of the study and forwarded recommendations based on the findings of the study.

CHAPTER TWO

Review of Related Literatures

Introduction

The chapter discuses related literatures and establishes framework on the effect of the banking sector on the real economy in Ethiopia, which in turn, helps in clearly identifying the gap in the literatures. The review of the literatures has four sections: the first section considers the theoretical foundation of the subject, the second section is a review of the empirical studies, and the third section presents the conceptual framework. Finally, identified knowledge gaps are presented.

2.1. Theoretical foundations

2.1.1. Definition of concepts and terms

i. Economy:

Different scholars defined an economy from various perspectives some of which are reviewed as follows; Pokharel, (2013) has defined an economic system as an area, region or country and a system by which people get a living. An economy is a system of parts which are interrelated and interdependent like the cells of an animal or plants. Despite the complexities of specialization involved, it is a system of mutual exchange between producers and consumers. There are three main functions of economies. They are production, consumption and growth.

According to A.J. Brown, (1959) "An economy is a system by which people get living". The way man attempts to get a living differs in major perspective from time to time and from place to place. In primitive times 'get a living' was simple but with growth of civilization it has become much more complex. Here it is important to note that the way person earns his/her living must be legal and fair. Unfair and illegal means such as robbery, smuggling may earn income for oneself but should not be taken into consideration as gainful economic activity or a system of 'get a living'. It will therefore be appropriate to call that economy is a framework where all economic activities are carried out.

An economy is also defined by J.Black, Hashimzade and Myles (2013) as the system of activity connected with the production , trade and consumption of goods and services of a region, country or other (not necessarily geographic) area.

All the above authors have defined in common an economy as a system in which a place where people produces good and services trade and consume and this complex system is an economic system.

ii. Economic Growth:

In his work Pokharel, (2013) has summarized economic growth as the increase in the amount of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Growth is usually calculated in real terms, i.e. inflation-adjusted terms, in order to obviate the distorting effect of inflation on the price of the goods produced.

J.Black, Hashimzade and Myles, (2013) dictionary of economics also told as about economic growth as persistent increase in per capita aggregate output and in the aggregate physical capital per worker in an economy. Economic growth is also characterized by structural transformation such as the shift from agriculture to industry and service, urbanization, the shift from home work to employ status, an increase role of formal education, an increase role of foreign trade, decrease reliance on natural resources with technological progress and the growing importance of government.

iii. Banks and Banking System

J.Black, Hashimzade and Myles, (2013) defined a bank as financial institution whose main activities are borrowing and lending money. On the other hand the banking system is the network of institutions providing banking service according to J.Black, Hashimzade and Myles, (2013). Banks borrow money by accepting deposits from the general public or other financial institutions. Bank loans are an important source of finance for firms, consumers and government.

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Finance is the life blood of trade, commerce and industry as articulated by Pokharel, (2013). The researcher also added on modern banking system now- a- days, banking sector acts as the backbone of modern business. Development of any country mainly depends upon the banking

system. The term bank is derived from the French word Banco which means a Bench or money exchange table. A bank is a financial institution which deals with deposits and advances and other related services. It receives money from those who want to save in the form of deposits and it lends money to those who need it. Bank means an institution that accepts deposits in different accounts and provides loans of different types. Many changes have taken place in the functions of a bank from the initial stage of its development to present day. There are many types of banks at present, which do not accept deposits such as central bank and industrial bank. According to World Bank, "Banks are financial institutions that accept funds in the form of deposits repayable on demand or in short notice".

Commercial Banks as one of the actors in the financial system defined according to Pokharel, (2013) are depository institutions that issue checkable, time and saving deposits liabilities and among other thing, make loans to commercial businesses. They are one of the major financial intermediaries whose primary function is the transfer of monetary resources from the savers to the users. They are almost everywhere the largest of all the financial intermediaries. They have the widest range of activities and they provide a large amount of the money supply. On that account they receive far more attention than other intermediaries. Commercial banks are defined as lending financial institution, which issue demand liabilities used as means of payment and at the same time make loans to business in a tradition that goes back several hundred years ago. In course time, commercial banks have expanded their activities on both the assets liabilities side. They accept various kinds of time and savings deposits while they have expanded their lending activities to include term loans to business, consumer loans, long-term mortgage loans and investments in debt securities in all types of wide range of maturities.

According to Saini and Sindhu, (2014) a commercial bank is a type of bank that provides services such as accepting deposits, making business loans, and offering basic investment products. Commercial bank can also refer to a bank or a division of a bank that mostly deals with deposits and loans from corporations or large businesses, as opposed to individual members of the public. Commercial banks perform many functions. They satisfy the financial needs of the sectors such as agriculture, industry, trade, communication, so they play very significant role in a process of economic social needs. The functions performed by banks, since recently, are becoming customer-centered and are widening their functions. Generally, the functions of

commercial banks are divided into two categories: primary functions and the secondary functions. The following chart simplifies the functions of commercial banks. Commercial banks perform various primary functions; some of them are given below. Commercial banks accept various types of deposits from public especially from its clients, including saving account deposits, recurring account deposits, and fixed deposits. These deposits are payable after a certain time period. Commercial banks provide loans and advances of various forms, including an overdraft facility, cash credit, bill discounting, money at call etc.

2.1.2. Early theoretical foundations on the role of finance in an economy

For almost a century economists have been debating the role of the financial sector in the process of economic development and developed strong theoretical foundations on the subject. From the time when Schumpeter (1911) put forward arguments pointing at the productivity- and growth-enhancing effects of the services provided by a developed financial sector, a considerable amount of theoretical and empirical literature has emerged. Put forward by Joan Robinson (1952), the latter point of view played a dominant role until the mid-1960s. Gerschenkron (1962), Patrick (1966), and particularly Goldsmith (1969), stressed the propulsive role the financial sector can play in the process of economic development. This pioneering work broke ground to change the direction of thinking.

In the 1970s the discussion concentrated on the phenomenon of financial repression, a policy conducted by many governments to generate growth and revenue through artificially low interest rates and inflationary monetary policies. It was based on the theoretical works of Keynes (1936) and Tobin (1965), who advocated government interference in the credit market. McKinnon (1973) and Shaw (1973) coincidentally raised arguments against policies of financial repression. They emphasized the role of the financial sector in increasing the volume of savings by creating appropriate incentives. In order to reach higher savings and investment rates, they recommended governments to abolish interest rate ceilings and advised them to give up raising seignorage through inflationary monetary policies. As a result real interest rates should rise to market clearing values, thus raising increased savings. An important feature of the McKinnon-Shaw models is that they explain only temporarily higher growth rates. Many governments in

developing countries followed their policy advice and achieved significant accelerations in growth rates, but sometimes also excessively high and volatile real interest rates.

In the early 1980s the Neo-structuralists criticized the McKinnon-Shaw school and predicted that financial liberalization would slow down growth. Their arguments are in the vein of those put forward by Keynes and Tobin. Joseph Stiglitz (1989) criticizes financial liberalization on the theoretical ground of market failures in financial markets.

A different strand of the theory that positively links finance and growth emerged in the early 1990s as a branch of the literature on endogenous growth; King and Levine (1993 b) follow Schumpeter's line of reasoning by emphasizing the role of innovation. Financial systems channel savings to their most productive uses and diversify the risks associated with these activities. Fulfilling these tasks, they increase the probability of successful innovation and the speed of technological progress. The most important result of the literature on endogenous growth is that the increase in growth rates can be sustained. In contrast to the school of thought based on physical capital accumulation (McKinnon, Shaw, 1973) the rate of technological progress is endogenously determined. This keeps the marginal productivity of capital from declining. Levine (1997) summarizes the following basic functions of financial systems that foster capital accumulation and productivity growth: they facilitate the trading, hedging, diversifying, and pooling of risk; they allocate resources; they monitor managers and exert corporate control; they mobilize savings; and facilitate the exchange of goods and services.

The positive effect of the financial sector on economic growth is not fully recognized by a number of authors. The economic function of finance in the microeconomic explains financial intermediaries serve as a bridge the difference in interests between borrowers and lenders concerning the size of investment, its maturity and risk. Moreover, it connects financial services with asymmetric information and agency costs given the financial system a more prominent role in accomplishing an efficient allocation of capital [Thiel (2001)].

Among many functions of the financial sector in doing in the economy the following are supported by theories Levine (2005) has also developed a broader definition that focus on what the financial system improves in the (1) production of ex ante information about possible investments, (2) monitoring of investments and implementation of corporate governance, (3) trading, versification, and management of risk, (4) mobilization and pooling of savings, and (5)

exchange of goods and services. But, financial sectors differ evidently in how well they provide these key services.

A. Producing Information and Allocating Capital

Theories assume that capital flows toward more profitable projects usually ignore the fact that investors do not always have the capacity to collect enough information to make the most profitable investments. Acquiring information and strengthening incentives for obtaining information to improve resource allocation are key issues. A large body of theoretical literature argues that financial intermediaries improve the forecasting assessment of investment opportunities, with positive consequence for resource allocation, by reducing the costs of acquiring information acquisition [Ramakrishnan and Thakor (1984); Bhattacharya and Pfleiderer (1985); Boyd and Prescott (1986); Allen (1990)].

A strand of this literature explicitly incorporates the role of information in a growth model. Greenwood and Jovanovic (1990) developed a theory in which financial intermediaries produce better information, improve resource allocation, and foster growth. Growth means that more individuals can afford to join financial intermediaries, which improves the ability of the intermediaries to produce better information. King and Levine (1993) shows that financial intermediaries may boost the rate of technological innovation by identifying those entrepreneurs with the best chances of successfully initiating new goods and production processes.

Some more recent literature argues that markets potentially perform better than intermediaries where there is diversity of opinion about innovation and genuine disagreement about the optimal decision. Allen and Gale (1999) argue that with new technologies, investors' diversity of opinion reflects differences in prior beliefs rather than differences in information. The advantage of financial markets is that they allow people with similar views to join together to finance projects. In contrast, intermediated finance involves delegating the financing decision to a manager who incurs the cost necessary to form an opinion. The problem is that the manager may not have the same opinion as the investor (agency problem). The model predicts that market-based systems will lead to more innovation than bank-based systems. Hence, the role of the market may be more important in the phase of economic growth at the technological frontier.

B. Risk Sharing

A large body of research tries to understand how financial development promotes economic growth through a risk-sharing channel. The implications for financial development and financial structure on economic growth are potentially quite different when markets cannot diversify away all of the risks inherent in the economic environment.

Risk sharing plays a key role in promoting growth when agents are risk averse and less risky projects yield low returns. In this view, the financial system allows agents to create diversified portfolios with higher expected returns while keeping risk reasonably low (King and Levine 1993).

More recent contributions emphasize that the positive effect of risk sharing on growth depends on the level of economic development of an economy. Bose and Cothren (1996) show that the financial sector needs to reach a critical mass before advances in financial sophistication improve growth. Acemoglu and Zilibotti (1997) find that at early stages of development, the presence of indivisible projects limits the degree of diversification the economy can achieve and that the desire to avoid highly risky investments slows capital accumulation. Gaytán and Rancière (2005) shows that at early stages of economic development, risk sharing can be achieved only at the cost of reducing investment and growth. In their model, once the economy has crossed a certain wealth threshold, the liquidity role of banks becomes unambiguously growth enhancing.

Risk sharing also plays a key role in promoting growth when agents face liquidity risks. Individuals are averse to both bearing risk and relinquishing control of their savings for long periods. The financial system can play a role in making projects more acceptable to the public and increasing growth prospects. Building on the Diamond and Dybvig (1983) set-up for liquidity demand, Levine (1991) models the endogenous formation of equity markets and integrates it into a growth model. As stock market transactions costs fall, more investment occurs in illiquid, high-return projects. If illiquid projects enjoy sufficiently large effects on other parts of the economy, then greater stock market liquidity induces faster steady-state growth. Bencivenga and Smith (1991) show that by eliminating liquidity risk, banks can increase investment in high-return, illiquid assets and accelerate growth. Jappelli and Pagano (1994) used an overlapping-generations model to show that liquidity constraints on households increase the savings rate and growth by limiting households' ability to smooth consumption. De Gregorio

(1996) constructs a model in which financial systems can promote growth through accumulating human capital by easing liquidity constraints.

Financial intermediation in most models takes the form of a perfectly competitive banking system. Some models consider a role for stock markets, but often only as a choice between mutually exclusive banks and markets. Analyses in which markets and intermediaries coexist are rare because including markets can eliminate the risk-sharing benefits of intermediaries as depicted by Greenwood and Smith (1997).

A few studies consider the case in which banks and markets coexist. Blackburn, Bose, and Capasso (2005) develop a model in which state-dependent moral hazard conditions allow both to exist together. In this model, feedback occurs from growth in the economy to the determination of the optimal financial structure, which can be based on banking or a mixture of banks and markets. Fecht, Huang, and Martin (2008) consider a model in which financial intermediaries provide insurance to households against idiosyncratic liquidity shocks. Households can also invest in financial markets directly if they pay a cost. In equilibrium, the ability of intermediaries to share risk is constrained by the market, but it can be preserved as long as the cost to participate in markets is relatively high and the portion of individual market participants is not too large.

At the international level, risk sharing allows economies to grow more by specializing according to their comparative advantages while diversifying away the risk of this specialization through the financial system. Helpman and Razin (1978) show that the risk-averse nature of consumers in an uncertain environment results in imperfect specialization that reduces the gains from trade. In such circumstances, financial development that allows the trading of contingent claims provides better risk-sharing opportunities, allowing the economy to specialize in the production of a few goods while keeping risk low. This argument is further explored by Saint-Paul (1992), who shows that stock markets that facilitate international risk sharing enable specialization in technologies and higher growth.

International risk sharing also involves some risks. The sudden withdrawal of capital flows increased risk in some economies, hurting growth prospects. Calvo and Mendoza (2000) and Mendoza (2001) examine the causes and consequences of sudden reversals of capital flows to emerging markets, which are typically accompanied by large declines in output and collapses in real asset prices. In these studies, risk sharing across countries requires contract enforcement by domestic and foreign agents. The difficulty of this enforcement introduces a new source of risk.

Broner and Ventura (2011) argue that the decision to enforce international contracts, which depends on the willingness of sovereigns, will depend on whether local players benefit from it. In equilibrium, this conflict can lead to the endogenous closure of some asset markets, including local ones, reducing growth and risk sharing at both the national and international levels.

C. Mobilizing Savings

Mobilization-pooling-involves the agglomeration of capital from disparate savers for investment; without access to multiple investors, many production processes would be constrained to economically inefficient scales Erik Sirri and Peter Tufano (1995). Furthermore, mobilization involves the creation of small denomination instruments. These instruments provide opportunities for households to hold diversified portfolios, invest in efficient scale firms, and to increase asset liquidity. Without pooling, households would have to buy and sell entire firms. By enhancing risk diversification, liquidity, and the size of feasible firms, therefore, mobilization improves resource allocation (Sirri and Tufano 1995)

Financial systems that are more effective at pooling the savings of individuals can profoundly affect economic development. Besides the direct effect of better savings mobilization on capital accumulation, better savings mobilization can improve resource allocation and boost technological innovation Bagehot (1873).

2.1.3. Bank-Based and Market-Based Financial Systems

Economists have long debated the advantages and disadvantages of bank-based financial systems vis-à-vis market-based systems. This debate has primarily focused on four countries. Asli Demirguc-Kunt and Ross Levine (1999) Indicated that bank-based financial systems such as Germany and Japan, banks play a leading role in mobilizing savings, allocating capital, overseeing the investment decisions of corporate managers, and in providing risk management vehicles. In market-based financial systems such as England and the United States, securities markets share center stage with banks in terms of getting society's savings to firms, exerting corporate control, and easing risk management. Some analysts suggest that markets are more effective at providing financial services.

There is no uniformly accepted empirical definition of a bank-based or market-based financial system. Beck, Demirguc-Kunt, and Levine (1999) used as aggregate indicators of financial structure based on measures of the relative size, activity, and efficiency of banks and markets. As noted above, financial intermediaries can improve the acquisition of information on firms, the intensity with which creditors exert corporate control, the provision of risk-reducing arrangements, and the mobilization of capital.

2.1.3.1. Bank-Based Financial Systems and Economic Growth

This is an argument in favor of well-developed banks. It is not, however, an argument in favor of a bank-based financial system. The case for a bank-based system, instead, comes from a critique of the role of markets in providing financial service.

Stiglitz (1985) argues that since well-developed markets quickly reveal information to investors at large, this dissuades individual investors from spending much time and money researching firms. There is a basic free-rider problem. This problem is less severe in bank-based systems since banks can make investments without revealing their decisions immediately in public markets. Furthermore, "banketeers" argue that markets are an ineffective device for exerting corporate control.

Proponents of bank-based systems argue that there are fundamental reasons for believing that market-based systems will not do a good job of acquiring information about firms and overseeing managers. This will hurt resource allocation and economic performance. Banks do not suffer from the same fundamental shortcomings as markets; they will do a correspondingly better job at researching firms and overseeing managers. Furthermore, while markets may potentially provide the best tailor-made products for hedging risk, markets are imperfect and incomplete. Thus, in some circumstances – particularly involving inter temporal risk sharing – bank-based systems may offer better risk ameliorating services than market-based systems, Allen and Gale (1999).

2.1.3.2. Market-Based Financial Systems and Economic Growth

The case for a market-based system is essentially a counterattack focusing on the problems created by power banks. Bank-based systems may involve intermediaries with a huge influence over firms and this influence may manifest itself in negative ways. For instance, once banks acquire substantial, inside information about firms, banks can extract rents from firms; firms must pay for their greater access to capital. In terms of new investments or debt renegotiations, banks with power can extract more of the expected future profits from the firm (than in a market-base system). This ability to extract part of the expected payoff to potentially profitable investments may reduce the effort extended by firms to undertake innovative, profitable ventures Rajan (1992).

Banks (as debt issuers) also have an inherent bias toward prudence, so that bank-based systems may stymie corporate innovation and growth. Weinstein and Yafeh (1998) find evidence of this in Japan. While firms with close to ties to a "main bank" have greater access to capital and are less cash constrained than firms without a main bank, the main bank firms tend to (i) employ conservative, slow growth strategies and do not grow faster than firms without a "main bank," (ii) use more capital inventive processes than non-main bank firms holding other features constant, and (iii) produce lower profits, which is consistent with the powerful banks extracting rents from the relationship.

Allen and Gale (1999) further note that although banks may be effective at eliminating duplication of information gathering and processing, which is likely to be helpful when people agree about what needs to be gathered and how it should be processed, bank may be ineffective in non-standard environments. Thus, banks may not be effective gatherers and processors of information in new, uncertain situations involving innovative products and processes.

Another line of attack on the efficacy of bank-based systems involves corporate governance. Bankers act in their own best interests. Bankers may become captured by firms, or collude with firms against other creditors. Thus, influential banks may prevent outsiders from removing inefficient managers if these managers are particularly generous to the bankers [Black and Moersch 1998a].

Market-based financial systems provide a richer set of risk management tools that permit greater customization of risk ameliorating instruments. While bank-based systems may provide

inexpensive, basic risk management services for standardized situations, market-based systems provide greater flexibility to tailor make products. Thus, as economies mature and need a richer set of risk management tools and vehicles for raising capital, they may concomitantly benefit from a legal and regulatory environment that supports the evolution of market-based activities, or overall growth may be retarded.

2.2. Empirical Evidences

In modern market economies the financial system underpins virtually all economic transactions, which indicates that, the economies and the financial sector of nations are highly and significantly associated. A positive association between measures of financial sector development and economic growth (or real GDP) is, therefore, a very basic first test of the finance-growth relationship. Indeed, this question has preoccupied the empirical literature on finance and growth for quite some time. The main conclusion that has emerged on this question by early as well as more recent studies is that there is indeed an association in the data both across countries and within countries, over time.

There is now a voluminous empirical literature on the relationship between financial development and economic growth, using different methodologies, different data sets, and a variety of indicators, which this section has briefly and selectively reviewed. Many of the empirical studies on the finance-growth nexus have utilized indicators that are primarily focused on the development of the banking system, such as the ratio of liquid liabilities or private credit to GDP. More recently, there has been an explosion of studies that use broader measures of financial development, particularly those including the development of stock markets. Some studies using cross-country growth regressions find that stock markets have large positive effects on growth, in addition to banks [Levine and Zervos 1998].

2.2.1. Empirical literature on the relationship between financial development and economic growth

Goldsmith (1969) is among the earlier pioneers in providing empirical evidences on the effect that financial structure and development have on economic growth. Particularly on his argument

he tried to investigate whether finance exerts a causal influence on growth and whether the mixture of markets and intermediaries operating in an economy influences economic growth. To begin with, Goldsmith compiled data on 35 countries over the period 1860 to 1963 on the value of financial intermediary assets as a share of economic output. Goldsmith was successful in providing convincing results after showing that a positive correlation between financial development and the level of economic activity. Thus, Goldsmith ultimately did not take a stand on whether financial development causes growth. In terms of the relationship between economic growth and the structure of the financial system, Goldsmith was unable to provide much cross-country evidence because of the absence of data on securities market development for a broad range of countries.

King and Levine (1993a,) constructed on Goldsmith's work and incorporated 77 countries in their data set over the period 1960–1989, systematically control for other factors affecting long-run growth, examine the capital accumulation and productivity growth channels, construct additional measures of the level of financial development, and analyze whether the level of financial development predicts long-run economic growth, capital accumulation, and productivity growth. In terms of measures of financial development, the researchers first examine the size of financial intermediaries. It equals liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of banks and non-bank financial intermediaries) divided by GDP. They also construct the variable that measures the relative degree to which the central bank and commercial banks allocate credit, which equals the ratio of bank credit divided by bank credit plus central bank domestic assets. The perception underlying this measure is that banks are more likely to provide the five financial functions than central banks. They also examine credit to private enterprises divided by GDP. The assumption underlying this measure is that financial systems that allocate more credit to private firms are more engaged in researching firms, exerting corporate control, providing risk management services, mobilizing savings, and facilitating transactions than financial systems that simply funnel credit to the government or state owned enterprises. King and Levine reached on very consistent results across the different financial development indicators.

Regarding the assessment of the strength of the empirical relationship between each of these indicators of the level of financial development averaged over the 1960–1989 period and three growth indicators also averaged over the 1960–1989 period. The three growth indicators are as

follows: (1) the average rate of real per capita GDP growth, (2) the average rate of growth in the capital stock per person, and (3) total productivity growth, which is a "Solow residual" defined as real per capita GDP growth minus (0.3) times the growth rate of the capital stock per person. Then they estimated using regressions on a cross-section of 77 countries and learned that there is a strong positive relationship between each of the financial development indicators and the three growth indicators. The sizes of the coefficients are economically large.

King and Levine (1993b, 1993c) confirm these findings using alternative econometric methods and robustness checks.

Another study by La Porta, Lopez-de-Silanes and Shleifer (2002) used an alternative indicator of financial development. They examine the degree of public ownership of banks around the world. To the extent that publicly-owned banks are less effective at acquiring information about firms, exerting corporate governance, mobilizing savings, managing risk, and facilitating transactions, then this measure provides direct evidence on connection between economic growth and the services provided by financial intermediaries. The authors show that (1) higher degrees of public ownership are associated with lower levels of bank development and (2) high levels of public ownership of banks are associated with slower economic growth.

While addressing many of the weaknesses in earlier work, cross-country growth regressions do not eliminate them. Thus, while King and Levine show that finance predicts growth, they do not deal formally with the issue of causality [Shan, Morris and Sun (2001)]. While researchers improve upon past measures of financial development, they only focus on one segment of the financial system, banks, and their indicators do not directly measure the degree to which financial systems ameliorate information and transaction costs.

Levine, Loayza and Beck (2000) extend the King and Levine (1993a, 1993b) measures of financial intermediary development to improve the deflating of the financial development indicators, and add a new measure of overall financial development. The new measure of financial development, Private Credit, equals the value of credits by financial intermediaries to the private sector divided by GDP. The measure isolates credit issued to the private sector and therefore excludes credit issued to governments, government agencies, and public enterprises. Also, it excludes credits issued by central banks. Unlike the Levine and Zervos Bank Credit measures, Private Credit included credits issued by non-deposit money bank. The results indicate a very strong connection between the exogenous component of financial intermediary

development and long-run economic growth. They use various measures of financial intermediary development and different conditioning information sets and they find that, the exogenous component of financial development is closely tied to long-run rates of per capita GDP growth.

Studies of finance and growth have also employed panel data techniques, pure time series methodologies, and case-studies to ameliorate a number of statistical problems with pure cross-country investigations.

Loayza and Ranciere (2002) extend this line of empirical inquiry by differentiating between the long-run and short-run relationships connecting finance and economic activity. They noted that short-run surges in bank lending can actually signal the onset of financial crises and economic stagnation. They stress that it is therefore crucial to consider simultaneously the short-run and long-run effects of financial development. Using a panel, Loayza and Ranciere (2002) estimate an encompassing model of long-run and short-run effects and they find that a positive long-run relationship between financial development and growth co-exists with a generally negative short-run link.

A substantial time-series literature examines the finance-growth relationship using a variety of time-series techniques. These studies frequently use Granger-type causality tests and vector autoregressive (VAR) procedures to examine the nature of the finance growth relationship [e.g., Arestis and Demetriades (1997)]. Research has progressed by using better measures of financial development, employing more powerful econometric techniques, and by examining individual countries in much greater depth.

Some initial time-series studies emphasize the importance of measuring financial development accurately, suggesting that studies that use more precise measures of financial development tend to find a growth-enhancing impact of financial development.

Jung (1986) and Demetriades and Hussein (1996) use measures of financial development such as the ratio of money to GDP. They find the direction of causality frequently runs both ways, especially for developing economies. However, Neusser and Kugler (1998) use measures of the value-added provided by the financial system instead of simple measures of the size of the financial system and find that finance boosts growth. Furthermore, Rousseau and Wachtel (1998) conduct time-series tests of financial development and growth for five countries over the past century using measures of financial development that include the assets of both banks and non-

banks. They document that the dominant direction of causality runs from financial development to economic growth. Finally, Arestis, Demetriades and Luintel (2001) augment time-series studies of finance and growth by using measures of both stock market and bank development and find additional support for the view that finance stimulates growth.

To examine the relationship between financial development and economic growth in the UAE using time series data from 1973 to 2003, Mosesov and Sahawneh (2005) examined the finance-growth nexus in UAE. The study employed standard OLS regression and used three variables to measure financial development, namely broad money to GDP (M2), credit to private sector to GDP (PSC) and domestic assets of resident banks to GDP (BDA). The paper also controlled for other variables that are believed to influence economic growth in the UAE, namely labor force growth, gross investment as percentage of GDP and oil prices. Inconsistent with their expectation, the coefficient on M2 is found to be negative and statistically significant at the 5% level in their Regression 1 (without oil prices) and negative but not statistically different from zero in Regression 2 (with oil prices). The coefficients on the second financial development variable (PSC) are also found to be negative but not statistically significant. Similarly, the coefficients on the third financial development variable (BDA) are not statistically significant but positive. Mosesov and Sahawneh concluded that no positive evidence to suggest that financial development had influence the economic growth in the UAE. The control variables used in their study, however, are found to be positively and significantly related to economic growth in the UAE. Study conducted by Mosesov and Sahawneh (2005) suffers from a serious methodological problem as it employed the standard OLS regressions. Such estimation method produces biased and incorrect estimates of the parameter coefficients and cannot capture the long-run dynamic relationship between financial development and economic growth.

Mohamed (2008) examined the short and long run relationship between financial development and economic growth in Sudan, one of the Middle East and North Africa (MENA) countries. Covering the period from 1970 to 2004, the study employed the ARDL modeling approach to co-integration. Specifically, he used two proxies for financial development. That is, the ratio of M3 to GDP (M3Y) and the credit provided by the commercial banks to private sector as a percentage of GDP (CBS). The result showed that financial development variables negatively affect real GDP. The coefficient on M3Y is found to be negative and statistically significant at the 1% level

and the coefficient on CBS is also negative but insignificant. Mohamed attributed his finding to the inefficient allocation of resources by banks, the absence of proper investment climate, and to the poor quality of credit disposal of the banking sector in Sudan.

Another study utilizes ARDL model of co-integration is conducted by Majid (2007). The study examined the short and long-run dynamics between financial development, inflation and economic growth during the post 1997 financial crisis in Thailand. The paper found a long-run equilibrium between economic growth, finance depth, inflation and share of investment. The study also documented that the common sources of economic progress/regress in Thailand is price stability and financial development. Specifically, this implies that in promoting the growth of economy, it is very important for the government to preserve price stability by maintaining a lower rate of inflation and enhancing the financial sectors both banking and stock market.

Seetanah (2008) used the ARDL model to investigate the dynamic empirical link between financial development and economic performance in a small island state of Mauritius. The results showed that financial development have been contributing to the output level of the economy in both the short and the long run. Using similar econometric approach, Kargbo and Adamu (2009) have arrived at the same conclusion for the case of Sierra Leone.

2.2.2. Empirical literature on the relationship between banking and economic growth

The nature of the relationship between bank financing and economic growth was also the subject of several concerns: The economic literature on the link between financial development and economic growth can be generally categorized into four different arguments. These are supply-leading (finance-led growth), demand-following (growth-led finance), feedback (bidirectional causality) and independent hypotheses (see, for example, Al-Yousif, 2002 and Majid, 2007). The first hypothesis, supply-leading, suggests that a well-functioning and well-developed financial intermediaries provides efficient allocation of resources through channeling the limited resources from surplus units to deficit units which in turn accelerate economic growth. “Financial development involves improvements in the (i) production of ex ante information about possible investments, (ii) monitoring of investments and implementation of corporate governance, (iii) trading, diversification, and management of risk, (iv) mobilization and pooling of savings, and

(v) exchange of goods and services. Each of these financial functions may influence savings and investment decisions and hence economic growth" (Levine, 2004, p.6). Several prominent economists support the supply-leading hypothesis including Bagehot (1873), Schumpeter (1912), McKinnon (1973), Shaw (1973), Greenwood and Jovanovic (1990), and king and Levine (1993), among others.

On the other hand, the second hypothesis, demand-following, assumes that economic growth causes financial development i.e. "growth-led finance". In other words, as Robinson (1952) put it "where enterprise leads finance follows" (p. 86). From this perspective, the expansion in the real sector of the economy creates demand for new financial instruments and thereby the financial sector effectively responds to this demand. That is, economic growth leads to financial development. In addition to Robinson (1952), Gurley and Shaw (1967), Goldsmith (1969), Jung (1986) and Ireland (1994), for instance, support this hypothesis.

The third argument on the finance-growth nexus is the feedback or "bidirectional causality" hypothesis. This view maintains that financial development and economic growth causes each other, that is, there is a two-way causality between financial development and economic growth. From this perspective, a better functioning financial sector can spur economic growth through enhancing technological changes and introducing innovative products and service, which in turn increases the demand for new financial services. As the financial intermediaries respond to these demands, these changes will propel economic growth (Majid, 2007). This hypothesis has received support from numerous theoretical and empirical studies including Patrick (1966), Demetriades and Hussein (1996), Luintel and Khan (1999), Greenwood and Smith (1997), Al-Yousif (2002) and Calderón and Liu (2003), among others.

Apart from the above-mentioned hypotheses, the forth view suggests that the relationship between financial development and economic growth is not important. This "independent" hypothesis, which was originally proposed by Robert Lucas (Nobel Laureate in economics) in 1988, argues that financial development and economic growth are not causally related. According to Lucas (1988, p.6) "economists badly overstress the role of financial factors in economic growth". Furthermore, in his influential survey of development economics, Nicholas Stern (1989) does not discuss the role of finance in the economic growth process. Stern also did not include it in his list of "omitted topics" that are worthy for future consideration (see also, Meier and Seers, 1984). More recently, Ram (1999, p.172) concluded that "the predominant

correlation between financial development and economic growth is negligible or weakly negative".

In fact, judging from the way economists across the Atlantic treating the topic, neither theoretical nor empirical consensus has yet been achieved. As Rousseau and Wachtel (2005, p.2) have aptly summarized: "while American authors (e.g., Levine and ourselves) often exhibit unbounded enthusiasm about the strength of the relationship, Europeans (Arestis, Demetriades and Temple, among others) are much more cautious and give more emphasis to the variability of the effects and the lack of robustness in some studies". From the cited works on finance-growth nexus, there is ample evidence to suggest that a model of economic development that is based on "one-size fits all" is almost non-existent.

In a cross-country context, there is no general rule that bank-based or market-based financial systems are better at fostering growth. Levine (2002) finds that after controlling for the overall level of financial development, information on financial structure does not help in explaining cross-country differences in financial development. Tadesse (2002), however, argues that while market-based systems outperform bank-based systems among countries with developed financial sectors, bank-based systems are far better among countries with underdeveloped financial sectors.

Sendeniz and Yuncu (2006) did an analysis of Granger causality in 11 OECD countries, the role of bank credit in the real sector; they noted that the banking sector plays a role of choice in the evolution of the real sector. Hay (2000) for his part in a sample of 12 countries, including six developed and six other developing countries concluded that bank lending negatively affects the growth of developing countries, but positively and significantly that of developed countries.

In Pakistan, the common resource of supplies funds and the main source of financing to support the national economic performance are commercial, investment and Islamic commercial banks.

However other the non-banking financial institutes like development financial institutions, provident and pension funds insurance companies, and operators, also take share to meeting the financial needs of the economy, thus the factors resultant for performance of bank and economic growth are investments, bank Profit/Loss, banks deposits, banks advances and Interest Earning.

The commercial banks of Pakistan and other financial industry distinguish positive financial relationship on economic growth of Pakistan (Aurangzeb, 2012).

Banking system plays an important role in financial sector and accounts for 95% of this sector and demonstrated a positive relationship with economic growth of Pakistan. Over the past decade, substantial interest focused on the link between the financial sector and economic growth. Endogenous growth theory emerged in the late 1980s and paved the way for new theories exploring the link. In addition, improved empirical methods added considerable value to subsequent studies (ibid).

The study investigates the contributions of banking sector in economic growth of Pakistan. The data used in the study were collected from the period of 1981 to 2010 of 10 commercial banks. Augmented Dickey Fuller (ADF) and Philip Perron unit root test, ordinary least square and granger causality test have been used. Unit root test confirms the stationary of all variables at first difference. Regression results indicate that deposits, investments, advances, profitability and interest earnings have significant positive impact on economic growth of Pakistan. The Granger-Causality test confirms the bidirectional causal relationship of deposits, advances and profitability with economic growth. On the other side it shows unidirectional causal relationship of investments and interest earnings with economic growth runs from investments and interest earnings to economic growth. It is recommended that the policy makers should make policies to enhance the banking sector in Pakistan because banking sector is significantly contributing in the economic growth of Pakistan.

Financial intermediation by banks has played a central role in India in supporting the growth process by mobilizing savings, particularly after the nationalization of the 14 major private banks in the late 1960s. Banks have been particularly instrumental in mobilizing deposits from the household sector, the major surplus sector of the economy, which, in turn, has helped raise the financial savings of the household sector and hence the overall saving rate. The banks in India played vital role of resource mobilization through the process of financial intermediation and supporting economic growth the country which is stated on Journal of Finance, Accounting & management (Bhatia, 1978). Commercial Banks play a vital role in the economic development of India. They accumulate the idle savings of the people and make them available for investment. They also create new demand deposits in the process of granting loans and

purchasing investment securities. They facilitate trade both inside and outside the country by accepting and discounting of bills of exchange. Banks also increase the mobility of capital. As well organized banking system is the need of the day.

Commercial banks are the most effective way to generate the credit flow of money in markets. Of India There is acute shortage of capital in India. The banks can play an important role in promoting capital formation, in controlling speculation in maintaining a balance between requirements and availabilities and in direct physical resources into desired channels (ibid) Commercial banks perform many functions. They satisfy the financial needs of the sectors such as agriculture, industry, trade, communication, so they play very significant role in a process of economic social needs. The functions performed by banks, since recently, are becoming customer-centered and are widening their functions. Commercial banks accept various types of deposits from public especially from its clients, including saving account deposits, recurring account deposits, and fixed deposits. These deposits are payable after a certain time period. Commercial banks provide loans and advances of various forms, including an overdraft facility; cash credit bill discounting, money at call etc. They also give demand and demand and term loans to all types of clients against proper security. Credit creation is most significant function of commercial banks (ibid).

2.2.3. The Banking sector in Ethiopia

2.2.3.1. Performance of Financial Intermediation of Banking Sector in Ethiopia

The Ethiopian financial sector/policies have evolved through three stylized stages: first, financial repression and fostering state-led industrial and agricultural development through preferential credit (in the socialist regime); second, market led development through liberalization and deregulation (post 1991); and third, financial inclusion through allowing private banks and microfinance institutions (since second half of 1990s). Following the Proclamation No. 84/1994, the country witnessed a proliferation of private banking and insurance companies Getnet (2014).

According to Hailay (2015) Ethiopian financial system dominated by banking sector in terms of all financial performance indicators. In detailed figures Abebaw (2012) on his assessment of the Ethiopian financial performance between 2001-2008 he finds the banking sector of Ethiopia

constitute 95 percent of asset, 96.53 percent of deposits, 94 percent of loans and deposits and 76.78 percent of equity of the financial sector on average. Kiyota *et al*(2007), Ethiopian bank concentration measured by the asset of the three largest banks found 88 percent compare to 59 percent for Kenya, 67 percent for Tanzania, 63 percent for Uganda, and 81percent for SSA as a whole. Moreover, in 2008 the Ethiopian bank concentration drop to 67 percent out of it Commercial Bank of Ethiopia report 58percent which is the highest in East Africa standard. It implies that bank competition in Ethiopia had remained at its lowest degree. Consequently, there is high profitability and high lending-deposit spreads that discourages investment performances.

Reported by NBE (2014) at the end of 2014 the Ethiopian financial sector comprises 3 public banks (the two commercial banks were merged in 2016) 16 private banks, 17 private insurance and 31 MFIs. The public banks including development bank of Ethiopia accounted 45.4 percent (38.8 percent for CBE) of the branch net work and 44.7 percent (34.2 percent for CBE) of the total capital the rest balance owned by the 16 private banks. Moreover 34.1 percent of bank branches are located at Addis Ababa. Consequently, in Ethiopia less than 10 percent of the households have access to formal credit (Getnet, 2014).

Besides, modality of credit and payment systems remained closely similar and underdeveloped. Consequently, at the end of 2012 Ethiopia had 1,255 bank branches of which 576(46 percent) private banks, with bank to population ratio 65,339 below African standard. Kenya has 5.2 commercial bank branches and 9.5 ATMs per 100,000 adults, in contrast with Ethiopia's 2.0 and 0.3 respectively Keatinge (2014). Specifically, in rural Ethiopia the ratio population to bank branch is 125,000 to1 which is the lowest with the existing market demand.

2.2.3.2. Financial/banking/ sector development indicators performance

i. M2 to GDP ratio

Money supply (M2) is defined as M1 plus saving deposits plus less than 30 day deposits with the banking system where M1 is notes and coins in circulation plus demand deposits with the banking system Teweldebrehan (2010).

According to the World Bank (2006) the ratio of M2 to GDP captures the degree of monetization in the system and one of the traditional indicators utilized for assessing the size, depth and

development of a country's banking (financial) sector together with the ratio of private credit to GDP. This indicator increased progressively represents efficient financial sector. Hailay (2015) indicated the progress between 1974 to1991 and the average M2/GDP ratio was approximately 18.1 percent, even though it was grow to 32.09 percent during 1992 to 2010. During the entire period it was grown by 25.47 percent that is below sub-Saharan Africa standard.

Tewoldebrhan (2010) money supply to GDP ratio (M2/GDP) witnessed consistently high expansion except for few intermittent swinging during the incumbency of the military regime. Given the addiction of the regime to sustained high spending, one would conjecture that the government had been resorting to borrow from domestic banking sector, thereby spurring the supply of money like anything Tewoldebrhan (2010). Zekarias (2003) argues that, the fiscal policy has been one major destabilizing factor as in case of revenue shortfalls the government resorted to borrowing from the banks leading to monetary expansion. Hence money supply, M1 and M2, showed almost five-fold increase from 1974/75 to 1989/90. Money supply (M2) to GDP ratio remained swinging from 1991 to 1998/99 but it exhibited remarkable decline compared to the earlier regime. It witnessed steady rise since 1989/99. This, however, changed when government borrowing from the domestic sources increased from 3.1 percent of GDP in 1998/99 to 9.6 percent in 1999/00.' Apparently money supply witnessed remarkable decline relative to GDP since 2002.

ii. Private sector credits to GDP ratio

Similar to the above indicator World Bank (2006) the ratio of private credit to GDP has also the power to capture the degree of monetization in the system and one of the traditional indicators utilized for assessing the size, depth and development of a country's banking (financial) sector.

Charles Harvey (1996) has depicted that earlier in the post revolution period credit was regulated to be consistent with the government's plan and financial requirements. All the financial institutions put under the NBE's control to support state enterprises finance. Banks ordered to lend to preferential sector mainly state farming and relevant projects.

Deposit and lending interest rate structure were discriminated among private sector, public institutions, cooperatives, and associations. The private sector was charged the highest rate in all kind of loans for instance; agricultural loan was 7 percent for private, 6 percent for state enterprises and 5 percent for cooperatives. Moreover, credit regulation *NBE/CR/1 /1986* set fixed interest for public agriculture and industry at 6 and 8 percent against 8 and 9 percent for private sector respectively in favor of the public enterprise. As a result, credit shares registered variation between the two sectors, owned private sector 22.6 percent of the total loans between 1988/89 and 1990/91 in contrast to 62.7 percent in 2013 corresponding to, private sector investment limited at Birr 500,0000 Gazena (2001). However, since 1992 credit policy reforms emerged through the termination of discriminator interest rate and preferential sector lending modalities and reduce credit controls to promote domestic and foreign investment.

2.3. Conceptual frame work

In describing the conceptual links between the functioning of the financial system and economic growth, a growing body of works has been done that demonstrates a strong, positive link between financial development and economic growth, and there is even evidence that the level of financial development is a good predictor of future economic development.

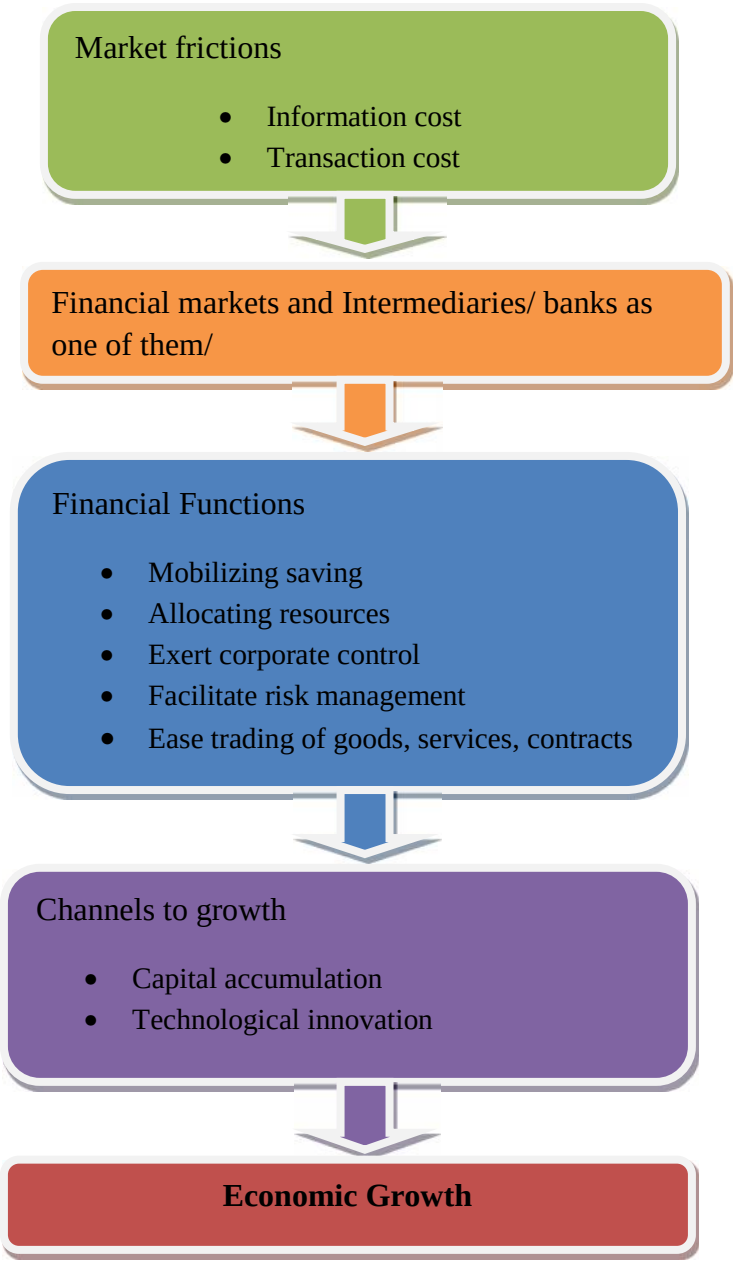
Financial institutions can contribute to the efficiency of the economy Mishkin and Eakins, (2012) has described banks and other financial institutions channel funds from people who might not put them to productive use to people who can do so and thus play a crucial role in improving the efficiency of the economy. So that, we find the link between the two is from savers to investors. Investors will put the money on the production of real output.

Demetriades and Andrianova (2003) written about the link between the finance and growth and their conclusion was that finance is essential in ensuring that new ideas are translated into new products and services, natural resources are exploited, and that new products and technologies materialize. A well-functioning financial system is one that enables the real economy to fully exploit such new opportunities. Financial development is, of course, expected to follow economic growth elsewhere under most circumstances, since when the real economy grows, there should be more savings coming into the financial system, which will allow it to extend new loans etc. But it is also expected to lead economic growth, assuming a well-functioning financial

system. Thus, we would normally expect to see bi-directional causality between finance and growth, sometimes known technically as a feedback relationship.

The economic function of finance in the microeconomic explains financial intermediaries serve as a bridge the difference in interests between borrowers and lenders concerning the size of investment, its maturity and risk. Moreover, it connects financial services with asymmetric in formation and agency costs given the financial system a more prominent role in accomplishing an efficient allocation of capital Thiel (2001). Financial development occurs when financial instruments, markets, and intermediaries' alleviate the effects of imperfect information, limited enforcement, and transaction costs Levine, 2005; World Bank (2012).

Levine (2003) for his part said that the finance would be a drag on economic growth. Levine (2005) has developed a clear and broader definition that focus on what will be the link between the financial system and the way the economy can be improved. Accordingly, the link between the two is in the (1) production of ex ante information about possible investments, (2) monitoring of investments and implementation of corporate governance, (3) trading, versification, and management of risk, (4) mobilization and pooling of savings, and (5) exchange of goods and services. But, financial sectors differ evidently in how well they provide these key services.



Source: Adapted from (Levine, 1997)

Figure 1: A theoretical Approach to Finance and Growth

2.4. Identified knowledge Gaps in the Literature

Few research works are available, that are conducted on the field; therefore, this paper is believed to fill literature gap by conducting research empirically to see the effect of banking sector on the economy in Ethiopia.

CHAPTER THREE

Methodology of the Study

Introduction

This chapter covered the methods of the study. It took into account the entire research design that is, nature and source of data, population and sampling technique, data analysis techniques and tools, selected variables and econometric model specifications. The detail has presented follows;

3.1. Research Design

The researcher has employed quantitative research approach using econometric model. Carrie, (2007) has indicated quantitative approach for its use of numerical measures in addition to that, of generally follows a natural science model of the research process measurement to establish objective knowledge indicated quantitative research approach can be also used in response to relational questions of variables within the research. Descriptive qualitative analysis technique has also used which is relevant to address both the research questions and objectives of the study.

3.2. Nature and sources of data

A substantial time-series literature examines the finance-growth relationship using a variety of time-series techniques. Havránek, Horváth and Valícková (2013) indicated that studies that use averages of observations across longer periods (thus reducing the impact of the business cycle or short-term financial volatility on the estimates) and that use longer data samples tend to report greater effects of finance on growth.

Time series data is collected for the study from the period 1980 to 2015 covering 35 years with an annual periodicity. The researcher used secondary data sources required for the purpose of analysis to complete this study. Data is obtained from the National Bank of Ethiopia, the International Monetary Fund (IMF), World Bank (World Development Indicators), and World Bank (Financial Statistics Database), additionally; structured document review will be used for this research to collect required information.

3.3. Population and Sampling technique

There are broadly three types of data that can be employed in quantitative analysis of financial problems: time series data, cross-sectional data, and panel data. Time series data, as the name suggests, are data that have been collected over a period of time on one or more variables Chris Brooks (2008). Financial time series analysis is concerned with the theory and practice of asset valuation over time S.Thay (2005).

In the context of economic and business researches, we may obtain quite often data relating to some time period concerning a given phenomenon. Such data is labeled as 'Time Series'. More clearly it can be stated that series of successive observations of the given phenomenon over a period of time are referred to as time series. Such series are usually the result of the effects of one or more of the following factors: secular trend or long term trend and short time oscillations i.e., changes taking place in the short period of time only and such changes can be the effect of the following factors Kothari (2004).

This research used Secular trend or long term trend that shows the direction of the series in a long period of time. The effect of trend (whether it happens to be a growth factor or a decline factor) is gradual, but extends more or less consistently throughout the entire period of time under consideration (ibid).

Taking into consideration the above statements, sample of the study has taken covering all banks operating in Ethiopia, meaning the banking industry as a whole, since the study aimed to see the effect of the banking sector on the economy, from the period 1980 to 2015, relatively long to avoid the impact of the business cycle or short-term financial volatility on the estimates; trend of 35 years of data that are valuable for the study have taken to make an inference.

3.4. Data Analysis Techniques and tools

In dynamic econometrics models, a change in one or more of the explanatory variables at time t causes an instant change in the dependent variable at time t. Models containing lags of the explanatory variables (but no lags of the explained variable) are known as distributed lag models. Specifications with lags of both explanatory and explained variables are known as autoregressive distributed lag (ADL) models Chris Brooks (2008).

Although Autoregressive Distributed Lag (ARDL) models have been used in econometrics for decades, they have gained popularity in recent years as a method of examining long-run and co-integrating relationships between variables (Pesaran and Shin, 1999). Autoregressive Distributed Lag (ARDL) model is standard least squares regression which include lags of both the dependent variable and explanatory variables as regressors (Greene, 2008).

To overcome the shortcomings of Johansen co-integration this study adopted the Autoregressive Distributed Lag (ARDL) bounds testing approach to co-integration to estimate the long run relationships. Pesaran and Shin (1997, 1999) and Pesaran *et al.* (2001), proposed an Autoregressive Distributed Lag (ARDL) bounds testing approach to investigate the existence of co-integration relationship among variables. This approach has specific advantages over Johansen maximum Likelihood (1988) co-integration approaches: First it avoids the problem of the order of integration associated irrespective of I(0) or I(1). Second unlike Johansen co-integration which is valid for large sample size, it is suitable for small sample size study (Pesaran *et al*, 2001). Third it provides unbiased estimates of the long run model and valid t-statistics even when some of the regressors are endogenous (Harris and Sollis, 2003).

In addition to that unit root Dickey - Fuller (ADF), used to test the stationary of the variables since Dickey Fuller tests can not only detect the existence of a trend, but also whether a series is stationary or not. Autocorrelation test errors Breush - Godfrey, used to test the auto- correlation between the residuals of the model, this is because Breush - Godfrey is preferable than the Durbin Watson which criticized much due to its biased results. Testing for heteroscedasticity ARCH used to detect heteroscedasticity errors in the regression model. To confirm the stability of the estimated ARDL model, the tests of cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) were also employed. Goodness of fit has also checked by Ramsey RESET Test. Error correction model is used to investigate the short run relationship.

Eviews 9^{th} version financial software package is used in analyzing the data and testing the assumptions hypothesized.

3.5. Selected variables

3.5.1. Dependent variable

a) Real gross domestic product (real GDP) (RGDP)

Economists generally in consent that real gross domestic product (real GDP) growth rate is taken as an indicator of economic growth, real GDP growth is the most widely used indicator to assess the state or the evolution of an economy. Both Mankiw (2002) and Ghosh (2007) defined Real GDP as the value of goods and services measured using a constant set of prices and they inscribe in white and black that real GDP growth rate is used as an economic growth barometer.
So that, the researcher has taken real GDP as a dependent variable for the study to measure the performance of the economy;

3.5.2. Independent Variables

The world bank (2006) has described private credit to GDP (%) has been used to show the causal effects of financial development on economic growth. This researcher used the proxies as an indicator of development of the banking (financial) sector of Ethiopia to show the causal effects of (banking) financial development on economic growth. In addition, Credit to government and state owned enterprises to GDP (%) has taken as a proxy.

a) The of private credit to GDP (%) (PCGDP)

Is defined as, claims on the private sector by deposit money banks and other financial institutions divided by GDP. It is a standard indicator of the finance and growth literature; countries with higher levels of Private Credit to GDP have been shown to grow faster and experience faster rates of poverty reduction (Beck, Levine and Loayza, 2000; Beck, Demirguc-Kunt and Levine, 2007).

This indicator tries to capture the weight of the banking business in terms of the distribution of credits. According to the World Bank (2006) the ratio of private credit to GDP captures the banking intermediation which is one of the measures of size of banking (financial) system and it

can also evaluate stability since it is strongly correlated with Legal rights facilitate intermediation which is the included under the new indicators of development of the banking (financial system).

b) Credit to government and state owned enterprises to GDP (%) (GCGDP)

This indicator quantifies the claims held by the banking system to the Government of Ethiopia. View the prominent place which is attributed to the government in terms of national, investments needed for growth. The variable is included to measure the efficiency dimension of the banking (financial) sector by the World Bank.

3.5.3. Control variables

a) Investment (Gross Capital Formation) (GCF)

Investment (Gross Capital Formation) Capital formation can influence the country's economy by assisting citizens in maintaining and improving standards of living. Mathematically, it weighs the value of recently bought or existing assets (fixed) by businesses, government and households. This process involves the purchasing of productive capital goods, equipment, machinery as well as buildings. Capital formation may be in the form of a country increasing its tangible capital stock by inserting more money in the social and economic infrastructure. Two subclasses of gross fixed capital formation are gross private domestic investment and gross public domestic investment. Private domestic investment involves the investing of private enterprises, whilst the public domestic investment includes investments by public enterprises and government (Bakare, 2011). According to economic theory, the investment is considered to be the engine of economic growth in a country where its effect on growth should be positive.

b) Regime Change/system change during 1991(Dummy)

Following the fall of the military regime in 1991 the new government has taken financial reforms. It corresponds to the set of measures (restructuring, banking supervision, liberalization) snuff by the government and the monetary authorities in the early 90s to deal with banking

intermediation problems Harvey (1996). To highlight the effects of all financial reforms on growth was taken to the definition of a dummy variable that takes the value 1 after the years of reform and 0 for years without reforms. Theories imply that liberalization affects economic growth positively. James (1990) argued financial liberalization is a precondition for economic growth. Taking in to consideration the above points we expect its impact on growth will be positive.

3.6. Econometric Model Specification

3.6.1. Theoretical Model Specification

Papaioannou (2007) studied the relationship between finance and growth of macroeconomic assessment evidence from a European angle has used the growth accounting production function. Growth accounting starts with specifying the neoclassical aggregate production function (Mankiw, Romer, and Weil, 1992):

$$Y_{it} = AK^{\alpha} (Lh)^{1-\alpha} \quad \text{..... [1]}$$

$$0 < \alpha < 1$$

Where, α and 1 - α measure the share of capital and quality adjusted labor in the aggregate economy respectively.

The above function relates aggregate country (i) output Y in period (year) t to the aggregate capital stock K, the labor-force L, is adjusted for the average human capital of workers (h), and the level of technology A.

Express the production function in per worker terms (intensive form):

$$y = AK^{\alpha} h^{1-\alpha} \quad \text{..... [2]}$$

Differentiating equation [2] over time leads to:

$$y'/y = \alpha k'/k + (1 - \alpha)\, h'/h + A'/A \quad \text{..... [3]}$$

Equation [3] decomposes output growth per worker into three parts: The first term in the right hand side captures capital deepening (investment), the second term human capital accumulation

(education) and the third term total factor productivity, which measures how efficient capital and labor are employed in the production.

Appling on [3] and [1] empirical cross country growth analyses of the impact of finance liberalization on growth estimate alternatively the following regression equation.

$$\Delta lny_{i,t} = \beta lny_{i,t-1} + \gamma \Delta lnh_{i,t} + X'\phi + \lambda FD + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [4]$$

$lny_{i,t-1}$ (alternatively substitute in the estimation equation the convergence term with physical capital accumulation $\Delta lnK_{i,t}$).

Where,

y = the dependent variable i.e., RGDPC

h = A proxy variable of human capital accumulation, such as changes in schooling or education enrolment rates.

X' = the set of explanatory variables (X') includes other control variables

FD = Proxy measure of financial liberalization and

ε = an error term

Therefore, based on this theoretical framework developed by Mankiw, Romer and Weil (1992) the following empirically estimable *log-linear* type of model will be specified.

$$lnRGDP_t = f\ (ln\text{GCFP}t, ln\text{PCGDP}t, lnGC\text{GDP}_t, \text{DUM}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [5]$$

Where:

$lnRGDP_t$ = Natural logarithm of real GDP at time *t*

$ln\text{M2GDP}_t$ = Natural logarithm of Gross capital formation at time *t.*

$lnPC\text{GDP}_t$ = Natural logarithm of private sector credit to GDP (%) at time *t*.

$ln\text{GCGDP}_t$ = Natural logarithm of credit to government and state owned enterprises to GDP(%) at time *t.*

DUM= Dummy variable for system change during 1991

f = Functional form

3.6.2. **Estimation Method**

To overcome the shortcomings of Johansen co-integration this study adopted the bounds testing approach to co-integration to estimate the long run relationships. Pesaran and Shin (1997, 1999) and Pesaran *et al.* (2001), proposed an Autoregressive Distributed Lag (ARDL) bounds testing approach to investigating the existence of co-integration relationship among variables. This approach has specific advantages over Johansen maximum Likelihood (1988) co-integration approaches: First it avoids the problem of the order of integration associated irrespective of I(0) or I(1). Second unlike Johansen co-integration which is valid for large sample size, it is suitable for small sample size study (Pesaran *et al*, 2001). Third it provides unbiased estimates of the long run model and valid t-statistics even when some of the regressors are endogenous (Harris and Sollis, 2003).

The generalized ARDL (p, q) model can be specified as follows (Green, 2003 Pp 571).

$$y_t = \mu + \sum_{i=1}^{p} \gamma_i y_{t-1} + \sum_{j=0}^{r} \beta_j x_{t-j} + \delta w_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [6]$$

Where $\mu, w, and\ \varepsilon_t$ are intercept, dummy variable, and error term and y_t and x_t stationary variables. Equation [6] is said autoregressive since it includes p lags of dependent variable and is said distributed lag model because it includes q lags of explanatory variable.

The following ARDL model estimated in order to test the co-integration relationship among the variables:

$$lnRGDP_t = \beta_0 + \delta_1 lnRGDP_{t-1} + \delta_2 ln\mathrm{GCF}_{t-1} + \delta_3 ln\mathrm{PCGDP}_{t-1} + \delta_4 lnGC\mathrm{GDP}_{t-1} +$$

$$\alpha_1 \sum_{i=0}^{n} \Delta \mathrm{lnRGDP}_{t-1} + \alpha_2 \sum_{i=0}^{n} \Delta \mathrm{lnGCF}_{t-1} + \alpha_3 \sum_{i=0}^{n} \Delta \mathrm{lnPCGDP}_{t-1} + \alpha_4$$

$$\sum_{i=0}^{n} \Delta \mathrm{lnGCGDP}_{t-1} + \mathrm{DUM} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots [7]$$

Where:

$\beta_0, \delta_i, \alpha_i, and\ \varepsilon_t$ are intercept, long run, short run coefficients, and white noise errors respectively. Moreover, n denotes lag length of the auto regressive process.

The first step in the ARDL bounds testing approach is to estimate equation [7] in order to test for the existence of a long run relationship among the variables by conducting $F - test$ for the joint significance of the coefficients of the lagged levels of the variables, that is:

H_0: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = 0$ against alternative
H_1: $\delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq 0$

Two asymptotic critical value bounds provide a test for co-integration when the independent variables are I(0) or I(1) a lower value assuming the regressors are I(0) and an upper value assuming purely I(1) regressors. If the F-statistic is above the upper critical value, the null hypothesis of no long run relationship can be rejected irrespective of the orders of integration for the time series the converse is also true.

Once co-integration is established the conditional ARDL $(p, q1, q2, q3, q4)$ long run model to be estimated as:

$$lnRGDP_t = \beta_0 + \alpha_1 \sum_{i=0}^{n} \Delta \text{lnRGDP}_{t-1} + \alpha_2 \sum_{i=0}^{n} \Delta \text{lnGCF}_{t-1} + \alpha_3 \sum_{i=0}^{n} \Delta \text{lnPCGDP}_{t-1} + \alpha_4 \sum_{i=0}^{n} \Delta \text{LnGCGDP}_{t-1} + \text{DUM} + \varepsilon_t \text{.......................................} [8]$$

The next step is to obtain the short run dynamic parameters by estimating an error correction model associated with the long run estimates. This is specified as:

$$lnRGDP_t = \beta_0 + \alpha_1 \sum_{i=0}^{m} \Delta \text{lnRGDP}_{t-1} + \alpha_2 \sum_{i=0}^{n} \Delta \text{lnGCF}_{t-1} + \alpha_3 \sum_{i=0}^{o} \Delta \text{lnPCGDP}_{t-1} + \alpha_4 \sum_{i=0}^{p} \Delta \text{LnGCGDP}_{t-1} + \text{DUM} + \phi ECT_{t-1}\, \varepsilon_t \text{.......................................} [9]$$

ECT_{t-1}= error correction term lagged by one period.

ε_t = vector of white noise error terms and

m – p= the optimal lag length of each variable in the autoregressive process.

ϕ = error correction parameter that measure the speed of adjustment towards the long run equilibrium.

CHAPTER FOUR
Results and Discussion

Introduction

The previous chapters' presented introduction of the study, the literature review and the research methods adopted in the study; this chapter deals with results and discussions. The chapter has presented different tests of the model and the data at first such as data stationary test, long run co-integration test, goodness of fit of the estimated equation, stability of the estimated model and all residual diagnostic tests. The second part will be long run model estimation, results and discussion and third and finally the chapter presents short term error correction model estimation, results and discussion.

4.1. **Augmented Dicky-Fuller Unit Root Test**

A stationary series can be defined as one with a constant mean, constant variance and constant auto-covariance for each given lag. There are several reasons why the concept of non-stationary is important and why it is essential that variables that are non-stationary be treated differently from those that are stationary. The stationary or otherwise of a series can strongly influence its behavior and properties. To offer one illustration, the word 'shock' is usually used to denote a change or an unexpected change in a variable or perhaps simply the value of the error term during a particular time period. The use of non-stationary data can lead to spurious regressions.

If two stationary variables are generated as independent random series, when one of those variables is regressed on the other, the t -ratio on the slope coefficient would be expected not to be significantly different from zero, and the value of R^2 frequency for 1,000 sets of regressions of a non-stationary variable on another independent non-stationary variable would be expected to be very low. This seems obvious, for the variables are not related to one another. However, if two variables are trending over time, a regression of one on the other could have a high R^2 even if the two are totally unrelated. So, if standard regression techniques are applied to non-stationary data, the end result could be a regression that 'looks' good under standard measures (significant

coefficient estimates and a high R2, but which is really valueless. Such a model would be termed a 'spurious regression' Brooks (2008).

Standard inference procedures do not apply to regressions which contain an integrated dependent variable or integrated regressors. Therefore, it is important to check whether a series is stationary or not before using it in a regression. The formal method to test the stationary of a series is the unit root test.

If a non-stationary series, y_t must be differenced d times before it becomes stationary, then it is said to be integrated of order d. This would be written $y_t \sim I(d)$. So if $y_t \sim I(d)$ then $\Delta^d y_t \sim I(0)$. This latter piece of terminology states that applying the difference operator, Δ, d times, leads to an I(0) process, i.e. a process with no unit roots Brooks (2008).

To conduct a unit root test the most common and popular in econometric work is the Augmented Dickey Fuller (ADF) test (Gujarati 2004, Verbeek 2004). The ADF test here consists of estimating the following equation: The starting point of the unit root process is:

$$Y_t = \rho Y_{t-1} + ut \qquad -1 \leq \rho \leq 1 \text{ .....[10]}$$

$$\Delta Y_t = \alpha Y_{t-1} + \varepsilon_t \text{ .....[11]}$$

Where, $\alpha = (\rho - 1)$, $\varepsilon_t \sim (0, \delta^2)$, and Δ the first-difference operator.

Estimating equation [10] and test the null hypothesis that $\alpha = 0$ then $\rho = 1$, that is a unit root against the alternative hypothesis $\alpha < 0$ or ($\rho < 1$).

Augmented Dickey- Fuller unit root test results

I. Variables in level

Variables	with intercept and trend			with intercept only		
	t-statistics	Test critical value at 5%	p-value	t-statistics	Test critical value at 5%	p-value
lnRGDP	-0.472663	-3.544284	0.9802	3.293120	-2.948404	1.0000
lnGCF	-1.813974	-3.544284	0.6764	0.594955	-2.948404	0.9876

lnPCGDP	-2.462112	-3.552973	0.3434	-1.713094	-2.954021	0.4156
lnGCGDP	-2.967292	-3.548490	0.1557	-1.131494	-2.948404	0.6922

II. Variables at first difference

Variables	with intercept and trend			with intercept only		
	t-statistics	Test critical value at 5%	p-value	t-statistics	Test critical value at 5%	p-value
Δ (lnRGDP)	-5.64758***	-3.548490	0.0003***	-4.233296***	-2.951125	0.0021***
Δ (lnGCF)	-7.94633***	-3.548490	0.0000***	-7.454820***	-2.951125	0.0000***
Δ (lnPCGDP)	-3.471082*	-3.548490	0.0588*	-3.460522**	-2.951125	0.0155**
Δ (lnGCGDP)	-4.56503***	-3.548490	0.0046***	-4553826***	-2.951125	0.0009***

Source: Authors' calculations using Eviews 9

Table:1. Augmented Dickey- Fuller unit root test results

'Δ' denotes first difference***, **, and * on the t-statistics values indicates the rejection of the null hypothesis of non- stationary at 1, 5 and 10 percent significant level and it is also confirmed by the corresponding p-values based on Schwarz information criterion (SIC) to determine the lag length.

From the above tables the ADF test results the variables are non-stationary at levels but all are stationary at first difference hence the variables are considered as $I(1)$ processes. Thus, all are chosen to be included in a long run relationship analysis.

4.2. Long run ARDL Bounds Tests For Co-integration

The distribution of this F-statistics is non-standard, irrespective of whether the variables in the system are I(0) or I(1). The critical values of the F-statistics for different number of variables (K), and whether the ARDL model contains an intercept and/or trend are available in Pesaran and Pesaran (1996a), and Pesaran et al. (2001). They give two sets of critical values. One set assuming that all the variables are I(0) (i.e. lower critical bound which assumes all the variables are I(0), meaning that there is no co-integration among the underlying variables) and another

assuming that all the variables in the ARDL model are I(1) (i.e. upper critical bound which assumes all the variables are I(1), meaning that there is co-integration among the underlying variables). For each application, there is a band covering all the possible classifications of the variables into I(0) and I(1).

The first step in bounds test approach for co-integration is estimating the ARDL model specified in equation [8]. Accordingly, the calculated $F\text{-}statistics$ 9.122247 is higher than the upper bound critical value 4.84 and 3.63 at 1and 5 percent significant level respectively. Thus, the null hypothesis of no long-run relationships exist is rejected, implying long run co-integration relationships amongst the selected variables, which is reported in Table 2.

ARDL Bounds Test
Date: 06/22/17 Time: 05:53
Sample: 1984 2015
Included observations: 32
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	9.122247	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.01	3.1
5%	2.45	3.63
2.5%	2.87	4.16
1%	3.42	4.84

Source: Authors' calculations using Eviews 9

Table: 2. testing for existence of long-run relationship among the variables in the ARDL model

4.3. Goodness of fit of the estimated equation

In the second stage, it is desirable to have some measure of how well the regression model actually fits the data the overall goodness of fit of the estimated equation; According to Brooks (2008) goodness of fit statistics are available to test how well the sample regression function (SRF) fits the data, that is, how 'close' the fitted regression line is to all of the data points taken together. A first response to this might be to look at the residual sum of squares (RSS). Recall

that OLS selected the coefficient estimates that minimized this quantity, so the lower was the minimized value of the RSS; the better the model fitted the data.

In fact, a scaled version of the residual sum of squares is usually employed. The most common goodness of fit statistic is known as R^2. One way to define R^2 is to say that it is the square of the correlation coefficient between *y* and ŷ, that is, the square of the correlation between the values of the dependent variable and the corresponding fitted values from the model. A correlation coefficient must lie between -1 and +1 by definition. Since R^2 defined in this way is the square of a correlation coefficient, it must lie between 0 and 1. If this correlation is high, the model fits the data well, while if the correlation is low (close to zero), the model is not providing a good fit to the data (ibid).

Accordingly, goodness of fit has conducted in this study and as it is shown in the Ramsey RESET test in Table 3, extremely high with R^2 and adjusted R^2 = 0.99. In addition, RSS value is minimum and significant which supports the above argument.

Ramsey RESET Test
Equation: UNTITLED
Specification: LNRGDP LNRGDP(-1) LNRGDP(-2) LNRGDP(-3) LNGCF LNGCF(-1) LNGCF(-2) LNGCF(-3) LNPCGDP LNGCGDP LNGCGDP(-1) LNGCGDP(-2) LNGCGDP(-3) LNGCGDP(-4) DUMMY
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.931305	17	0.3647
F-statistic	0.867330	(1, 17)	0.3647

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.001044	1	0.001044
Restricted SSR	0.021504	18	0.001195
Unrestricted SSR	0.020461	17	0.001204

R-squared	0.998010	Mean dependent var	12.33574
Adjusted R-squared	0.996371	S.D. dependent var	0.575917
S.E. of regression	0.034692	Akaike info criterion	-3.579615
Sum squared resid	0.020461	Schwarz criterion	-2.892552
Log likelihood	72.27385	Hannan-Quinn criter.	-3.351873
Durbin-Watson stat	1.721728		

Source: Authors' calculations using Eviews 9

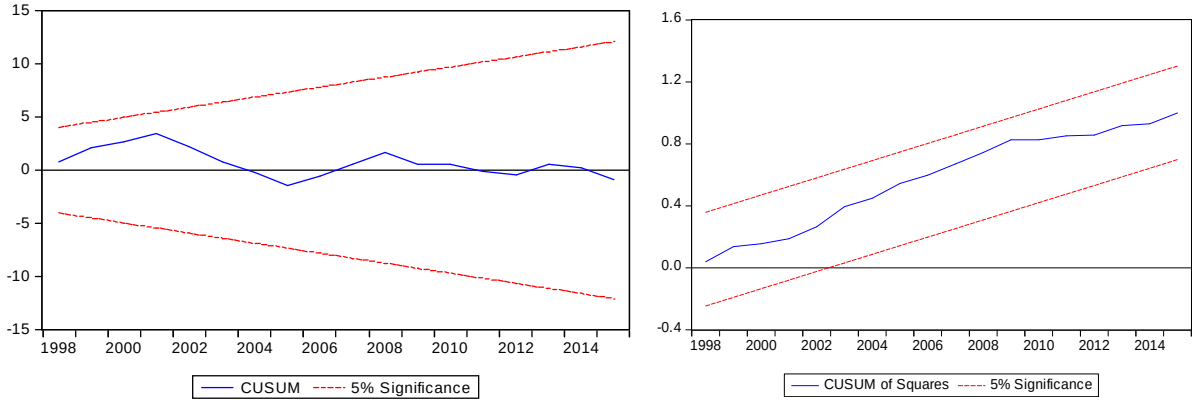
Table: 3. overall goodness of fit of the estimated equation (Ramsey RESET Test)

4.4. Stability of the estimated model

Recursive estimation has employed to confirm the stability of the estimated ARDL model, which is appropriate for time series data according to Brooks (2008). In addition Brooks suggested two important stability tests, known as the *CUSUM* and *CUSUMSQ* tests are derived from the residuals of the recursive estimation (known as the recursive residuals). The CUSUM statistic is based on a normalized version of the cumulative sums of the residuals. Under the null hypothesis of perfect parameter stability, the CUSUM statistic is zero however many residuals are included in the sum (because the expected value of a disturbance is always zero). A set of ±2 standard error bands is usually plotted around zero and any statistic lying outside the bands is taken as evidence of parameter instability.

The CUSUMSQ test is based on a normalized version of the cumulative sums of squared residuals. The scaling is such that under the null hypothesis of parameter stability, the CUSUMSQ statistic will start at zero and end the sample with a value of 1. Again, a set of ±2 standard error bands is usually plotted around zero and any statistic lying outside these is taken as evidence of parameter instability.

So that both the tests of cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) were employed in this study. Figure 2 and 3 respectively provide the plots of CUSUM and CUSUMSQ tests which moves between the critical bounds at 5% significance level confirmed the model is stable with no structural break.



Source: Authors' calculations using Eviews 9

Figure: 2 and 3. respectively provide the Plots of CUSUM and CUSUMSQ tests of stability

Moreover, the diagnostic test Tables revealed the adequacy of the model for further analysis since the model pass all diagnostic tests such as, no serial correlation, no heteroskedasticity and non-normality errors.

4.5. Breusch-Godfrey Serial Correlation LM Test

Covariance between the error terms over time is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'auto-correlated' or that they are 'serially correlated'.

In order to test for autocorrelation, it is necessary to investigate whether any relationships exist between the current value of $\hat{u}$, $\hat{u}_t$, and any of its previous values, $\hat{u}_{t-1}$, $\hat{u}_{t-2}$, … Books (2008) suggest that unlike the Durbin–Watson test that cannot detect more than one-period lag, the Breusch-Godfrey test is a more general test for autocorrelation up to the *r*th order. In his inscription he further suggest that, it is desirable to examine a joint test for autocorrelation that will allow examination of the relationship between $\hat{u}_t$ and several of its lagged values at the same time.

In the table of output, E-Views offers two versions of the test, an *F*-version and a χ^2 version, while the second table presents the estimates from the auxiliary regression. The conclusion from both versions of the test in this case is that the null hypothesis of no autocorrelation should not be rejected. Here below, the study employed Breusch-Godfrey Serial Correlation LM Test. Table 4 notifies that the null hypothesis, "there is no serial correlation between the residuals" could not be rejected since the p-value is 0.3612; so that, there is no serial correlation between the variables;

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.454891	Prob. F(1,17)	0.5091
Obs*R-squared	0.833883	Prob. Chi-Square(1)	0.3612

Source: Authors' calculations using Eviews 9

Table: 4. Testing for existence of serial correlation among the variables in the ARDL model

4.6. Heteroskedasticity test: Breusch-Pagan-Godfrey

It has been assumed thus far that the variance of the errors is constant σ^2, this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic Brooks (2008).

Using heteroskedasticity test: Breusch-Pagan-Godfrey, both the *F*- and χ^2 ('LM') versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the *p*-values are considerably in excess of 0.05 and the null hypothesis there is 'no hetroskedasicity between the residuals' could not be rejected.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.671623	Prob. F(14,17)	0.7714
Obs*R-squared	11.39606	Prob. Chi-Square(14)	0.6547
Scaled explained SS	3.295243	Prob. Chi-Square(14)	0.9984

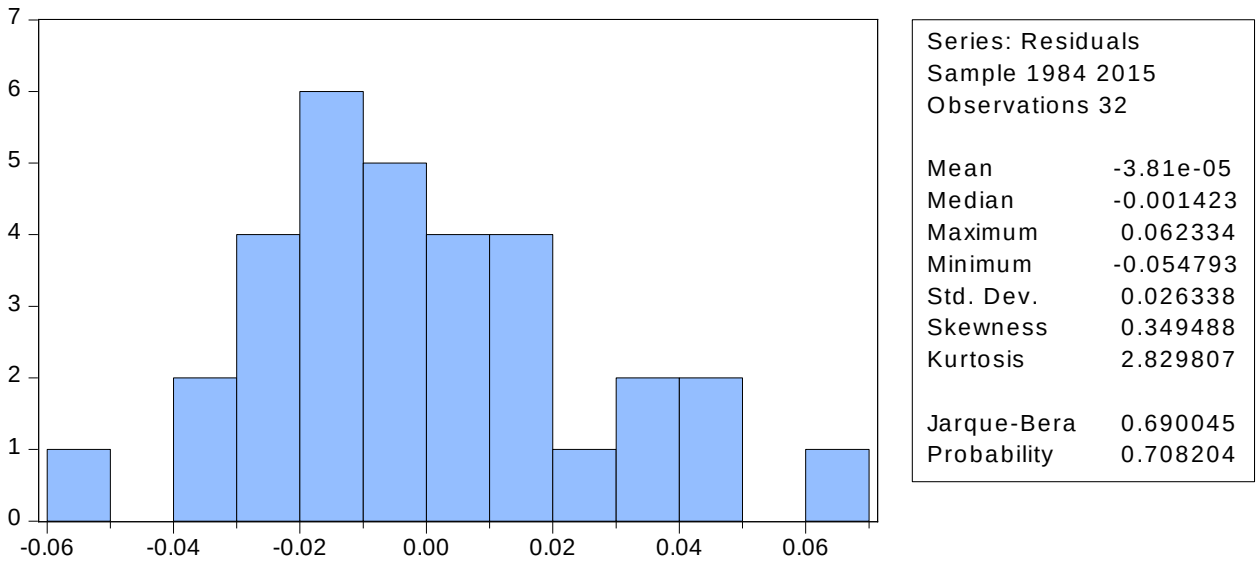
Source: Authors' calculations using Eviews 9

Table.5 testing for existence of heteroskedasticity in the ARDL model

4.7. Normality Test

In order to know wither the error terms are normally distributed or not, one of the most commonly applied tests is the Bera-Jarque test. BJ uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments, the mean and the variance. The standardized third and fourth moments of a distribution are known as its skewness and kurtosis. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. It is possible to define a coefficient of excess kurtosis, equal to the coefficient of kurtosis minus 3; a normal distribution will thus have a coefficient of excess kurtosis of zero. A normal distribution is symmetric and said to be mesokurtic Brooks (2008). If the residuals are normally distributed according to Brooks (2008), the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level.

Here under, it shows the distributions of the residuals are normal; since, we failed to reject the null hypothesis the residuals are normally distributed following the probability value 0.708204.



Source: Authors' calculations using Eviews 9

Figure.4: Testing for existence of non-normal distribution of residual terms in the ARDL model

4.8. **Long-run Model Estimation and results**

So far, the study identified have the existence of long run relationships using bounds test and found a valid answer and applied diagnostic tests to measure the validity of the model using different techniques and found the model non spurious. The next step was to estimate the long run model as reported below. Since ARDL models are least squares regressions using lags of the dependent and independent variables as regressors, they can be estimated in EViews using an equation object with the Least Squares estimation method.

The long-run coefficients, show that the long-run impact of a change in, LNPCGDP, LNGCGDP, LNGCF and DUMMY of system change on LNRGDP;

The next table estimated ARDL approach for co-integration long run form

The dependent variable is LNRGDP:

Selected model: ARDL (3, 3, 0, 4): Akaike Information Criteria

Sample included: 1980-2015 of 32 observations:

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNPCGDP	-0.049773	0.048275	-1.031047	0.3162
LNGCGDP	0.275174	0.065870	4.177555	0.0006
LNGCF	1.105112	0.019990	55.283620	0.0000
DUMMY	0.029988	0.085821	0.349428	0.7308

Source: Authors' calculation using Eviews 9

Table: 6. ARDL approach for co-integration long run

(***), (**), and (*) sign indicates the significance of the coefficients at 1, 5 and 10 percent significant level respectively.

ARDL approach for co-integration long run form coefficients illustrates us;

a) Coefficients of private credit to GDP (%) LNPCGDP

World Bank (2006) set as private credit to GDP (%) has also the power to capture the degree of monetization in the system and one of the traditional indicators utilized for assessing the size, depth and development of a country's banking (financial) sector.

Economic theories suggest that the financial sector of any economy is an engine of growth. The argument is that as the financial sector extends credit to the productive sectors of the economy at affordable costs, the overall economy grows inclusively. It is a standard indicator of the finance and growth literature; countries with higher levels of Private Credit to GDP have been shown to grow faster and experience faster rates of poverty reduction, Beck, Levine and Loayza, (2000); Beck, Demirguc-Kunt and Levine, 2007).

In this study the coefficient of ratio of private sector credit to GDP (proxy for financial intermediation) is -0.049773 the result is insignificant at 10 percent level of significance which implies, in the long run, holding other things constant, a one percent increase in private sector credit to GDP, decrease real GDP by -0.049773 percent and it is insignificant at 10 percent level of significance. This implies that, financial intermediation (private sector credit) by the banking industry does not stimulate increase in real output and economic growth in Ethiopia.

Mihci (2006) highlighted that the relationship between finance and growth is not necessarily positive. In the theoretical literature, Deidda and Fattouh (2002) theoretically show a non-linear relationship between financial intermediation and endogenous growth and added that the effect of financial intermediation on economic growth remains ambiguous at low initial levels of banking sector development. According to Arcand et al., (2012) the relationship between credit to the private sector and growth is concave and non-monotone. Finance starts having a negative

effect on growth, reaches its positive optimum and ends with negative effect on growth when credit to the private sector reaches 100% of GDP. There are also some theoretical works which suggest a negative effect of financial development on growth [Wijnbergen, (1983); Buffie, (1984)].

According to IMF (2016) the contribution of financial development to economic growth is initially relatively low, as is the case for the vast majority of countries in the sub Saharan Africa. In these countries, more financial development relaxes credit constraints and provides instruments to withstand adverse shocks. However, as the sector deepens, its contribution to reducing volatility beyond a certain threshold declines because financial depth also increases the propagation and amplification of shocks.

European Investment Bank (2013) described Most banking systems in sub-Saharan Africa are small in absolute and relative size. In many developing countries, the key sectors included, among others, the industrial sectors, which were prioritized by the governments, the export industries sector, which can generate foreign exchange earnings, and government parastatals. This to a large extent hinders the commercial banks‟ ability to intermediate profitably, as they cannot decide freely on where to lend and how much to lend. Under financial repression, governments usually tax financial intermediaries either directly through the collection of taxes on banks‟ income and/or capital gains or indirectly, through forcing banks to hold a certain percentage of their deposits in government bonds and non-interest bearing reserves (cash reserves). Although excess reserves bear some interest, the tax on the banking system is, in most cases, equal to the difference between the interest rate that the bank receives on its reserves at the central bank, and the „market‟ rate. The ultimate goal in this case is to provide the government with adequate funds to finance its high and increasing budget deficit Odhiambo (2010) that hinders sufficient financial deepening up to the optimal threshold.

Like most of the sub Saharan African countries the Ethiopian financial sector is shallow African Economic Outlook, (2012). Recent studies estimated that less than 10% of households have access to formal credit (ibid). Despite its expected role in economic development, the level of financial intermediation is quite low in Ethiopia World Bank, (2013). Moreover, available evidence suggests disintermediation as there is declining trend in the key indicator such as private sector credit to GDP ratio. Private sector credit to GDP ratio went down from 19.3 in

2004 to 13.9% in 2011. In addition, Hailay (2015) has calculated and reported the average of private sector credit to GDP (%) from 1974/75-1990/91 was 9.31, whereas, 1991/92-2013/14 the figure was decreased to 6.8 on average.

This is contrary to a rising trend in Sub-Saharan Africa (SSA) World Bank, (2013). The SSA average has increased from 15.6 to 22.7% during the same period. A study by the World Bank associate such declining trend in financial intermediation to the worsening macroeconomic environment reflected by rising inflation that led to negative real deposit rate in Ethiopia (ibid). In its report on Ethiopia, the IMF (2013) highlighted that over 79% of total loan issued by the banking sector in 2012/13 went to the public sector while only 21% went to the private sector. This is a rising concern on the country's ambition towards financial deepening and inclusive growth.

Hailay (2015) has concluded with the same negative result of credit to the private sector on the economy in his study aiming to examine empirically the impact of financial liberalization proxy by ratio of total private sector credit to GDP on economic growth in Ethiopia over the period 1975-2014. The ARDL approach to Co-integration and Error Correction Model are employed to investigate both the long run and short run relationships. However, the ratio of private sector credit to GDP (proxy for financial liberalization) remained negative and in significant both in long run and short run estimations.

Several author empirical studies such as Bencivenga and Smith (1991), Goldsmith (1969) showed that credit growth is positively related to economic growth. In contrary to them Hay (2000) has found the negative result by taking sample of 12 countries, including six developed and six other developing countries concluded that bank lending negatively affects the growth of developing countries, but positively and significantly that of developed countries. Several studies also concluded their findings with the same result of that negative effect conducted in developing countries specifically Africa and Asia; Mohamed (2008) examined the short and long run relationship between financial development and economic growth in neighboring country Sudan, one of the Middle East and North Africa countries. Covering the period from 1970 to 2004, the study employed the ARDL modeling approach to co-integration. Specifically, he used two proxies for financial development. That is, the ratio of M3 to GDP (M3Y) and the credit provided by the commercial banks to private sector as a percentage of GDP (CBS). The result showed that financial development variables negatively affect real GDP. A study conducted by

Ngouhouo and Francis (2014) to see the impact of banking on economic growth in Cameroon during the period from 1979 to 2009. To make an inference regression model was used. The results indicate that the variables used for banking are all significant. However, contrary to their expectations, credit to the private sector negatively affects economic growth. Studies such as Pardee (2007), Fowowe (2010), Ngouhouo and Francis (2014) have also concluded same negative effect.

b) Credit to government and state owned enterprises to GDP (%) LNGCGDP

This indicator quantifies the claims held by the banking system to the Government of Ethiopia. View the prominent place which is attributed to the government in terms of national, investments needed for growth. The variable is included to measure the efficiency dimension of the banking (financial) sector by the World Bank.

In this study, the coefficient of Credit to government and state owned enterprises to GDP (proxy for financial efficiency of the banking sector) is 0.275174 which implies, in the long run, holding other things constant, a one percent increase in Credit to government and state owned enterprises to GDP, increases real GDP by 0.275174 percent and it is significant at 1 and 5 percent level of significance. This implies that financial intermediation by the banking industry is efficient to stimulate real GDP growth as expected.

An empirical study conducted by Ngouhouo and Francis (2014) to see the impact of banking on economic growth in Cameroon during the period from 1979 to 2009. To make an inference regression model was used. The results indicate that the variables used for banking are all significant. The level of financial development, credit to Government, were positively related to economic growth as expected.

c) Control variables

The results of the two control variables, Investment (Gross Capital Formation) and regime change/system change dummy, used in this study have positive coefficients of 1.105112 and 0.029988, which implies, in the long run, holding other things constant, a one percent increase in Investment (Gross Capital Formation), increases real GDP by 0.275174 percent and it is

significant at 1 and 5 percent level of significance and regime change/system change and following financial reforms has bring positive impact on real GDP and economic growth.

4.9. Short run Error Correction Model Estimation and results

The results of the short-run dynamic coefficients obtained from the ECM equation (9) are reported in Table 7. Moreover, the coefficient of determination is about 69 percept of variation in the real GDP is attributed to variations in the explanatory variables in the model.

ARDL Co-integrating Form
Dependent Variable: LNRGDP
Selected Model: ARDL(3, 0, 4, 3)
Sample: 1980 2015
Included observations: 32

Co-integrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNRGDP(-1))	-0.249126	0.152261	-1.636178	0.1192
D(LNRGDP(-2))	-0.300909	0.188764	-1.594097	0.1283
D(LNPCGDP)	-0.014378	0.014886	-0.965864	0.3469
D(LNGCGDP)	-0.035648	0.035704	-0.998436	0.3313
D(LNGCGDP(-1))	0.013407	0.054565	0.245697	0.8087
D(LNGCGDP(-2))	-0.057958	0.056113	-1.032878	0.3153
D(LNGCGDP(-3))	-0.060243	0.041823	-1.440421	0.1669
D(LNGCF)	0.210873	0.048809	4.320328	0.0004
D(LNGCF(-1))	-0.010074	0.052911	-0.190390	0.8511
D(LNGCF(-2))	-0.073262	0.050316	-1.456021	0.1626
D(DUMMY)	0.008662	0.024911	0.347740	0.7321
ECT(-1)	-0.288861	0.060943	-4.739854	0.0002

Cointeq = LNRGDP - (-0.0498*LNPCGDP + 0.2752*LNGCGDP + 1.1051 *LNGCF + 0.0300*DUMMY)

R-squared	0.822508	Mean dependent var	0.055703
Adjusted R-squared	0.694319	S.D. dependent var	0.062543
S.E. of regression	0.034579	Akaike info criterion	-3.591514
Sum squared resid	0.021523	Schwarz criterion	-2.950255
Log likelihood	71.46423	Hannan-Quinn criter.	-3.378955

Source: Authors' calculation using Eviews 9
Table: 7 Error Correction Representations for the Selected ARDL Model

The coefficient of error correction term estimated -0.288 is significant, at 1 percent has the correct sign and imply the speed of adjustment to equilibrium after a shock. Approximately 28 percent of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year (Samreth, 2008).

CHAPTER FIVE

Conclusion, Major findings and Recommendation

Introduction

This chapter deals about summary of the major findings, conclusions and recommendations based on the overall information and result of the study.

5.1. Conclusion

The main objective of this study was to analyze empirically the effect of the banking sector on the economy in Ethiopia. To examine the effect of private credit to GDP (%) on the economy in Ethiopia and to examine the effect of domestic credit to the government and state owned enterprises to GDP (%) on the real economy in Ethiopia over the period 1980-2015 for 35 years.

The study incorporated relevant and related theoretical and empirical literatures from the vast on the subject from early forerunners to current intellectuals and developed conceptual framework.

In addition, banking sector performance in Ethiopia and contribution has also discussed in detail.

The ARDL approach to Co-integration is employed to investigate both the long run and short run relationships between the dependent and independent variables. Data collected from different sources has been checked in every diagnostic test such as Augmented Dicky-Fuller Unit Root Test and found the stationary at first difference; Long run ARDL Bounds Tests For Co-integration has been also checked and there exists long run relationship among the dependent and independent variables at 5 percent level of significance; Goodness of fit of the estimated equation, Stability of the estimated model, Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity test: Breusch-Pagan-Godfrey and Normality Test has been also conducted and the model did not experience any problem. To find the short run relationship and adjustment mechanism to long run equilibrium the error correction model was also employed and has found results. The following are the summary of the major findings of from the long run and short run empirical analysis:

5.2. Major findings

5.2.1. Results from Long-run Model Estimation

- Coefficient of ratio of private sector credit to GDP (proxy for financial intermediation) is -0.049773 the result is insignificant at 10 percent level of significance which implies, in the long run, holding other things constant, a one percent increase in private sector credit to GDP, decrease real GDP by -0.049773 percent and it is insignificant at 10 percent level of significance. This implies that, financial intermediation (private sector credit) by the banking industry does not stimulate increase in real output and economic growth in Ethiopia.

  Mihci (2006) highlighted that the relationship between finance and growth is not necessarily positive. In the theoretical literature, Deidda and Fattouh (2002) theoretically show a non-linear relationship between financial intermediation and endogenous growth and added that the effect of financial intermediation on economic growth remains ambiguous at low initial levels of banking sector development. According to Arcand et al., (2012) the relationship between credit to the private sector and growth is concave and non-monotone. Finance starts having a negative effect on growth, reaches its positive optimum and ends with negative effect on growth when credit to the private sector reaches 100% of GDP. Wijnbergen (1983) and Buffie (1984) are also put remarks on the negative effect of financial development on growth.

  According to IMF (2016) the contribution of financial development to economic growth is initially relatively low, as is the case for the vast majority of countries in the sub Saharan Africa. In these countries, more financial development relaxes credit constraints and provides instruments to withstand adverse shocks. However, as the sector deepens, its contribution to reducing volatility beyond a certain threshold declines because financial depth also increases the propagation and amplification of shocks.
  European Investment Bank (2013) described Most banking systems in sub-Saharan Africa are small in absolute and relative size. In many developing countries, the key

sectors included, among others, the industrial sectors, which were prioritized by the governments, the export industries sector, which can generate foreign exchange earnings, and government parastatals. This to a large extent hinders the commercial banks‟ ability to intermediate profitably, as they cannot decide freely on where to lend and how much to lend. Under financial repression, governments usually tax financial intermediaries either directly through the collection of taxes on banks‟ income and/or capital gains or indirectly, through forcing banks to hold a certain percentage of their deposits in government bonds and non-interest bearing reserves (cash reserves). Although excess reserves bear some interest, the tax on the banking system is, in most cases, equal to the difference between the interest rate that the bank receives on its reserves at the central bank, and the „market‟ rate. The ultimate goal in this case is to provide the government with adequate funds to finance its high and increasing budget deficit Odhiambo (2010) that hinders sufficient financial deepening up to the optimal threshold.

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- Positive result is obtained in the coefficient of Credit to government and state owned enterprises to GDP (%) (proxy for financial efficiency of the banking sector) is 0.275174 which implies, in the long run, holding other things constant, a one percent increase in Credit to government and state owned enterprises to GDP (%), increases real GDP by -0.275174 percent and the result is significant at 1and 5 percent level of significance. This implies that financial intermediation by the banking industry is efficient even and its effect on real GDP growth is positive as expected.
- The results of the two control variables, Investment (Gross Capital Formation) and regime change/system change dummy, used in this study have positive coefficients of 1.105112 and 0.029988, which implies, in the long run, holding other things constant, a one percent increase in Investment (Gross Capital Formation), increases real GDP by 0.275174 percent and it is significant at 1 and 5 percent level of significance and regime change/system change and following financial reforms has bring positive impact on real GDP and economic growth.

5.2.2. Results Short run Error Correction Model

- The coefficient of error correction term estimated -0.288 is significant, at 1 percent has the correct sign and imply a high speed of adjustment to equilibrium after a shock. Approximately 28 percent of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year. Moreover, the coefficient of determination is about 69 percept of variation in the real GDP is attributed to variations in the explanatory variables in the model.

5.3. Recommendations

The findings of this study have important policy implications. Bank sector has critically importance for economic growth but its effectiveness depends on the ability to mobilize adequate savings and quality of resource allocations and on the translation of these savings into investment and capital accumulation. Banking sector need to be well guided to discharge its basic functions more effectively.

The Ethiopian government launched GTP-2, it is imperative to sustain higher economic growth during the coming five years and beyond. The plan is designed by anticipation of high financial support from domestic resources which is banking sector. So that;

- Private sector credit should be improved; according to the existing theories private sector credit can have the power to stimulate investment which in turn will increase output and economic performance of a nation, when it is in between above a certain minimum and maximum(optimization) threshold. In order to achieve a long-run positive finance and growth relationship, as established by Levine and Zervos, (1998), countries having less than the minimum domestic private credit to GDP (%) needed to increase domestic credit to the private sector and domestic savings to attract a higher level of investments. IMF (2016) the contribution of financial development to economic growth is initially relatively low, as is the case, for the vast majority of countries in the sub Saharan Africa. In these countries, more financial development relaxes credit constraints and provides instruments to withstand adverse shocks. Depending up on the result the researcher recommends, the banking sector should enable to extend credit to the productive sectors of the economy at affordable costs; to push the overall economy and inclusive growth. In this regard the banking sector should be persistently utilized and its financial deepening and intermediation should be revised well by policy makers.
- Efficiency of the banking sector should be enhanced. As it is mentioned on the GTP-2 plan banking sector is expected to provide credit for public investment projects in infrastructure and working capital for industrial sector; so as to achieve this, the banking sector efficiency should be enhanced to provide more finance to the government development needs but government domestic debt should be balanced with private credit provision in order to avoid crowding out effect.

Further research recommended

- ❖ What is the optimal the level of bank credit to promote economic growth in Ethiopia?
- ❖ Government domestic debt, private sector credit, and crowding out effect in Ethiopia.

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