

# Analyzing the Impacts of the Financial Liberalization Policy on the Development of the Financial Sectors in Ethiopia: An ARDL Modeling Approach

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## Background

The author has academic background in Economics and Development Policy (concentration on Finance and Macroeconomic Policy). He is currently working at Ethiopian Civil Service University, Center for Public Policy. His areas of interest are public policy, Financial Globalization, Economic Integration and Macroeconomic Stability.

## Abstract

The study analyzes the impact of financial reform policy on the development of the financial sector in Ethiopia during the period 1973-2005. Specifically, it investigates whether financial liberalization policy exerts a different effect on the financial sectors development in the short run and long run, whether; there were differences in various financial reform policies. To that end the paper employs persaran's (2001) bound test to the ARDL model. The finding of the study shows that in the long run financial liberalization policy has positive and statistically significant impact on the development of financial sectors. But in the short run it doesn't have any impacts on the development of financial sectors. The overall financial reform policy is the most promising financial liberalization policy. The policy implication of the study is that the Ethiopia government should have to fasten the full liberalization of financial sectors to maximize the benefit for the country.

**Keywords:** Financial Liberalization, Financial Development, ARDL model and bound testing

## 1. INTRODUCTION

Currently, the common question for all economists is why country growth at different rates? Some researchers try to list out the main reason for differences in economic development such as the differences in factor production, institutional development, legal system effectiveness and international trade. Still different scholars found out different factors for the world economic differences. Recently, the roles of the financial sectors start to receive due attention. The financial development and economic growth have direct relationships. This can be proved that in more developed country the financial system is much better than the developing country's financial system (Mohsin and Abdelhak 2000). More developed financial system facilitate the economic development of those country through (i) producing information ex ante about possible investment and allocate capital, (ii) monitoring investment and exerting corporate governance after providing finance, (iii) facilitating the trading, diversification and management of risk, (iv) mobilizing and pooling savings and (v) easing the exchange of goods and services (Juzhong et al, 2009). Therefore, it would seem that policies to develop the financial sector would be expected to raise economic growth. The theoretical basis for a relationship between financial liberalization and financial development originates from the seminal work of McKinnon (1973) and Shaw (1973). Both Mckinnon and Shaw argue that the financial liberalization promotes financial development. This study, therefore, examined the nexus between financial liberalization and financial development in Ethiopia during 1973-2005.

There are two main objective of this study; first to find out the effects of financial sectors reform policy on the development of the financial sectors in Ethiopia. It will prove whether financial reform policy causes for the deeper financial sectors as predicted by McKinnon (1973) and Shaw W. (1973). The other is to identify the most promising financial reform policies which help the policy designer.

The study answered the following questions: What is the short run impact of financial sectors liberalization on the development of financial sectors in Ethiopia? What is the long run impact of financial sectors liberalization on the development of financial sectors in Ethiopia? Which financial liberalization policy is more effective in the country?

There are two extreme points of views on the impact of the financial reform policy on the development of the financial sectors. The first views are those who argue that financial liberalization is the effective strategy for booming of financial sectors. It is supported by McDonald and Schumacher (2007) and Andersen and trap (2003). Their view is that financial liberalization has positive impacts on the development of financial sectors consequently financial development accelerates the economic development of that country. The second view is those who argue that financial liberalization is the cause for financial crisis and it resulted in the down turn of the financial sectors in the country. Supported by Demirgüç-Kunt and Detragiache (2000) and Mehrez and

Kaufmann (2000) they argue that financial liberalization induces risk taking behavior and may cause banking crisis.

Having these different arguable issues, the study proved the following hypothesis: First, financial liberalization has statistically insignificant impacts on the development of the financial sectors in the short run. Second, Financial liberalization has statistically significant and positive impact on the development of financial sectors in the long run. Lastly, all indicators of financial liberalization have statistically significant impact on the development of the financial sectors in Ethiopia.

The study is unique when we compare with other research conducted in this area in Ethiopia. First, it is first paper conducted in Ethiopia in the area of identifying the impact of financial liberalization on the development of financial sectors both in the short run and in the long run. Second, the study is unique in its methodology in which it will use the Autoregressive Distributive lag (ARDL) approach to co integration.

This study is useful for Ethiopia governments in alarming the policy designer of the country to focus on full liberalization of financial sectors in Ethiopia. In addition to this, one of the specific objectives of this study is to find out the promising financial liberalization policy for Ethiopia government. This objective helps for Ethiopia government to fully explore this specific promising financial liberalization policy at maximum to maximize the benefits for the country. Furthermore, the studies contribute for the financial liberalization literature by identifying and analyzing the time specific impacts of financial liberalization policy i.e. the short run and the long run impacts.

The rest of the paper divided as follows: The second section is the literature reviews; section three discussed the Data and Model specification. The empirical result is covered in section four. Lastly, the study covers the summary and policy recommendation.

## **2. Literature Review**

### **2.1. Financial Liberalization and Financial Development**

The theoretical relationship between financial development and economic growth support in the work of Schumpeter (1912) and more recently, to McKinnon (1973) and Shaw (1973). The policy direction of the McKinnon-Shaw school is that government restrictions on the banking sectors hinder financial development, and ultimately reduce economic growth. This school suggests that financial intermediation has a positive effect on economic growth. On their paper of the theoretical basis for a relationship between financial Liberalization and Financial Development, McKinnon (1973) and Shaw (1973) and the endogenous growth literature explain how financial development directly related to financial liberalization.

### **2.2. Financial liberalization Policy and its likely outcomes in Ethiopia**

In Ethiopian financial history, the period from 1974 to 1991 is known as the pre-reform period. Politically it is the socialist regime which is commonly called Derge era. In this period, all banks are nationalized by central governments. More than 90 percent of the total deposit and 71 percent of the total loans hold by one bank-Commercial Bank of Ethiopia. On the reverse there are many encouraging results achieved post reform periods. The turning point in the banking and insurances history of Ethiopia is the announcement of proclamation No. 84/1994. This proclamation allows the Ethiopian private sectors to participate in banking and insurances business. As a result many private banks and insurance company established in the post reform periods. The number of banks operating in the country during the fiscal (2010/2011) year reached 17. In the meantime, the number of insurance companies increased to 14 in 2010/11 from 12 in 2009/2010. By the end of 2010/11, the number of microfinance institutions (MFIs) operating in the country rose by 1 and reached 31. (National Bank of Ethiopia, 2010/11).

On October 1992 with a devaluation of 140 percent from 2.07 Ethiopian Birr to the Dollar (this is the rate at which it was fixed for nearly two decades) to 5 Ethiopian birr to the dollar. In the country the foreign exchange auction system was introduced in 1993. This system implemented in the country alongside with the official (fixed) exchange rate which applied to critical imports and external debt services, but the system was further liberalized over 1993-96. As a result of its financial liberalization policy Ethiopia received large aid inflows in support of its reconstruction and transition programs (Tony and Alemayehu, 2002).

### **2.3. Reviewed Empirical Finding**

Kevin and Alvon (2007) on their paper "The Impact of Financail Liberlization on the Financail Development: Evidence from the Caribbean" by focusing on the single country estimation approach they found out that the direct effects of financail liberlaization on the financail development varied across the countries and appears to reflect the pace at which such polices were implemented.

Hiro (2005) in his study on "Financial Development and Financial Liberalization in Asia Thresholds, Institutions and the Sequence of Liberalization" he utilized a panel data encompassing 87 less developed

countries over the period 1980 to 2000. His study's showed that financial openness does contribute to equity market development- measured as activity of the stock market.

Bhim (2012) on his paper "Impact of Financial Policy Reforms on Financial Development and Economic Growth in Nepal" he analyzed the data from 1965 to 2009 and his study found out that policy changes have no impact on financial indicators, such as on banking credit to private sector and liquid liabilities.

Menzie and Hiro (2006) on their studies, "What Matters for Financial Development? Capital Control, Institutions and Interactions" using a panel data including 108 countries from 1980 to 2000. Their finding shows that financial openness has positive and significant impacts on the development of financial sectors but only when there is good legal system and institution in the country.

Ebisa (2012) on his paper of "The Effects of the Post 1991 Era of Financial Sector Deregulations in Ethiopia: An Inspirational Guide for Agribusiness", clearly found out the impact of financial reform policy on the establishment of financial institution to provide basic fund for agricultural sectors. Lastly, he list out the major outcome of the changes in financial liberalization policy in Ethiopia.

Some of the gaps noticed from the literature review are: First all paper uses simple methodology in which it is difficult to know the short run and the long run impact of financial liberalization on the development of financial sectors. Second, all of the research conducted in financial liberalization area focus on outcome of pre and post financial liberalization. Comparing only the outcome of pre and post liberalization is not important for the policy designer to effectively design practical and achievable policy. In general, financial liberalization is a new concept not only in the government organization but also in the academic, research institute and for the researcher. So, from reviewed researches the following main research gap identified: First identifying the most potential area in financial liberalization in Ethiopia context. Second analyzing the short run and the long run impact of the financial liberalization is important to know direct impact of financial liberalization for the development of the financial sectors.

### 3. Methods and Methodology

#### 3.1. Model specification:

To examine the effect of financial liberalization on financial development, the study used the bound testing approach to co integration within the framework of Autoregressive Distributed Lag (ARDL) Pesaran (2001). The model specifies the Financial Depth as a function of financial liberalization which is measured by credit control and reserve requirements, banking regulation and overall financial reform indicators. The model is specified as follows:

$$(\text{Findepth})_t = F(\text{Fin. Liberalization}, \text{GDPG}, \text{inf.})_t \text{-----1}$$

Findepth = financial depth, Fin. Liberalization= financial liberalization (financial reform) GDPG= annual growth rate of GDP and inf. = annual inflation rate. By recalling the basic form of an ARDL regression model: <http://davegiles.blogspot.kr/2013/06/ardl-models-part-ii-bounds-tests.html>

$$(\text{Findepth})_t = \beta_0 + \beta_1(\text{Findepth})_{t-1} + \dots + \beta_k(\text{Findepth})_{t-p} + \gamma_0(\text{fin. liberalization})_t + \gamma_1(\text{fin. liberalization})_{t-1} + \dots + \gamma_i(\text{fin. liberalization})_{t-i} + \delta_0(\text{GDPG})_t + \delta_1(\text{GDPG})_{t-1} + \dots + \delta_i(\text{GDPG})_{t-i} + \mu_0(\text{inf.})_t + \mu_1(\text{inf.})_{t-1} + \dots + \mu_i(\text{inf.})_{t-i} + v_t \text{-----2}$$

$\mu, \gamma, \delta, \beta$  = Coefficients to be estimated and  $v_t$  = Error term assumed to be white noise. There are several reasons for the use of ARDL model for bound test. *First* this model is more appropriate for small sample size (Pesaran and Tang 2001). *Second* unit root test is not mandatory. Third, bound testing could be implemented regardless of whether the underlying variables are I (0), I (1), or fractionally integrated. But in case of I (2), ARDL technique crashes and it yields spurious results.

With respect to Equation (2) it is assumed that there is a long-run relationship among the financial development and financial reform policy. As the direction of long-run relationship among the variables is unknown, a prior, the following unrestricted error correction model (UECM) can be regressed for determination of long-run relationship:

$$\Delta(\text{findepth})_t = \alpha + \sum_{i=1}^N \beta_i \Delta(\text{findepth})_{t-i} + \sum_{i=0}^N \gamma_i \Delta(\text{Fin. Liberalization})_{t-i} + \sum_{i=0}^N \delta_i \Delta(\text{GDPG})_{t-i} + \sum_{i=0}^N \mu_i \Delta(\text{Inf.})_{t-i} + \psi_1(\text{findepth})_{t-1} + \psi_2(\text{Fin. Liberalization})_{t-1} + \psi_3(\text{GDPG})_{t-1} + \psi_4(\text{inf.})_{t-1} + v_t \text{-----3}$$

Where ' $\Delta$ ' is first difference operator,  $\psi_i$  = Coefficients to be estimated and  $v_t$  = Error term assumed to be white noise, 'i' is the number of lags, 'n' is the optimal lags length. The F-test is used for validating of long-run relationship. The null hypothesis for no long-run relationship amongst the variables in equation (3) is (H0:  $\psi_1 = \psi_2 = \psi_3 = \psi_4 = 0$ ) against the alternative hypothesis (H1:  $\psi_1 \neq \psi_2 \neq \psi_3 \neq \psi_4 \neq 0$ ). Two critical values [I (0) and I (1)] are taking from the Pesaran (2001) table. The decision for rejection or acceptance of null hypothesis depending whether, the calculated t value is greater than Pesaran critical value or not. If it is greater than the upper critical value, the null hypothesis will be rejected on the other hand it will be accepted, if it is less than the lower critical value. The result is inconclusive if it is between the upper and lower critical value (Younguck and Muhammed, 2012). To find the maximum number of lags for all variables, (n+1)<sup>r</sup> number of regressions will be estimated. Where n is the maximum number of lags and r is the number of variables in the equation. For annual

data the maximum lag selected is 2 following the Pesaran 1997. The optimal model can be selected using Akaike Information Criteria (AIC). Once we prove the existence of the long run relationships, the long-run model can be estimated as follows (<http://davegiles.blogspot.kr/2013/06/ardl-models-part-ii-bounds-tests.html>).

$$(\text{Findepth})_t = \Omega_0 + \Omega_1(\text{Fin.Liberalization})_t + \Omega_2(\text{gdp})_t + \Omega_3(\text{Inf.})_t + V_t \dots \dots \dots 4$$

The short run model used to prove the diagnostic test and stability of the model. The error correction of co integration representation of the series can be specified as follow;

$$\Delta(\text{findepth})_t = \rho_0 + \sum_{i=1}^N \Delta \Pi (\text{findepth})_{t-i} + \sum_{i=0}^N \Delta \Theta (\text{Fin. Liberalization})_{t-i} + \sum_{i=0}^N \Delta \Omega (\text{GDPG})_{t-i} + \sum_{i=0}^N \Delta \Psi (\text{inf.})_{t-i} + \lambda \text{ECT}_{t-1} + V_t \dots \dots \dots 5$$

Where  $\Pi_i$ ,  $\Theta_i$ ,  $\Omega_i$ ,  $\Psi_i$ , and  $\Phi_i$ , are coefficients of short-run dynamic parameters and  $\lambda$  captures the speed of adjustment and tells us how much of the adjustment to equilibrium takes place each period.

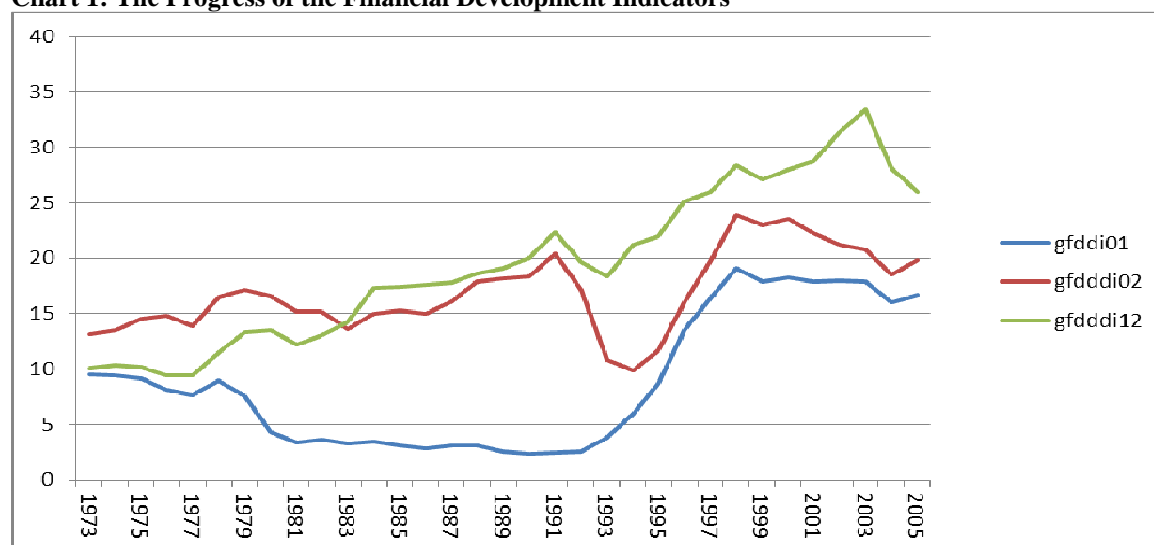
### 3.2. Data Description

The country selected for this study is Ethiopia using the data from 1973- 2005. The main sources of the data are Ministry of Finance and Economic Development, National Bank of Ethiopia, World Bank and International Monetary Fund.

In study the dependent variables are the depths of financial development indicators which it can be measured in terms of Bank private credit to GDP (%) (**gfddd01**), Deposit money bank assets to GDP (%) (**gfddd02**) and Private credit by deposit money banks and other financial institutions to GDP (%) (**gfddd12**). On the other hand, the independent variables will be the financial liberalization (financial reform) indicators such as credit controls and excessively high reserve requirements, supervision of the banking sectors and the overall financial reform indicator which is indexed from (interest rate controls, entry barriers and state ownership in the banking sectors, capital account restriction and security market policy) measures. The study use GDP growth rate and the inflation growth rate (Inf.) as controlled variables. To analyses the impact of financial liberalization on the development of the financial sectors the study used e-views and STATA.

Charts one indicate the progress of the financial development indicators in the year 1973-2005. Especially after financial liberalization implemented in Ethiopia (1991) the financial development indicators increasing at increasing rates.

**Chart 1: The Progress of the Financial Development Indicators**



Source; Authors estimation

Table one show the mean and standard deviation of raw data. In case of standard deviation the inflation deviate much more from the equilibrium. Private credit by deposit money bank and other financial institutions to GDP (%) (**gfddd12**) highly deviate from average mean.

**Table 1 Descriptive statistics**

| Variables             | Observation | Mean     | Std. Dev. | min      | max     |
|-----------------------|-------------|----------|-----------|----------|---------|
| <b>GFDDDI01</b>       | 33          | 8.794449 | 6.088997  | 2.31288  | 19.072  |
| <b>GFDDDI02</b>       | 33          | 16.91564 | 3.613757  | 9.89799  | 23.9202 |
| <b>GFDDDI12</b>       | 33          | 19.41673 | 7.025185  | 0        | 33.3986 |
| <b>CREDITCONTROLO</b> | 33          | 0.818181 | 0.917011  | 0        | 2       |
| <b>BANKINGSUPERV</b>  | 33          | 0.303030 | 0.4666937 | 0        | 1       |
| <b>FINREFROM</b>      | 33          | 2.575757 | 3.1822784 | 0        | 8       |
| <b>GDPG</b>           | 33          | 2.839901 | 6.183238  | -11.1443 | 13.8596 |

|            |    |          |         |          |         |
|------------|----|----------|---------|----------|---------|
| <b>INF</b> | 33 | 6.616519 | 1042723 | -17.6274 | 35.7226 |
|------------|----|----------|---------|----------|---------|

**Source; Authors estimation**

#### 4. Empirical Result

Even if unit root test is not mandatory in the ARDL model, it is recommendable that this test is conducted to ensure that the series are not integrated of order higher than one. As table two shows all variable are stationery. These implies that the ARDL approach of co integration testing technique can be applied as it is confirmed that the complex nature of the dependent and independent variables by having I(0) and I(1) from the table 2 can be compromised by ARDL model.

**Table 2 Unit root tests**

| Variables             | ADF tests statistics |                   | Criteria            | Conclusion |
|-----------------------|----------------------|-------------------|---------------------|------------|
|                       | Level                | First differences |                     |            |
| <b>Gfdddi01</b>       | -1.002433            | -2.296502**       | Intercept and trend | I(1)       |
| <b>Gfdddio2</b>       | -3.880658**          | -                 | Intercept and trend | I(0)       |
| <b>Gfdddi12</b>       | -3.645956**          | -                 | Intercept and trend | I(0)       |
| <b>Creditcontrol0</b> | -0.398174            | -4.414533***      | Intercept and trend | I(1)       |
| <b>Bankingsuperv</b>  | -0.596285            | -3.872983***      | Intercept and trend | I(1)       |
| <b>Finreform</b>      | -0.275758            | -6.919787***      | Intercept and trend | I(1)       |
| <b>Gdpg</b>           | -5.416806***         | -                 | Intercept and trend | I(0)       |
| <b>Inf.</b>           | -3.597927***         | -                 | Intercept and trend | I(0)       |

\*\*\*, \*\* and \* represents one, five and ten percent of significance level respectively  
 Source; authors estimation

#### 4.1. Verification of the Existence of Long Run Relationships

In the ARDL model the first step is to determine the existence of the long relationship. In table 3 the computed F-statistics is compared with the critical value of the Pearson table of unrestricted intercept and trend. All the computed F-tests statistics prove that all financial liberalization variables have long run relationship with financial development indicators. According to AIC criteria the maximum lag selected (1, 0, 0, 0), (1, 1, 0, 0) and (1, 1, 0, 1) for model one (1, 1, 0, 1), (1, 1, 0, 0) and (1, 0, 1, 0) for model two and (1, 1, 0, 1), (1, 1, 0, 0) and (1, 0, 0, 0) for model three.

**Table 3 The computed F-statistics**

| Variables          | creditcontrol | bankingsuperv | finrefrom | Significance level (%) | Critical values (unrestricted intercept and unrestricted trend) |      |
|--------------------|---------------|---------------|-----------|------------------------|---|------|
|                    |               |               |           |                        | I(0)  | I(1) |
| <b>Gfdddi01</b>    | 4.52*         | 5.32**        | 4.79*     | 1                      | 5.17  | 6.36 |
| <b>Model one</b>   |               |               |           |                        |   |      |
| <b>Gfdddi02</b>    | 7.86***       | 6.34**        | 5.81**    | 5                      | 4.01  | 5.07 |
| <b>Model two</b>   |               |               |           |                        |   |      |
| <b>Gfdddi12</b>    | 5.75**        | 4.54*         | 6.03**    | 10                     | 3.47  | 4.45 |
| <b>Model three</b> |               |               |           |                        |   |      |

\*\*\*, \*\* and \* represents one, five and ten percent of significance level respectively  
 Source; Authors estimation

In the long run, financial reform policy has substantial and direct impacts on the Development of the financial sector through booming- the Bank Private Credit to the GDP (%) (gfdddi01). One level reform on the restriction of credit control and reserve requirements, banking supervision and overall financial reforms enhance the financial development by 5.4, 12.35 and 34.92 percent, respectively. The models cover the variation that financial reform policy has on the development of the financial sectors by 67, 86 and 72 percent, respectively.

In the same case, model two of the table 4 explain the long run impact of financial liberalization indicators on deposit money bank assets to the GDP (%) (gfdddi02). In model two the three financial reform policy indicators have positive effects on the growth of deposit money bank assets to the GDP (%) (gfdddi02). All financial reform variables are statistically significant at one percent significance level. Increasing of one level on the reform of the restriction on credit control and reserve requirements, banking supervision and overall financial reform increases the financial development by 12.86, 6.5 and 32.74 percent, respectively. Generally, model two shows direct relationship between financial liberalization and financial developments in the long run.

On table 4 model three shows the impacts of the financial liberalization on the private credit by deposit

money banks and other financial institutions to the GDP% (gfdddi12). All independent variable were significant at one percent significance level. Escalation of one level in the reform of restriction on Credit Control and reserve requirements, Banking Supervision and overall Financial Reform, booms financial sectors by 2.31, 6.4 and 13.9 percent, respectively. Therefore in the long run the financial reform policy has positive effects on the development of the financial sectors.

**Table 4 Long Run impact**

| Dependent variables                   | Independent variables | Coefficient | Std.error | R-square    | Sample size |
|---------------------------------------|-----------------------|-------------|-----------|-------------|-------------|
| <b>Model one</b><br><b>Gfdddi01</b>   | Creditcontrol         | 5.414438*** | 0.727694  | <b>0.67</b> | 33          |
|                                       | Bankingsuper          | 12.35619*** | 0.989850  | <b>0.86</b> | 33          |
|                                       | Finreform             | 34.92078*** | 3.708445  | 0.72        | 33          |
| <b>Model two</b><br><b>Gfdddi02</b>   | Creditcontrol         | 12.86390*** | 6.092831  | 0.74        | 33          |
|                                       | Bankingsuper          | 6.572839*** | 0.745479  | 0.54        | 33          |
|                                       | Finreform             | 32.74570*** | 1.607951  | 0.71        | 33          |
| <b>Model three</b><br><b>Gfdddi12</b> | Creditcontrol         | 2.316284*** | 0.613552  | <b>0.36</b> | 33          |
|                                       | Bankingsuperv         | 6.494761*** | 0.906316  | <b>0.65</b> | 33          |
|                                       | Finrefrom             | 13.93923*** | 3.693065  | <b>0.35</b> | 33          |

\*\*\*, \*\* and \* represents one, five and ten percent significance level respectively

Source; Authors estimation

Table 5 shows the short run relationship between the financial reform policy and financial development. According to the ARDL regression results in the short run most of the variable didn't have significant impact for the development of the financial sectors except for liberalization in banking supervision and financial reform in model one and financial reform in model two. The value of ECT measures the convergence of the model to the equilibrium in the long run. Its value should be negative, less than one and statistically significant to have the convergent model. Accordingly, all models in the study satisfy these criteria.

**Table 5 Short Run impact**

| Dependent variables                   | Independent variables                | Coefficient        | Std.error       | R-square    | ECM value           | Sample size |
|---------------------------------------|--------------------------------------|--------------------|-----------------|-------------|---------------------|-------------|
| <b>Model one</b><br><b>Gfdddi01</b>   | $\Delta(\text{Creditcontrol})_t$     | 1.140142           | 0.887131        | 0.54        | <b>-0.806376***</b> | 33          |
|                                       | $\Delta(\text{Bankingsuper})_{t-1}$  | <b>4.657079***</b> | <b>1.309011</b> | <b>0.49</b> | <b>-0.205967**</b>  | 33          |
|                                       | $\Delta(\text{Finreform})_{t-1}$     | <b>0.585859***</b> | <b>0.146888</b> | 0.47        | <b>-0.198674**</b>  | 33          |
| <b>Model Two</b><br><b>Gfdddi02</b>   | $\Delta(\text{Creditcontrol})_{t-1}$ | <b>1.331459</b>    | <b>1.371485</b> | <b>0.25</b> | <b>-0.244664**</b>  | 33          |
|                                       | $\Delta(\text{Bankingsuper})_{t-1}$  | <b>3.714177</b>    | <b>1.858637</b> | <b>0.30</b> | <b>-0.136817***</b> | 33          |
|                                       | $\Delta(\text{Finreform})_t$         | 29.47519***        | 9.995236        | 0.35        | <b>-0.254380**</b>  | 33          |
| <b>Model three</b><br><b>Gfdddi12</b> | $\Delta(\text{Creditcontrol})_{t-1}$ | 0.712922           | 1.267036        | <b>0.28</b> | <b>-0.330117**</b>  | 33          |
|                                       | $\Delta(\text{Bankingsuperv})_{t-1}$ | 2.208848           | 2.073532        | <b>0.48</b> | <b>-0.320489***</b> | 33          |
|                                       | $\Delta(\text{Finrefrom})_t$         | 0.442009           | 0.379294        | 0.52        | <b>-0.403194***</b> | 33          |

\*\*\*, \*\* and \* represents one, five and ten percent significance level

Source; Authors estimation

Generally, the above empirical results show that the financial liberalization policy has the long run impact on the development and expansion of the financial sector in Ethiopia. But in the short run except banking supervision and overall financial reform, many of the variables didn't have any effects on the development of the financial sectors. In the long run, the overall financial reform policy indicators have the greater effects for the development of the financial sectors in all models. This indicates the future policy direction for the policy maker of Ethiopia.

The entire model passes the diagnostic tests for serial correlation, functional form misspecification and autoregressive conditional heteroscedasticity (ARCH) test. The study also tests for all models the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) of recursive residual test, to check the structural stability. All models are stable and correctly specified as both cusum and cumsumsq test statistics are within the bounds of +5 or -5% level of significance.

Fig.1 The cumulative Sum of Recursive Residual

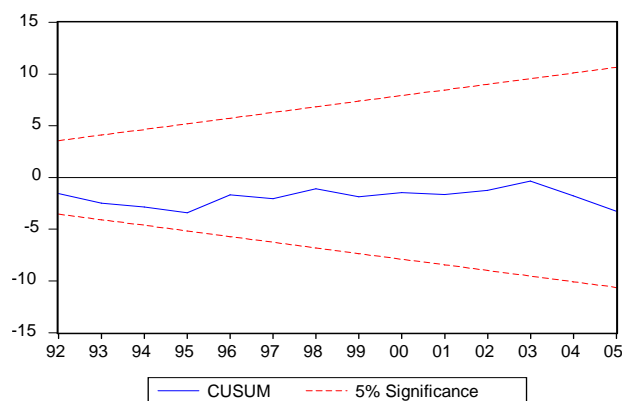
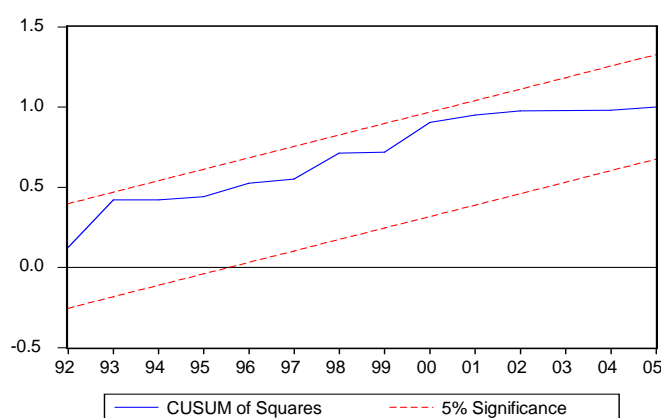


Fig. 2 Cumulative Sum of square of the Recursive Residual



## 5. Conclusion and policy recommendation

Modernized financial sectors are the most important input of economic development in the world. It is impossible to certify sustainable and reliable economic development without modernizing the financial services in the country. The objective of this study is to found out the impact of the financial reform policy on the development of the financial sectors as well as to identify the most promising financial reform policy in Ethiopia. The finding of the study shows that financial reform policy has positive and significant impacts on the development of the financial sectors in the long run. On the other hand, the study shows that the financial reform policy and financial development didn't have any significant relationship in the short run. In the study the ECM has the expected value which implies all model is convergent to the equilibrium in the long run. Out of the existing financial reform policy overall financial liberalization policy indicators shows high impacts on the development of the financial sectors.

The implementation of the financial reform policy is immature in Ethiopia. As a result there is only few researches conduct on the financial reform policy. So, it will be useful to conduct further research on financial reform policy to assist policy designer in the future. Since the impact of the overall financial reform policy is positive and significant on the development of financial sectors, the Ethiopia governments should have to fasten the process of full financial liberalization in order to secure sustainable economic growth and developments in the country.

## Endnotes

- 1 See Mahsin S.Khan and Abdelhak S. Senhadji 2000 for more detail.
- 2 In this study Financial Liberalization and Financial Reform Policy are used interchangeably
- 3 In this study the period from 1991 is called as Post Financial Liberalization Period.
- 4 See Alemayehu Geda (October, 2006) for more detail.
- 5 Since 1991 the Central Bank of the Ethiopia is named as the National Bank of Ethiopia.
- 6 See Dave Giles (June 19, 2006) online <http://davegiles.blogspot.kr/2013/06/ardl-models-part-ii-bounds-tests.html>.
- 7 See Muhammed Arshad Khan and Abdul Qayyum (2007) for more detail.

8 See Dave Giles (June 19, 2006) online <http://davegiles.blogspot.kr/2013/06/ardl-models-part-ii-bounds-tests.html>.

9 In each model the GDPG and the inflation growth rate as controlled variables as well as the first lag of the dependent variable as explanatory variable are used and all are statistically insignificant.

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