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Financial Systems in Developing Countries

The Role for Economic Growth and Macroeconomic Stability

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Financial Systems in Developing Countries: The Role for Economic Growth and Macroeconomic Stability

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Abstract

The importance of financial development for economic growth and macroeconomic stability has become inconclusive in empirical studies, and country-specific studies have been scant to understand the finance-growth relationship. Therefore, this study focused on the long-run impact of financial development on economic growth and macroeconomic stability in Ethiopia. The result showed a long-run relationship between financial development and economic growth and macroeconomic volatility. The study found that financial development non-linearly affects economic growth. After a certain level of optimal development, finance reduces real GDP per capita. However, the strength of the impact depends on the type of indicator we use. Similarly, financial development helps to reduce macroeconomic instability. Therefore, the government should pay attention to the choice of indicators and the optimal level of development in the financial system.

Keywords: Financial Development, Volatility, ARDL, Ethiopia

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1. Introduction

The role of financial development in promoting economic growth and inhibiting macroeconomic stability has become a policy debate since the recent financial crisis. An underdeveloped financial system in developing countries (where Ethiopia is not the exception) shows the existence of inadequate financial instruments and financial institutions, which could result in volatile macroeconomic situations. Therefore, these countries are supposed to gain from deepening financial systems, the fact that financial depth helps to improve capital allocation and ease the access to more funds by households and firms, which might finally stimulate investment activities. On the contrary, according to Botev, Égert, & Jawadi (2019), too much finance could dampen economic growth through the inappropriate allocation of capital towards less feasible projects and exacerbate business fluctuations. Hence, the relationship between financial development and economic growth is not yet conclusive.

Ethiopia has undertaken different structural and institutional changes in the financial sector and the real sector of the economy since 1993. Corollary to this, economic growth has been steadily growing for the last two decades. Despite this, the financial system is shallow, albeit rapid growth is ongoing. The present study aims to shed light on the role of the financial system for economic growth and macroeconomic stability in Ethiopia. Notably, it tries to look at the relationship between the financial system and economic growth, whether there exists a non-linear relationship or not. The paper is also devoted to examining the effect of financial development on macroeconomic volatility (does it mitigate or amplify?). Besides this, the study tries to assess the structure of the financial system of Ethiopia.

Addressing these questions has profound importance, mainly, understanding the impact of financial development on macroeconomic volatility has implications on welfare. Because according to Loayza, Rancière, Servén, & Ventura (2007), macroeconomic volatility involves welfare cost through its unfavorable effect on income growth and development. In the same vein, in developing countries, the welfare gain from eliminating volatility supersedes the gains from additional growth. Therefore, our paper contributes to the literature by thoroughly examining the relationship between financial development and output volatility in Ethiopia. The paper also contributes to the literature by using composite measures of financial development, which has

been uncommon in empirical studies so far. The paper is one of the few studies that deal with the finance-growth link in a single country case. Most importantly, to the knowledge of the researcher, the role of the financial system for macroeconomic volatility and economic growth in Ethiopia is not well explored. Due to the underdevelopment of the financial market and data limitations, in this study we focus on financial institutions development.

The rest of the paper in this section is about the role played by the financial system to economic growth. Section II discusses a review of the related literature; Section III describes the overview of the Ethiopian economy and the financial system structure. Section IV discusses the data and methodology. Section V presents the main results and discussions, whereas section VI presents concluding remarks.

Financial Systems and Its Role

Financial systems allow funds flow from those who have the excess to those who have a shortage or demand more to spend. It includes financial markets (debt markets, stock markets, and foreign exchange markets) and financial intermediaries (banks, insurance companies, microfinance institutions). These markets and institutions affect the overall health of the economy because they affect not only the consumer's willingness to spend or save but also business investment decisions (Mishkin & Eakins, 2018). The role of the financial development to economic growth has received increased attention from academia and policymakers. Among other things, financial development influences economic development through the following mechanisms.

a. Channelling Fund

Channelling funds are the most critical functions of financial systems. It allows funds to move from people who have the money but lack productive investment opportunities to those who have investment opportunities but lack funds to spend on investment activities. As indicated in figure 1.1, funds flow mainly in two ways, i.e., direct or indirect. In direct finance, borrowers borrow funds directly from lenders by selling financial securities in the financial market. Whereas, in indirect finance, borrowers borrow finance from financial intermediaries (i.e., banks, microfinance). Therefore, this function of the financial system promotes economic efficiency because it raises investment activities.

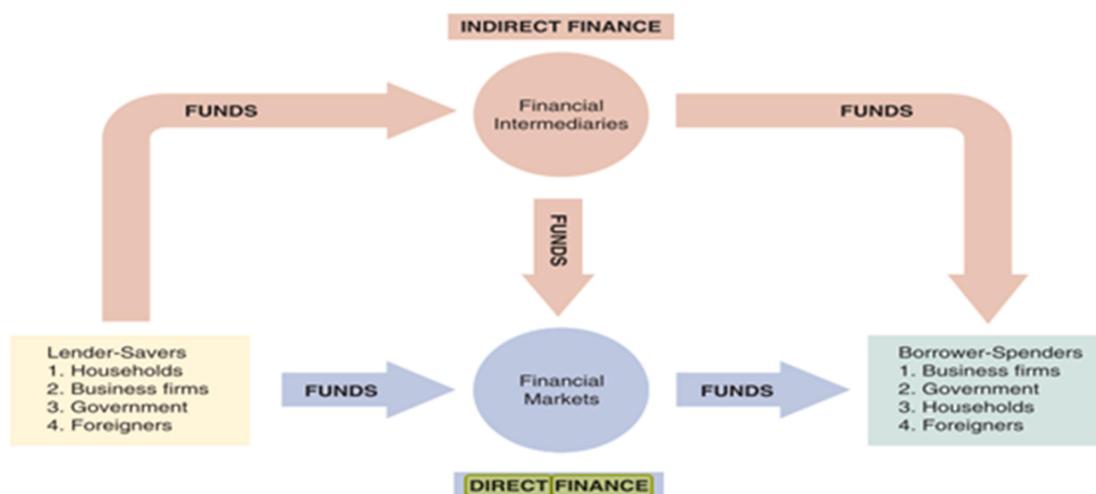


Figure 1.1: Flows of Funds through the Financial System

Source: Adapted from (Mishkin & Eakins, 2018)

b. Allocation of capital

Financial systems play an essential role in the economy through the efficient allocation of capital (human or physical), thereby increasing production and efficiency levels (Mishkin & Eakins, 2018). Primary capital markets serve as a source of funds to invest in additional physical capital goods. According to Schumpeter (1912), financial intermediaries facilitate wealth creation and capital formation by identifying and funding new productive investments. Likewise, Acemoglu, Aghion, & Zilibotti (2002) asserted that developing countries are at a lower level of the technological frontier and need more capital accumulation to grow. They argued that states in the early stages of development pursue investment-based strategies. Efficient stock markets are also other sources of capital allocation through its price signal to investment opportunities. Therefore, financial markets promote capital formation by providing finance to new investments.

c. Risk sharing

An efficient financial system helps to reduce investor's exposure to risk (reduce the uncertainty on asset returns). It is because financial intermediaries minimize transaction costs, and lowering transaction costs helps intermediaries to create and sell risky assets but comfortable with individuals. It allows them to reduce risk in the market because financial intermediaries help

individuals to invest in the portfolio of assets. Intermediaries like banks purchase assets or securities that can deliver more returns but with a low level of risk. They invest in a diversified portfolio of assets (short and long term, treasury bills, and local government bonds). Besides, they provide loans of various types to several customers. Levine (1997) stressed that improved financial systems could aid risk management, improve liquidity, and reduced transaction costs hence encourage investment.

d. Reducing Asymmetric Information

Asymmetric information poses two critical obstacles to the smooth flow of funds from savers to investors: adverse selection and moral hazard. However, well developed financial intermediaries can reduce both problems and serve the smooth functioning of the financial market through channelling funds from lender to borrower. Rioja & Valev (2004) stated that the availability of more financial instruments and those institutions providing financial services helps to contribute to economic growth through reducing transaction and cost of information.

2. Review of Related Literature

The development of financial systems has played a lot in the economics of developing countries through improvement in its instruments, financial services, and financial intermediaries. A developed financial system is an engine for economic activities. According to (Mishkin & Eakins, 2018), financial development provides ex-ante information about prospects of investment. It monitors investment activities and the implementation of corporate governance, involves trading, diversification, and management of risk, control mobilization of financial resources and hoard of savings, and facilitates the exchange of goods and services. Beck, Levine, & Loayza (2000) witnessed that financial development affects not only economic growth but also productivity growth. Therefore, financial systems are vital to economic growth by changing the sources of growth; and reducing transactions and information costs of commercial agents. However, market friction, laws, regulations, and policies are different across financial systems; an improvement in each dimension may have welfare and resource allocation implications, which may vary depending on the type of frictions operating in the economy.

There exist divergent views on the relationship between financial development and economic growth. One of these theoretical views is that financial development is good for growth ((Levine, 1997; Eita & Jordaan, 2010; Cecchetti & Kharroubi, 2012; Bist, 2018). They argued that with a developing financial system, the availability of money could translate into the creation of credit to finance economic activity, which will cause high economic growth. Therefore, it is vital to bring resources into their most efficient uses (Cecchetti & Kharroubi, 2012). Levine (1997) also argued that the level of financial development better predicts economic growth, capital formation, and change in technology. The financial system affects capital accumulation by affecting the savings rate or reallocating savings among different capital producing technologies. Demirgüç-Kunt & Levine (2008) also stated that countries with a high level of financial development (much private credit and more liquid stock exchanges) tend to grow faster than countries with lower levels of financial development. They analyzed the causal relationship between financial growth and economic development in Botswana using Granger causality and the co-integrated VAR method. They found a stable long-run positive correlation between the development of the financial system and economic growth.

Despite the strong relationship that exists between the financial development and economic growth, many of the studies documented non-linear effect of financial development on growth. Empirical studies by (Cecchetti & Kharroubi, 2012; Law & Singh, 2014) concluded that *"more finance is not necessarily good for economic growth."* The developed financial system has a non-monotonic effect on economic growth, where its effect turns out negative beyond at a higher level of financial development. It asserts that the existence of an *"optimal"* level of funding and the fast-growing financial sector is a setback to growth. Cecchetti & Kharroubi (2012) find that for private sector credit extended by banks, the threshold is close to 90 per cent of GDP. They find that the faster the financial sector grows, the slower the economy improves. The finding indicates that large and fast-growing financial areas may be very costly for the rest of the economy. It is because when the financial sector grows faster than the real economy, excess finance will not transfer into investment activities; instead, it will trigger demand for goods and services that will end up with higher inflation. Levine (1997) argued that a better financial system facilitates risk amelioration and efficient allocation of resources that may reduce the rate of savings and risk, accordingly reduce economic growth. Puatwoe & Piabuo (2017) asserted that *"where there is a high risk, there is a high return."*

Shreds of evidence also revealed that the relationship between finance and growth varies by level of income. For example, Rioja & Valev(2004) find no significant relationship between financial development and growth in low-income countries. In contrast, the association is positive and significant in middle-income countries and high-income countries. On the other hand, Gregorio & Guidotti (1995) and Huang & Lin (2009) found that financial development positively and significantly affect economic growth in low-income countries and middle-income countries than in high-income countries. Huang & Lin (2009) argue that financial liberalization under weak financial regulations negatively influences economic growth. They also found that finance affects growth mainly through the efficiency of an investment than the volume of investment. Narayan & Narayan (2013) studied the short-run relationship between financial development and growth using regional panels of 65 developing countries of Middle Eastern, European, Asia, and Latin America. They found that bank credit negatively affects economic growth for all regions except for the Middle East, which has a strong implication for developing countries.

Table 2. 1: Summaries of Literature on the Empirical Studies of Finance and Growth Relationship

Authors	Indicator	Method	Period	Country	Result
Rioja & Valev(2004)	Private credit(%GDP, Comm. bank asset/com bank asset plus central bank asset, and liquid liabilities	Dynamic Panel data analysis, GMM	1961-1995	74 countries	No effect for Low income, positive for middle and high income
Narayan P& Narayan S (2013)	Macapitalisationat ion, domestic private credit, the stock traded %GDP	Dynamic Panel data analysis, GMM	1995-2011	65 developing countries	Bank credit negatively affect growth
Huang & Lin (2009)	private credit, Comm bank- central bank asset, Bank asset, and liquid liabilities	Threshold regression and instrumental variable approach	1960-1995	71 countries	Finance is positively and strongly affect growth in developing countries. Non-linear effect of finance on growth
Gregorio & Guidotti (1995)	Bank credit	OLS regression	1960-85	100 countries	Credit has a weaker effect for industrial economies because of financial innovations outside of the banking sector
Cecchetti & Kharroubi (2012)	Private credit, banking system asset to GDP, financial intermediation share in total employment	Panel Data Analysis	1980-2009	21 OECD Countries	The fast-growing financial sector slows down productivity growth. Finance has a U-shaped effect on productivity growth.
Law & Singh	Private credit, domestic credit,	Panel Data Analysis, GMM Estimator	1980-2010	87 countries	Growth slowed down after a certain

(2014)	and liquid liabilities				threshold(Pvt credit=90%GDP, Domestic credit=99% of GDP).
Eita & Jordaan (2010)	Broad Money to GDP ratio, private credit, and bank deposit	Co-integrated VAR and Granger Causality	1977-2006	Botswana	Long run cointegration, finance affects growth positively, and causality is from finance to growth
Yilmaz et al. (2016)	Bank deposit, M2/GDP, Financial system deposit/GDP	Unbalanced Panel Cointegration and Causality Analysis	1980-2011	OECD	A long-run relationship exists, Uni-directional Causality runs from Growth to Finance
(Bist, 2018)	Private credit by banks % GDP	Panel cointegration Analysis, FMOLS &DOLS	1995-2014	Fifteen SSA, one and non-SSA low-income countries	Financial development positively affects growth through productivity.
Demirgüç-Kunt & Levine (2008)	Private credit %GDP	Panel GMM and OLS	1960-1995	77 countries	Countries with developed financial systems tend to grow faster.
Ibrahim & Alagidede, (2018)	Domestic credit % GDP	GMM	1980-2014	SSA	Non-monotonic relationship (Domestic credit >29%GDPslow down growth
Beck et al. (2000)	Private credit %GDP	Dynamic Panel Analysis and IV	1960-95	74 Countries	Finance positively affect Percapita growth and productivity growth

(Puatwoe & Piabuo, 2017)	Broad money, Domestic credit to private sector/GDP, Bank deposit %GDP	ARDL	1980-2014	Cameron	-In the short run, Broad money has a positive effect, and Bank deposit has a negative effect - Long run (all indicators positively affect growth)
Martin Čihák et al. (2015)	FD index	A dynamic system of GMM estimator	1980-2013	128 countries	Inverse U-shaped relationship
Adu, Marbuah, & Mensah (2013)	Private credit by banks, domestic credit by banks and broad money /GDP	ARDL	1961-2010	Ghana	Private credit → Growth Broad money → growth decline

To recap, a bunch of studies dealt about the importance of development in financial systems on economic growth for an extended period in the empirical literature. However, many of the studies were in developed and middle-income countries or a combination of countries at different income categories. The impact of financial development was controversial for several reasons. Indeed, financial development is a complex issue where data are not evenly available across regions and over time, and measurements are also diverse. Different components have a different impact on economic growth, and the financial system is sensitive to shocks. Those studies have also been different by methodologies and types of control variables used to capture finance growth nexus. Even those existing studies are longitudinal, and results are inconclusive. Therefore, this study will shed light on the finance growth relationship in a single country case, by adding value to the literature and provide insight for policymakers into possible areas of intervention in the financial system.

3. Overview of the Ethiopian Economy and the Financial System Structure

This section describes the macroeconomic and financial system evolutions in Ethiopia. Firstly, It deals with the trends in economic growth and inflation dynamics since 1980. Secondly, this section discusses the evolution and performance of the financial system. It tries to address issues like financial structure, financial depth (domestic bank credit to the private sector), efficiency (bank lending spread), and financial inclusion (account ownership). Here, the discussion period for the financial system is from 1980 to 2008 because of data limitation. For the period after 2008, we tried to discuss based on various reports, working papers, and research outputs.

3.1. Macroeconomic Development in Ethiopia

A) Real Gross Domestic Product Growth

Ethiopian economy is mainly dependent on the agriculture sector. It accounted for 41.1 percent of GDP in 2014, which declined to 33.3 percent in 2019(National Bank of Ethiopia, 2019a). Due to the underdevelopment and rain-fed nature of the sector, fluctuations directly cause volatility in the overall economy. As depicted in figure 3.1, the real GDP growth of Ethiopia has been unstable before 2005. Agriculture growth fluctuates between -12% and 12.7% for the period 1985 to 1995/96. The then socialist government economic policy did not bring economic reforms. It was highly restrictive to the private sector involvement in the economy and aimed at the nationalization of all economic activities under the central planner. The upturns in economic growth directly linked to climate factors.

After the militarist/Derg regime toppled down from power in 1991, economic reforms took place. Fiscal policies that aimed at reducing inflation through raising revenue and reducing the public deficit was part of the reform. Domestic price controls lifted, import tariffs reduced, and exchange-rate reforms undertaken. In October 1992, the exchange rate devalued by 140 per cent from 2.07 Birr per dollar to 5 Birr per dollar. According to Addison & Geda(2001), the World Bank and IMF have supported the economic transformation. They offer substantial aid flows in support of its reconstruction and transition programs, which put Ethiopia as the most significant World Bank aid (Structural Adjustment Credit) recipient in SSA as of 1998. IMF supported the reform from 1993 to 1995 through its Enhanced Structural Adjustment Facility (ESAF) program. Following these structural reforms, the economy has recovered. However, the reform was not

free from constraints like structural factors (significantly agrarian economy), terms of trade shocks (the decline in the coffee export price), and the 1998-2000 border conflict with Eritrea. The fiscal and monetary policy has kept inflation low, and the exchange rate and trade reforms have stimulated exports (IMF, 2000).

After 1999, Ethiopia reached into peace with Eritrea, and the cropping season was favorable so that the economy grew by 7.9% in 2000/01. Later in 2001/2002, due to the decline in the price of coffee and cereal crops, growth was down to 5%. Alongside this, food production has suffered from severe drought in late 2002, which caused food shortages and bounce food prices up (IMF, 2002). Later on, the economy revives, and real GDP grow by 11.6 per cent in 2003/04 associated with a conducive agricultural season, and exchange rate depreciation (National Bank of Ethiopia depreciates Birr to Dollar by 8 per cent) to build net foreign reserves(IMF, 2005). The Ethiopian government continued to take monetary and fiscal policy measures to build a shock-resistant economy. For that matter, the central bank continued to depreciate the home currency against the dollar, increased its credit to public enterprises, and commercial banks to encourage private investment. As a result, the economy grows steadily and remains relatively stable since 2005. However, inflation was hiking due to increased domestic price associated with the high level of import of capital goods, raw materials, and food items, which was, on average, 40 per cent in 2008 (IMF, 2008). Therefore, monetary authorities take tight monetary tools to curve inflation.

The national bank of Ethiopia restricts credit to public enterprises and has been selling foreign reserve and increase commercial banks reserve to reduce in the money base¹. Commercial banks also directed to hold National Bank bills, which negatively impacted their capacity to provide credit to private enterprises, i.e., private investment fall from 8.7 per cent in 2010 to 6.5 per cent in 2012 (IMF, 2012). Despite the recent decline in the economy due to a reduction in government expenditure (as a measure to reduce external deficit and indebtedness) alongside political uncertainty and foreign exchange shortage, the Ethiopian economy remained to grow high compared to the emerging market and developing economies.

¹ In Ethiopia monetary base is used as operating target, broad money supply as intermediate targets and exchange rate and price stability are monetary policy goals of the central bank(NBE, 2009). The major nominal anchor are monetary aggregates(IMF, 2020).

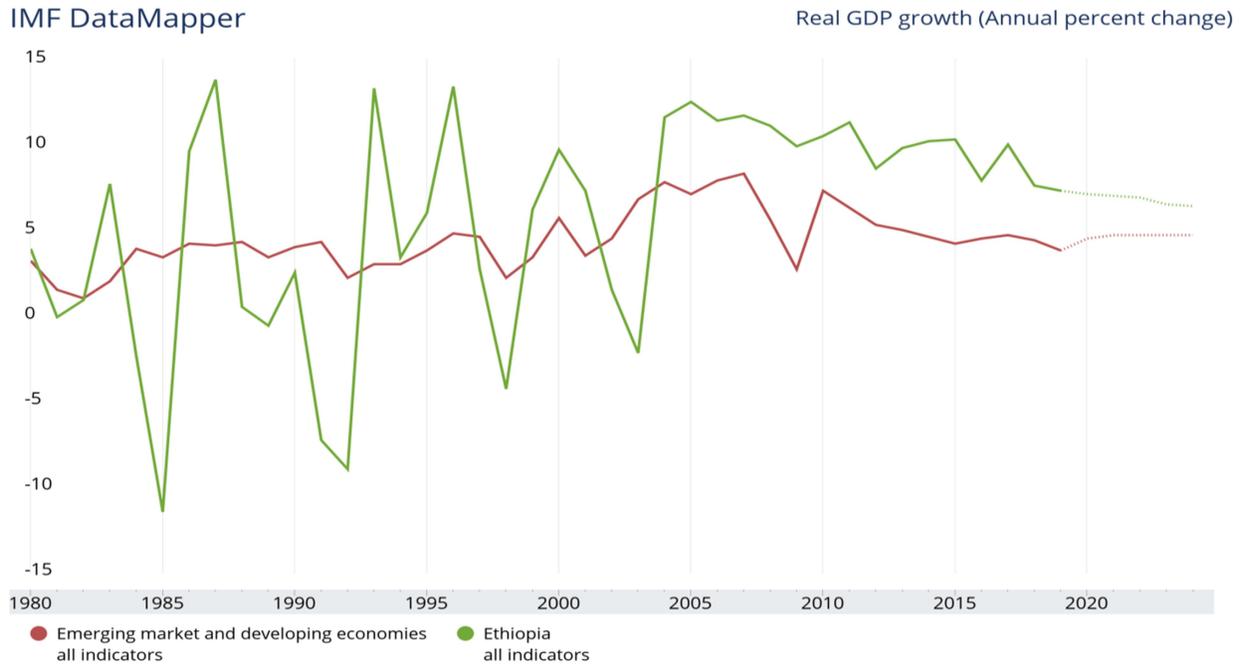


Figure 3.1: Economic Growth in Ethiopia (1980-2020)

B) The Evolution of Inflation in Ethiopia

Ethiopia has not experienced such soaring inflation. The significant inflationary periods were mainly due to the natural and political conditions that have occurred in the country. According to Loening, Durevall, & Birru (2008), the average inflation rate was around 5.2 per cent for the period between 1980 to 2003. Those periods of hiking inflation in 1984/85 and 1990/91 associated with severe drought and Ethio-Eritrean border conflict, respectively. Ethiopian economy mainly relies on agriculture, where product commercialization and diversification of agricultural items are at its lowest level. Food inflation has been the main contributor to general inflation. Of those contributing factors for food and non-food price inflation exchange rate, and international food and commodity prices take the lions-share in the long run. In the short-run, inflation is due to agricultural supply shocks and inflation inertia.

Although inflation remained a bit stable after 1991/92, it continued to rise and reached about 39 per cent in 2008/09. It was mainly due to higher public spending on construction, manufacturing, and services as part of structural transformation. The public enterprises (telecommunications, energy, and airline) offered credit facilities from the central bank of Ethiopia, while the bank

raised reserve requirements from 5 per cent in 2007 to 10 per cent in 2008. It also has decreased the base money from 10 per cent to 5 per cent in order to curve inflation down. However, as a result of credits made in the previous years and a switch of food aid to cash aid, food demand remained high, and supply shocks persist, which lends inflation to remain soared(IMF, 2008).

The persistent inflation and current account deficit, along with foreign debt distress, moved the Ethiopian government to take fiscal and monetary policy measures. The government tried to tighten its fiscal stances by increasing tax revenue and reduce its spending and switch spending to pro-poor projects. The monetary authorities also tighten the base money by ceasing direct credit to the public enterprises and have been selling foreign reserves. However, the monetary policy was loose in that reserve requirements reduced from 15 per cent to 10 per cent in 2011 to extend more credit to public enterprises. Hence, inflation remained high, i.e., 33.2 per cent in 2011(IMF, 2012). Since 2013 inflation is comparatively stable, albeit at a high level. The government extends its regulatory measures along with implementing economic transformation plans (Growth and Transformation Plan), which aimed at a robust private investment in the manufacturing sector.

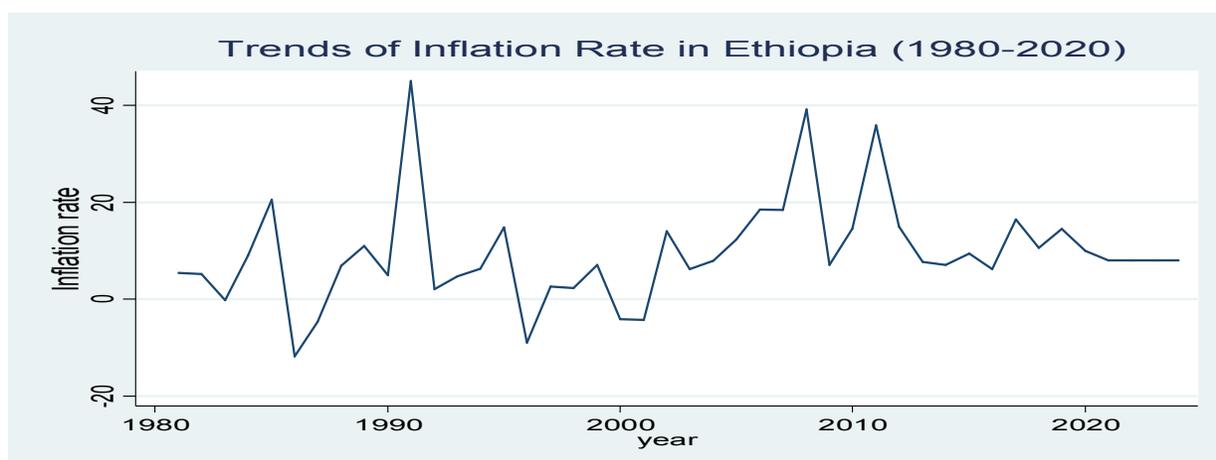


Figure 3.2: Evolution of Inflation in Ethiopia

Source: Own compilation from IMF Database

3. 2. The Financial System Development in Ethiopia

The role of the financial system in developing countries like Ethiopia is not well assessed because financial development is only a recent phenomenon. The security market does not exist yet, and the access and depth of financial services are not well developed but with improvement. Banks take the dominant financial institutions both in the number and size of the financial system. There are two government-owned commercial banks and 16 private commercial banks in the country, which are domestically owned banks. The total population to bank branch ratio stood at 18, 386.6, and about 37.7 per cent of the entire bank branches are in the capital, Addis Ababa. As shown in figure 3.3, public banks account for about 57.6 per cent of capital in the banking system in the third quarter of 2018/19. In Ethiopia, the total number of microfinance is 38, and only five government-owned MFIs account for 83.5 per cent of the total capital, 91.5 per cent of the total deposits, 87.8 per cent of the full credit, and 88.6 per cent of the total assets of MFIs (NBE, 2018). It accounts for 42.8% of the asset of the financial system as of September 2019(National Bank of Ethiopia, 2019a). In general, the financial market is weak and yet underdeveloped in the country.

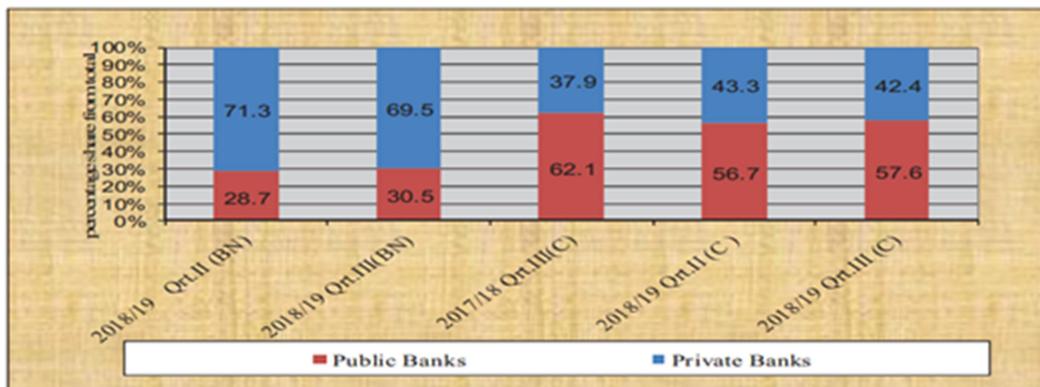


Figure 3.3. Branch Network and Capital of the Banking System

Source: NBE, Staff Compilation

Branch Network (BN) is higher in private banks, but public banks constituted the lion's share of capital(C) in the banking system.

Table 3.1: Financial System Structure 2010-2018, Ethiopia

	2010					2015					2018				
	No.	No. of branches	% of the total	Capital in METB	% of bank Asset	No.	No. of branches	% of the total	Capital in METB	% of bank sys asset	No.	No. of branches	% of the total	Capital in METB	% of Bank S Asset
All banks	15	681	100	12933	100	19	2693	100	31539.5	100	18	4757	100	101498.6	100
State owned	3	273	40	7730	59.8	3	1129	42	13716.7	43.5	2	1482	31.2	57494.4	56.6
Com Bank	2	241	35.4	5761	44.6	2	1097	40.8	11447.6	36.3	1	1375	28.9	49817.9	49.1
Devt Bank	1	32	4.7	1969	15.2	1	32	1.2	2269.2	7.2	1	107	2.2	7676.5	7.6
Private com.Bank	12	408	60	5203	40.2	16	1564	58	17822.8	56.5	16	3275	68.8	44004.2	43.4
Insurance companies	12	207		962.4		17	307		2865		17	532		8188	
Microfinance Institutes	30			2375.2		35			7187.259		38			13772.43	
				28										6	

Source: Own compilation from NBE staff reports

Table 3.1 demonstrated that state-owned financial intermediation is the dominant contributor to the Ethiopian financial system. It accounts for 59.8 % and 56.6% of the asset in the banking system in 2010 and 2018, respectively. Insurance companies and microfinance institutions are at the infant stage, despite its capital increase over time. The total capital of insurance companies reached 8.2 billion Birr in 2018, and undergoes a modest increase in the number of branch outreach. Even though its economic role is significant through providing credit to the small and micro business, the number of microfinance institutions is small. Its capital was about 13.772 billion Birr in 2018. However, it is the state that owns the largest microfinance institutions. According to National bank of Ethiopia 2013/14 report, the four largest MFIs, namely Amhara Credit and Saving Institution I (ACSI), Dedebit MFI, Oromiya and Omo Credit and Saving Associations constituted about 74.9 per cent of the total capital, 84.0 per cent of the savings, 80.6 per cent of the outstanding credit and 81.6 per cent of the total assets of MFIs. It shows a high concentration of microcredit services in the hands of the government and the major regional cities.

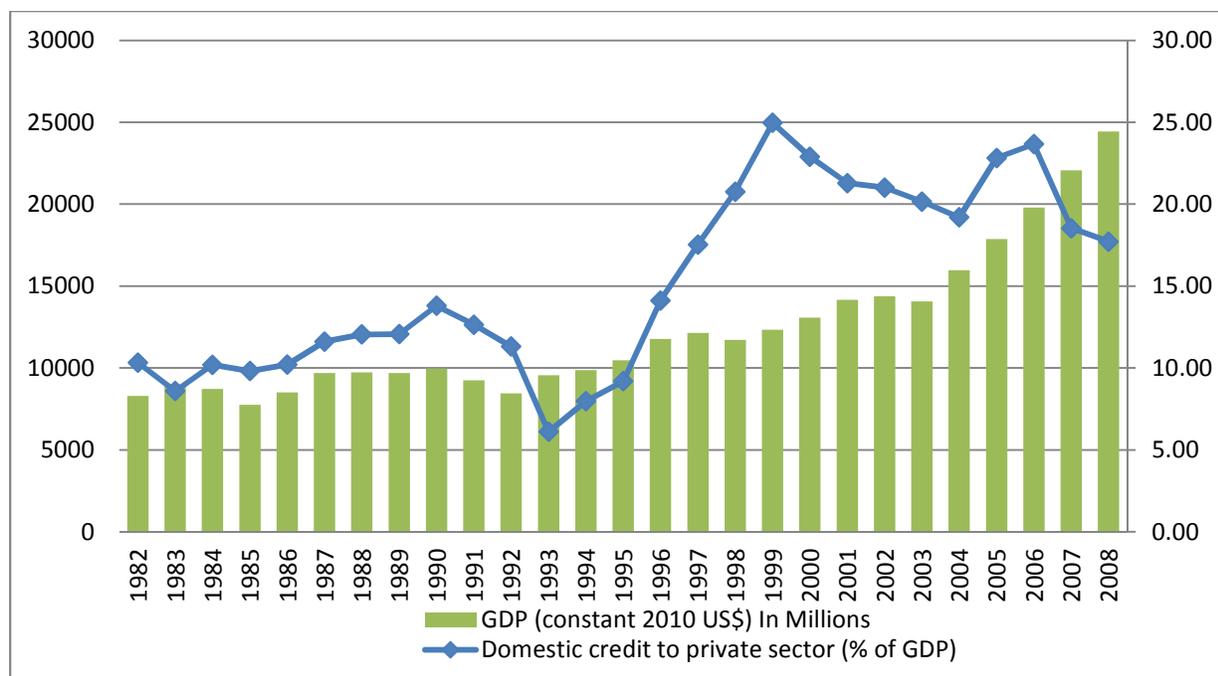


Figure 3.3: Trends of Economic Growth and Bank Size

Figure 3.4 illustrated that gross domestic product measured in millions of USD at a constant price was relatively stable before 1993. From 1993 to 2008, it registered a consistent increase with slight ups and downs.

On the other hand, domestic credit to the private sector measured in the per cent of GDP turns out volatile. The maximum amount of credit was about 25% of GDP, whereas the minimum was nearly 5%. Even though the development of the banking system is at a low level, the contribution to economic growth may be significant.

According to figure 3.5, the efficiency of the banking system measured by bank lending spread, which is the gap between the lending rate and the deposit rate of commercial banks for three months of deposit revealed the increased performance of the financial system. The fall in this gap implies the provision of credit at a low level of lending rate. It is crucial to the economy through increased investment by small firms since a lower lending rate increase access to credit by small firms.

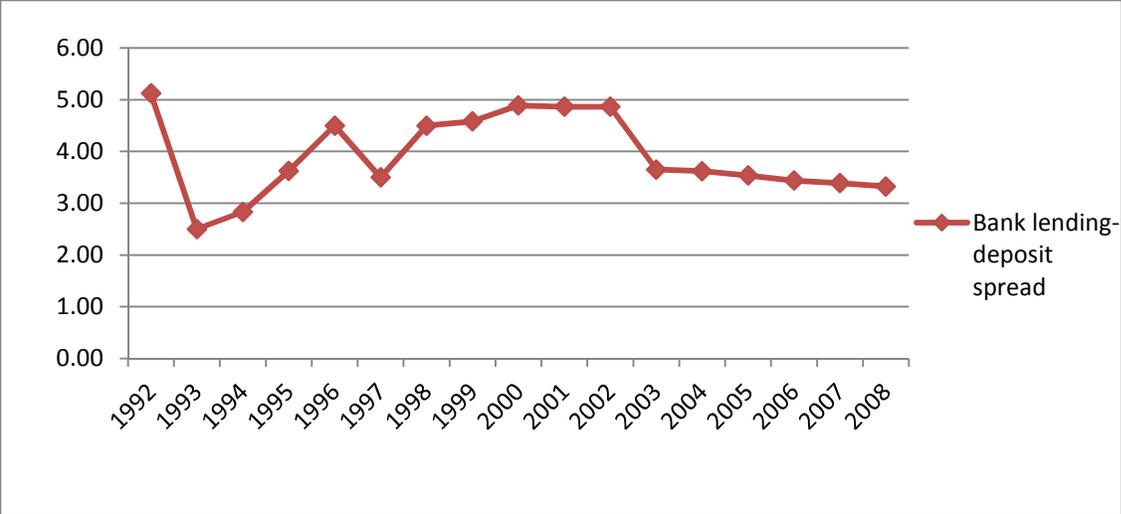


Figure 3.4: Efficiency of the Banking System²

Source: IMF, Financial Development Database

The per cent of small firms that access bank loans is an indicator of the improvement in financial intermediation. The global financial development database (GFDD, 2018), shows that 30.4 per cent of small firms (5-19 workers) in the formal sector receive a credit from a financial institution in 2015 which is higher than what was in 2011, i.e., 3.1 per cent. The National Bank of Ethiopia 2019 first-quarter report on macroeconomic development stated that the banking system provides loans to the industry, international trade, and housing and construction sectors (National Bank of Ethiopia, 2019b p.37).

3.2.1. Financial inclusion In Ethiopia

Access to financial services is low in developing countries. Globally, about 1.7 billion adults have no account, of which 56 per cent of the unbanked³ are women. The implication is that a significant number of people lack the means to reach financial institutions to borrow, save, or make transactions, which makes economic activities complex in the face of these populations (Demirguc-Kunt et al., 2018). According to the 2017 Global Findex Database, 31 per cent of adults are out of reach to financial services. In developing countries, 63 per cent of adults get banked. Compared to the developing countries and economies of sub-Saharan Africa, in

² Note: Due to data unavailability since 2008, efficiency variables are not included in the empirical analysis of the paper

³ without an account at a financial institution or through a mobile money provider

Ethiopia, financial access is very shallow. Figure 3.6 demonstrated that more than 60 per cent of adults do not have accounts in financial institutions. Mainly women are more unbanked than men. Therefore, rooms for financial development are open and establishing institutions and infrastructure is at the forefront of the government. In order to understand reasons why adults do not have accounts, the 2017 global Findex survey queries those unbanked adults if they have one or several grounds.

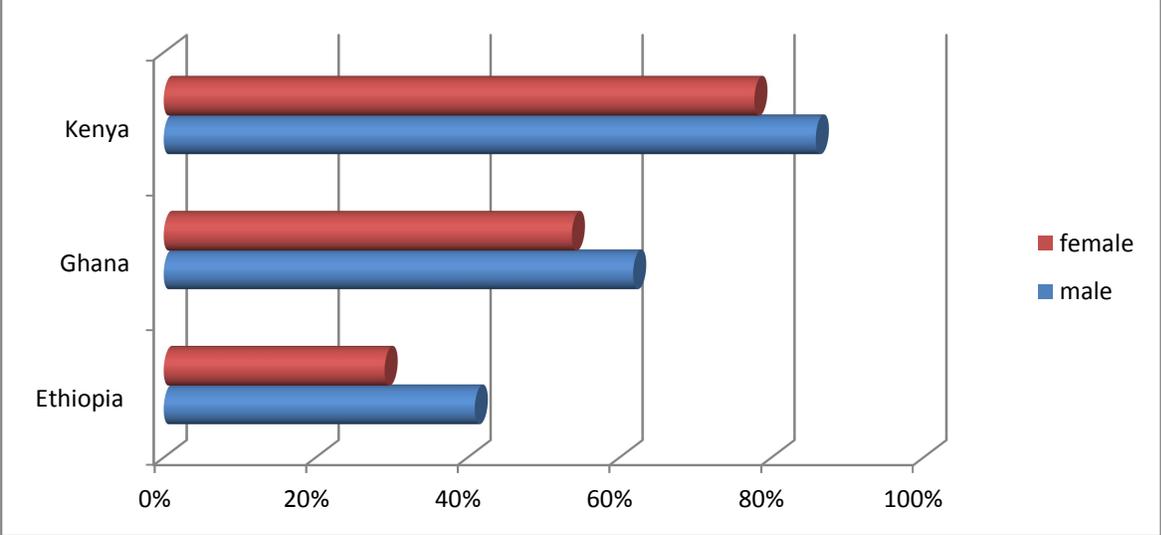


Figure 3.5: Adults are the Least Banked in Ethiopia

Source: Global Findex database.

Accordingly, as revealed by figure 3.7, adults are without accounts from financial institutions predominantly due to the lack of enough funds. More than 80% of adults without an account at financial institutions said as they do not have enough money to use financial services. Being far away from the banks is the second most reason cited by adults. About 20% of unbanked adults responded that financial institutions are too far from the homestead. Besides, the lack of necessary documentation and the expensiveness of financial services are important factors that limit adults reach to financial institutions.

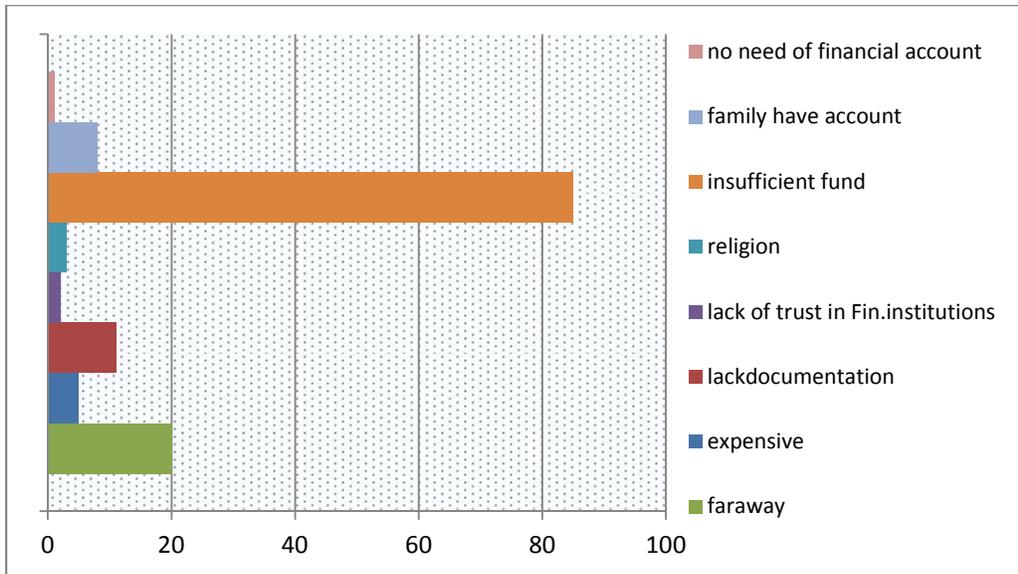


Figure 3.6: Insufficient Fund is the Dominant Barrier to Account Ownership

Source: IMF, Global Findex database

To sum up, the macroeconomic performance of Ethiopia is at a proper stance manifested by relatively higher economic growth and stable inflationary condition in recent years. Since 1993 financial liberalization, the number of financial institutions, and the size of banking have been increasing. However, financial development is very shallow and dominated by financial intermediaries (banks). Although the bank branches are increased over time, about 60% of adults do not have access to formal accounts, where more than 80% of them report insufficient funds as the main constraints to own account.

4. Data and Methodology of the Study

This section of the paper describes the data sources, variables, and model specification. The first part deals with data and stationary behavior of variables; the second part discusses the model specification.

4.1. Data and Variables

In this study, we used time-series data that span from 1981 to 2017 for Ethiopia. We collected the data from various sources, mainly from the World Bank World Development Indicators database, International Monetary Fund Global Financial Development Database (GFDD), financial inclusion (Findex) database, International Financial Statistics Database, and FRED.

In the empirical literature, studies have used various indicators of financial development. One of the most commonly used indicators of finance is domestic credit to the private sector (King & Levine, 1993; Beck et al., 2000; Rioja & Valev, 2004; Eita & Jordaan, 2007; Demirgüç-Kunt & Ross Levine, 2008; Ibrahim & Alagidede, 2018), Monetary base (M2) (Demirguc-kunt, 2014), liquid liabilities (King & Levine, 1993; Čihák & Levine, 2012; Law & Singh, 2014), money bank domestic credit as a ratio of deposit money bank credit plus central bank credit (King & Levine, 1993; Levine, 1997b; Huang & Lin, 2009), a composite measure of financial development index (Ratna et al., 2015; Pradhan et al., 2017). In the literature, the estimated effect of these indicators on economic growth is not conclusive. Hence, the influence of financial development on growth is subject to the choice of indicators. According to Beck et al. (2000), domestic credit to the private sector separate credits to the private sector from credits issued to the public enterprises, governments, and credits issued by the central bank. King & Levine (1993) also argued that the services provided by financial systems differ based on the sector to which they channel their funds. They posed that financial systems that provide finance to private firms are more important than those financial systems that channel funds to non-private firms like public enterprises. However, due to the pitfalls of financial depth measures, they suggest that composite measures of financial development are vital. The use of these composite measures has become common in the literature (Ratna et al. 2015), and (Pradhan et al., 2017). Composite indices help to measure the overall development instead of measuring sub-components like the depth of the financial system. Besides, it avoids the different implications of financial development indicators. On top of these merits, for our case study, data on specific measures of

financial development components are limited and not available for the whole study period. Therefore, we use both financial development index and financial institutions depth index as financial development indicator in the empirical analysis.

In the literature, there are bounds of control variables used in the finance growth relationship. The most commonly used control variables are trade openness (Beck & Levine, 2004; Narayan & Narayan, 2013; Law & Singh, 2014; Ibrahim & Alagidede, 2018), Capital formation (King & Levine (1993); Narayan & Narayan, 2013; Law & Singh, 2014; Ibrahim & Alagidede, 2018), inflation (Beck & Levine, 2004; Narayan & Narayan, 2013; Law & Singh, 2014; Ibrahim & Alagidede, 2018), labor (Cecchetti & Kharroubi, 2012; Ibrahim & Alagidede, 2018), and government expenditure (Beck & Levine, 2004; Cecchetti & Kharroubi, 2012; Dabla-Norris & Srivisal, 2013; Ibrahim & Alagidede, 2018). Therefore, based on the data availability and degree of correlation among variables, we use trade openness (export plus import as a percentage of GDP, gross capital formation % of GDP (a measure of investment), and labour (proxied by population growth) as a controlling factor in finance- growth regression. The dependent variable is real GDP per capita.

4.2. Stationarity Behaviour of Variables.

Stationarity is an essential property of a time series variable that should maintain in order to make statistical inferences. If the probability distributions of a time series process do not vary over time, it is a stationary process (Wooldridge, 2013). *“The means, variances, and covariance’s of the time series data cannot depend on the period in which they are observed”* (Adkins & Hill, 2011). However, if time series are not stable over time, a regression of unrelated variables has a statistically significant relationship when no relationship exists among them. i.e., spurious relationship creates a problem of decision making. Therefore, when the series exhibits a mean that varies with time, it should be differenced. There are many statistical tests (DF, DF-GLS, ADF, PP) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) that econometricians use to detect non-stationarity. However, the power of these tests to reject the null hypothesis of non-stationarity is different. The length of time studied matters highly over the power of these tests (Janet, Freeman, & Pevehouse, 2014). The assumptions of tests are also different. i.e., the DF test assumes error terms as independently and identically distributed. However, the DF test does not consider the serial correlation of error terms and has less power to

reject the null hypothesis. Hence, ADF adjusts the DF test for serial correlation problems by including the lagged difference terms of the dependent variable in a regression. However, there will be much information loss when lags are significant, and the series has a short period. PP test has advantages over ADF and DF because, PP test is robust when the series has heteroscedasticity, and it does not require to specify the number of lags included in a regression (Gujarati, 2004). Therefore, in this study, both ADF and PP tests are jointly applied for robustness checks. We present the test result in the following table 4.1.

Table 4. 1: Unit root test Results

Series	level		1 st difference	
	PP	ADF(1)	PP	ADF(1)
lnGDPPC	1.821	1.175	-4.036 ***	-3.622**
FD	-2.594	-2.141	-8.838 ***	-3.605**
FDsq	-3.217**	-3.207**	-6.994 ***	-4.274***
lnopp	-1.225	-1.236	-6.318 ***	-3.223 **
lnInvt	-1.303	-0.832	-11.616***	-4.558 ***
labor	-2.230	-1.917	-4.307***	-5.026***
Fid	-1.345	-1.431	-4.325 ***	-3.502 **
Fidsqr	-1.335	-1.487	-4.313***	-4.129***
Volatility	-2.173	-2.324	-6.735 ***	-3.964***

, and ** are significances at 5% and 1% level

Source: Own Estimation

The null hypothesis of the ADF and PP test is the presence of unit root. Table 4.1 demonstrated that except for the squared term of the financial development index, all variables are not stationary at level. However, at the first difference, all variables are stationary (stable mean over time); hence they are integrated of order one or I (1). Therefore, the linear relationship of these non-stationary variables establishes a level relationship.

4.3. Specification of the Long-run Model

Once we check for the stationarity, the next step is to see if the long-run relationship exists because the stable relationship among variables has an important implication for policy decision making. As the unit root test in table 4.1 revealed, variables have a different order of integration, i.e., I (0) and I (1), and the dependent variable is stationary at first difference. Furthermore, no variable is integrated of order more than one. In this case, the Auto-Regressive Distributed Lag (ARDL) model is the typical model to apply. ARDL model is superior over other long-run

models like VECM for several reasons. The ARDL model does not a priori identify the optimal lag length (Jordan & Philips, 2018). According to Philips (2018), it is also a more suitable model when the sample size is small. Above all, the model is proper when variables have a different order of stationarity. As a result of such superiority, we applied the ARDL model, and the model is specified as follows:

$$\Delta Y_t = \alpha + \sum_{j=1}^n \lambda_{1j} \Delta Y_{t-j} + \sum_{j=0}^p \lambda_{2j} \Delta FD_{t-j} + \sum_{m=0}^q \lambda_{3m} \Delta FD_{t-m}^2 + \sum_{c=0}^r \lambda_{4c} \Delta \ln Open_{t-c} + \sum_{d=0}^s \lambda_{5d} \Delta \ln GCF_{t-d} + \sum_{v=0}^u \lambda_{6v} \Delta Labor_{t-v} + \varphi_1 Y_{t-1} + \varphi_2 FD_{t-1} + \varphi_3 FD_{t-1}^2 + \varphi_4 \ln Open_{t-1} + \varphi_5 \ln GCF_{t-1} + \varphi_6 Labor_{t-1} + e_t \dots \dots \dots (1)$$

Where Y_t is the log of real GDP per capita, and e_t is the error term.

Where FD is the financial institution depth index, FD^2 is the square term of financial institutions depth index, Open is the openness to the foreign sector, and GCF is the natural log of gross capital formation and Labor is population growth. The model helps to understand whether finance has a non-linear effect on growth or not. The sign and significance of the coefficient of FD^2 is an indicator of non-linearity. According to Ratna et al. (2015), if $\varphi_2 > 0$, and $\varphi_3 < 0$ and statistically significant or if $\varphi_2 < 0$, $\varphi_3 > 0$ and statistically significant in equation (1), the effect of financial development on economic growth is non-linear. Furthermore, in order to further understand the direction of causation (i.e., finance is endogenous), we also set the following model by taking financial development as a dependent variable.

$$\Delta FD_t = \alpha + \sum_{j=1}^n \delta_{1j} \Delta FD_{t-j} + \sum_{j=0}^p \delta_{2j} \Delta Y_{t-j} + \sum_{c=0}^r \delta_{3c} \Delta \ln Open_{t-c} + \sum_{d=0}^s \delta_{4d} \Delta \ln GCF_{t-d} + \sum_{v=0}^u \delta_{5v} \Delta Labour_{t-v} + \beta_1 FD_{t-1} + \beta_2 Y_{t-1} + \beta_3 \ln Open_{t-1} + \beta_4 \ln GCF_{t-1} + \beta_5 Labor_{t-1} + w_t \dots \dots \dots (2)$$

The coefficients φ_1 to φ_6 in equation(1), and β_1 to β_5 in equation (2) are long-run coefficients, respectively. The values of n, p, q,s, r, and u are the optimal lag lengths automatically chosen by Akaike information criterion (AIC).

To analyze the impact of financial development on macroeconomic stability, we estimated the following long-run equation

$$\Delta Volatility_t = \alpha + \sum_{j=1}^n \phi_{1j} \Delta Volatility_{t-j} + \sum_{j=0}^p \phi_{2j} \Delta FD_{t-j} + \sum_{c=0}^r \phi_{3c} \Delta C_{t-c} + \sum_{d=0}^s \phi_{4d} \Delta \ln GCF_{t-d} + \sum_{v=0}^u \phi_{5v} \Delta G_{t-v} + \psi_1 Volatility_{t-1} + \psi_2 FD_{t-1} + \psi_3 Ct_{t-1} + \psi_4 \ln GCF_{t-1} + \psi_5 \ln G + w_t \dots \dots \dots (3)$$

Where volatility is the three years rolling standard deviation of real gross domestic product per capita growth, C refers to domestic credit by banks to the private sector, and G is government expenditure

In order to identify the existence of long-run relationship bounds testing approach by Pesaran, Shin, & Smith (2001) was employed, which compares F statistic against critical values. If the F-statistic exceeds the upper critical bounds of integrated order one, it confirms co-integration. From our estimation result, F-value (35.36) is higher than the upper bound critical value (3.79) of I(1), which confirms the existence of a long-run relationship(see appendix).

5. Results and Discussions

This section discusses the long-run relationship between economic growth and financial development. Then, it presents the long-run impact of financial development on macroeconomic volatility. We also attempted to look at how financial development affects financial stability in Ethiopia.

5.1. Economic Growth and Financial Development

Taking the natural logarithm of real gross domestic product per capita as a proxy for economic growth, we estimated the growth equation (1) of section 4. The result is presented in table 5.1, which shows that financial development measured by financial institutions depth index has a positive but statistically insignificant effect on economic growth. However, its square term is negative and significant, which entails that finance has a non-linear effect on growth in the long run (column 1). The insignificance of the financial institution's depth index at a level might be associated with the lower level of financial development of Ethiopia.

A study by Ibrahim & Alagidede (2018b) in sub-Saharan Africa, argued that the effect of finance in improving economic growth is weaker when the initial level of financial depth is below a certain level. Ratna et al. (2015) also argued that the effect of financial development on economic growth varies across income levels, the strength of institutions, and the quality of supervision and regulations. They posited that countries with weak institutions and lower quality of financial services are more likely to reach "*too much finance*" at a lower level of financial development. Likewise, Ibrahim & Alagidede (2018b) claimed that financial depth harms economic growth if domestic credit is above 29% of GDP. Law & Singh (2014) also stressed the non-linear effect of finance on growth by arguing that if finance, i.e., domestic credits, grows faster than the real economy; it may not translate into growth generating activities. Instead, it will endanger the economy through inflicting macroeconomic instability(Ibid). The share of employment in the financial sector also matters (Cecchetti & Kharroubi, 2012). They stated that if the financial sector employs about 3.9 % or more from the total employment in the country, any attempt to develop the sector will harm economic growth.

As a robustness check of non-linear impact of financial development on growth, we also use the general financial development index as a growth predictor variable (column 2). Unlike the development of finance in-depth, the quadratic term of aggregate financial development index is

insignificant, which does not give the confidence to conclude the non-linear effect on growth. The result shows a different impact of finance on growth depending on the choice of the financial indicator. The result has two important implications. Firstly, the measurement of financial development is essential; i.e., the financial institution's depth is less important than the more aggregate measure of financial development. Secondly, the development of the other components of financial development is crucial, in which the efficiency of the financial system also matters.

Table 5. 1: Long-run Results of Growth Equation

Variables	LnGDPC (1)	lnGDPC(2)
Financial institutions Depth Index(FID)	0.395(0.196)	
Financial institutions Depth Index square(FID²)	-8.653***(1.819)	
Financial Development Index (FD)		0.448***(0.0593)
Financial Development Index Square(FD²)		-2.724(2.444)
Log(Openness)	0.701***(0.0784)	1.743**(0.581)
Log(Gross Capital Formation)	0.763***(0.0541)	1.159***(0.211)
Labor	-0.818**(0.239)	2.142**(0.823)
Constant	4.782***(1.066)	-4.549***(1.380)
Observations	33	33
Adjusted R-squared	0.9748	0.8785

Standard errors in parentheses, and *** p<0.01, ** p<0.05,

Source: own estimation result

The result is also further confirmed by a scatter plot of economic growth rate and financial development index (figure 5.1). The result is coinciding with the finding of Ratna et al. (2015), who has shown the effect of financial development on economic growth across different income levels.

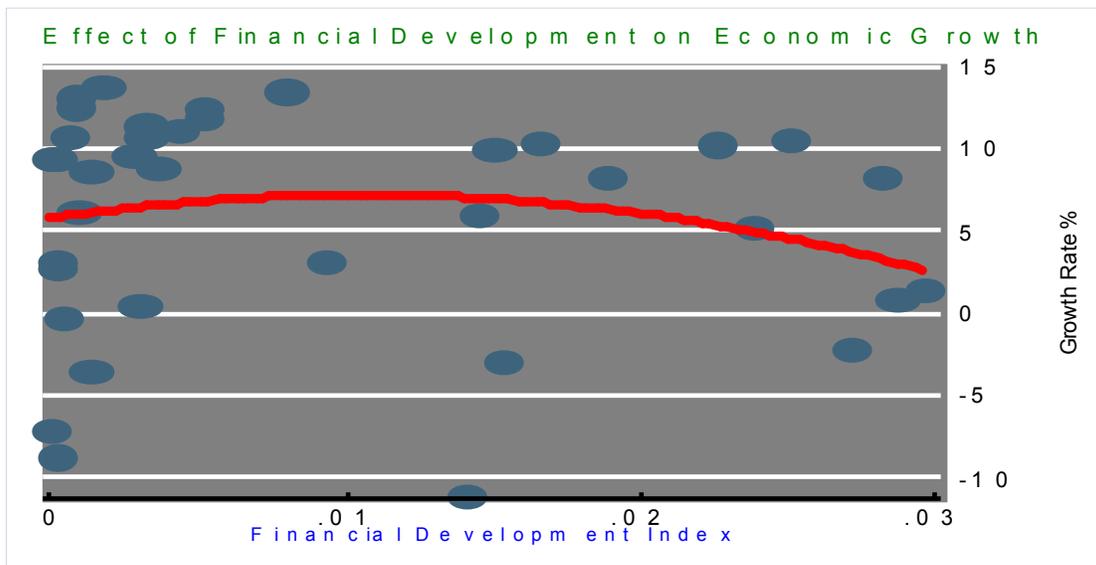


Figure 5.1: Financial Development vs. Economic Growth in Ethiopia

Many studies opted that finance is endogenous, i.e., financial development emanates from economic development. In order to understand the direction of causality, we also estimated the financial development equation (2) by taking gross domestic per capita income as a predictor variable. The results in table 5.2 revealed that economic growth positively and statistically significantly influence financial development. Of course, the economic significance is weak, in which a 100% increase in gross domestic product per capita results in only a 0.03% increase in financial development. However, the positive effect of economic growth is in line with the theoretical expectation. In countries like Ethiopia, the development of infrastructures, human capital, and technology dramatically influence financial development. Currently, only 35% of adults have access to financial services. One of the reasons that left majorities unbanked is the lower level of development in the physical infrastructure, and more than 75 % of the population is living in rural areas where financial literacy is very low, the cost of access to finance is also expensive. However, with the economic growth over time, the countries capacity to expand public services and extend the outreach of the financial sector is inevitable. In the same vein, Patrick (1996) discussed that in underdeveloped countries, the growth in output increases the demand for finance through the expansion of market access, improved investment in agriculture and other traditional sectors. Therefore, economic growth induces financial development in Ethiopia.

Table 5. 2: Long run results of Financial Development Equation

Variables	FD
Gross domestic Product per capita(GDPC)	0.0003293*** (0.00000746)
Log(Openness)	2.713168** (1.214996)
Log(Gross Capital Formation)	-.360273 (.8711452)
Labor	6.021853 (2.009562)
Constant	-13.36045 *** (7.419845)
observations	33
R-squared	0.6348

Standard errors in parentheses

*** p<0.01, ** p<0.05,

Source: Own estimation

5.1.1. Granger Causality

Engle & Granger (1987) discussed the importance of co-integrated relationships among variables for prediction. They stated that if time series are co-integrated, it is essential to check the direction of causation. If the past value of variable X predicts the current value of a variable Y, X is said to be Granger because Y, which means X has essential information that causes the Y variable to change. Therefore, in our study, we attempted to check whether financial indicators and economic growth indicators have a causal relationship, using a simple Granger causality test. The null hypothesis of the test is no causal relationship. Accordingly, we presented the result in table 5.3, and we used a general financial development index (FD) and financial institutions depth index (FID) as a proxy for financial development. It helps us to understand if causation differs across indicators. The result disclosed that the null hypothesis of no Granger causality between financial depth and economic growth is rejected. There is a feedback relationship between depth and economic growth. The result of this test discovered that the historical values of financial depth indicators are essential to predict future economic growth. On the other hand, financial development (FD) failed to granger cause economic growth and vice versa. Therefore, the result is not conclusive; as a result, we cannot draw some strong conclusions over causality.

Table 5. 3: Results of Granger Causality

Null Hypothesis	Obs	Chi2	P_ Value	Result
lnGDPC does not Granger cause FID	35	10.567	0.005	Rejected
FID does not Granger cause lnGDPC	35	15.969	0.0000	Rejected
lnGDPC does not Granger cause FDI	35	4.4214	0.110	Accepted
FDI does not Granger cause lnGDPC	35	1.3585	0.507	Accepted

Source: Own estimation

5.2. Macroeconomic Volatility and Financial Development

One of the objectives of this study was to investigate the macroeconomic impact of financial development in Ethiopia. Therefore, we estimated volatility by three years rolling standard deviation of real gross domestic product per capita growth.

The result in Table 5.4 indicated that development in the financial sector reduces macroeconomic volatility. For robustness check, we used domestic credit to the private sector by banks (Pvt) and financial development index as indicators of financial development. The results confirm that financial development is essential to reduce growth volatility. It revealed that a 1% increase in the financial development index results in a 75.2% decline in macroeconomic volatility. A unit percentage increase in private credit reduces output volatility by 29.6 percent. The result conforms with the finding of (Dabla-Norris & Srivisal, 2013) and (Ratna et al., 2015). Dabla-Norris & Srivisal (2013) investigated the impact of financial depth on macroeconomic instability for 110 developed and developing countries. Accordingly, their finding revealed that for countries at lower-income groups, financial depth stifled output volatility.

Similarly, Ratna et al. (2015) taking the financial development index as a financial indicator, their finding confirms a U-shaped relationship of finance and volatility. For countries at a lower level of development, development in the financial sector tends to bring volatility of output down. They argued that financial development slims down growth volatility because it expands the opportunity to manage risks and bring more diversification in the financial market. Another mechanism that financial systems development can affect volatility is through reducing “*borrowing constraints*” and pooling risks. Caballero & Krishnamurthy (2001) discussed that increase in financial systems depth reduces volatility by easing a firm’s liquidity constraints, mainly for firms in countries with more international financial constraints.

Table 5. 4: Financial Development and Growth Volatility

Variables	Volatility
FD	-0.752*** -0.24
Domestic credit to the private sector by banks	-0.296*** -0.036
Log(Gross Capital Formation)	2.362* (-1.208)
Log (government expenditure)	-0.664 (-0.97)
Constant	21.49186 (7.738332)
Observations	30
R-squared	0.8043

Standard errors in parenthesis

***, **, * are significance at 1%, 5% and 10% level of significance

Source: Own estimation

5.3. Financial Development and Financial Stability

We also attempted to look at how financial stability responds to advancement in finance. In the empirical literature, different measures like standard deviation of financial development indicators, risk and earning indicators, and interest rate spreads are used as a measure of financial instability. Recently, Ratna et al. (2015) have measured financial instability by distance to distress, which is the ratio of capital to assets ratio (%) plus return on assets (%) by the standard deviation of return on assets. However, due to data limitation here, we used return on equity as a proxy to capital to assets ratio, and the data is from 1998 to 2017.

Distance to distress = $\frac{\text{Return on equity ratio} + \text{Return on assets ratio}}{\text{Standard deviation of Return on assets}}$, where a lower value implies a lower distance to financial distress or higher financial risk. Figure 5.2 indicated that development in financial depth increase financial instability. Ratna et al. (2015) argued that this relationship is right because a higher growth in financial institutions changes the behaviour consumers and investors towards risking and increases leverage if regulations and supervisions are weak. The result is also in line with the finding of (Batuo, Mlambo, & Asongu, 2017)

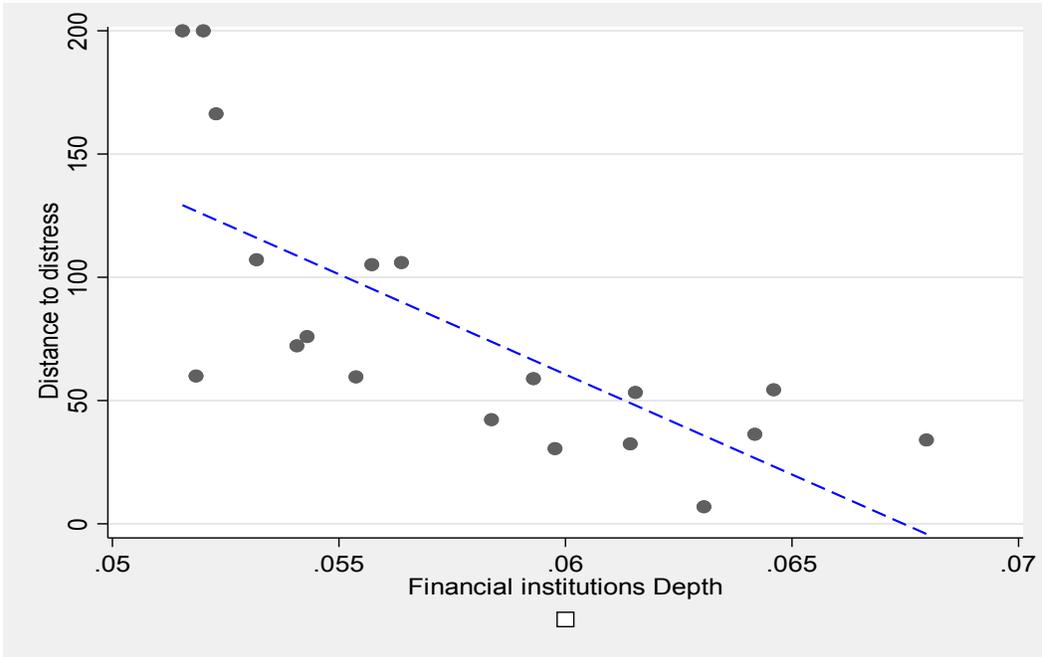


Figure 5.2: Financial Deepening and Financial Instability

6. Conclusion and Recommendations

6.1. Conclusion

This study was focused on the financial systems in developing countries, the role of economic growth and macroeconomic stability in Ethiopia. The study mainly aimed at investigating the relationship between financial development and economic growth, examine the effect of financial development on macroeconomic stability, and understand the financial structure of Ethiopia.

In order to meet these objectives, we employed time-series data and applied an Autoregressive Distributed Lag Model (ARDL) model covering from 1981 up to 2017. Before undertaking the long-run relationship, we checked the time-series properties of variables using Augmented Dickey-Fuller and Philip-Perron unit root tests, and the result indicated that variables exhibit different order of integrations. Therefore, we use the bounds approach to test the long-run relationship among our variables of interest, which showed that co-integrating relationships exist. Based on the long run estimation of economic growth over financial development, we found that financial development positively affect economic growth at the level. We have seen the impact of financial development using both indexes of sub-component, i.e., financial institutions depth index and total composite indicator, i.e., financial development index. In both measures, finance affected growth positively. However, looking at the squared term of these measures revealed that coefficients are negative. The implication of this negative coefficient is in line with theoretical expectations and with the findings of existing literature on the area. The finding of this study adds value in the literature that for developing countries with the underdeveloped financial system, development in the financial sector will halt economic growth if it goes beyond the development in the real sector. Therefore, we conclude here that finance has a non-linear effect on growth.

Furthermore, the result of this study indicated that the strength of the effect on finance on growth depends on the choice of financial indicators used for analysis. The financial institution's depth is more critical to explain growth than the development in general finance. It might be because, in Ethiopia, the financial intermediaries are the dominant financial system, and the depth of these institutions has strong relations with the real sector development like growth in industrial output.

In the same vein, we also estimated the impact of financial development on macroeconomic volatility, taking the three-year rolling standard deviation of real gross domestic product per capita growth as a measure of volatility. Accordingly, the finding of our study revealed that financial development reduces macroeconomic volatility, which is in line with the existing empirical literature. A developed financial system would help to mitigate economic volatility by reducing liquidity constraints, increasing diversification in the financial market, and pooling of risks.

In general, the financial system is at an infant stage of development with lots of opportunities for intervention. Mainly, the financial market is yet non-existent, and the financial system is not open to foreign competition. Despite this, the evolution of the financial system has indicated an impressive growth since the 1990s. Given the available data limitations and the short period of study, we are confident that the result of the study is genuine and according to the ethical standard.

6.2.Recommendations

Based on the findings of this study, we made the following recommendations:-

- Since our result showed that financial development is vital for economic growth, the development of the financial sector needs special attention. Financial policies, regulations, and supervisions should be on account of how development in finance translates into growth.
- Financial system depth affects economic growth non-linearly. Therefore, the development of financial intermediations should be closely watched, which will otherwise bring unprecedented and undesirable impacts on economic growth.
- The macroeconomic impact of financial development is another area that this study contributes to policymakers and practitioners. Developing the financial system is associated with increased access to liquid funds and inducing firms to invest in risky sectors. Hence, the monetary and financial system policy of Ethiopia should target the development of the financial instruments and the market for exchanges.
- Since the majority of adults are not yet able to have access to use financial services, addressing the physical infrastructures, and increasing the number of financial institutions play a paramount role.

6.3. Further works

This study was limited to the study of finance growth relationship for the period of 1981 to 2017. We have used a few numbers of financial development indicators due to data limitation, which would likely have an impact on our study. Besides this, looking at how other components of the financial structure (access, stability, and efficiency) affect economic growth is also super significant. We did not take these indicators in our study because of data unavailability and the short period of available data sets. Hence, further studies by incorporating these indicators will help policymakers and the government to have a complete understanding of finance growth relationships.

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Appendix

Bounds test result for Economic Growth

Pesaran/Shin/Smith (2001) ARDL Bounds Test
H0: no levels relationship F = 35.360
t = -10.590

Critical Values (0.1-0.01), **F-statistic**, Case 3

	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_5	2.26	3.35	2.62	3.79	2.96	4.18	3.41	4.68

accept if F < critical value for I(0) regressors
reject if F > critical value for I(1) regressors

Critical Values (0.1-0.01), **t-statistic**, Case 3

	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_5	-2.57	-3.86	-2.86	-4.19	-3.13	-4.46	-3.43	-4.79

accept if t > critical value for I(0) regressors
reject if t < critical value for I(1) regressors

k: # of non-deterministic regressors in long-run relationship
Critical values from Pesaran/Shin/Smith (2001)
(note: file Myfile.doc not found)
Click to Open File: [Myfile.doc](#)

Bounds test result for Financial development

. estat bttest

note: estat bttest has been superseded by [estat ectest](#)
as the prime procedure to test for a levels relationship.
([click to run](#))

Pesaran/Shin/Smith (2001) ARDL Bounds Test
H0: no levels relationship F = 10.399
t = -3.823

Critical Values (0.1-0.01), **F-statistic**, Case 3

	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_5	2.26	3.35	2.62	3.79	2.96	4.18	3.41	4.68

accept if F < critical value for I(0) regressors
reject if F > critical value for I(1) regressors

Critical Values (0.1-0.01), **t-statistic**, Case 3

	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_5	-2.57	-3.86	-2.86	-4.19	-3.13	-4.46	-3.43	-4.79

accept if t > critical value for I(0) regressors
reject if t < critical value for I(1) regressors

k: # of non-deterministic regressors in long-run relationship
Critical values from Pesaran/Shin/Smith (2001)

