

**Determinants of Banking Sector Development in  
Ethiopia**

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This is to certify that the thesis prepared by Abreha Gezae, entitled: Determinants of Banking Sector Development in Ethiopia: submitted in partial fulfillment of the requirements for the degree of Degree of Master of Science in Accounting and Finance complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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## **Abstract**

*The study focuses on the investigation of the macro factors that affect the development of the banking sector. Because, The banking sector is rudimentary due to the problems such as heavy dependence of investors in borrowed fund, excessive government borrowing, absence of secondary markets, less attractive deposit rate, limited outreach of banking services, underdeveloped saving culture, poor cross-selling activity of inflow of foreign remittance, deficit in the trade balance of the country. The purpose of this study is, therefore, to investigate the significant determinants and recommend courses of action to be taken and analyze the level of development in comparison to other East African countries. Quantitative research approach is applied using econometric model estimated OLS multiple linear regression and descriptive quantitative analysis technique. The study has found that Trade Openness, Real Interest rate, population growth, and Government consumption expenditure have far reaching statistically significant impact on the development of the banking sector by influencing the volume of credit provided by banks to the private sector. Remittance to GDP ratio, Real Interest Rate and GDP growth rate significantly impact the broad money supply (M2). There is also significant concentration of asset of the sector in three big banks and the Level of liquid asset to total deposit is lower than the East African countries though NPL is the least. The paper recommends strengthening of the trade balance & openness, cut budgetary deficit, increase the real interest rate, cross-selling of inflow of remittance by banks and the NBE shall take measures that enhance financial inclusion and improve the platform of required infrastructure in collaboration with the designated organs of the government to enhance development and competitiveness of the banking sector.*

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## **Acronyms and Abbreviations**

**AIDB (DBE), = Development Bank of Ethiopia**

**CAMELS = Capital Asset quality Management efficiency Earnings Liquidity Systems**

**CAR= Capital Adequacy Ratio**

**CBE = Commercial Bank of Ethiopia**

**CRR= Cash Reserve Requirement**

**DCBS = Domestic Credit provided by Banking Sector**

**DCPTS = Domestic Credit to Private Sector**

**EAC = East African Countries**

**ECB = European Central Bank**

**EIB = European Investment Bank**

**EU = European Union**

**GDP = Gross Domestic Product**

**HSB (CBB) = Construction and Business Bank**

**NBE = National Bank of Ethiopia**

**NIM = Net Interest Margin**

**NPL = Non-Performing Loan**

**OLS = Ordinary Least Square**

**ROE = Return on Equity**

**RWA = Risk Weighted Asset**

**SSA = Sub-Saharan Africa**

**UK = United Kingdom**

**WEO = World Economic Outlook**

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## **Chapter One**

### **Introduction**

#### **1.1 Brief history of Banking in Ethiopia**

The history of banking in Ethiopia dates back to the era of the Axumite dynasty. However, modern banking in Ethiopia started in 1905 with the establishment of Abyssinian Bank based on a 50 years agreement with the Anglo-Egyptian National Bank. In 1908 a new development bank (named Societe Nationale d'Ethiophe Pour le Developement de l' Agriculture et du Commerce) and two other foreign banks (Banque de l'Indochine and the Compagnie de l' Afrique Oreintale) were also established Pankhrust (1968) cited in AlemayehuGeda (2006). These banks were criticized for being wholly foreign owned. In 1931 the Ethiopian government purchased the Abysinian Bank, which was the dominant bank, and renamed it the Bank of Ethiopia – the first nationally owned bank on African continent Belay, (1990) ; Befekadu, (1995).

In 1943 the Ethiopian government has established its own bank called State Bank of Ethiopia, which was serving both the commercial bank and central bank activities. Later on it is further dissolved into today's National Bank of Ethiopia (NBE) and Commercial Bank of Ethiopia (CBE).

Before the Derg regime (1974 through1991), there were private and state owned banks operating in the country such as CBE, AIDB (DBE), and HSB (CBB). By then, all financial institutions including banks were nationalized. After 1992, the financial sector has been deregulated that gives birth to private banks, insurance companies and micro finance institutions.

Recently, the number of banks operating in the country reached 19 of which 3 of them are owned by the state and the remaining 16 are private commercial banks. The number of total banks branch in the country reached 2,208 from 1,728 last year. As a result, bank branch to population ratio declined from 1:49,826 people to 1:39,402 in 2014 fiscal year. The following table summarizes the progress of the banking sector from 2000 through 2014.

**Table 1 – No. of Banks, Branches and Population to Bank Branch Ratio**

Indicator	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
<b>Number of Commercial Banks</b>	8	8	8	8	9	9	10	11	11	12	14	17	17	18	18
<b>(o/w Private Banks)</b>	7	7	7	7	7	7	8	9	9	10	12	14	16	16	16
<b>Number of Bank Branches</b>	267	283	295	339	358	389	421	487	562	636	681	970	1,289	1,724	2,208
<b>Population: Bank Branch</b>	224,719:1	217,681:1	214,237:1	191,150:1	185,754:1	175,771:1	166,270:1	148,663:1	133,274:1	120,751:1	115,719:1	83,195:1	64,158:1	49,674:1	39,833:1

Source: NBE and Own compilation

## 1.2 Ethiopian Economic Outlook

According to the annual report of the National Bank of Ethiopia (2014), the overall economy is growing steadily over the last decade. The Ethiopian economy continued to register remarkable growth. Real GDP expanded by 10.3 percent in 2013/14, compared to the GTP target of 11.2 percent for 2013/14. This economic growth has also been impressive compared with the 5.4 percent growth estimated for Sub-Saharan Africa in 2014 (World Economic Outlook Update, July 2014).

This remarkable growth was mainly attributed to service sector (51.7 percent), agricultural sector (21.9 percent) and industrial sector (26.4 percent) (Table 1.1). Nominal GDP per capita went up to USD 631.5 from USD 557.6 in the preceding year. Similarly, real per capita GDP increased by 3.0 percent to USD 377.1 against the preceding year.

All in all, Ethiopian economy registered average annual growth rate of 10.1 percent during the GTP period of 2010/11-2013/14. In line with the single digit inflation policy target and the Growth and Transformation Plan of the country, the Ethiopian economy is projected to grow by 11.4 percent in 2014/15 in contrast to 4.0 and 5.8 percent growth projected by IMF for the world and SSA respectively (WEO, 2014).

**Table 2 – Real GDP Growth Rate & General Inflation**

Indicator	19 99/ 00	20 00/ 01	20 01/ 02	20 02/ 03	20 03/ 04	20 04/ 05	20 05/ 06	20 06/ 07	20 07/ 08	20 08/ 09	20 09/ 10	20 10/ 11	20 11/ 12	20 12/ 13	20 13/ 14
<b>Real GDP Growth Rate (In %)</b>	3.4	7.4	1.6	(2. 1)	11. 7	12. 6	11. 5	11. 8	11. 2	10. 0	10. 6	11. 4	8.7	9.8	10. 3
<b>General Inflation</b>	5.4	- 0.3	- 10. 6	10. 9	7.3	6.1	10. 6	15. 8	25. 3	36. 4	2.8	18. 1	34. 1	13. 5	8.1

*Source: NBE and Own compilation*

### **1.3 Overview of the Ethiopian Banking System**

As known to all, the financial sector in Ethiopia is underdeveloped including the banking industry. Ncube (2008) and Ruecker (2011) stressed that the financial system of Ethiopia is very underdeveloped. There is no stock exchange and of the banks that exist, three are state owned and dominate the sector. There are no foreign banks in the country, and the system remains isolated from the effects of globalization while policy makers fear that liberalization will lead to loss of control over the economy. The government controls interest rates and sets them below the high inflation rate. The banking sector is improving from time to time in terms of service provision, outreach, capital, asset size, resource mobilization, credit disbursement and automation. The network of bank branches reached 2208, and banks total capital of Birr 26.44 billion from birr 23 billion in the previous 2013. The major banking activities according to NBE (2014) includes the following.

#### **Resource Mobilization**

Total resources mobilized by the banking system in the form of deposit, loan collection and borrowing increased by 13.6 percent and reached Birr 111.4 billion at the end of 2014. Spurred by remarkable branch expansion, deposit liabilities of the banking system reached Birr 292.8 billion reflecting annual growth rate of 23.5 percent over last year. Component wise, saving deposits registered a 37.2 percent increase followed by time deposits (23.5 percent), and demand deposits (10.9 percent). Savings deposit accounted for 49.8 percent of the total deposits followed by demand deposits (44.0 percent) and time deposits (6.2 percent). The rise in saving deposits indicates an increase in financial intermediation of banks in the year under review. (See annex-1 for deposit data and trend).

#### **New Lending Activities**

New lending to the economy has been increasing from time to time subsequent to the overarching improvement in resource mobilization and increasing demand for finance from the private sector and the private sector. Commercial banks and Development Bank of Ethiopia (DBE) disbursed Birr 59.9 billion which grew up by 10.5 percent over last year as the capacity of banks to lending remained strong due to higher deposit mobilization and loan collection. Of the total new loans disbursed by the banking system, 35.1 percent was by private banks, while the share of public banks was 64.9 percent due to the economies of scale and huge amount of savings deposit they mobilize from the households and the budgetary current account they hold. Regarding disbursement by sector, 34.0 percent went to Industry followed by agriculture (18.1 percent) and domestic trade (15.2 percent), while other sectors consumed the remaining balance. Since the past 10 years, the publicly owned banks sanction their loanable fund by prioritizing the economic sectors that are believed to have bigger economic significance in line with the government's priority policy agenda. As a result, the manufacturing and the agricultural sector took the lion's share of new loan disbursement and the respective total outstanding loan of banks.

### **Outstanding Loans**

Total outstanding credit of the banking system (excluding NBE) including the central government increased by 19.9 percent and reached Birr 181.3 billion at the end of June 2014. While gross outstanding claims on the central government decreased by 15.6 percent that of public enterprises and private sector increased by 31.3 percent and 23.5 percent respectively (NBE,2014).

### **1.4 Statement of the problem**

The Ethiopian banking sector is one of the repressed and protected sectors in the Ethiopian economy that has been regulated until the regime change took place in 1992. However, the sector is only allowed to domestic investors only by inhibiting entry of foreign banks. When we look at the overall financial system, it predominantly follows the German-Japanese bank based model in which financial intermediaries catalyze the economy through mobilizing savings, allocating capital, overseeing the investment decisions, and in providing risk management vehicles. Until the recent time, secondary financial market is not existant within the financial system. Therefore, it is imperative to study the determinants of banking sector development in Ethiopia in order to cope with the overwhelming changes in the global financial systems and make the respective banks aware of the dynamism. Besides, the Ethiopian government is in the process of accession

to become a member of the World Trade Organization. This will dictate the Ethiopian government to open its financial sector to foreign banks and investors in the subsequent steps of accession. Achieving a more efficient, competitive and resilient banking system will be vital for securing the prospects for sustainable economic growth and development. Never the less, the financial system, particularly the banking sector, in Ethiopia is not currently in a position to compete with other foreign banks due to its rudimentary stage of development. Some of the problems to the development of the banking sector includes heavy dependence of investors in borrowed fund, excessive government borrowing, absence of secondary markets, less attractive deposit rate, limited outreach of banking services, underdeveloped saving culture, poor cross-selling activity of inflow of foreign remittance, deficit in the trade balance of the country and other reasons.

The paper tries to empirically analyze the impact of macroeconomic factors that significantly determine development of the banking sector using an appropriate econometrics model having employed explanatory variables and proper proxies as indicators of banking sector development. It will also test different hypothesis in connection to the determinants of banking sector development and compare with the empirical results found in different countries and regions. Lastly, descriptive quantitative assessment on the current standing of banking sector development in terms of access, efficiency and stability in comparison to other countries will also be carried out. As to the knowledge of the researcher, there is no such a prior research conducted in the specified topic in the case of the Ethiopian banking sector.

## **1.6 Research objectives**

The research is aimed to achieve the following objectives in the end.

### **1.6.1 General Objective**

- Trigger further research in the banking sector in Ethiopia

### **1.6.2 Specific Objectives**

- To analyze the level of banking sector development in Ethiopia and its characteristics in comparison to other countries in terms of *access, efficiency and stability*.
- To assess the significant factors that determine banking sector development in Ethiopia
- To recommend courses of action to be taken by respective organs so as to harness the development of the banking sector to the desired level.

### **1.7 Research Questions**

What are the macroeconomic factors that have greater impact on the development of the banking sector?

What is the recent standing of banking sector development in Ethiopia in comparison to other developing countries in Africa?

### **1.8 Research Hypothesis**

**H1:** Trade Openness has positive and significant impact on banking sector development;

**H2:** Real Interest has positive and significant impact on banking sector development;

**H3:** Remittance inflow has positive and significant impact on banking sector development;

**H4:** Population growth rate has positive and significant impact on banking sector development;

**H5:** Government consumption expenditure to GDP has significant and negative impact on banking sector development;

**H6:** Growth of real GDP has positive/negative and significant impact on banking sector development.

### **1.9 Scope and limitations**

The scope of the research is only limited to the banking business from among financial institutions operating in Ethiopia. The depth of the study heavily depends on the availability of data and the integrity of the respective bodies in providing the required data. In addition, due to the absence of pertinent and sufficient data and the institutional and regulatory factors are not addressed in the study.

### **1.10 Significance of the study**

The importance of this study backs to the vital role played by the banking sector in the economic development process and its role to provide the necessary fund for investments by the public and the private sectors, which require studying the main determinants that affect the development of the entire banking sector by employing highly applicable standard measures and indicators of banking sector development.

## **Chapter Two**

### **Review of Related Literature**

The literature section of the paper tries to look at the general literature in relation to the genesis of banking, theory of the banking firm, the operating environment of banks, the macroeconomics and the role of banks in the economy are explored. In the next parts, theoretical and empirical literature that focus on the subject matter of the study are deeply explored in a manner that show the development and status of banking sector in the global, Africa and Sub-Saharan African so as to grasp the disparity and similarities in different parts of the world.

### **Introduction**

#### **2.1 Why Financial Institutions (FI) Exist?**

Every institution has its own rationale for its existence. Financial institutions are not different in this regard. In general the financial system in any economy includes many types of different institutions such as Commercial Banks, savings banks, investment banks, insurance companies, mutual funds, hedge funds, bond and stock markets, money markets, micro finance companies, saving and loan associations, and others. All institutions are regulated by the designated body of the government in order to ensure that they are safe from failures, irrational practices within them, morale hazard and whether they operate as per the rules and regulations for the modus-operandi in the financial system.

To explore and attest why financial institutions exist, S. Mishkin & Eakins (2012) have analyzed the following eight facts.

- Stocks are not the most important source of external financing for businesses;
- Issuing marketable debt and equity securities is not the primary way in which businesses finance their operations;
- Indirect finance, which involves the activities of financial intermediaries, is many times more important than direct finance, in which businesses raise funds directly from lenders in financial markets;
- Financial intermediaries, particularly banks, are the most important source of external funds used to finance businesses;

- Only large, well-established corporations have easy access to securities markets to finance their activities;
- Collateral is a prevalent feature of debt contracts for both households and businesses;
- Debt contracts typically are extremely complicated legal documents that place substantial restrictions on the behavior of the borrower.

One of the most relevant studies that explain why monitoring commissioning is the reason for the existence of banks is “Financial intermediation and delegated monitoring” written by Diamond (1984). He made his theories based on the following two assumptions.

- Diversity of the investment projects, that explains why it is more advantageous to delegate monitoring towards an intermediary than to have it be performed individually by creditors;
- Intermediaries who perform the monitoring of debtors are bigger which allows them to finance a large number of debtors.

## **2.2 Theory of the banking Firm & Basic Banking**

Having explored why banks exist, it is also imperative to look at the basics of banking business and the respective theory of the banking business firm. Theory of the banking firm is different from the theory of the firm which is widely applicable to any business with the exception of banks. Theory of the banking business underlined that banks make profit by selling liabilities with one set of characteristics (a particular combination of liquidity, risk, size, and return) and using the proceeds to buy assets with a different set of characteristics through the process of asset transformation ( S.Mishkin& Eakins, 2012).

Banks are different from any other commercial businesses because of the peculiar features they possess. The monetary mechanism enables them to attract deposits for onward investment. By taking part in the payments mechanism and by emphasizing the medium of exchange function of money, they are able to encourage the store of value functions. They have also leverage that is totally different from other business firms. The debt equity ratio for conventional commercial firms will be in the order of 0.5 to 0.6. Banks, however, have debt liabilities sometimes nine times greater than their equity. Because, guardians of the payment system, the central banks, think that commercial banks are special. This, therefore, accentuates that theory of the banking firm is distinct from the economic theory of the firm.

### **2.3 The Operating Environment of Banking**

The environment in which banks serve their function varies from country to country more importantly due to the regulatory and supervisory measures taken and the respective political economy agendas followed by the government. Greuning&Bratanovic (2009), Sectoral analysis is important because it allows norms to be established for the sector as a whole, as well as for a peer group within the sector. The performance of individual banking institutions can then be evaluated on the basis of these norms. Deviations from expected trends and relationships may be analyzed further as they may disclose not only the risk faced by individual banks, but also changes in the financial environment of the banking sector as a whole. The operating environment is generally under the umbrella of the financial system regulated and supervised by the central bank in which the banks serve as the instrument to execute monetary policy measures. The impact of banking activities on monetary statistics, such as money supply figures and credit extension to the domestic private sector, is also of concern to policy makers. Reviews of banks can serve as a structured mechanism to ensure that monetary authorities recognize and quantifying on intermediated funding and lending, as well as other processes that are important to policy makers in the central bank.

In the overall environment of the financial system banks are involved in the intermediation of funds from the surplus to the deficit economic units to maximize profits and catalyze the development in the financial system and the entire economy. The major external source of finance for individuals and firms comes from financial intermediaries Mayer (1990) cited in Mathew & Thompson (2005) reports that over 50% of external funds to firms in the US, Japan, UK, Germany and France was provided by financial intermediaries.

### **2.4 The Macroeconomics & Role of Banking in the Economy**

The conduct of monetary policy has effects on the banking system itself in its role of the provision of finance and, hence, the money supply. Thus, the relationship between monetary policy is a two-way; the banks affecting the conduct of monetary policy and the conduct of monetary policy affecting the banks (Mathew & Thompson, 2005)

Financial development creates enabling conditions for growth through either a supply-leading (financial development spurs growth) or a demand-following (growth generates demand for

financial products) channel. Direction of causality is more difficult to determine. At the cross-country level, evidence indicates that various measures of financial development (including assets of the financial intermediaries, liquid liabilities of financial institutions, domestic credit to private sector, stock and bond market capitalization) are robustly and positively related to economic growth (King and Levine, 1993; Levine and Zervos, 1998).

In the economy banks perform a multitude of functions. However, the three primary functions in an economy:

- The operation of the payment system,
- The mobilization of saving, and
- The allocation of savings to investment projects.

By allocating capital to the highest value use while limiting the risks and costs involved, the banking sector can exert a positive influence on the overall economy, and is thus of broad macroeconomic importance (Roland, 2011). Since the general importance of a banking sector for an economy is widely accepted, the questions arise under which coordination mechanism – state or market – it best performs its functions, and, if necessary, how to manage the transition to this coordination mechanism (Kaminsky and Schmukler, 2002).

## **Theoretical Review of Related Literature**

### **2.5 Theory of Financial Sector Development**

According to DFID (2004) there are many different ways in which the financial sector can be said to develop. For example:

- The efficiency and competitiveness of the sector may improve;
- The range of financial services that are available may increase;
- The diversity of institutions which operate in the financial sector may increase;
- The amount of money that is intermediated through the financial sector may increase;
- The extent to which capital is allocated by private sector financial institutions, to private sector enterprises, responding to market signals (rather than government directed lending by state owned banks), may increase;
- The regulation and stability of the financial sector may improve;

- Particularly important from a poverty reduction perspective, more of the population may gain access to financial services.

## 2.6 Indicators of Banking Development

Before proceeding to the indicators of banking sector development, it is important to internalize the concept of banking sector development. The concept of the development of the banking sector is a multi-dimensional concept and is not easy to find a single definition of this process as it is an interrelated process that includes improvements in the quantity and quality of financial services. Some of these dimensions are related to the mobilization of savings, credit granting and risk management. And thus the degree of the development of the banking system in any country is measured by its ability to deliver these functions efficiently (Touny,2014).

**Table 2: Banking Development Indicators**

<b>Bank Indicators</b>	<b>Importance</b>
Liquid liabilities to GDP	Measure the size of financial intermediaries
Private credit by domestic money bank to GDP	Measures the level of financial services, Distinguishes the credit issued to private or public sector
Private credit by deposit money banks and other financial institutions to GDP	Measures the level of financial services, It indicates the credit issued on merit and also the promotion of innovation and research and development in an economy
Commercial bank assets to commercial plus central bank assets	Measures the extent to which commercial banks are allocating savings in economy against the central banks
Bank's concentration	Measures the banking structure, as the ratio of the three biggest banks assets to the assets of all commercial banks in the system
net interest margins	Measure the efficiency of banking sector, the accounting value of the bank's net interest revenue as a share of its total assets
The overhead costs	Measure the efficiency of banking sector, the accounting value of the bank's overhead costs as a share of total assets.
Foreign direct investment to GDP	Measures the strength of FDI based productivity due to the technological transmission and new skills of management in the economy

Source: International Monetary Fund International Financial statistics World Bank development Indicators

### 2.6.1 Banking Depth (Size)

To assess banking sector development quite a large number of measures have been used in the literature. Some of the measures are size based such as: deposit money bank assets to GDP, Central bank assets to GDP, M2 to GDP and Total deposit to GDP. Besides, the intermediation

function of banks is also duly considered as a basic (traditional) measure of banking depth particularly from the credit availed to the private sector point of view. Such proxies used in the literature include: Private credit to GDP, Private Credit to Total Credit and Private credit to deposits.

### **2.6.2 Banking Access**

Kendall, Mylenko & Ponce (2010) measured financial access around the world by taking 139 countries as a sample and they come to conclude that despite the apparent overabundance of approximately 6.2 billion bank accounts in the world. In addition, their estimate indicates that roughly 19% of developed world adults do not have bank accounts (though many may live in households where other members have accounts), whereas nearer to 72% of adults in the developing world do not have accounts.

The underlying developments in the banking sector can also be captured in terms of the access to the basic banking services for the public at large. Some of the proxies used include:

- **Broad Access:** Branch and ATM density, Average loan and deposit size, and loan and deposit; accounts per capita.
- **Household Access:** % of people with bank account.
- **Firm Access:** Collateral needed for loan, and % percentage of firms with financial constraints.

#### **Indicators for access**

As per Financial Sector Operations and Policy department of the World Bank new indicators are introduced to distinguish between access and the use of financial services. Access to financial service includes geographic and demographic access.

- ✓ **Geographic:** Number of bank branches per 1,000 sq. km. , Number of bank ATMs per 1,000 sq. km.
- ✓ **Demographic:** Number of bank branches per 100,000 people, Number of bank ATMs per 100,000 people.

#### **Indicators for usage**

The use of financial services can be gauged through the following indicators:

- ✓ **Number:** Number of loans per 1,000 people, Number of deposits per 1,000 people
- ✓ **Size:** Average size of loans to GDP per capita, Average size of deposits to GDP per capita

### 2.6.3 Banking Efficiency

Efficiency refers to the optimum output that can be obtained from any given level of input used. According to Chen (2001) cited by Das and Drine (2011), the efficiency of the banking sector can be decomposed into:

- Scale efficiency,
- Scope efficiency,
- Pure technical efficiency and
- Allocative efficiency.

The bank is said to have scale efficiency, when it operates in the range of constant returns to scale and have scope efficiency, when it operates in different diversified locations. Maximizing output from a given level of input is called technical efficiency and when a bank chooses the revenue maximizing mix of output, the allocative efficiency occurs. The most important origin of the cost problems in banking is the X-efficiency, which is the differences in the managerial ability to control cost for a given level of production (Chen, 2001). Cited by Das & Drine, according to Farrell (1957), the efficiency of a firm consists of two components, the 'technical efficiency' and the 'allocative efficiency'. The combination of these is the measure of total 'economic efficiency'.

Efficiency is also considered as the basis for the measurement of development in the banking sector. Both financial and non-financial ratios are employed to measure efficiency.

- **Profitability:** Return On Asset, Net Interest Margin
- **Cost Efficiency:** Operating costs, Lending Spread, Days to clear checks
- **Competitiveness:** Concentration ratio, Ownership structure

**Beck et.al (2010)**, in their study on banking sector stability, efficiency and outreach in Kenya they have found that there was improvement in the efficiency of intermediation beyond that attributable to improved government finances and a stable macroeconomic environment. In particular, banks' overhead costs declined through competition.

Measurement of efficiency of banking institutions serves two important purposes. It helps to benchmark the relative efficiency of an individual bank against the 'best practice' bank(s) and secondly, it helps to evaluate the impact of various policy measures on the efficiency and performance of these institutions. As the banking system provides transaction services and payment system, an efficient banking system has significant positive externalities, which increases the efficiency of economic transactions in general (Das, Nag & Ray, 2004).

Raphael (2013) employed Data Envelopment analysis (DEA) to estimate the relative efficiency of selected 58 commercial banks operating within the African Community, namely Tanzania, Kenya, Uganda, Rwanda and Burundi (From 2008 to 2011). The estimated results shows sharp decline of Technical efficiency from 0.81 (2008) to 0.56 (2009) there after showing an increasing trend of technical efficiency in 0.73 (2011). The reason is mainly attributed to inefficient utilization of input resources.

#### **2.6.4 Banking Stability**

The stability of the banking system is one of the features that can manifest whether the banking sector is exposed larger shocks and risk exposures or its development in managing such risks systematically. The proxies that measures stability are the following.

- **Capital Adequacy Ratio**
- **Asset Quality:**
  - **Lenders:** Non-Performing Loans, Real Credit Growth, Loan Concentration, Large loan exposure to capital
  - **Borrowers:** Firm leverage, Interest coverage ratio, household debt to GDP,
- **Liquidity:** Liquid Asset Ratio
- **Others:** Net Foreign Exchange Position to Capital, Default Probability of Banks

Jahn & Kick (2010) asserted that regular financial stability assessment and the identification of early warning indicators signaling coming risks to the banking system are major tasks of central banks and supervisory authorities. A safe and sound banking system ensures the optimal allocation of capital resources, and regulators therefore aim to prevent costly banking system crises and their associated adverse feedback effects on the real economy.

Banking sector stability and soundness may also be impacted by the strategic measures and reforms that are taken by the government to develop it. From among, slashing government borrowing and creating a stable macroeconomic environment did much to ease lending rates and reduce spreads. Increasing banks' capital requirements, introducing a limited deposit insurance scheme, and provisioning aggressively against non-performing loans also contributed to greater banking sector stability (Beck et.al, 2010).

A sample study of 18 countries by Monnin & Jokipii (2010) indicated that banking sector stability (instability) results in a significant underestimation (overestimation) of GDP growth in the subsequent periods. Banking sector stability appears to be an important driver of GDP growth in subsequent periods, highlighting the need for greater attention to be paid to banking sector soundness in the implementation of economic policy.

### **2.7 Bank Based Vs Market Based Financial Systems & Classification of Financial Structure**

Relying on the major engine of financial system they are classified as market based and bank based financial system. There exists debate among economists on the advantages and disadvantages of both structures of the financial system. The comparison mainly focused on countries that have high and similar level of GDP that follow different financial system structures. Notably, bank based financial system is represented by Japan & Germany. On the other side, UK and USA follow market based financial system.

But, there is a major shortcoming with existing comparisons of market-based versus bank-based financial systems; they focus on a very narrow set of countries with similar levels of GDP per capita, so that the countries have very similar long-run growth rates. Financial structure did not matter much to provide greater information on both the economic importance and determinants of financial structure, economists need to broaden the debate to include a wider array of national experiences (Kunt & Levine, 2006). The classification is made based on ratios of banking sector development (measured in terms of size, activity, and efficiency) relative to stock market development (also measured in terms of size, activity, and efficiency). Hence, countries with larger ratios are classified as bank-based. Countries where the conglomerate ratio of banking sector development to stock market development is below the mean are classified as market-based.

Measures of financial structure produce intuitively plausible classifications of countries as either bank-based or market-based for both financially developed and underdeveloped economies. Therefore, it is important to further distinguish them into four categories of countries based on the structure and level of development of their financial systems. The four categories are:

1. Underdeveloped and bank-based,
2. Underdeveloped and market-based,
3. Developed and bank-based, and
4. Developed and market-based.

## **2.8 Nexus between Economic Growth & Banking Sector Development**

Financial development, i.e. banking sector development and stock market development is pivotal to the long run economic growth through the provision of multiple channels (Pradhan et al, 2014; DFID, 2004). These channels are

- (i) Providing information about possible investments, so as to allocate capital efficiently;
- (ii) Monitoring firms and exerting corporate governance;
- (iii) Risk diversification;
- (iv) Mobilizing and pooling savings;
- (v) Easing the exchange of goods and services; and
- (vi) Technology transfer

There are four possible relationships that have been emphasized in the literature on the causal link between financial development and economic growth, namely:

1. *The unidirectional financial development -led growth hypothesis,*

With regard to the banking sector development-economic growth nexus: In order to promote economic growth, attention must be paid to policies that promote banking sector development. This, in turn, calls for an efficient allocation of financial resources combined with sound regulation of the banking system.

2. *The unidirectional growth-led financial development hypothesis,*
3. *The feedback hypotheses, and*
4. *The neutrality hypothesis.*

## **Empirical Literature: Banking Sector Development in the World**

### **2.9 The Impact of Financial Liberalization & Trade Openness on Banking Sector**

Financial liberalization often includes removal of control over: interest rates and financial activities, reduction of required reserve ratios, diminishing capital subsidies through credit direction, Liberalizing foreign currency exchange, and Loosening controls over the activities of financial organizations. As there is no uniform approach to financial liberalization, each country must identify liberalization procedures for its domestic financial sector according to its own social and political landscape (MCG Management Consulting Limited, 2006).

In their comparative study consisted a panel of above 60 countries Barth, Capiro & Levine (2001) have found state ownership of banks varies from a high of 80 percent to a low of 0 percent in sample of countries. The tighter the restrictions placed on this activity, on average, the more inefficient banks are and the greater the likelihood of a banking crisis is. At the same time, the greater the share of bank assets controlled by state-owned banks, on average, the less financial development as well as the development of the nonbank sector and the stock market will be.

In their study using dynamic panel data analysis Baltagi, Demetriades & Law (2007) suggest that trade openness is statistically significant determinant of banking sector development. The marginal effects of trade (financial) openness are negatively related to the degree of financial (trade) openness, indicating that relatively closed economies may benefit from opening up their trade and/or capital accounts. Although these economies can benefit most by opening both their trade and capital accounts, opening up one without the other could still deliver benefits in terms of banking development.

Financial liberalization improves cost efficiency of banks from Central and Eastern European countries with higher level of liberalization and openness are able to increase cost efficiency and finally to offer cheaper services to clients. These facts are in compliance with the Single European Market principles and demonstrate that EU new member states, candidate states and potential candidate states banking market mechanisms could achieve their objective of lowering and harmonization of banking services prices (Andries and Capraru, 2013). Das, Nag & Ray (2004) have also outlined that liberalization on trade has an important consequence for banks that enabled them to go to the stock market to raise equity and thereby absorb a greater degree of risk than before.

A comparative study conducted in Nigerian banks by Dabo (2012) witnessed that there exists significant increase in the mean levels of profitability, and operating efficiency and it showed that liberalization policy on banks had a significant impact even after the banking consolidation exercise.

### **2.10 Overview of the Global Banking Industry's Performance**

Consequent to the financial crisis occurred in 2008/9, many banks have got bankrupted. The impact of the financial crisis on banks located in different corners of the world varied to the extent of their level of exposure to risky assets such as derivatives products and investment made in risky portfolios. Generally, this has slow down the growth and development of banks around the globe, particularly that of European and US banks that are severely hit by the crisis, which have the highest portfolio of banking sector assets and generate the highest share of income from banking activities globally.

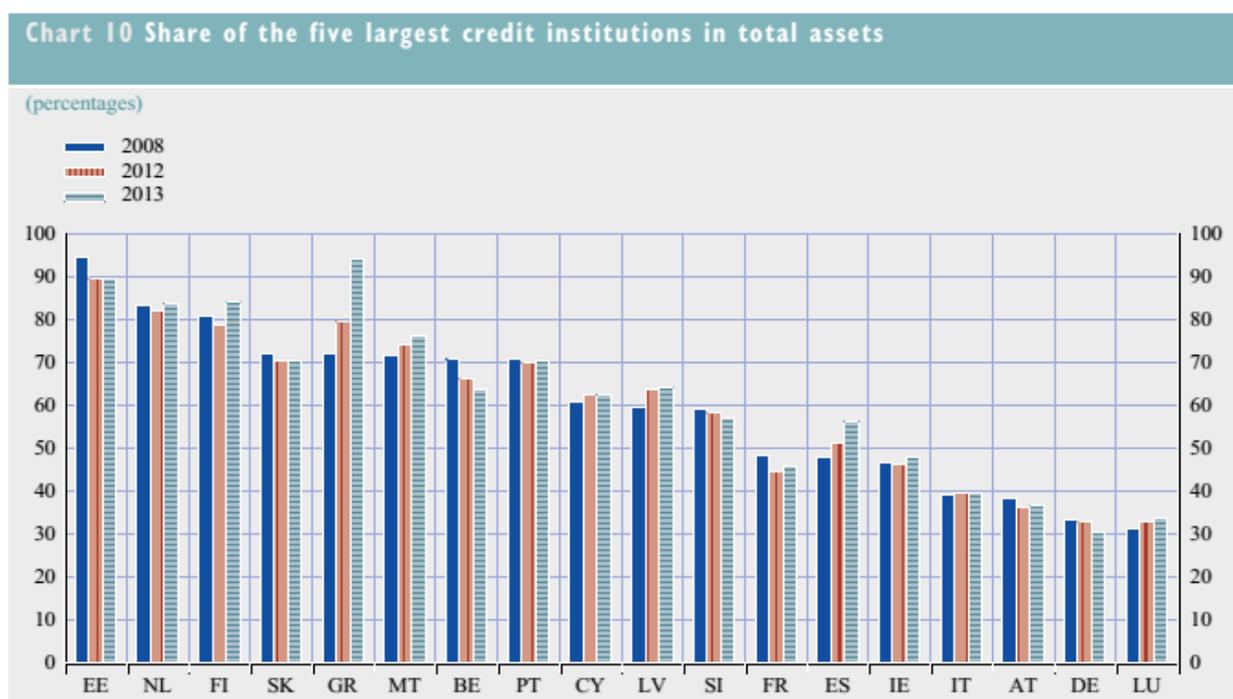
According to the research conducted by Capgemini Consulting Technology Outsourcing (2013) the financial crisis severely impacted the asset and profitability growth of the global banking sector. The growth rate of assets for the Top 1000 banks grew by 5.9% during 2009–11, reaching well above the pre-crisis level. However, during 2011–12 the growth moderated to 4.9% due to the ongoing Eurozone crisis, which was to some degree compensated by the growth of assets in the Asia-Pacific and Latin American regions. The financial crisis underscored the sharp differences in the performance of the banking sector across emerging and developed markets. Emerging markets such as Latin America and Asia-Pacific remained resilient to the crisis in contrast to developed markets where the banking sector experienced sharp losses. Consequently, the regulators of banks eyed the need for strengthening of the capital positions of banks as a key regulatory focus for authorities after the financial crisis. In order to comply with the new Basel III requirements, top banks across all regions are making efforts to improve their Tier 1 (core) capital ratios.

### **2.11 Banking Development and Structural Changes in the Euro Zone**

The European Central Bank (2014) in its banking structures report has critically identified the changes and development in the banking sector since the inception of the crisis in 2008 through 2014. The report recapitulates that the following major changes have occurred in the banking.

- Developments over time reveal that there was a net decrease of credit institutions due to the restructuring and consolidation of their banking sectors in the context of the recent financial crisis.
- The number of foreign subsidiaries and branches decreased.
- Focusing on the resizing process, total assets and total loan of the euro area banking sector has declining growth rate.
- Size of the different euro area banking sectors is measured in relation to GDP decreased substantially.
- Market concentration, as measured by the share of total assets held by the five largest credit institutions or by the Herfindahl index, has increased in comparison with the pre-crisis period.

Figure – 1: Share of the five largest credit institutions in Total Assets in Euro Area

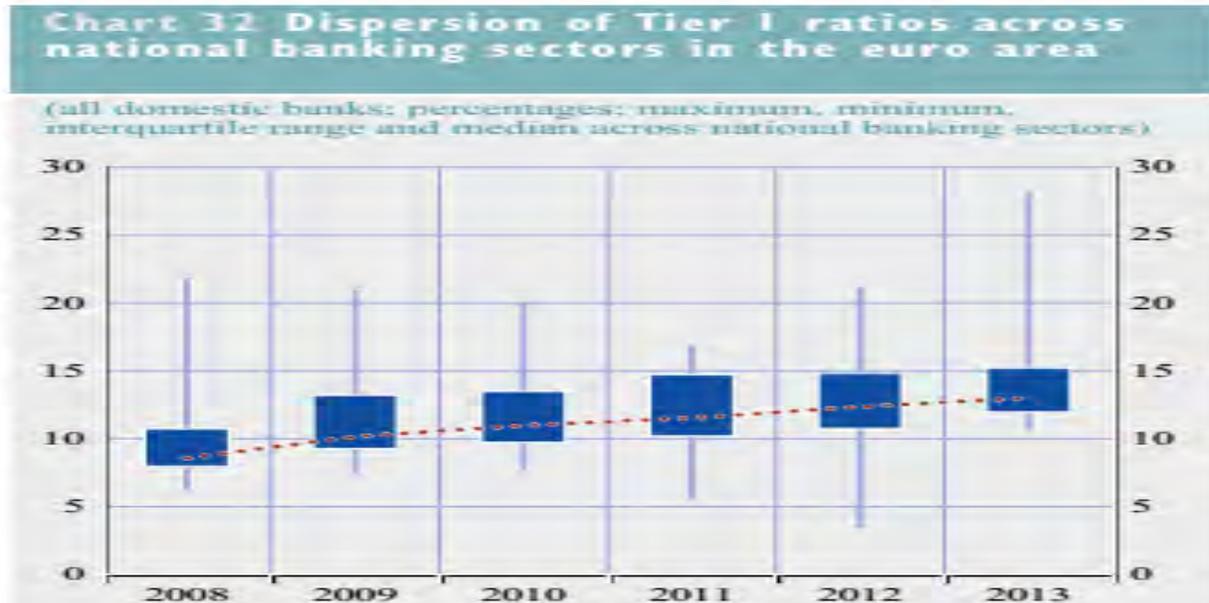


Source: ECB Structural Financial Indicators

- The structure of euro area bank balance sheets continued to be shaped by both cyclical and structural developments mainly due to On-going balance sheet repair and the related deleveraging of (non-core) assets and cutback in total loans.

- The regulatory capital ratios of euro area banks continued to improve with the median Tier 1 ratio increasing helped by both capital increases and risk-weighted asset declines.

*Figure – 2: Dispersion of Tier-1 Capital across national banking sectors in Euro area*



*Source: ECB/FSC consolidated data statistics*

## 2.12 The Future of Banking Sector in the World by 2050

Researchers of the PricewaterhouseCoppers named Hawksworth&Niven (2011) have underlined that the accelerating shift in economic power from the developed to emerging economies. They projected size and growth of the banking sectors for different economies in the coming 40 years by putting two key assumption and uncertainties:

1. Governments are expected to follow broadly growth friendly policies such as maintain reasonable macroeconomic stability, remain open to trade and investment, maintain a reasonable rule of law etc.
2. No catastrophic events that permanently throw growth off track (e.g. nuclear war, major global climate disasters).

The analysis has come up with the following major forecasts over the coming four decades:

- The emerging economies' banking sectors are expected to outgrow those in the developed economies by an even greater margin than before the financial crisis.

- By 2050 the leading 'E7' emerging economies (China, India, Brazil, Russia, Mexico, Indonesia and Turkey) could have domestic banking assets and profits that exceed those in the 'G7' (US, Japan, Germany, UK, France, Italy and Canada) by around 50%.

**Table-3: Global leader board of domestic banking assets in 2009, 2030 and 2050**

Country rankings in 2009	Domestic assets 2009 (US\$ bn, constant 2009 prices)	Country rankings in 2030	Domestic assets 2030 (US\$ bn, constant 2009 prices)	Country rankings in 2050	Domestic assets 2050 (US\$ bn, constant 2009 prices)
1. US	14,772	1. China	US	1. China	72,228
2. Japan	7,486	2. US	Japan	2. US	46,544
3. China	6,006	3. Japan	China	3. India	38,484
4. UK	4,989	4. India	UK	4. Japan	11,959
5. Germany	4,416	5. UK	Germany	5. Brazil	10,624
6. France	3,401	6. Germany	France	6. UK	9,112
7. Spain	3,271	7. France	Spain	7. Germany	8,477
8. Italy	2,993	8. Italy	Italy	8. France	7,909
9. Canada	1,618	9. Brazil	Canada	9. Russia	6,811
10. Australia	1,324	10. Spain	Australia	10. Mexico	5,965
11. Brazil	1,019	11. Russia	Brazil	11. Italy	5,601
12. India	945	12. Canada	India	12. Turkey	5,502
13. Republic of Korea	935	13. Republic of Korea	Republic of Korea	13. Indonesia	5,129
14. Russia	413	14. Australia	Russia	14. Spain	4,992
15. Turkey	352	15. Mexico	Turkey	15. Canada	4,761
16. South Africa	250	16. Turkey	South Africa	16. Vietnam	4,426
17. Saudi Arabia	244	17. Indonesia	Saudi Arabia	17. Republic of Korea	4,191
18. Mexico	241	18. Saudi Arabia	Mexico	18. Australia	3,812
19. Indonesia	187	19. Vietnam	Indonesia	19. Nigeria	3,514
20. Vietnam	113	20. South Africa	Vietnam	20. Saudi Arabia	3,303
21. Argentina	86	21. Argentina	Argentina	21. South Africa	2,722
22. Nigeria	47	22. Nigeria	Nigeria	22. Argentina	2,205

Source: IMF for 2009, PwC model projections for 2030 and 2050 (note the rankings relate only to these 22 countries)

## **Empirical Literature: Banking Sector Development in Africa**

The focus of this section is dealing with the status of the development of the banking sector in Africa and Sub-Saharan Africa, the prospects of banking business in Africa and the peculiar features that distinguish from the other developing countries in other continents and the developed countries.

### **2.13 Stylized Features of Banking in Sub-Saharan Africa**

Banks are predominating the financial sector in Africa. With a few exceptions (for example, Botswana, Namibia, South Africa, Swaziland), the banking sector accounts for more than 75 percent of total financial system assets; in a number of African countries, the share is above 90 percent (Fuchs, Muller & Witte, 2013).

Banking systems in most of SSA remain underdeveloped as compared with other developing regions, but gradual financial deepening is underway in most countries. Impediments to development include the small size of national markets, low income levels, and weak creditor rights and judicial enforcement mechanisms (Mlachila, Park & Yabara, 2013). However, the banking systems accounted for the preponderance of financial sector assets and activities. The depth and coverage of financial systems measured by the ratios of broad money (M2) and private sector credit to GDP—have been gradually increasing over the past decade, albeit from a low base. But the scale of financial intermediation in the region remains significantly lower than in other developing regions of the world and access to financial services is also relatively low.

These stylized features of SSA banking systems reflect a combination of factors, including the small absolute size of banks and banking systems; low income levels, large informal sectors, and low levels of financial literacy; weak contractual frameworks for banking activities, including weak creditor rights and judicial enforcement mechanisms; and political risk. They have also noted that the following features of banking sector in Africa that are worth mentioning.

- In many countries, banking systems are characterized by significant excess liquidity. In such circumstances, monetary policy is relatively ineffective as a tool for influencing lending conditions and the broader monetary aggregates.
- Banks have moved to strengthen their capital bases and improve risk management. As a result, the incidence of systemic banking crises has declined markedly, with only one major crisis recorded since 1995.

- African banking systems rely on the domestic economy for their funding base.
- The economic importance of banking systems in SSA economies varies significantly across countries reflecting differences in economic size, population density, legal code, resource dependence, and history.

Applegarth (2004) in his study conducted on Capital market and Financial Market Development in SSA has marked that Sub-Saharan Africa does not mobilize its domestic capital effectively. The lack of long-term local currency savings instruments is a barrier to local investment of local capital and estimated that the unbanked population Africa-wide is between 80 percent and 90 percent. Sub-Saharan African financial activity can be characterized by the oligopolistic behavior of a few commercial banks (in several cases, government-owned). The absence of adequate competition is reflected in the large gap between deposit rates for savers, which tend to be very low, and interest rates for borrowers, which tend to be very high.

In most African countries, there is still not enough access to credit. Research by Kim & Captein (2012) shows that although too much credit hampers economic growth. This is the case only when the ratio between credit and GDP exceeds 100 percent. All Sub-Saharan African countries except for South Africa and Mauritius are far below this threshold. Kenya's ratio is highest at 37 per cent and many countries are below 20 percent.

According to Fuchs, Muller & Witte (2013) in most African countries, supervisory capacity remains low. Supervisory resources, including qualified staff and the availability of analytical tools, are limited. Supervisory processes focus on compliance with regulatory standards. The ability to monitor risks on the institutional and systemic levels is hampered by insufficient data quality and poor reporting processes. Regulatory capital ratios are significantly higher than the minimum required by international standards and even increased slightly during the crisis. Leverage as measured by capital to nominal assets is much lower than in most developed markets.

Mlachila, Park & Yabara, (2013) have noted that recent developments, such as the expansion of mobile phone-based banking, regional financial integration, Portfolio flows to frontier markets and the spread of pan-African banking groups, have the potential to significantly change the landscape for banking in much of SSA, but also introduce new challenges for financial regulators.

Study conducted by KPMG (2013) it is found that various indicators in relation to financial system access, depth, efficiency and stability; the findings suggest that (SSA) performed weakest on average. However, more than anything else, Africa represents massive financial sector growth potential due to the fact that the market is still largely unsaturated. Increased real GDP per capita in many African countries having, a rapid expansion in retail banking is foreseen in coming years bringing the sector's contribution to the continent's collective GDP to 19% from an estimated 11% in 2009.

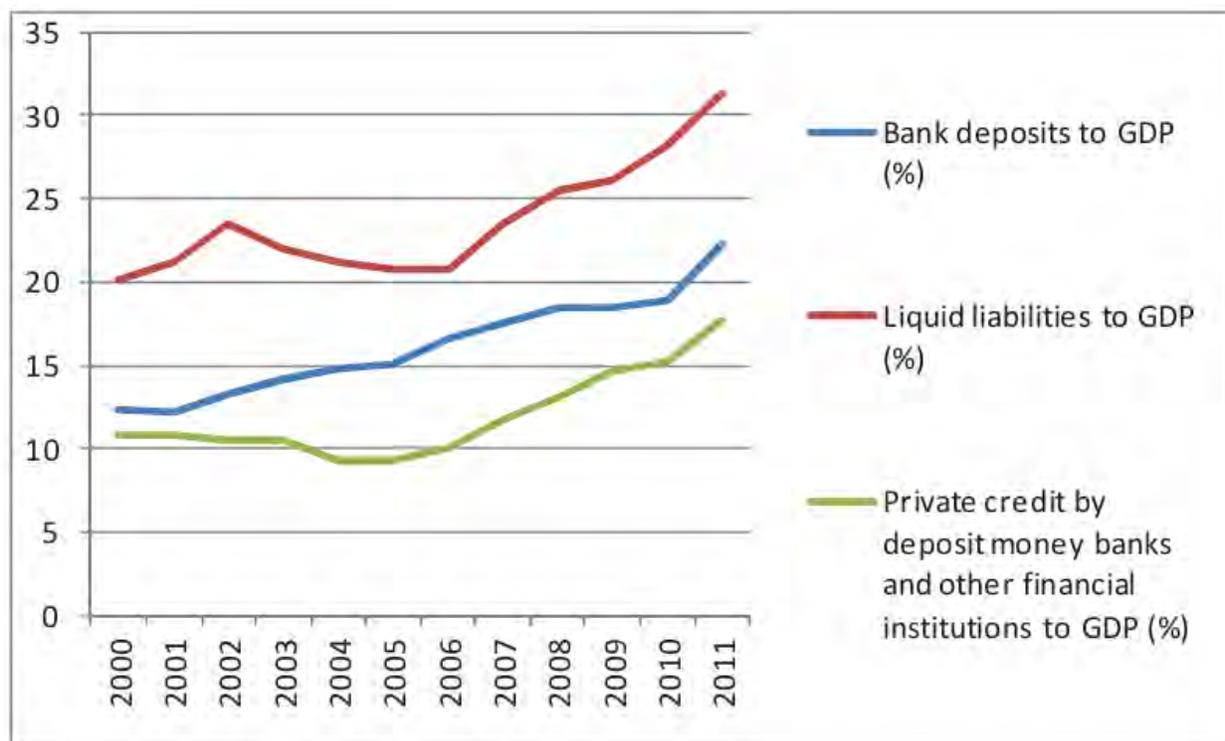
#### **2.14 Aggregate Banking Development in Arica in International Comparison**

Beck & Cull (2013) have compared banking sector in Africa (by limiting the sample to low and lower-middle income countries in SSA) and compare the median for this group to the median country across a sample of low- and lower-middle income countries outside Africa. They made the following inferences by comparing Liquid Liabilities to GDP, Bank Deposits to GDP and Private Credit to GDP.

- While the median non-African developing country has Liquid Liabilities of 47 percent of GDP, the median African country has only 32 percent;
- The median deposit to GDP ratio outside Africa is 38, compared to 25 percent in Africa.
- The median Private Credit to GDP ratio is 34 percent outside Africa, but only 18 percent inside Africa.
- African banks are less effective in intermediating society's savings

While Africa's financial systems are shallow in international comparison, there have been marked improvements over the past decade. All three standard indicators of financial development have substantially improved over the period 2000 to 2011.

Figure – 3: Financial Deepening in Africa over the past Decade



*Source: Global Financial Development Indicators, World Bank*

Comparing a sample of 307 banks from low and lower-middle income countries in Africa and 720 banks from non-African developing countries shows significantly higher liquidity ratios for African banks. African banks are better capitalized and provide only limited lending to the real economy (Beck & Cull, 2013).

### 2.15 Banking Sector in the IGAD Region & East African Community

The status of commercial banking business in the region where Ethiopia is located – IGAD sub-region shows that the financial system constitutes various institutions among which commercial banks are dominant like in other developing economies. Modern commercial banking in some parts of the region started in the early 1990s, but banking activity has remained passive and rudimentary since then. Some possible factors in the low development of the financial sector are: the weak economies of member countries and limitations on the forward and backward linkages between the real and financial sectors and lack of basic infrastructures. Frequent conflicts (which seem to be a peculiar feature of the eastern part of Africa) and resource limitations explain the underdevelopment of commercial banking business (Abdi & Aragie,

2012). Financial products are not well differentiated; they are mostly traditional and banks are not innovative and dynamic in providing financial services. Among the traditional services of commercial banks are credit creation (short, medium and long-term), fund transmission services, deposit creation and payment services. In advanced economies, the banking sector provides ample and innovative state-of-art financial services thereby playing an important role in economic advancement.

The development and sophistication level of the banking sectors varies significantly across the region, with Kenya having one of the most dynamic and largest banking sectors in sub-Saharan Africa, and a significant presence in the other EAC countries. The banking sectors of the other four countries are concentrated on their local markets. The sophistication of capital markets in East African Community) differs across the region, but in general, they remain underdeveloped. There are important cross-country differences, with some markets at an early stage of development, while Kenya's market is reasonably well-developed in sub-Saharan African context (Zajc, 2013).

## **Empirical Literature: Banking Sector Development in Ethiopia**

### **2.16 Outlook of the Banking Sector in Ethiopia**

The last ten years have seen some improvement in the works of various participants of the banking sector in Ethiopia. The government and the National Bank of Ethiopia have followed a step-by-step approach in transforming the sector, not a big bang one. For instance the entry of foreign players is still prohibited. The introduction of new technological solutions such as the CORE-Banking system has improved customer service.

Some gaps however remain such as lack of an inter-bank interest rate benchmark, absence of an active secondary market for debt and equity instruments and the money market. Besides, the exchange rate regime is also still a managed float system. On the whole, the cumulative effect of the developments since the deregulation in 1991 can be considered a good move particularly with respect to the emergence of new banks and the automation of banks in providing real time banking products and services and enormous change in the outreach of bank branches.

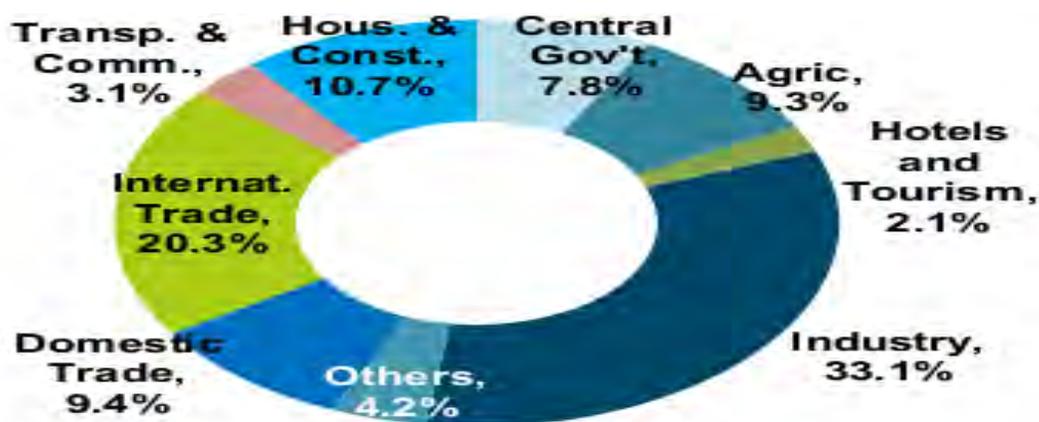
Compared to most countries, Ethiopia has taken a cautious approach toward the liberalization of its banking industry. For all intents and purposes, its industry is closed and generally less developed than its regional peers. The industry comprises one state-owned development bank and 18 commercial banks, two of which are state-owned, including the dominant Commercial Bank of Ethiopia (CBE), with assets approximately 70 percent of the industry's total holdings. The underdevelopment of the banking industry can be seen in the small proportion of the population that has a deposit account, less than 8%. This underdevelopment restricts economic growth because it dramatically reduces the ability of the banking industry to offer savings products ( Keatinge, 2014).

By comparing the level of access to financial services in a neighboring country such as Kenya, there is considerable room for expansion of these services in Ethiopia. The 2012 Ethiopia Enterprise Survey highlights access to finance as the major developmental constraint for small and medium-sized businesses. The government's direction, via the CBE, to focus lending and investment to public enterprises generally and the regulatory requirement that a substantial portion of private sector banking's already limited lending capacity be used to purchase NBE bills equivalent to 27% of any new loan disbursements has worsen the amount of credit to be availed to the private sector (World Bank, 2014). Ethiopia is falling behind its sub-Saharan

African peers, with credit to the private sector equal to only 14 percent of gross domestic product (GDP), a reduction of 5% since 2004, compared with the rising-peer average of 23 percent (Keatinge, 2014).

The structure of the banking sector is unique on account of the dominance of state-owned banks, which control two-thirds of the local banking sector and which the government uses to set the desired levels of lending (such as investment in specific sectors and government projects to boost economic growth). This is contrary to the trend elsewhere in Africa, where private sector banks dominate the banking sector and drive economic growth via credit to the private sector. The loan book for the Ethiopian banking sector grew by a compound annual growth rate of 20.4% in the past six years to ETB151.28bn in 2013 (USD7.81bn) on the back of significant credit disbursement by public sector banks. The CBE alone accounts for over 52% of the industry loan book, while collectively the three public banks account for over 68% of outstanding credit to the economy. The top five banks (CBE, DBE, Awash, Dashen, and United Bank) collectively account for over 82% of outstanding credit. This makes the Ethiopian banking sector highly concentrated banking sector in Africa (Ecobank, 2014).

*Figure – 4: Distribution of Loans in 2013 by Sector*

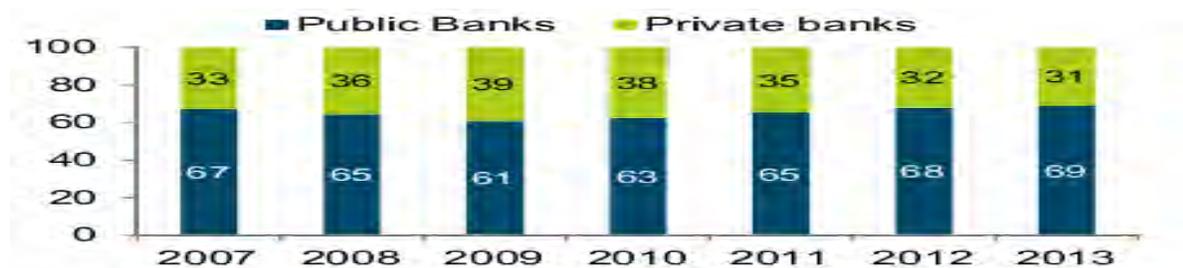


*Source: Ecobank Research & National Bank of Ethiopia*

The majority of the deposits were mobilized by the three public sector banks, which accounted for 65.3% of total deposits on average in the past seven years. An interesting trend emerged in the last four years whereby the share of deposits mobilized by the three public sector banks was increasing, which means that the share of deposits mobilized by the 16 private sector banks was

correspondingly on a downward trend. This is attributed to the fact that the three public sector banks account for nearly half of the retail network in the Ethiopian banking sector.

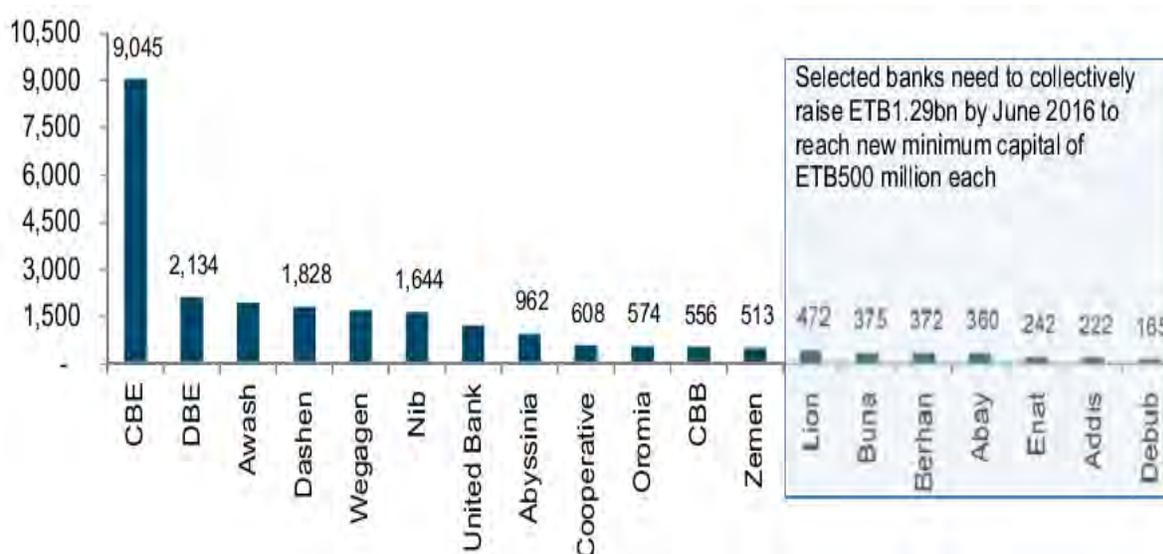
Figure – 5: Distribution of Deposits % in Ethiopia by Bank Ownership



Source: National Bank of Ethiopia & Ecobank Research

The National Bank of Ethiopia raised the minimum capital requirement for banks from ETB75mn (USD3.69mn) to ETB500mn (USD24.59mn) via a directive issued on 19 September 2011 to all banks operating in the country to meet the new requirement by the end of June 2016. The move is in line with the trend we have seen in Middle African countries such as Ghana, Nigeria, Kenya, and Zambia where the regulatory authorities have raised the minimum capital in the past five years as they aim to strengthen the capacity of the banking sector to support key growth sectors.

Figure – 6: Ethiopia - Capital of banks in 2013



Source: National Bank of Ethiopia & Ecobank Research

In their study using an econometric model and Descriptive Quantitative and Qualitative analysis on the Competition of the Banking Industry in Ethiopia Eshete, Teshome & Abebe (2013) have found that Competition in terms of price is relatively less significant competitive parameter in the Ethiopian banking industry. Bank service charges are more or less homogeneous in the industry, whereas interest rates on time and saving deposits are partially controlled by monetary authorities, rather than demand and supply forces. However, after satisfying the minimum statutory levels, banks have been engaging in price competition, as can be explained by differentiated rates on deposits, especially on time deposit, the commencement of interest payment on demand deposit, as well as differentiated interest rates on loans. Banks in the Ethiopian case are competing in terms of service quality and efficiency (including use of technological advances), branch network expansions, advertising and prices, put in the order of their significance.

### **2.17 Ethiopian Government's Opposing Argument on Banking Sector Liberalization**

The banking sector in Ethiopia remains protected until today for various reasons albeit liberalization has significant economic opportunities such as improvement in bank penetration, excellence in banking services, knowledge and technological transfer among others. Kiyota, Peitsch & M Stern (2007) have noted five major reasons cited by the Ethiopian government officials and the Bankers Union in delaying the process of opening the financial sector to foreign banks and investors. These are put accordingly as follows as discussed by researchers.

- The government believes that the development of a viable domestic banking sector will be threatened by foreign banks, because they have more capital, more experience, and better reputations. It is argued that the Ethiopian financial sector is too young and inexperienced to compete (the infant industry argument)
- Ethiopian government officials also believe that entry by foreign banks will further skew credit allocation towards large-scale industrial, real estate and service enterprises (including trade) and away from agriculture, small-scale and cottage/micro enterprises (sectors which are the priorities for the government's development strategy). They contend that foreign banks will concentrate lending in major urban centers using foreign funds, contributing little towards the development of rural banking. Furthermore, they contend that foreign banks will "cherry pick" the best companies and sectors.

- Domestic savings mobilization has been identified as an area of concern to Ethiopian officials, who have suggested that foreign banks would lend in their home or other foreign currencies and would not be interested in mobilizing domestic savings.
- There is concern that foreign banks may serve as conduits for the inward and outward flows of capital (e.g., through capital and money-market transactions; credit operations; personal capital movements; etc.). This may cause foreign exchange and/or liquidity shortages, with potentially adverse effects on the country's capital account. The concern becomes more pronounced in view of the limited regulatory capacity of the central bank.
- Finally, it is strongly believed that the authorities will be unable at present to regulate and supervise foreign banks effectively.

## **2.18 Ethiopia's WTO Accession and Financial Liberalization**

Kasahun (2012) stated that Ethiopia has applied to accede to this system in 2003 and is now deeply involved in the multi-stage accession process whereby negotiations on trade in financial services will be one of the key issues that determine Ethiopia's WTO accession. Accession is a multi-stage process and complex categorized into four stage multi-lateral and bi-lateral negotiations.

The Ethiopian legal regime in banking services regulation takes the form of nationality and investment limitations in the banking sector. The typical forms of limitations in relation to investment in banks that can potentially delay the accession process includes:

- ***The nationality requirement restriction*** – Article 9 of the Proclamation No. 592/2008 of the Banking Business says that foreign nationals or organizations fully or partially owned by foreign nationals may not be allowed to open banks or branch offices or subsidiaries of foreign banks in Ethiopia or acquire the shares of Ethiopian banks.
- ***The restriction on maximum amount of investment (shares) to be held by a single investor/related investors*** – NBE Directive No. SBB/47/2010 on 'Time Limit for Reduction and/or Relinquishing shareholdings' has the following dictates:
  1. It defined influential shareholders as person who holds directly or indirectly two percent or more of the total subscribed capital of a bank;
  2. Warns any person who holds shares in a bank, either on his own or jointly with his spouse or with a person who is below the age of 18 years and related

to him by consanguinity to the first degree, in excess of 5% of total subscribed capital of the bank shall reduce such holding to 5% or less within 36 months effective from 16<sup>th</sup> August 2010;

3. The prohibition of an investor having allegedly substantial investment in one bank (influential shareholder) from investing in any other bank.

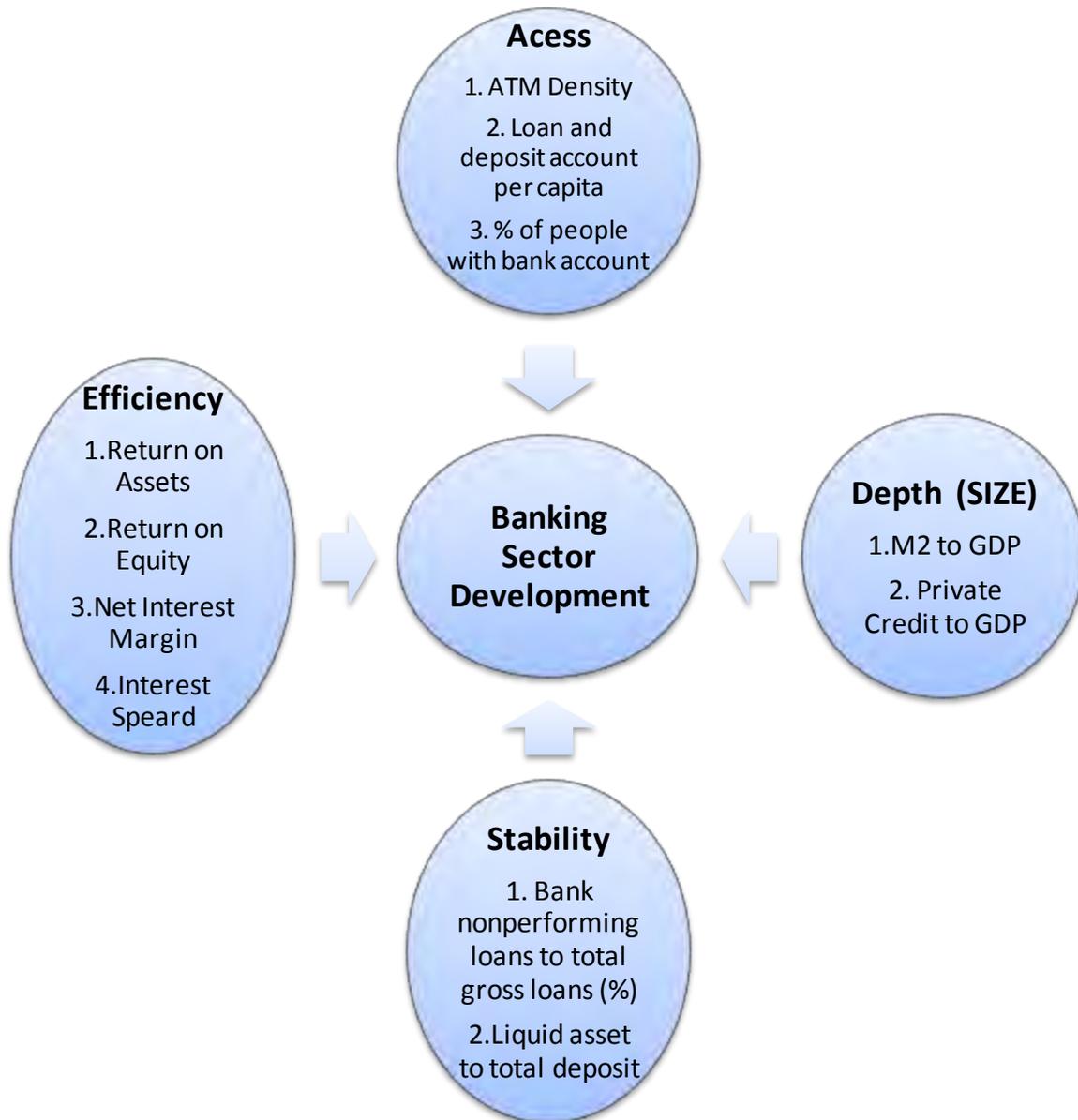
- ***Ethiopian law has delineated the scope of banking activities and it has also limited the scope of equity participation of banks in other firms.*** Proclamation no 592/2008 Article 2 Sub-Article 2 specified “banking business” activity as follows:

- a) Receiving funds from the public through means that the National Bank has declared to be an authorized manner of receiving funds;
- b) Using the funds referred to under paragraph (a) of this sub-article, in whole or in part, for the account and at the risk of the person undertaking banking business, for loans or investments in a manner acceptable by the National Bank;
- c) The buying and selling of gold and silver bullion and foreign exchange;
- d) The transfer of funds to other local and foreign persons on behalf of the banks themselves or their customers;
- e) The discounting and negotiation of promissory notes, drafts, bills of exchange and other evidence of debt;
- f) Any other activity recognized as customary banking business, which a bank engaged in the activities described from paragraph (a) to (e) of this sub-article may be authorized to undertake by the National Bank;

### **Identified Gaps in the Literature**

There is no any empirical literature regarding the macro economic factors that determine development of the banking sector. Moreover, the status of banking sector development in comparison to other countries is not much studied. Therefore, the paper is believed to fill the gap by contributing to the literature.

## 2.19 Conceptual Framework Used in the Study



## **Chapter Three**

### **Research Design and Methodology**

#### **3.1 Research Approach**

The research has employed quantitative research methodology and techniques using an econometric model and Descriptive Quantitative & Qualitative Analysis in order to address the research questions. Multiple regression using OLS (Ordinary Least Square) estimates of the dependent and independent variables is employed. It uses time series data covering the period from 1981 through 2014.

#### **3.2 Data Type & Collection Method**

The data required to develop and run the econometric models is basically secondary time series data collected from different sources.

- National Bank of Ethiopia
- World Bank, World Development Indicators
- World Bank, Financial Structure Database
- IMF, Country Staff Working Paper
- Ministry of Finance and Economic Development

#### **3.3 Sample of the Study**

The sample of the study covers all commercial banks operating in Ethiopia since 1981 through 2014, meaning the banking industry as whole. Trend of 34 years data of the banking sector is taken to make an inference.

#### **3.4 Data Analysis Techniques and tools**

Eviews 8<sup>th</sup> version financial software package is used in analyzing the data and testing the assumptions hypothesized. The formal tests for Multiple Ordinary Least Square regression are also done in order to enable to make valid and reliable inference from the model.

#### **3.5 Econometric Models used by Other Researchers**

Researchers have used different measures of banking sector development. As can be observed from the dependent and independent variables stated, the models that are employed to measure financial development will include:

$$\mathbf{BSD = f(RGDP,RI).....(1)}$$

Where , BSD = Banking Sector Development

RGDP = Real Gross Domestic Product

RI = Real Interest Rate

Recently, the role of financial liberalization and trade openness in influencing banking sector development has been received attention in the literature as cited by Yu & Gan (2010) in the studies by Shirai (2001), Isik and Hasan (2003) and Miller and Upadhyay (2000), Svaleryd and Vlachos (2002) and Rajan and Zingales (2003).

Therefore, Equation (1) is extended to incorporate financial liberalization namely domestic financial liberalization index constructed by Kaminsky and Schmukler (2001) and trade openness.

Thus, the banking sector development equation can be extended as follows:

$$\mathbf{BSD = f(RGDP, RI, FL, TO)..... (2)}$$

Where, FL= Financial Liberalization, and

TO= trade openness, which is measured by total trade (imports + exports) over GDP.

This study employs two models which are estimated by using OLS technique as stipulated below:

$$\mathbf{Model 1: \ln LL = \beta_0 + \beta_1 \ln RGDP + \beta_2 RI + \beta_3 FL + \beta_4 TO + \epsilon..... (3)}$$

$$\mathbf{Model 2: \ln PRI = \beta_0 + \beta_1 \ln RGDP + \beta_2 RI + \beta_3 FL + \beta_4 TO + \epsilon..... (4)}$$

$$\mathbf{Model 3: \ln DC = \beta_0 + \beta_1 \ln RGDP + \beta_2 RI + \beta_3 FL + \beta_4 TO + \epsilon..... (5)}$$

Where, ln is logarithm form,

LL= the liquid liabilities or M3/GDP,

PRI = the private sector credit, and

**DC**= the domestic credit.

As per Touny (2014) the regression model used to analyze banking sector development:

$$\mathbf{BCP} = \mathbf{EG} + \mathbf{FDI} + \mathbf{GOB} + \mathbf{RI} + \mathbf{TO} + \mathbf{GM2} + \boldsymbol{\varepsilon}$$

Where, **BCP** = Bank Credit to the Private Sector

**EG** = Economic Growth (Real GDP growth rate)

**FDI** = Foreign Direct Investment (inflow as a percent of GDP as an indicator of financial liberalization)

**RI** = Real Interest Rate

**GOB** = Economic Globalization (measured by the actual flows of trade, foreign direct investment and portfolio investment, as well as the restrictions applying to these flows)

**GM2** = Growth rate of M2

**TO** = Trade Openness (export + import divided by GDP)

According to Donia (2012), the model used to analyze determinants of banking sector development in emerging economies (Panel estimation) banking sector development is proxied by private sector credit which captures the capacity of credit allocation to the private sector; however this measure may fail to capture the complete picture of the banking sector. Private sector credit does not take into consideration the quality of credit provided; the households' access to financial services; or the efficiency of the banking sector in performing its functions. Therefore, in order to get a deeper insight into other aspects affecting banking sector development, the study conducts an analytical examination addressing four main characteristics of the banking sector which are: depth, access, efficiency and stability.

- Banking Access is proxied by the number of bank branches and ATMs per 100,000 adult.
- Banking Stability (proxied by Z-score).
- Banking Depth (proxied by ratio of M2 to GDP).
- Banking Inefficiency (proxied by the ratio of overhead cost)

$$\mathbf{PC} = \mathbf{f}(\mathbf{RGDPC}, \mathbf{RIR}) \dots\dots\dots(1)$$

Where, **PC** = is private sector credit provided by deposit money banks (as a percentage of GDP) as a proxy to banking sector development.

**RGDPC** = the real GDP per capita

**RIR** = the real interest rate

$$\ln PC_{it} = \beta_0i + \beta_1i BL_{it} + \beta_2i CL_{it} + \beta_3i LAW + \beta_4i PRP + \beta_5i FCOR_{it} + \beta_6i FLO_{it} + \beta_7i TO_{it} + \beta_8i REM_{it} + \beta_9i \ln RGDPC_{it} + \beta_{10}i INF_{it} + \beta_{11}i MCAP_{it} + \epsilon_{it} \dots \dots \dots (2)$$

Where, **BL**= banking sector liberalization,

**CL**= capital account liberalization,

**LAW** = rule of law,

**PRP**= property rights protection,

**FCOR** = freedom from corruption,

**FLO**= a dummy for French legal origin an

**TO**= trade openness.

**RGDPC** = real GDP per capita

**REM** =remittances received

**INF** =Inflation

**MCAP** = stock market capitalization as a proxy to capital market development

**Eit** = the idiosyncratic error term.

Another model by Raza, Shahazadi&Akram (2014), used Credit to Private Sector as a proxy of financial development.

$$CPS = f(POPG, AGRI, GDPG, TOPENNESS, NFDI, GSC, DEM, RL)$$

Where, CPS =credit to private sector as percent of GDP

POPG = population growth

AGRI = share of agriculture sector in GDP

GDPG= real GDP growth

TOPENNESS = trade openness which is the sum of exports and imports as percent of GDP

NFDI = net foreign direct investment as percent of GDP

GSC = government current spending as percent of GDP

DEM = index of democracy

RL = index of rule of law

### 3.6 Econometric Model used for the Research

The following two proxies are selected as measures of banking sector development in Ethiopia. Private Credit by banks to GDP indicates the depth of the banking sector in allocating financial resource to the private sector. The greater credit availed to the private sector indicates an improved development in the banking development in depth. The second proxy is broad money supply, which is the ultimate result of the financial resource mobilization by the banking system. Therefore, the use of both models gives full picture of the banking sector's depth from the financial resource mobilization and allocation point of view.

#### Model 1:

$$\text{PRIVATECREDITBYBANKTOGDP} = \beta_0 + \beta_1 \text{TRADEOPENNESS} + \beta_2 \text{REALINTERESTRATE} + \beta_3 \text{Remittance to GDP} + \beta_4 \text{POPGROWTH} + \beta_5 \text{GOVCONEXPTOGDP} + \beta_6 \text{GDPGROWTH} + \epsilon_t$$

#### Model 2:

$$\text{Broad Money Supply to GDP} = \beta_0 + \beta_1 \text{TRADEOPENNESS} + \beta_2 \text{REALINTERESTRATE} + \beta_3 \text{REMITTANCETO GDP} + \beta_4 \text{POPGROWTH} + \beta_5 \text{GOVCONEXPTOGDP} + \beta_6 \text{GDPGROWTH} + \epsilon_t$$

Where,

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  = Coefficients of the independent variables

$\varepsilon_t$  = Error term

TRADEOPENNESS = Trade Openness

REALINTERESTRATE = Real Interest Rate

REMITTANCETOGDP = Remittance Received to GDP

POPGROWTH = Population Growth Rate

GOVCONEXPTOGDP = Government Consumption Expenditure to GDP

GDPGROWTH = GDP Growth Rate

PRIVATECREDITBYBANKTOGDP = Private Credit by Banks to GDP

M2 = Broad Money Supply

### 3.7 Description of Variables

The variables are selected based on the availability of data and their wide acceptance in measuring financial sector as well as banking sector development in the literatures. Besides, the IMF's definition and measurement of these variables follows hereunder.

#### 3.7.1 Dependent Variables

The proxies used to measure banking sector development in Ethiopia are:

- **Private sector credit by banks to GDP –**

Domestic credit to private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises.

- **Broad Money Supply to GDP -**

Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

### **3.7.2 Independent Variables**

- **Trade openness**

Trade Openness is the ratio of the sum of total import and export to the total GDP of the country.

- **Real Interest Rate**

Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.

- **Growth of Real GDP**

Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

- **Remittance to GDP**

Personal remittances comprise personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households. Personal transfers thus include all current transfers between resident and nonresident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by nonresident entities. Data are the sum of two items defined in the sixth edition of the IMF's Balance of Payments Manual: personal transfers & compensation of employees.

- **Population growth rate**

Population growth (annual %) is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage.

- **Government Consumption Expenditure to GDP**

General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of government capital formation.

## Chapter Four

### Data Presentation and Analysis

#### 4.1 Descriptive Statistical Results of Model-1

Estimation result from the linear regression of Model-1 indicates that the measures of central tendency such as the mean value of the independent variables is 0.31, -0.16, 1.15, 2.97, 13.75 and 5.31 for Trade openness, Real Interest Rate, Remittance to GDP, Population growth, Government consumption expenditure and Real GDP growth rate respectively. The standard deviation which shows the distance from the mean value of each variable takes 0.13, 12.3, 2.1, 0.32, 3.7 and 6.8 in order. The mean and standard deviation of the dependent variable, which is logarithm of private credit by banks to GDP stand to be 7.2 and 18.6 respectively. Needless to mention, the mean and standard deviation of the private credit GDP ratio for the Sub-Saharan Africa was 17.6% and 22.7% during the period that covered 1995 through 2007 (Allen & et.al, 2010). Hence, Ethiopia's average credit availed to the private sector by the banking sector is by far lower than the average for SSA. This can be due to the fact that resource mobilization capability of the commercial banks was limited and hefty portion of the disbursement went to the public/ government in the form of treasury bills and government bond.

In addition, the maximum and minimum values of some of the cause and effect variables exhibit some large disparity consequent to the changes that took place from year to year in the banking sector and the overall economic system.

*Table 4 – Descriptive Statistics Result from Model 1*

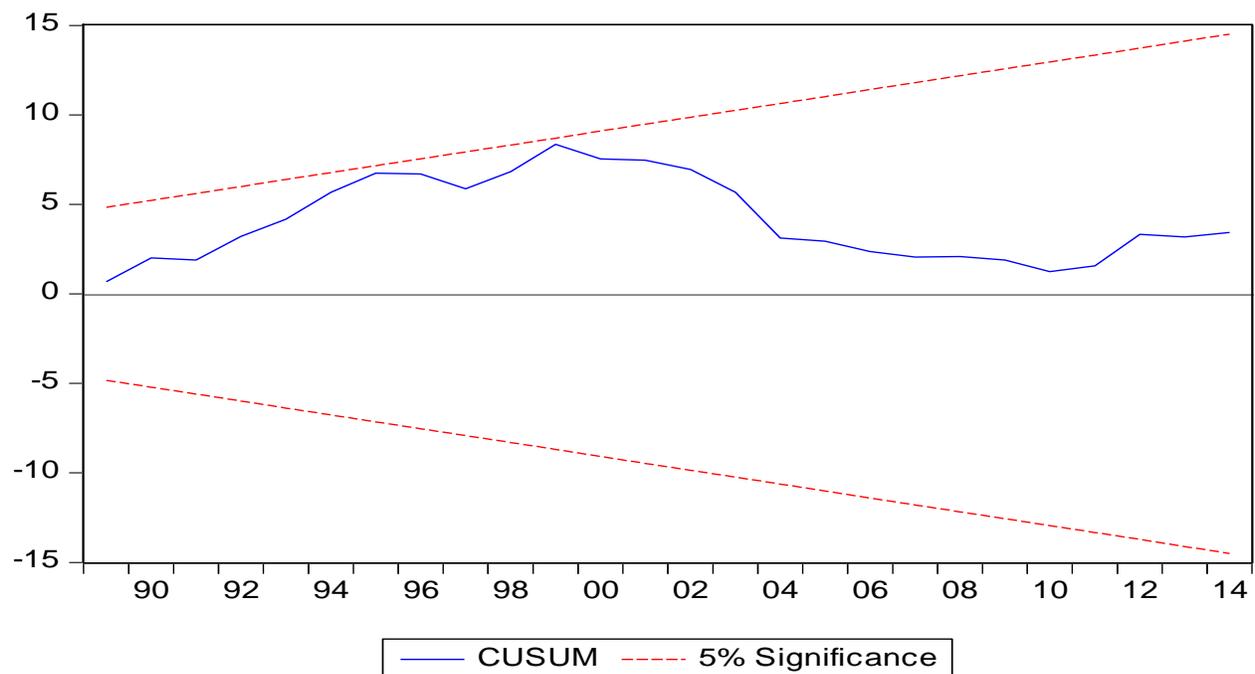
	LNPRIVATE CREDITBAN KTOGDP	C	TRADE OPENNE SS	REALINTE RESTRATE	REMITTAN CETOGDP	POPGR OWTH	GOVCONE XPTOGDP	GDPGR OWTH
<b>Mean</b>	7.186396	1	0.309832	-0.161919	1.156591	2.97372	13.75338	5.314034
<b>Median</b>	1.116284	1	0.344087	1.303569	0.358183	2.88518 5	13.58783	7.4
<b>Maximum</b>	52.1843	1	0.502022	17.63548	7.5	3.51924	22.85438	13.85933
<b>Minimum</b>	-32.69653	1	0.107483	-32.4	0.043181	2.31	7.953538	11.14435
<b>Std. Dev.</b>	18.63675	0	0.126777	12.28209	2.091307	0.31517 3	3.659121	6.841468
<b>Observations</b>	33	33	33	33	33	33	33	33

*Source: Regression Output*

#### 4.2 Adequacy and Stability of Model 1

Results of the first Ordinary Least Square Regression model indicates that the  $R^2$  and adjusted  $R^2$  stand to be 58% and 49% respectively. The P-value of the f-statistic of the entire model which hypothesizes that all of the independent variables jointly describe the change in the dependent variable is below 1%, i.e. 0.047% which is statistically significant. Hence, the null hypothesis that says all the regressors together do not explain the dependent variables is rejected. Therefore, the data is best fit to the model in order to analyze the relationship between the dependent and independent variables.

*Figure 7 – CUSUM Stability Test of Model 1*



*Source: Regression Output*

When we look at the stability of Model-1 in measuring the dependent variable, which is credit availed by banks to the private sector, it is stable at 5% significance level using the cusum test. As can be seen from figure-7, the blue line that indicates the dependent variable is located within the two upper and lower bound broken lines signifying that the model used to estimate the dependent variable is stable.

In addition, the chow break point test for the model's stability assumes the null hypothesis that there is no break at the specified break-point (the year 2000) in this case. The result shows that the null hypothesis is not rejected because; p-value of the f-statistic is 8% taking the p-value of 5% as threshold. The year 2000 is considered as break point for the test given the fact that most of the commercial banks currently in business have joined the banking sector since then.

### 4.3 Analysis of the research Hypothesis and Significance of Variables (Model 1)

*Table 5 – Regression Output from Model-1*

Dependent Variable: LNPRIVATECREDITBANKTOGDP

Method: Least Squares

Date: 05/19/15 Time: 17:23

Sample (adjusted): 1982 2014

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-134.6416	61.24927	-2.198256	0.0370
TRADEOPENNESS	118.6894	41.78057	2.840781	0.0086
REALINTERESTRATE	0.705408	0.245237	2.876435	0.0079
REMITTANCETOGDP	-0.169723	1.790844	-0.094773	0.9252
POPGROWTH	52.13213	16.70733	3.120316	0.0044
GOVCONEXPTOGDP	-3.676757	0.871032	-4.221152	0.0003
GDPGROWTH	0.170521	0.461068	0.369839	0.7145
R-squared	0.582182	Mean dependent var		7.186396
Adjusted R-squared	0.485763	S.D. dependent var		18.63675
S.E. of regression	13.36447	Akaike info criterion		8.208908
Sum squared resid	4643.838	Schwarz criterion		8.526349
Log likelihood	-128.4470	Hannan-Quinn criter.		8.315718
F-statistic	6.038015	Durbin-Watson stat		1.891202
Prob(F-statistic)	0.000466			

*Source: Regression Output*

#### Interpretation of the Intercept

The intercept refers to the value that the dependent variable would take if the independent variables take zero. In the absence of all of the explanatory variables the private credit by banks decreases by 134.6 birr. The result is statistically significant at 5% level of significance with a

negative sign. However, setting the predictor variables to have a zero value is often impossible. Especially, in the financial system it seems unrealistic. The reason to include the constant term in a regression model is basically to have mean value of the errors to be zero and to it is partly estimated by the independent variables that are missed in the regression model.

***H<sub>1</sub>: Trade Openness has positive and significant impact on Private Credit by Banks to GDP***

Result obtained from the regression model conforms to the hypothesis that Trade openness has positive and significant impact on banking sector development, which is measured by private credit offered by banks to GDP, at 1% level of significance. Banks catalyze the import and export trade in any jurisdiction through the provision of fund in different forms of facilities and advances so as to bridge the working capital shortage of firms engaged in import and export by issuing letters of credit, letters of guarantee and effecting advance payment facilities. As can be observed from the regression output, in Ethiopia, when trade openness increases by one birr, the amount of credit to private availed by banks increases by 118.7 birr, keeping other things constant. The result is also consistent with the empirical findings of Donia of (2012), Raza, Shahazadi&Akram (2014), Hodovic, Mehic&Agić (2007?), Touny (2014), Baltagi, O.Demetriades, & Law (2007) and Yu &Gan (2010).

***H<sub>2</sub>: Real Interest has positive and significant impact on Private Credit by Banks to GDP***

Positive real interest rate attracts depositors to keep their fund in the banks. Contrarily, negative real interest rate due to higher inflation rate and other factors discourages them to save in banks. Rather, they choose to hold value in real properties that are expected to appreciate. This affects bank to obtain liquid fund that is to be disbursed to different sectors of the economy in the form of loans and advances. An increase in real interest rate stimulates financial savings and consequently investment. Higher rate moves financial resources from less efficient to more efficient form of accumulation preferably in the form of bank deposit that bring about favorable return to the depositors.

Result from the regression witnesses that real interest rate has positive and significant impact on credit availed to the private sector by banks at 1% level of significance. The coefficient ( $\beta$ ) value of real interest is found to be 0.71, where 1% increases in real interest rate brings about 0.71 birr

additional credit to be disbursed to the private sector by attracting savings deposit to the banking system keeping other things constant. When the real return to money is lower than the average real return to physical capital, a further increase in money returns induces the accumulation of cash balances to finance a significant number of investment projects. But at higher interest rates, more economic agents may prefer to hold money rather than finance investment projects because money offers a higher return than their investment possibilities in physical capital. Therefore, one expects to find a positive (negative) relationship between these two variables at low (high) returns holding the average return to physical capital constant (Lugo, 2003). Finding from studies made in a similar subject are also congruent with the result. Such as Yu & Gan (2010), Shifotoka (2014), Seetanh B, Sannasee V & Seetanh B (2010), and Ogbokor (2014).

Therefore, it is essential to distinguish between the nominal and real interest rate because of the fact that the real interest rate essentially indicates the real cost of borrowing that shows the incentive of individuals and business firms to whether they decide to lend or borrow. When the real interest rate is low, there is greater incentive to borrow and less incentive to lend.

### ***H<sub>3</sub>: Remittance inflow has positive and significant impact on Private Credit by Banks to GDP***

Understanding the link between credits provided to private sector and the growing inflow of remittance as an external source of fund for households' consumption as well as for the financial intermediaries such as commercial banks is pivotal. So that the study tries to investigate the significance of the inflow of remittance in determining the volume of credit provided to the private sector domestically by banks.

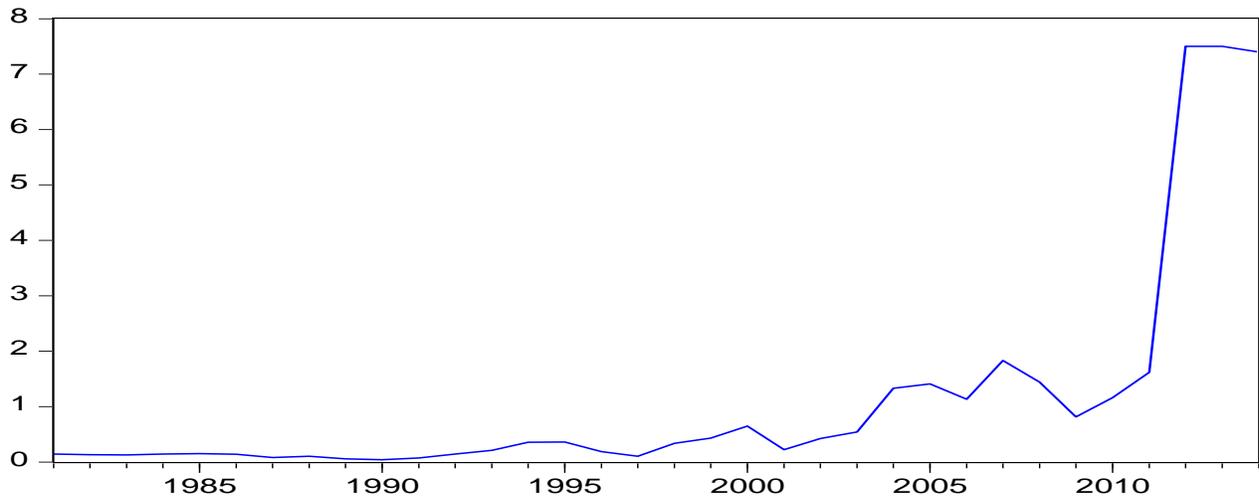
Workers' remittances, flows received from migrant workers residing abroad, have become the second largest source of external finance for developing countries in recent years. In addition to their increasing size, the stability of these flows despite financial crises and economic downturns make them a reliable source of funds for developing countries. While the development potential of remittance flows is increasingly being recognized by researchers and policymakers, the effect of remittances on financial development remains largely unexplored (Aggarwal, Kunt & Peria, 2010).

The empirical result from the regression of the model reveals that remittance has no significant impact on private sector credit extended by banks in Ethiopia and the sign of relationship is

different from the expected. This might be due to the fact that majority of the foreign remittance inflow went to households' consumption and the portion that is retained in the banks in the form of deposit minimal. The coefficient of remittance implies that a 1% increase in remittance to GDP ratio results in 16.9% reduction in credit to private sector by banks to GDP ratio , all other things remaining the same. The sign of the coefficient is consistent with Barajas & et.al (2013). Similarly, the empirical research conducted Oke (2011) on impact of workers' remittance on financial development in Nigeria generally indicate that remittances positively and significantly influence financial development in Nigeria, with the exception of the credit to private sector to GDP measure of financial development in the GMM estimation where the coefficient is insignificant. It is also justified that the implication is that remittances augment liquid liabilities more than loanable funds, as remittances are likely used more for consumption purposes than for productive ventures. Therefore, banks as the prime medium in transferring remittance they should cross-sell these funds with their own deposit products and services so as to boost their liquidity and meeting the demand for credit by the private sector. *—Our approach is 100% banking, the remittance business is a banking business, it is not a business of gaining from the transaction as such, the transaction does not leave absolutely anything ... but the more people we have whose transfers are directed to saving accounts, in this sense for the bank it is an instrument of very cheap funds that also allows placing credits at preferential rates”* Speech from El Salvadorian Commercial Banks Representative in 2008.

*Figure – 8: Remittance to GDP ratio*

### Remittance onflows to GDP



*Source: Regression Output*

Brown and Carmignani (2012) in their study about the effect of remittance on bank credit in developing countries, they found that at initial low levels of remittance, an increase in remittance reduces the volume of credit extended by banks. However, at sufficient levels of remittance inflow from abroad the effect becomes positive. They also noted that the turning point of the relationship occurs at level of remittance about 2.5% of GDP. Never the less, the ratio of remittance to GDP in Ethiopia during the period under study has been by far lower than 2% of GDP except in the recent three years that accounted about 7.5%, 7.5% and 7.4% in 2012, 2013 and 2014 respectively.

A study by Aggarwal, Kunt&Peria (2010) on a sample of 109 developing countries covering the time period from 1975 through 2007 show that 1% growth in remittances initiates a 0.36% increase in bank deposits and 0.29% increase in credit to private sector at 1% level of significance. Kunt et.al (2009) find in Mexico that remittances are strongly associated with the depth and breadth of banking services. The effects are significant both statistically and economically. The most robust impacts relate to the number of branches, accounts, and the deposit-to-GDP ratio. They also sometimes find rare positive relation with credit to the private sector by banks though the results are quite less robust and they also assert that the positive relation do not hold up to instrumenting for remittance receipts.

#### ***H<sub>4</sub>: Population growth rate has positive and significant impact Private Credit by Banks to GDP***

Population growth drives development in the banking sector by contributing towards the availability of credit to the private sector. Population size is also closely related to indices of financial development since small countries tend to have higher ratios of liquid liabilities and private credit, having the potential to affect the overall results substantially (Huang, 2010).

It is expected that larger population size and growth is going to be positively associated with financial development. Because a larger size of population and growth should spur financial development due to scale and networking effects that make provision of financial services more efficient in larger economies Allen & et. al (2010).

The result from the specified econometric model affirms the hypothesis that there exists statistically significant and positive relationship between population growth and credit availed to the private sector at 1% level of significance. When population growth goes up by 1%, the volume of credit given to the private sector to GDP increases by birr 52 all other things remaining constant. Increased productivity and higher per capita income of the population along with expanded inclusion of the unbanked population through the provision of bank saving schemes enable banks to mobilize huge deposit that will be channeled to the private sector in the form of loan. Besides, in Ethiopia the population who are eligible for bank credit in the form of credit card facilities which is customarily offered by banks in liberalized markets is not available. As a result, the relation between bank credit and population growth is differently positive unlike those of developed.

The research conducted by Allen & et. (2010) on the subject called the African Financial Development Gap using OLS regressions has critically observed banking sector development measured by liquid liabilities/GDP and credit to the private sector from deposit money banks/GDP ratios. Multitude of country level variables including endowment (population and resources), macroeconomics, institutions, banking structure and other variables were employed. The result, therefore, suggests the presence of positive relationship between population and credit provided by banks to the private sector for all the sub-Saharan African countries. Besides, it also underscores that population related factor such as population density has positive and

statistically significant impact on credit to the private sector from deposit money banks/GDP ratio.

***H<sub>5</sub>: Government consumption expenditure to GDP has significant and negative impact on Private Credit by Banks to GDP***

Government's expenditure has its own impact on the development of the banking sector. Particularly, the current/consumption expenditures occur regularly throughout the year in order to maintain functions of the government regularly.

The result from regression of Model 1 describes that government consumption expenditure has negative and statistically significant effect on credit to private sector by banks at 1% level of significance. The coefficient ascribed stands -3.68, i.e. when government's consumption expenditure increases by 1 birr the respective amount of credit financed to the private sector decreases by birr 3.68. This result also concurs with the research outcome of Ifeakachukwu, Omodadepo&Oluseun (2013), which analyzes public spending components the relationship between public spending components and private investment that is measured in terms of credit given to the private sector. The long run equation on credit to private sector as a measure for private investment showed that negative and significant relationship exists between government recurrent expenditure and private investment and also between government final consumption expenditure and private investment in the long run. The implication is that government recurrent expenditure and government consumption expenditure crowd out private investment (a one percent increase in government recurrent expenditure and government consumption expenditure would reduce private investment by 54.6 percent and 36.2 percent respectively) in the long run.

Similarly, a paper done by Sen& Kaya (2013) focusing on *Crowding-Out or Crowding-in ? Analyzing the Effect of Government Spending on Private Investment in Turkey* agrees with the Ethiopian case and it commends to give more priority to capital expenditure which crowds-in private investment through the means of adequate financing to the private sector rather than spending for current expenditure, government current transfer spending and government interest spending which crowd-out private investment.

***H<sub>6</sub>: Growth of real GDP has positive and significant impact on Private Credit by Banks to GDP***

On the basis of the “Demand Following” view of the finance Vs growth nexus where the causality runs from economic growth to banking sector development the research has hypothesized that growth in the real GDP has positive and significant impact on banking sector development. According to this view, as the economy expands, demand for banking services increases, leading to the growth of these services. Having employed both Granger Causality tests and regression analysis, Awdeh (2012), to discover the relationship between economic growth and banking sector development in Lebanon found that banking sector development does not Granger cause economic growth, whereas causality runs from economic growth to banking sector measures.

However, the output from the regressed model marks that it has positive but insignificant impact. When the real GDP grow by 1%, the respective volume of credit availed to the credit increases by 0.17 birr. Raza, Shahazadi&Akram (2014) in their analysis using panel data on developing and developed countries by running fixed effect regression shows that there is positive and insignificant impact of real GDP growth on credit to private sector.

A study done in Namibia by Shifotoka (2014) corresponds with our finding both in sign and significance. Donia (2012), Ayadi&Arbak (2013) also find that real GDP percapita has positive but insignificant impact on credit to private sector in their study conducted on determinants of banking sector development on developing & emerging economies and across the Mediterranean region respectively.

Moses (2014) estimated the impact of various variables, including GDP, on private sector credit by banks in Namibia using the ECM (Error Correction Model). The subsequent result tells us the prevalence positive relationship between them though the magnitude is statistically insignificant. Allen & et. al (2010) in their study that assesses Africa’s financial development gap, they come to learn that impact of real GDP growth on the amount of credit to the private sector by banks is positive but statistically insignificant. Contrarily, the findings of Yu & Gan (2010) from the Malaysian experiences witnessed the existence positive and significant relationship.

#### **4.4 Analysis of the OLS Assumptions for Model-2**

There are five basic assumptions that should be made while using the classical linear regression model (CLRM). These are critically required to show that the estimation technique, ordinary

least squares (OLS), has a number of desirable properties, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted.

**1. Assumption 1:  $E(U_t)=0$**

The first assumption asserts that the average value of the error/disturbance must be zero. As per Brooks (2008) if a constant term is included, this assumption will never be violated. Accordingly, the error term,  $\epsilon_t$ , is included in model -1 so as to ensure validity of the estimation result of the OLS. This is basically meant to avoid the biasedness that might be created by the model where it can explain more variation in the explained variable than the explanatory variables and the potentially biases in the coefficient of estimates of the variables. As can be observed from the annex, the average value of the residuals is zero.

**2. Assumption 2:  $Var(U_t)=\sigma^2<\infty$**

It is also assumed that the variance of the errors is constant,  $\sigma^2$ , this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. Therefore, the assumption is verified whether it is valid in the enshrined model or not by conducting standard test for heteroscedasticity called the White's test. The estimated result shows that the null-hypothesis that assumed the existence of homoscedasticity is not rejected because P-value of the Observed R-squared is well above 5%, i.e. 64%. Besides, P-value of F-statistic and Scaled explained SS is also 70% and 71% respectively. Therefore, there exists homoscedastic (constant) variance of the error term in the model that makes it to meet the assumption of the OLS.

*Table 6 – Heteroskedasticity Test for Model 1*

Heteroskedasticity Test: White

F-statistic	0.641180	Prob. F(6,26)	0.6964
Obs*R-squared	4.253467	Prob. Chi-Square(6)	0.6424
Scaled explained SS	3.717000	Prob. Chi-Square(6)	0.7149

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/25/15 Time: 20:28

Sample: 1982 2014

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	141.0408	571.8774	0.246628	0.8071
TRADEOPENNESS^2	-793.9537	1110.380	-0.715029	0.4810
REALINTERESTRATE^2	-0.109823	0.210434	-0.521891	0.6062
REMITTANCETO GDP^2	0.356326	3.617947	0.098488	0.9223
POPGROWTH^2	-5.737022	48.95106	-0.117199	0.9076
GOVCONEXPTO GDP^2	0.659237	0.541699	1.216981	0.2345
GDPGROWTH^2	0.276795	0.913835	0.302894	0.7644
R-squared	0.128893	Mean dependent var		140.7224
Adjusted R-squared	-0.072132	S.D. dependent var		239.7869
S.E. of regression	248.2844	Akaike info criterion		14.05286
Sum squared resid	1602774.	Schwarz criterion		14.37030
Log likelihood	-224.8722	Hannan-Quinn criter.		14.15967
F-statistic	0.641180	Durbin-Watson stat		2.406513
Prob(F-statistic)	0.696429			

*Source: Regression Output*

### 3. Assumption 3: $Cov(U_i, U_j) = 0$ for $i \neq j$

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 ‘serially correlated’. A test of this assumption is therefore required to ensure that the error terms are independent of each other. Durbin Watson (DW) statistic is approximately 2 (see regression output of model-1). This manifests the absence of serial correlation among the errors. Moreover, the serial correlation Lagrange Multiplier (LM) test has P-value of F-statistic and Observed R-squared 76% and 69% respectively, which is far from 5%. As a result, the null hypothesis of no autocorrelation is not rejected. So, the model has qualified the test comfortably that makes the estimation of the coefficients valid.

*Table – 7: Breusch-Godfrey Serial Correlation LM Test*

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.277376	Prob. F(2,24)	0.7602
Obs*R-squared	0.745550	Prob. Chi-Square(2)	0.6888

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/25/15 Time: 20:27

Sample: 1982 2014

Included observations: 33

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.223564	63.09721	0.019392	0.9847
TRADEOPENNESS	-12.51752	46.26178	-0.270580	0.7890
REALINTERESTRATE	-0.158278	0.329911	-0.479760	0.6357
REMITTANCETOGDP	0.004950	1.847784	0.002679	0.9979
POPGROWTH	-0.263374	17.20107	-0.015312	0.9879
GOVCONEXPTOGDP	0.188794	0.937982	0.201276	0.8422
GDPGROWTH	0.153221	0.524698	0.292018	0.7728
RESID(-1)	0.073456	0.215647	0.340632	0.7363
RESID(-2)	0.184728	0.263085	0.702160	0.4893
R-squared	0.022592	Mean dependent var		8.48E-15
Adjusted R-squared	-0.303210	S.D. dependent var		12.04657
S.E. of regression	13.75215	Akaike info criterion		8.307269
Sum squared resid	4538.922	Schwarz criterion		8.715407
Log likelihood	-128.0699	Hannan-Quinn criter.		8.444595
F-statistic	0.069344	Durbin-Watson stat		2.065808
Prob(F-statistic)	0.999709			

**Source: Regression Output**

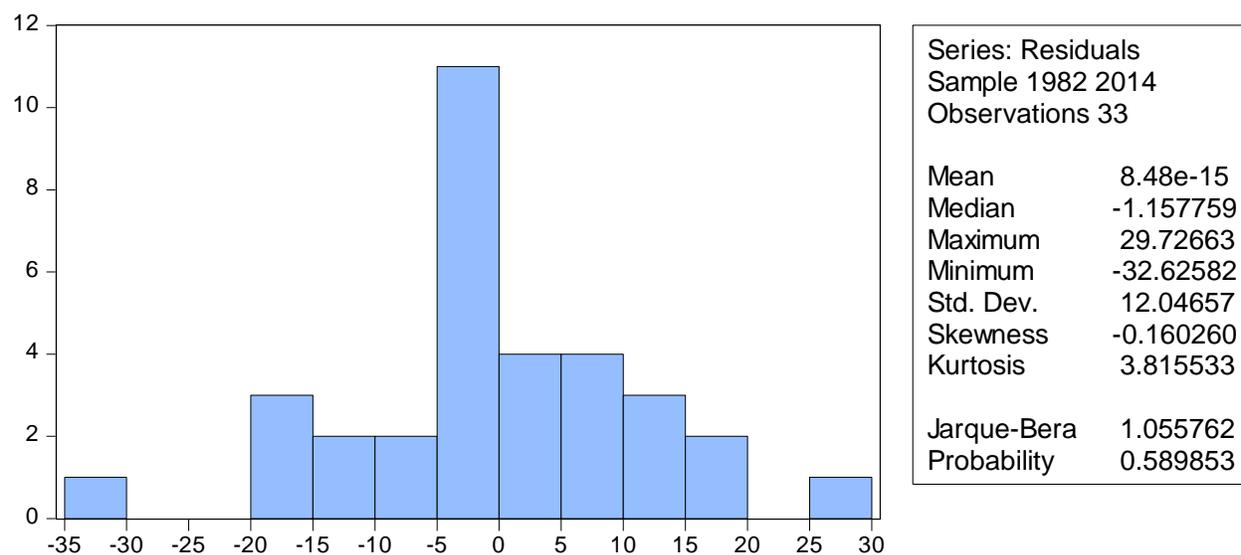
**4. Assumption 4: the  $X_t$  are non-stochastic  $Cov(\epsilon_t, X_t)=0$**

It is assumed that there is no relationship between the error term and the corresponding explanatory variables. This assumption is fulfilled provided that X and  $\epsilon$  are independent. Henceforth, Since the  $E(U_t)$  is 0, the explanatory variables are non-stochastic.

**5. Assumption 5: the disturbances are normally distributed  $U_t \sim N(0, \sigma^2)$**

The fifth OLS assumption dictates that the errors should be normally distributed around the mean. As can be seen from the histogram depicted below, P-Value of the Jarque–Bera is approximately 59% which above the 5% cut-off point. Accordingly, the null hypothesis is not rejected. Moreover, the skewness from the mean and excess kurtosis of the distribution of the disturbance is -0.16 and 0.8 respectively.

Figure – 9: Normality Test for Model



Source: Regression Output

#### 4.5 Statistical Analysis of Model-2

In order to measure banking sector development in Ethiopia, two indicative proxies are used. The second model employs Broad Money Supply (M2) to GDP ratio as a measure of development keeping the explanatory variables and the hypothesis to be tested similar with the first model. The mean value and standard deviation of the respective explanatory variables ; Trade openness (0.31 & 0.13), Real Interest rate (-0.16 & 12.3), Remittance to GDP (1.2 & 2.1), Population growth (3 & 0.3), Government consumption expenditure to GDP (13.8 & 3.6) and Real GDP Growth rate (5.3 and 6.8).

The dependent variable (Broad Money Supply or M2) also has mean and standard deviation of 1.7 and 10.4 respectively.

Table 8 – Descriptive Statistics Result from Model 2

	LNM2T OGDP	C	TRADEO PENNES S	REALINTERE STRATE	REMITTANC ETOGDP	POPGR OWTH	GOVCONEXP TOGDP	GDPGRO WTH
<b>Mean</b>	1.72623 5	1	0.30983 2	-0.16192	1.156591	2.97372	13.75338	5.314034
<b>Median</b>	4.19883 5	1	0.34408 7	1.303569	0.358183	2.88518 5	13.58783	7.4
	16.9704	1	0.50202	17.63548	7.5	3.51924	22.85438	13.85933

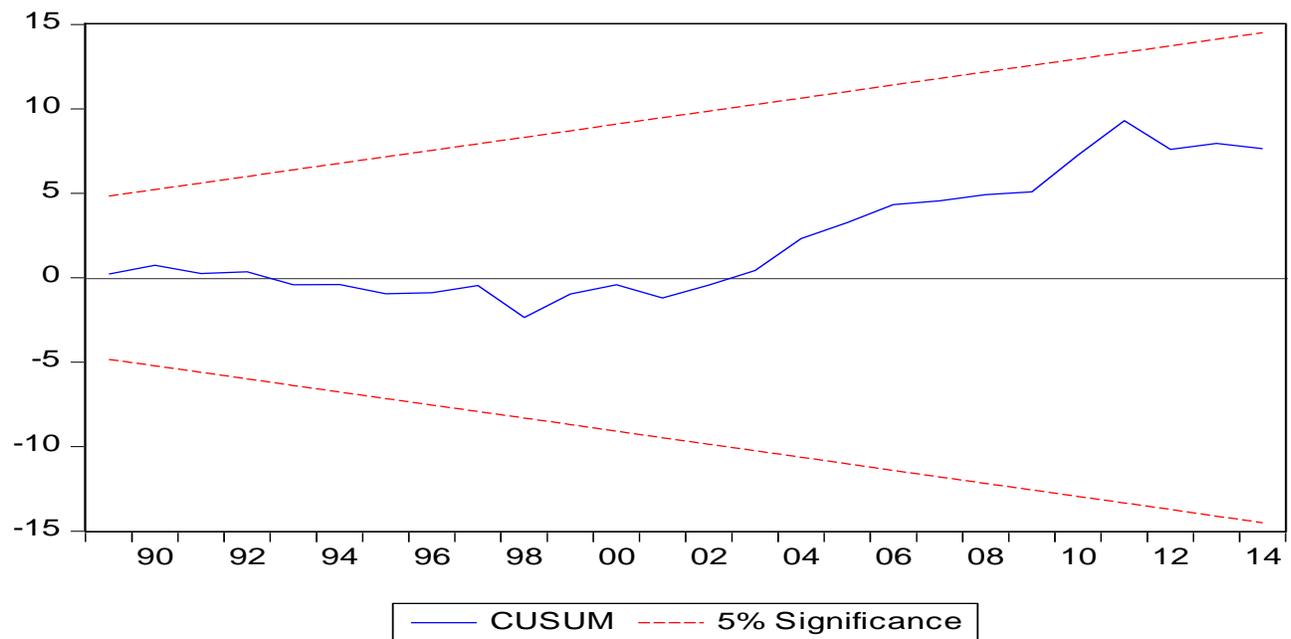
<b>Maximum</b>	7		2						
<b>Minimum</b>	33.0249	1	0.10748	3	-32.4	0.043181	2.31	7.953538	-11.14435
<b>Std. Dev.</b>	10.4591	5	0.12677	7	12.28209	2.091307	0.31517	3.659121	6.841468
<b>Observations</b>	33	33	33	33	33	33	33	33	33

*Source: Regression Output*

#### 4.6 Adequacy and Stability of Model 2

The estimated result from model to indicates that the adjusted  $R^2$ , which measures whether the data strongly fitted to the model and hence the regression line is strongly fitted to the data point. It describes the percent of variance explained by the model. In this case the  $R^2$  and adjusted  $R^2$  took the value of 67% and 59%. Generally, it is often acceptable when the  $R^2$  is above 60%. Besides, the P-value of the F-statistic of the model is statistically significant at 1% level of significance. Therefore, the null hypothesis that assumes the independent variables together don't jointly significant to influence the model is rejected.

*Figure 10 – CUSUM Stability Test of Model 2*



*Source: Regression Output*

Stability of model-2 in measuring the dependent variable, which is broad money supply (LNM2TOGDP) the estimated result from the cusum-test shows that it is stable at 5% level of significance. As can be seen from the figure depicted above, the independent variable is found between the bound of the two broken lines. This implies that Model-2 is stable in measuring banking sector development using the explanatory variables.

In addition, the Chow break point test for the model's stability assumes the null hypothesis that there is no break at the specified break-point (the year 1991) in this case. The result shows that the null hypothesis is not rejected because; p-value of the f-statistic is 25% taking the p-value of 5% as threshold. The year 1991 is considered as break point for the test given the fact that regime change took place and the subsequent deregulation of the banking sector to the private domestic investors.

*Table 9 – Regression Output from Model-2*

Dependent Variable: LNM2TOGDP  
Method: Least Squares  
Date: 05/19/15 Time: 17:29  
Sample (adjusted): 1982 2014  
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.59173	30.67160	-0.899586	0.3766
TRADEOPENNESS	31.36269	20.92232	1.499006	0.1459
REALINTERESTRATE	0.726651	0.122807	5.917037	0.0000
REMITTANCETOGDP	2.024003	0.896795	2.256929	0.0326
POPGROWTH	8.489065	8.366474	1.014653	0.3196
GOVCONEXPTOGDP	-0.182901	0.436184	-0.419322	0.6784
GDPGROWTH	-1.006969	0.230888	-4.361294	0.0002
R-squared	0.667336	Mean dependent var		1.726235
Adjusted R-squared	0.590568	S.D. dependent var		10.45915
S.E. of regression	6.692484	Akaike info criterion		6.825679
Sum squared resid	1164.523	Schwarz criterion		7.143120
Log likelihood	-105.6237	Hannan-Quinn criter.		6.932488
F-statistic	8.692838	Durbin-Watson stat		1.986364
Prob(F-statistic)	0.000031			

**Source: Regression Output**

## **4.7 Analysis of the research Hypothesis and Significance of Variables (Model 2)**

### **Interpretation of the Intercept**

Setting the value of the independent variables to be zero, the proportion of broad money supply to GDP decreases by Birr 27.6. Even though it is difficult to assume the value of all these variables to aggregate to zero, this will help to derive the mean value of the errors to be zero and also partially capture the effect of variables in the model. The result is not statistically significant, being the p-value far from the 5% significance level.

### ***H<sub>1</sub>: Trade Openness has positive and significant impact on Broad Money Supply***

Though the sign of the result is as expected, it is not statistically significant determinant of banking sector development in Ethiopia. The coefficient of trade openness is found to be 31.36. This can be interpreted: when the aggregate sum of import and export against GDP increases by 1%, the respective broad money supply increases by Birr 3136 holding all other things constant. As to the causality between Trade openness and broad money supply in the case of Nigeria Chimobi (2010) studied that Money supply was the only instrument of financial development that was seen to cause Trade openness; which means that it was rather trade openness that was found to cause both Direct credit and Private credit as measures of financial development.

### ***H<sub>2</sub>: Real Interest has positive and significant impact on Broad Money Supply***

Positive real interest rate enables banks to track money from the public at large into the banking system that will increase the supply of money in the financial system. In Ethiopia, the amount of broad money supply has been increasing from time to time. This has vastly contributed to the development of the banking sector. The estimation result from the model indicates that real interest rate has positive and statistically effect on broad money supply at 1% level of significance. As a result, we fail to reject the null hypothesis. The coefficient of the real interest rate recorded 0.73. When the real interest rate increases by 1%, the amount of broad money supply in the financial system increases by Birr 73. In a similar study conducted in Malaysia, Yu & Gan (2010) have proved that real interest rate has positive but insignificant impact on broad money supply (liquid liability).

***H<sub>3</sub>: Remittance inflow has positive and significant impact on Broad Money Supply;***

Remittance is one source of fund for the banking system of countries, particularly for developing nations, if they are able to retain hefty portion of the inflow in the different types of deposits through the cross-selling of banking products and services. The result shows that remittance is statistically significant and positively impacted of the amount of broad money supply in the economy at 5% level of significance. Hence, the null hypothesis is not rejected. The coefficient value for remittance is 2. This implies as the amount of remittance increases by 1%, the respective amount of broad money supply increases by Birr 200%.

***H<sub>4</sub>: Population growth rate has positive and significant impact on Broad Money Supply;***

As per the result from our finding, population growth has positive but statistically insignificant impact on bread money supply. Therefore, the null hypothesis is rejected. The coefficient estimate is also 8.5. This indicates as the population growth rate increases by 1%, the corresponding impact on broad money supply rises by 850 keeping all other things constant.

***H<sub>5</sub>: Government consumption expenditure to GDP has significant and negative impact on Broad Money Supply;***

Both variables are fiscal and monetary policy elements that affect one another. In the time of sour inflationary situation the central banks mainly take contractionary measures are taken to target inflation to the desired level. In contrast expansionary fiscal and monetary policies are required to maintain aggregate demand growth. The estimated result from the regression indicates that government consumption expenditure has negative but statistically insignificant impact on broad money supply. Therefore, the null hypothesis is rejected.

***H<sub>6</sub>: Growth of real GDP has negative and significant impact on Broad Money Supply***

Growth of the real GDP was expected to drive positive impact on broad money to banking/financial sector development. The regression output reveals that real GDP growth rate has negative and statistically significant impact at 1% level of significance. Therefore, the null hypothesis is not rejected. When GDP increases by 1%, broad money supply decreases by 1%.

**4.9 Analysis of the OLS Assumptions**

### 1. Assumption 1: $E(U_t)=0$

The average sum of the errors is zero. So that the assumption is achieved (See the annex)

### 2. Assumption 2: $Var(U_t)=\sigma^2<\infty$

The variance of the error terms is constant and they are homoscedastic because P-value of the F-statistic, Observed R-Squared and Scaled explained SS of the White's test is 41%, 37% and 55% respectively. Besides,

*Table 10 – Heteroskedasticity Test for Model 2*

Heteroskedasticity Test: White

F-statistic	1.067722	Prob. F(6,26)	0.4067
Obs*R-squared	6.523693	Prob. Chi-Square(6)	0.3671
Scaled explained SS	4.925418	Prob. Chi-Square(6)	0.5534

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/23/15 Time: 16:28

Sample: 1982 2014

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	86.88266	127.9263	0.679162	0.5030
TRADEOPENNESS^2	244.1202	248.3870	0.982822	0.3348
REALINTERESTRATE^2	-0.032143	0.047073	-0.682829	0.5008
REMITTANCETO GDP^2	-1.388401	0.809318	-1.715520	0.0981
POPGROWTH^2	0.953328	10.95013	0.087061	0.9313
GOVCONEXPTO GDP^2	-0.265232	0.121175	-2.188822	0.0378
GDPGROWTH^2	-0.289212	0.204421	-1.414791	0.1690
R-squared	0.197688	Mean dependent var		35.28858
Adjusted R-squared	0.012539	S.D. dependent var		55.89159
S.E. of regression	55.54008	Akaike info criterion		11.05792
Sum squared resid	80202.22	Schwarz criterion		11.37536
Log likelihood	-175.4557	Hannan-Quinn criter.		11.16473
F-statistic	1.067722	Durbin-Watson stat		2.130720
Prob(F-statistic)	0.406749			

*Source: Regression Output*

### 3. Assumption 3: $Cov(U_i, U_j) = 0$ for $i \neq j$

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 serially correlated. A test of this assumption is therefore required to ensure that the error terms are independent of each other. Durbin Watson (DW) statistic is 2 (see regression output of model-2). This manifests the absence of serial correlation among the errors. Moreover, the serial correlation Lagrange Multiplier (LM) test has P-value of F-statistic and Observed R-squared 72% and 65% respectively, which is far from 5%. As a result, the null hypothesis of no autocorrelation is not rejected. So, the model has qualified the test comfortably that makes the estimation of the coefficients valid.

*Table 11 - Breusch-Godfrey Serial Correlation LM Test for Model 2*

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.320516	Prob. F(2,24)	0.7288
Obs*R-squared	0.858488	Prob. Chi-Square(2)	0.6510

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 05/23/15 Time: 16:26

Sample: 1982 2014

Included observations: 33

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.787436	32.09772	0.149152	0.8827
TRADEOPENNESS	4.097488	22.21878	0.184415	0.8552
REALINTERESTRATE	0.046125	0.156229	0.295239	0.7704
REMITTANCETOGDP	-0.434999	1.083860	-0.401342	0.6917
POPGROWTH	-1.684857	8.865117	-0.190055	0.8509
GOVCONEXPOTGDP	-0.030699	0.450809	-0.068097	0.9463
GDPGROWTH	-0.021021	0.240884	-0.087265	0.9312
RESID(-1)	0.085059	0.281136	0.302553	0.7648
RESID(-2)	0.215355	0.268978	0.800644	0.4312

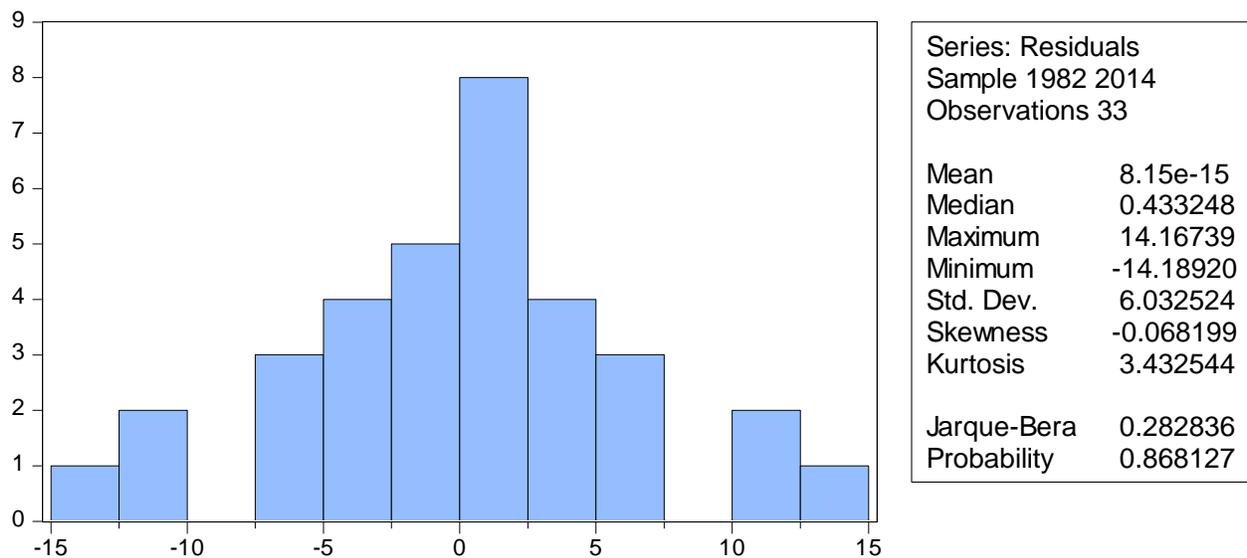
R-squared	0.026015	Mean dependent var	8.15E-15
Adjusted R-squared	-0.298647	S.D. dependent var	6.032524
S.E. of regression	6.874555	Akaike info criterion	6.920532
Sum squared resid	1134.228	Schwarz criterion	7.328670
Log likelihood	-105.1888	Hannan-Quinn criter.	7.057858
F-statistic	0.080129	Durbin-Watson stat	2.071687
Prob(F-statistic)	0.999503		

*Source: Regression Output*

**5. Assumption 5: the disturbances are normally distributed  $U_t \sim N(0, \sigma^2)$**

The fifth OLS assumption dictates that the errors should be normally distributed around the mean. As can be seen from the histogram depicted below, P-Value of the Jarque–Bera is approximately 87% which is above the 5% cut-off point. Accordingly, the null hypothesis is not rejected. Moreover, the skewness from the mean and excess kurtosis of the distribution of the disturbance is -0.06 and 0.4 respectively.

*Figure – 11: Normality Test for Model 2*



*Source: Regression Output*

## 4.10 Descriptive Quantitative Analysis of the Development Status of Banking in Ethiopia

### 4.10.1 Level of Access in the Ethiopian Banking Sector

As per the newly introduced indicators of banking sector development by the FSDI, broad based access to banking services is measured using metrics such as ATM penetration per 100,000 adults; Commercial bank branches per 100,000 adults; Borrowers from commercial banks per car 1,000 adults and Depositors with commercial banks per 1,000 adults.

The underneath table reveals that the number of ATM has not shown remarkable change. In 2004, it was stood at 0.02 and has increased to 0.46 in 2012. It has also shown improvement over the years. Compared to the peer countries in the Eastern African countries, it is found in a better position. Kenya, Uganda, Tanzania, Rwanda had a ratio of 0.022, 0.006, 0.011 and 0.0017 respectively in the year 2011. (See Appendix 3 & 4)

With Regard to the branch penetration ratio the banking sector in Ethiopia has recorded significant surge from 0.84 in 2004 to 2.95 in 2012. The status of development in comparison to Kenya (4.4), Uganda (2.5) and Tanzania (1.8) is moderately good. However, it has to be noted that the wide spread of mobile banking, agent banking and internet banking have substitution effect on the number of branches that operate on the mortars and bricks. Particularly, Kenya is exemplary in this regard.

*Table 12 – Data on access to banking in Ethiopia*

Items	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Automated teller machines (ATMs) (per 100,000 adults)</b>	0.02	0.02	0.03	0.04	0.07	0.10	0.30	0.32	0.46
<b>Commercial bank branches (per 100,000 adults)</b>	0.84	0.92	0.94	1.08	1.20	1.32	1.37	1.91	2.95
<b>Borrowers from commercial banks (per 1,000 adults)</b>			1.21	1.05	1.18	1.65	1.78	1.81	2.10
<b>Depositors with commercial banks (per 1,000 adults)</b>			66.42	74.89	77.95	90.74	103.16	111.06	136.78

*Source: World Development Indicators & Own compilation*

Access to financial borrowing from commercial banks measured as per capita of 1000 adults in Ethiopia is pictured to be very scanty and the progress also remains to be negligible. The ratio has grown from 1.21 in 2006 to 2.10 in 2012. The change in this regard is mainly attributable to the increased number of condominium loans given to individuals by the state owned giant, Commercial Bank of Ethiopia as per the policy direction of the government endeavoring to solve housing problems in major cities and towns. All banks in Ethiopia have no courage to give hefty amount of fund to borrowers in the form of personal loans and credit card facilities for fear of the risk embedded in personal lending activity. Albeit this fact, they give personal loan to their staff. In Kenya and Burundi, however, there are about 2 million and 0.43 million bank loan accounts.

The per capita measure of depositors in commercial banks in Ethiopia has dramatically and consistently increased from 66.42 in 2006 to 136.78 mainly because of the expansion of branch network of banks in the recent few years driven by the excess demand for credit though the amount of loanable fund falls short to suffice the demand. Because, above 90% of the population is unbanked. As a result, banks were not able to track the money outside the banking system through the means of alternative banking service packages such as mobile-banking, internet banking, agent banking and others. Recently, the competition among banks in attracting deposit by deploying deposit mobilization strategy has become a cut throat in order to sustain profitability and maximize shareholder value from differential interest and service charges and commissions from transactions in customer accounts.

Kenya has 14.3 million deposit accounts in 2011 when the population size is estimated to 40.9 million which is almost half of Ethiopia's population.

#### **4.10.2 Efficiency of the Banking Sector in Ethiopia**

Efficiency of the banking sector can be generally measured using financial ratio measures of profitability, operating efficiency and competitiveness. From among the profitability indicator metrics, Return on Asset, Return on Equity and Net Interest Margin of the aggregate of commercial banks in Ethiopia has witnessed commendable improvement. ROA has increased from 2.1 in 2000 to 3.82 in 2013. When compared with Kenya (3.7%), Uganda (4.4%), Tanzania (3%), Rwanda (2.3%) and Burundi (0.7%) the Ethiopian banking sector has earned a return form

its assets 3.2 % in the same year, 2012. Hence, it is positioned at the middle. It is equally important that these banks operate in different environment in which the regulation and infrastructure of the financial system may differ from country to country.

*Table 12 – Profitability & Efficiency Indicators of Banking Sector in Ethiopia*

Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2010	2011	2012	2013
<b>Return on Assets</b>	2.12	0.38	-1.76	2.09	1.51	2.07	2.61	2.58	2.94	3.18	1.97	2.55	3.06	3.22	3.82
<b>Return on Equity</b>	29.39	5.15	-27.88	34.81	23.25	32.71	40.65	28.81	27.75	31.12	20.24	26.14	31.32	36.59	47.25
<b>Net Interest Margin</b>	4.04	3.15	1.47	2.29	2.27	2.45	2.78	3.13	3.46	4.11	3.43	4.11	3.43	3.31	3.81
<b>Interest Spread</b>	1.89	0.63	0.57	0.85	0.92	1.49	1.65	1.80	1.82	2.67	1.96	2.67	1.96	1.46	1.84

*Source: National Bank of Ethiopia & Own Computation*

ROE similarly follows the paths of ROA in Ethiopian banking sector and recently stands to be 47.25% as of 2013. It is noted that the growth pattern of assets and capital is not equal. Assets grow faster while the growth of capital is somehow steady. In the same year (2012), Ethiopia, Kenya, Uganda, Tanzania, Rwanda and Burundi have earned returns from their invested equity 36.6%, 32%, 29.5%, 17.4%, 11.1% and 4.6% respectively. Therefore, the Ethiopian banking sector was relatively efficient.

NIM had erratic trend in the past years. The latest figure for Ethiopia shows 3.8% which is slightly higher than in the preceding year by 0.05 basis points. The Margin for the selected East African countries was 3.3%, 12.8% and 12.6% for Ethiopia, Uganda and Rwanda. In this regard the Ethiopian banking sector is less efficient.

Interest rate spread is the difference between the average lending and deposit rates charged and paid by the banks in the interplay. The spread from 2000 through 2013 is generally below 2.6 % which currently stood at 1.84%. Banks charge different rates from loans given to the private sector and the yield from government securities. The return from purchase of government bond and treasury bill is lower than commercial lending rate applied to customers.

**Table 13 – Top Three Largest Banks Concentration of Assets**

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Bank Concentration % of Total Asset</b>	91.85	86.62	84.37	97.59	93.65	92.46	91.83	89.68	88.55	87.67	91.68	85.29	80.43	83.24

*Source: Financial Development and Structure Dataset 2013*

Concentration ratio basically indicates the extent of competition in the banking sector. The largest three banks in Ethiopia took the lion’s share of banking sector’s total asset due to the economies of scale and scope they possess and other factors such as long presence in the banking sector and customer base. With respect to concentration, commercial bank of Ethiopia alone took more than 60% of the sectors total asset. The higher the concentration of banking sector assets in few banks, the larger will be the entire sector prone to contagion systemic risk. Besides, the degree of competitiveness will be reduced and the small bank will be swallowed by the big banks. As of 2011, the concentration ratio accounted 83.24%.

#### **4.10.3 Stability of the Banking Sector in Ethiopia**

*Table 14 – Indicators of Banking Sector Stability*

Indicator Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Bank nonperforming loans to total gross loans (%)</b>		28.2	43.8	40.5	26.4	19.9	13.02	10.34	6.8	6	3.5	2.1	1.4	2.5	2.9
<b>Liquid asset to total deposit</b>	33.31	25.61	34.54	56.52	61.07	57.17	58.47	61.48	46.19	45.46	41.63	45.46	41.73	42.96	28.80

*Source: NBE & IMF and Own compilation*

In order to sustain future growth and development the banking sector should be stable and resilient to absorb shocks. Regulators are also entrusted with the responsibility to ensure stability through the issuance of adequate regulatory mechanisms such as the CAMELS ratings.

Since 2001, the proportion of NPL from total outstanding loan in the banking sector has declined persistently. NPL in 2003 has reached its peak to 43.8 %. Since 2008 NPL is contained to be a single digit, which is universally commendable and tolerable. However, the current share accounts less than 3%. The NPL amount is reduced through resolution mechanisms such as rescheduling the repayment of loan, additional injection of loans to NPL cases, acquisition and write-off strategies for the loans that turn bad and overdue. The comparison of NPL position with Kenya (4.8%), Uganda (3.9%), Tanzania (7.5%), Rwanda (6.2%) and Burundi (8.1%) in 2012 indicates 1.4%, which is very low. This might be perhaps due to the prudence in credit sanctioning and loan collection efficiency and effectiveness in Ethiopian banks.

When we look at the liquidity position, the ratio of liquid asset to total deposit the trend is dwindling from time to time cognizant to the monetary policy measures taken by the government mainly to target the level of inflation to the desired level by putting cap on credit and increasing the cash reserve and liquid asset requirements. During the period of 2003 through 2009, however, banks used to hold excess liquidity and the demand for credit was also surprisingly low. The proportion of liquid asset to total deposit in 2014 was 28.8%. The position in Kenya, Uganda and Rwanda was 44.1%, 38.9% and 40.2 % respectively. Hence, the relative liquidity risk is higher in Ethiopian banking sector. Because, now a days all of the commercial banks in Ethiopia are obliged to buy government security 27% of fresh loan disbursement of the privately owned once. On top of this, above 50% of assets of the state owned CBE, is held by government securities that have long term maturity.

## Chapter Five

### Summary, Conclusion and Recommendations

This study examines the macroeconomic determinants of the development of the banking sector in Ethiopia by selecting variables and run two linear multiple regression models and estimated by the OLS method. In addition, the standing of the development of the banking sector is analyzed using descriptive quantitative method by comparing with other countries. While estimating the results by the econometric models, secondary time series data for 34 years has been employed. The following findings and recommendations are drawn from the data presentation and analysis section of the paper.

#### 5.1 Findings and Conclusion

From the analysis of private credit to GDP and M2 TO GDP that measure the development of banking sector development in terms of the ratio of credit extended to the private sector by the banks to GDP and broad money supply to GDP. The inference is that private credit extended by banks to GDP is the best indicator of banking sector development in Ethiopia in which five of the explanatory variables have statistically significant impact including the constant. It is found that Trade Openness, Real Interest rate, population growth, and Government consumption expenditure have far reaching statistically significant impact on the development of the banking sector by influencing the volume of credit provided by banks to the private sector. Finding from the test of the working hypothesis made indicates:

- Trade Openness has positive and statistically significant impact on private credit availed by banks to the private sector at 1% level of significance;
- Real interest rate is also statistically significant determinant of banking sector development measured in terms of credit given to the private sector by banks at 1% level of significance.
- Population growth is found as statistically significant & positive determinant of credit to the private sector by banks at 1% level of significance.
- Government's consumption expenditure has statistically significant and negative impact on credit given to the private sector by banks at 5% level of significance.

The second model used broad money supply (M2) as indicator of banking sector development and the respective estimated result indicates that only three variables (Including the constant) are

found to have statistically significant impact. These are Remittance to GDP ratio, Real Interest Rate and GDP growth rate.

- Real interest rate has positive and statistically significant impact on broad money supply at 1% level of significance.
- Remittance statistically significant and positive impact on broad money supply at 5% level of significance.
- Real GDP growth rate has statistically significant and positive impact on broad money supply at 1% level of significance.

Therefore, these factors are significant determinants of the development of the banking sector in terms up on the depth and quantity of the fund intermediated to the private sector and the amount of broad money supply circulated in the economy by the commercial banks.

The result from descriptive quantitative analysis of the banking sector in Ethiopia as compared to the neighboring East African countries in terms of access of banking services, efficiency of the banking sector and the level of stability of the sector shows that:

- ATM penetration per 100,000 adults in Ethiopia is better than Kenya, Uganda, Tanzania and Rwanda in 2012. However, the alternative channels that substitute ATM such as mobile banking and internet banking in Kenya have wider application.
- With Regard to the branch penetration ratio the banking sector in Ethiopia is recorded significant surge from 0.84 in 2004 to 2.95 in 2012 per 100, 000 adults. It is better than Uganda and Tanzania but lower than in Kenya keeping the substitution effect of agent banking, card banking, internet banking and mobile banking constant.
- Number of borrowers per 1000 adults in Ethiopia is found to be the least compared to the other East African countries. Similarly, the number of bank deposit accounts per 1000 adults in Ethiopia is lower though it has shown remarkable change over the years.
- ROA figure for the Ethiopian banking sector is found to be moderate which is less than in Kenya and Tanzania and better than Rwanda and Brundi. However, the ROE is better than the rest of these countries. In terms of NIM, the Ethiopian banking sector is not efficient.

- As measured by total asset share of the three largest banks' asset from the total asset size of the sector, there exists heavy concentration that is about 83%. However, the concentration is decreasing from the previous periods.
- NPL is decreasing over the years and it is the least from among the countries compared with.
- The recent past liquid asset to total deposit ratio in Ethiopia is lower than in Kenya, Uganda and Rwanda.

## **5.2 Recommendation**

- Openness in trade shall be further strengthen in a manner where the trade balance of Ethiopia is improved that enables the banking sector to reap large amount of foreign currency assets.
- In order to attract deposits from the public and track the money outside the banking system the government shall take measures that will improve the real interest such as targeting inflation to decrease or increasing the floor rate for deposit.
- Government shall cut its budget deficit that may oblige it to borrow from the local banks in order to cover some portion of consumption expenditure by improving its fiscal policy measures.
- Banks shall devise strategies in order to cross-sell inflow of foreign remittance and hence maintain with them so as to boost the deposit and hence provide adequate credit to the private through an adequate transformation mechanism.
- Banks operating in the sectors shall also examine the implication of the changes in these macroeconomic factors on their future growth and strategy.
- The national Bank of Ethiopia shall take measures that enhance financial inclusion and improve the platform of required infrastructure in collaboration with the designated organs of the government to enhance development and competitiveness of the banking sector.
- I recommend researchers to conduct investigative study on the impact of institutional, legal, regulatory and political factors on the development of the banking sector.

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## Appendix

### Appendix 1: Consolidated Balance Sheet of the Banking Sector on Ethiopia

Account	2,000	2,001	2,002	2003	2004	2005	2006	2007	2008	2009	2010	2,009	2,010	2,011	2,012	2,013	2,014
	A	A										-	-	-	-	-	-
<b>Cash on hand</b>	491	694	782	1,046	849	1,341	1,301	1,670	2,912	4,473	5,340	4,473	5,368	7,296	8,576	11,243	13,847
<b>Cash at Bank</b>	133	133	420	392	383	337	251	933	915	1,306	1,799	1,306	1,807	3,021	2,346	2,232	2,677
<b>Reserve Account with NBE</b>	4,416	2,526	2,703	3,664	4,789	13,017	8,554	11,983	15,444	19,984	20,356	19,984	20,463	28,106	22,090	23,120	30,552
<b>Deposit with foreign Banks</b>	2,273	2,253	2,722	3,153	3,132	2,884	3,514	4,230	4,270	4,906	11,079	4,906	11,133	22,348	19,667	28,429	21,312
<b>Treasury Bills</b>	801	1,862	3,366	8,062	11,088	4,845	12,784	14,362	6,648	5,415	2,997	5,415	2,997	200	1,143	1,316	274
<b>Other Investments</b>	2,106	5,145	5,222	2,514	2,864	5,682	4,608	8,015	14,445	19,893	32,888	19,893	32,888	50,877	78,733	104,782	131,349
<b>Trust Funds</b>	41	0	0	0	0	22	0	0	19	0	0	-	-	-	-	-	-
<b>Sundry Debtors &amp; Other debit balances</b>	1,828	1,509	1,795	2,133	2,416	3,232	3,050	2,238	3,076	5,420	5,842	5,420	5,867	7,101	11,574	12,425	23,691
<b>Total Loan &amp; Advances</b>	13,074	14,119	13,543	13,547	14,564	17,900	21,673	25,589	35,488	40,205	46,998	40,205	47,151	63,823	99,148	118,351	142,705
<b>Less Provision for Doubtful Debts</b>	1,546	2,095	2,580	2,771	2,422	2,467	2,177	2,096	1,999	1,662	1,460	1,662	1,461	1,831	2,336	2,956	3,039
<b>Net Loans &amp; advances</b>	11,528	12,024	10,963	10,776	12,142	15,433	19,496	23,494	33,489	38,543	45,538	38,543	45,690	61,991	96,812	115,396	139,666
<b>Customers' liability for L/C</b>	-	0	0			0	0	0	0	710	1,078	710	1,078	973	1,189	1,704	2,078
<b>Fixed assets</b>	342	347	365	370	462	461	531	647	786	1,030	1,482	1,030	1,489	1,817	2,543	3,186	5,641
<b>Total Assets</b>	<b>23,959</b>	<b>26,493</b>	<b>28,338</b>	<b>32,110</b>	<b>38,125</b>	<b>47,254</b>	<b>54,089</b>	<b>67,572</b>	<b>82,004</b>	<b>100,971</b>	<b>127,321</b>	<b>100,971</b>	<b>127,701</b>	<b>182,757</b>	<b>243,485</b>	<b>302,127</b>	<b>368,695</b>
<b>Liabilities</b>												-	-	-	-	118	-
<b>Deposits</b>	18,382	21,050	23,212	25,817	30,401	36,214	42,243	51,246	61,366	75,300	95,302	75,300	95,541	137,562	179,767	233,165	284,346
<b>Demand Deposits</b>	8,496	9,745	10,289	12,373	14,677	16,859	18,533	24,554	28,660	34,903	43,682	34,903	43,756	70,358	86,448	116,398	127,041
<b>Saving Deposits</b>	8,353	9,780	11,093	11,664	14,372	17,298	20,427	23,403	29,333	37,009	47,645	37,009	47,718	62,180	81,023	102,161	139,972
<b>Fixed Deposits</b>	847	1,006	1,149	1,153	1,227	1,624	3,124	3,212	3,374	3,388	3,975	3,388	4,067	5,024	12,295	14,613	17,669
<b>Foreign Bank their A/C</b>	686	519	681	627	125	433	159	78	0	0	0	-	-	-	-	-	-
<b>Trust Funds</b>	41	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15

<i>Account</i>	<i>2,000</i>	<i>2,001</i>	<i>2,002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2,009</i>	<i>2,010</i>	<i>2,011</i>	<i>2,012</i>	<i>2,013</i>	<i>2,014</i>
<b>Short term loans</b>	-	10	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
<b>Other credit balances</b>	1,887	2,909	3,151	3,580	3,166	4,933	5,460	6,270	9,140	8,274	15,134	8,272	15,165	24,244	34,442	36,895	11,631
<b>Margin held on L/C</b>	1,030	73	137	251	1,637	2,770	2,178	2,104	2,545	4,054	1,797	4,054	1,804	1,502	2,308	3,152	4,051
<b>Long term loans</b>	312	309	190	158	150	116	109	78	65	53	43	53	43	29	104	83	83
<b>Provision for taxation</b>	227	206	79	201	234	320	491	528	315	1,179	1,434	1,179	1,434	2,193	3,436	3,715	1,100
<b>State dividend payable</b>	237	13	18	23	40	0	0	0	0	1,966	1,476	1,966	1,476	2,109	4,065	4,364	-
<b>Other provisions</b>	62	16	0	0	0	0	0	64	0	0	0	-	-	-	-	-	-
<b>Bank's liability to L/C</b>	-	0	0			0	0	0	0	710	1,078	710	1,078	973	1,189	1,704	2,078
<b>Capital &amp; reserves</b>	1,782	1,907	1,551	2,080	2,497	2,901	3,608	7,266	8,558	10,131	12,120	10,131	12,222	15,103	19,349	23,170	27,407
<b>Authorized &amp; paid</b>	1,035	1,100	1,222	1,282	1,366	1,594	1,912	5,959	6,668	7,312	8,014	7,312	8,122	9,270	10,714	16,110	17,951
<b>Legal reserves</b>	425	453	469	735	749	881	1,212	711	1,252	1,999	2,858	1,999	2,858	4,083	6,098	4,210	6,267
<b>General reserves</b>	76	71	70	7	77	170	101	103	49	44	71	44	71	55	29	29	32
<b>Retained Earning</b>	224	269	-235	42	278	190	284	343	393	523	829	523	829	1,235	1,985	2,307	2,488
<b>Profit &amp; loss A/C</b>	22	14	25	14	27	66	99	152	196	253	348	253	342	460	524	570	740
<b>Total Liabilities &amp; Capitals</b>	<b>23,960</b>	<b>26,493</b>	<b>28,338</b>	<b>32,110</b>	<b>38,125</b>	<b>47,254</b>	<b>54,089</b>	<b>67,571</b>	<b>82,004</b>	<b>100,972</b>	<b>127,321</b>	<b>100,970</b>	<b>127,701</b>	<b>182,758</b>	<b>243,485</b>	<b>304,559</b>	<b>340,338</b>
	23,959	26,493	28,338	32,110	38,125	47,254	54,089	67,572	82,004	100,971	127,321	100,971	127,701	182,757	243,485	302,127	124,195

*Appendix 2: Consolidated Income Statement of the Banking Sector in Ethiopia*

<i>Account</i>	<i>2,000</i>	<i>2,001</i>	<i>2,002</i>	<i>2,003</i>	<i>2,004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2,009</i>	<i>2,010</i>	<i>2,011</i>	<i>2,012</i>
<i>Description</i>												-	-	-	-
Interest Income	1,236	1,319	931	1,016	1,151	1,263	1,790	2,366	3,273	4,261	4,918	4,261	4,924	6,976	11,040
Interest Expense	498	582	566	391	432	495	607	732	1,166	1,366	1,692	1,366	1,694	2,435	3,471
<b>Net Interest Income</b>	738	737	365	625	719	768	1,183	1,633	2,107	2,894	3,225	2,894	3,229	4,541	7,570
Service Charge & Comm. Income	108	129	271	181	241	628	481	559	724	1,555	900	1,555	900	2,072	4,107
Other Income	303	351	275	643	639	516	1,038	1,387	1,735	1,267	3,169	1,267	3,171	4,033	4,217
<b>Total Non-Interest Income(Trading and Fee Income)</b>	411	480	546	824	880	1,144	1,519	1,945	2,459	2,822	4,069	2,822	4,071	6,105	8,324
<b>Gross Income</b>	1,647	1,799	1,477	1,840	2,031	2,407	3,309	4,311	5,732	7,082	8,987	7,082	8,995	13,082	19,365
<b>NI Income &amp; Non Interest income</b>	1,149	1,217	911	1,449	1,599	1,912	2,702	3,578	4,565	5,716	7,294	5,716	7,301	10,647	15,894
Employees Salary & Benefits(Personnel Expenses)	132	164	192	206	253	295	368	464	623	803	128	803	1,073	1,391	1,967
Provision For Doubtful Loans	129	521	667	192	305	85	88	162	257	116	1,126	116	130	116	96
General Expenses	190	183	444	217	276	313	398	801	655	671	2,323	671	1,133	1,904	2,212
<b>Total Non-Interest Expenses</b>	451	868	1,303	615	834	692	854	1,427	1,535	1,590	3,577	1,590	2,335	3,411	4,274
<b>Prior Year Ajustment</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Operating Income before Tax</b>	698	349	392	834	765	1,220	1,848	2,151	3,031	4,126	3,718	4,126	4,965	7,235	11,620
<b>Tax</b>	238	254	90	202	233	337	525	585	835	1,218	1,465	1,218	1,465	2,236	3,481
<b>Net Income After Tax &amp; Provisions</b>	460	95	482	632	532	883	1,323	1,566	2,195	2,908	2,252	2,908	<b>3,500</b>	<b>5,000</b>	<b>8,138</b>

### Appendix 3: Banking Sector Depth in EAC

	Kenya	Uganda	Tanzania	Rwanda	Burundi
Total bank assets-to-GDP (%)	67.4	33.2	36.1	29.2	32.3
Total bank deposits-to-GDP (%)	49.6	22.7	29.6	19.8	17.6
Broad money-to-GDP (%)	52.0	23.0	33.2	20.9	22.3
Domestic credit to private sector-to-GDP (%)	38.2	17.9	17.9	13.5	21.1
Number of bank branches	1161	455	397	638	
Bank branches per 100,000 adults	4.4	2.5	1.8		
Number of bank accounts				2.03M	172K
Bank loan accounts	2M				4.3K
Bank deposit accounts	14.3M				
Credit reference bureaux	2	1	0	2	0
Private	2	1		1	
Credit reports accessed by banks	> 1.5M				
Credit reports accessed by individuals	> 7,600				
Number of enquiries	> 1.5M	129,615			
Negative information shared	yes	yes			
Positive information shared	yes	yes			
Customers get free report	yes	yes			
Institutions sharing information	yes	yes		yes	
ATMs	2,205	637	1,117	170	
ATM-to-branches ratio	1.89	1.46	1.87	0.25	
Banks with agents	8	yes	1 request	3	
Active agents	10,066			1,600	
Banks offering mobile banking	13	yes	yes	7	
People using mobile phone platforms	> 18M	> 2.8M	21M	> 600K	
Banks offering internet products	23	yes	yes	2	
Cheque truncation system	yes			yes	
Days to clear cheque	2	3			
EAC cross-border payment system	yes		yes	2012	
Deposit insurance scheme	yes	yes	yes	no	
Population (million)	40.9	35.2	42.2	10.9	8.4

Sources: EAC Central Banks, IMF, World Bank

Notes: Kenya, Uganda, Rwanda: December 2011; Tanzania: December 2010

Broad money-to-GDP: 2012

Domestic credit to private sector-to-GDP: 2011

*Appendix 4: Financial Soundness Indicators for Banks in EAC, 2012 (Percent)*

	Kenya	Uganda	Tanzania	Rwanda	Burundi
Total capital/risk-weighted assets	20.5	20.3	18.5	24.1	19.8
Capital adequacy ratio	12.0	12.0	12.0	15.0	
Core capital/risk-weighted assets	17.6	18.3	16.8		17.3
Core capital adequacy ratio	8.0	8.0	10.0	10.0	8.0
Liquid assets/short-term liabilities	41.2		39.2	19.6	
Liquid assets/short-term commitments					88.6
Liquid assets/total deposits	44.1	38.9		40.2	
Total loans/total deposits	76.7	74.2	65.9	67.6	
Gross NPLs/gross loans	4.8	3.9	7.5	6.2	8.1
Specific provisions/NPLs	54.2	31.6		49.6	76.7
Return on assets	3.7	4.4	3.0	2.3	0.7
Return on equity	32.0	29.5	17.4	11.1	4.6
Spread b/w lending and deposit rate	9.8		3.3		
Net interest margin		12.8		12.6	
Net open position in FX/capital	3.4		-6.9		
FX exposure /tier 1 capital		-5.2		0.0	
FX denom. assets/total assets	13.1	33.3			29.1
FX denom. liabilities/total liabilities	22.0				
FX loans/FX deposits		67.1		5.3	
FX assets/FX liabilities		103.4		114.8	
Large exposures/total capital		111.6		42.3	20.8

Sources: EAC Central Banks and IMF

Notes: FX: foreign exchange.

Large exposures for Rwanda are measured as a share of core capital.

Kenya: September 2012; Uganda: June 2012; Rwanda: September 2012/March 2012; Tanzania, Burundi: March 2012

Appendix 5: Data of the Macro Variables Used in the Research

Year	Import	Export	Real Interest Rate	GDP GRO WTH RATE	Gross Domestic Saving	Remittance onflow to GDP	Gross Fixed Capital Formation to GDP	Gross capital Formation annual growth	Population growth rate	Agricultural sector to GDP	Manufacturing sector to GDP	Credit risk premium to lending	GENERAL Government Final Consumption Expenditure	GENERAL Government Final Consumption Expenditure to GDP	GDP	M2
1981	1,795,200,000	1,148,400,000	17.67	0.00	14.78	0.14	19.04	19.04	2.39	58.08	9.27	5.50	1,897,714,700	12.52	15,162,549,600	2,438,310,000
1982	1,959,200,000	1,076,400,000	13.22	0.92	13.75	0.13	19.29	19.29	2.77	56.33	9.34	5.50	2,176,192,100	13.64	15,954,893,500	2,689,390,000
1983	1,990,700,000	1,142,200,000	12.91	8.24	12.32	0.13	17.10	17.10	3.05	57.47	8.97	5.50	2,620,236,800	14.77	17,735,534,000	3,078,170,000
1984	2,309,900,000	1,266,600,000	2.81	-2.85	17.10	0.14	23.33	23.33	3.18	51.18	10.84	5.50	2,471,406,500	14.75	16,759,345,900	3,377,910,000
1985	2,239,700,000	1,136,700,000	17.67	-11.14	9.39	0.15	15.01	15.01	3.20	55.37	9.66	5.50	2,575,948,200	13.13	19,625,339,800	3,956,460,000
1986	2,468,000,000	1,389,900,000	13.22	9.66	16.99	0.14	22.28	22.28	3.19	53.92	10.26	4.25	2,770,097,000	13.59	20,386,603,800	4,407,140,000
1987	2,519,500,000	1,290,500,000	12.91	13.86	15.54	0.08	21.18	21.18	3.22	51.95	11.64	3.00	2,945,577,700	13.52	21,791,591,000	4,655,340,000
1988	2,591,600,000	1,317,000,000	2.81	0.50	25.06	0.10	30.70	30.70	3.26	51.57	10.91	3.00	3,549,782,300	15.72	22,581,497,000	5,170,940,000
1989	2,485,900,000	1,556,500,000	0.39	-0.36	13.87	0.06	17.78	17.78	3.33	51.21	10.92	3.00	4,028,588,300	16.96	23,756,530,700	5,976,210,000
1990	2,212,484,000	1,390,660,000	2.64	2.73	13.72	0.04	16.98	16.98	3.40	52.04	9.78	3.00	4,243,079,000	16.84	25,202,595,200	7,163,930,000
1991	2,537,761,200	1,124,040,000	10.99	-7.14	9.46	0.07	14.53	14.53	3.48	61.36	7.61	3.00	3,923,917,900	14.08	27,870,207,500	8,304,900,000

Year	Import	Export	Real Interest Rate	GDP GRO WTH RATE	Gross Domestic Saving	Remittance onflow s to GDP	Gross Fixed Capital Formation to GDP	Gross capital Formation annual growth	Population growth rate	Agricultural sector to GDP	Manufacturing sector to GDP	Credit risk premium to lending	GENERAL Governmen t Final Consumption Expenditure	GENERAL Government Final Consumption Expenditure to GDP	GDP	M2
1992	2,223,298,100	937,420,000	-6.52	-8.67	9.69	0.14	14.07	14.07	3.52	65.97	6.30	2.75	2,713,706,300	9.23	29,406,613,100	9,568,750,000
1993	5,391,380,400	2,164,536,100	0.55	13.14	13.15	0.21	21.70	21.70	3.49	62.37	7.76	2.00	3,514,692,600	9.32	37,722,155,500	10,409,087,000
1994	5,606,562,300	2,831,654,700	11.08	3.19	14.58	0.36	21.50	21.50	3.39	55.66	8.64	2.33	4,547,937,700	11.35	40,066,416,500	12,821,381,000
1995	7,479,262,000	4,608,096,600	2.11	6.13	17.59	0.36	23.58	23.58	3.25	55.04	9.84	3.08	5,166,863,100	10.78	47,924,428,300	13,979,153,000
1996	8,708,679,500	4,956,110,600	13.64	12.43	14.85	0.19	21.80	21.80	3.09	54.30	10.38	6.70	5,731,768,000	10.61	54,008,447,600	15,243,596,000
1997	10,325,931,100	6,568,621,700	10.27	3.13	9.98	0.10	16.71	16.71	2.96	57.72	13.04	6.53	6,081,956,900	10.90	55,816,131,300	18,265,646,000
1998	11,375,987,000	7,137,642,600	10.67	-3.46	11.03	0.34	18.91	18.91	2.88	52.49	12.38	7.02	8,235,876,000	15.31	53,805,023,800	18,065,925,000
1999	14,070,090,900	6,863,722,800	8.18	5.16	6.45	0.43	18.91	18.91	2.85	48.63	13.04	6.93	11,819,653,600	20.44	57,840,190,200	20,541,924,425
2000	15,968,728,000	8,016,141,800	1.30	3.40	14.78	0.65	26.63	26.63	2.87	55.30	9.70	8.16	15,348,963,500	22.85	67,159,835,100	23,227,549,934
2001	16,121,933,200	8,153,822,400	17.64	7.40	16.63	0.22	28.26	28.26	2.89	56.40	9.50	7.81	12,828,044,400	18.71	68,548,836,800	25,474,989,750
2002	17,709,062,000	8,394,932,600	12.74	1.60	17.58	0.42	31.47	31.47	2.89	53.70	10.00	7.36	12,711,576,800	18.95	67,067,110,300	29,534,207,177
2003	20,135,308,500	9,778,018,700	-5.11	-2.10	14.80	0.54	28.80	28.80	2.88	49.40	11.00	5.69	12,680,931,100	17.14	73,995,583,200	33,207,649,361

Year	Import	Export	Real Interest Rate	GDP GRO WTH RATE	Gross Domestic Saving	Remittance onflow to GDP	Gross Fixed Capital Formation to GDP	Gross capital Formation annual growth	Population growth rate	Agricultural sector to GDP	Manufacturing sector to GDP	Credit risk premium to lending	GENERAL Government Final Consumption Expenditure	GENERAL Government Final Consumption Expenditure to GDP	GDP	M2
2004	27,365,533,100	12,880,145,300	2.97	11.70	17.70	1.33	34.29	34.29	2.84	51.60	10.90	6.44	14,567,864,900	16.68	87,325,768,600	39,604,927,590
2005	37,783,509,800	16,078,273,400	-2.62	12.60	10.34	1.41	30.57	30.57	2.80	51.90	10.60	6.75	16,998,373,500	15.84	107,289,698,100	46,968,234,703
2006	48,168,492,600	18,276,762,800	-4.08	11.50	9.66	1.14	32.19	32.19	2.75	51.50	10.40	6.92	20,702,940,500	15.61	132,651,633,500	56,358,903,846
2007	55,135,963,600	21,891,034,200	-8.29	11.80	9.00	1.83	28.19	28.19	2.71	50.50	10.20	6.57	23,266,734,200	13.43	173,308,781,900	68,877,681,618
2008	77,190,977,100	28,515,720,500	17.12	11.20	9.01	1.44	28.46	28.46	2.67	48.80	10.10	7.32	31,368,235,100	12.54	250,206,540,400	84,987,957,703
2009	96,958,030,800	35,479,306,300	32.40	10.00	11.29	0.81	29.48	29.48	2.65	47.30	10.10	11.76	38,379,652,600	11.36	337,965,157,200	82,509,800,000
2010	127,785,005,200	52,474,811,400	1.20	10.60	12.09	1.16	31.60	31.60	2.63	46.10	10.20	11.46	42,341,956,500	10.97	385,876,491,200	104,432,400,000
2011	162,486,800,000	85,949,800,000	13.10	11.40	17.25	1.62	32.11	32.11	2.60	44.40	10.40	10.75	53,147,100,000	10.32	515,078,541,000	145,377,000,000
2012	236,384,700,000	102,886,700,000	29.10	8.70	19.23	7.5	37.10	37.10	2.58	42.90	11.50	10.01	62,044,500,000	8.30	747,326,498,000	189,398,800,000
2013	251,300,600,000	107,969,200,000	-8.50	9.80	19.22	7.5	35.80	35.80	2.55	41.80	12.90	9.99	71,704,100,000	8.29	864,673,243,000	235,313,600,000
2014	308,703,000,000	122,632,000,000	-3.10	10.30	22.50	7.4	36.43	37.65	2.31	39.90	14.20	10.28	83,304,800,000	7.95	1,047,393,000,000	297,732,000,000

