

RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN ETHIOPIA: EVIDENCE FROM GRANGER-CAUSALITY TEST

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ABSTRACT

This study examines the causal relationship between financial development and economic growth in Ethiopia using a johansen test for co integration and Granger-causality test. The study employed annual times series data spanning through a period of 35 years (1980/81 to 2014/5) obtained from the database of World Bank development indicators, IMF, annual reports of NBE. Empirical result shows that the existence of long run association between financial sector development and economic growth in Ethiopia. Ganger-causality test result also revealed that there is bidirectional causality between economic growth and financial developments in Ethiopia for the period of 1980/81-2014/15. The limited credit granting inhibits the banking sector and hence limiting the money supply needed to grow the local economy. Therefore, it is suggested that government should make policies that will provide a conducive business environment that would enable banks provide adequate financial service to private sector (loans) for businesses, who will invest such funds for productive purposes that will yield the desired or required return and this in turn result in the economic growth.

KEYWORDS: *Financial Development, Economic Growth, Causality, Ethiopia*

INTRODUCTION

The nexus between financial development and economic growth has been extensively analyzed in the literature. Most empirical studies conclude that financial development, along with a more efficient banking system, accelerates the economic growth (Levine, 1997, 2005; Wachtel, 2001). According to Levine (2005) financial institutions and markets can foster economic growth through several channels. Vis a wise; first easing the exchange of goods and services through the provision of payment services, secondly, mobilizing and pooling savings from a large number of investors, thirdly, acquiring and processing information about enterprises and possible investment projects, thus allocating savings to their most productive use, (iv) monitoring investment and carrying out corporate governance, and fourthly, diversifying, increasing liquidity and reducing inter temporal risk. Each of these functions can influence saving and investment decisions and hence economic growth.

Over the last several decades, economists seemed to have reached a general consensus that the link between financial development and economic growth is positive. Empirical studies offer contradictory evidence (Kaminsky and Reinhart, 1999; Deidda and Fattouh, 2002; Wachtel, 2003; Favara, 2003; Rousseau and Wachtel, 2011 and Arcand et al., 2011 and Demetriades and Rousseau, 2011). Therefore, the current verdict on the financial development-growth relationship has remained inconclusive. In this paper, we re-examine this relationship in the context of middle income countries. Schumpeter, (1934); Gurley and Shaw, 1955; and Goldsmith, 1969) holds that a well-developed financial system stimulates growth by channeling savings to the most productive investment projects. On the other hand, financial repression results in a poorly functioning financial system that in turn depresses growth: this can happen as a result of

excessive government interference in the financial system with measures such as interest rate ceilings, higher bank reserve requirements, and direct credit programs to preferential sectors. The recent literature highlights the positive role of the financial sector in driving economic growth, particularly through its role in mobilizing savings, allocating resources to the most productive investments, reducing information, transaction and monitoring costs, diversifying risks and facilitating the exchange of goods and services.

This results in a more efficient allocation of resources, a more rapid accumulation of physical and human capital, and faster technological progress (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Roubini and Sala-i-Martin, 1992; King and Levine, 1993a; Greenwood and Smith, 1997; Levine, 1997; Levine, 2005).

Tremendous number of studies on the relationship between financial development and economic growth has emphasis on the issue of causality, that is; whether financial development granger causes economic growth or vice versa. The focus on causality tests as theoretically elegant as it may appear seems irrelevant as it is obvious in principle that financial development and economic growth are symbiotically related. Development of the financial sector is an inseparable aspect of economic growth in the modern economy, the level and speed of economic growth defines the scope and limits for financial development. Therefore, development studies on how financial development can affect on economic growth should go beyond the mere test for causality, as testing for causality alone may serve little policy relevance. Economists are yet to reach any consensus on whether financial development causes economic growth or financial development is a consequence of economic growth. The financial development - economic growth debate is ongoing, and policy makers and development.

The important characteristic of sub-Saharan Africa countries is that the stock of bank credit to the private sector (especially non-financial public enterprises have remained low; when compared to the situation in other developing countries. This shows that there is low financial intermediation as measured by the ratio of broad money to real GDP, the level of commercial bank credit to the private sector enterprises, and the presence of key institutional/legal infrastructure that reduces the cost of financial transactions and reduces the financial cost of commercial banks and other financial institutions. In analyzing the ratio of bank credit to the private sector, the most important variable to consider is often the government deficit, and the amount of financing that the government is seeking from the banking system. Government deficits that have to be financed by domestic resources provide an opportunity for the banking system to push funds into a relatively safer investment outlet than credit to the private sector. This has the capacity to raise borrowing rates, and decrease the amount of resources channeled to private sector credit. *Financial sector profile of Ethiopia*

Ethiopia's financial system is small and largely dominated by the government ownership. Currently public banks account for 68% of total deposits and 55.5% of loans and advances. Government dominates lending, controls interest rates, and owns the largest bank in the country, the Commercial Bank of Ethiopia, whose assets represent about 34 percent of the sector total, as of June 2015. National Bank of Ethiopia has a monopoly on all foreign exchange transactions and supervises all foreign exchange payments and remittances services rendered by commercial banks in Ethiopia. By June 2015 the private credit to GDP ratio for Ethiopia was around 17% compared with the average of 37% for sub-Saharan Africa. The financial sector has recently been experiencing a reversal of financial deepening. The broad money to GDP ratio declined from 27 percent in 2007/08 to 24.7 percent in 2014/15, while the ratio of domestic credit to GDP increased from 32 percent to 37 percent over the same period. Negative real interest rates, resulting from high inflation and low deposit rates, high reserve money growth, bank-to-bank credit ceilings, and lack of competition in the banking sector have

contributed to the economy's continued demonetization in recent years, which is posing increasing risks to financial stability in the country. NBE have made commitments to promote monetization, improve liquidity management and achieve positive real interest rates in the financial sector, but reversing demonetization remains a major challenge in the country.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Empirical Review

There have been various studies to explore the nexus between finance and economic growth. Most studies in the past were based on cross-sectional data using standard OLS estimation methods, which confirmed the positive correlation between financial development and economic growth, (Goldsmith, 1969; King and Levine, 1993a, 1993b; and Levine and Zervos, 1998). While their findings reveals that finance assists to forecast long-term growth, a number of authors like Chuah and Thai, 2004; Khan and Senhadji, 2003; and Barro, 1991, argue that inferences based on cross-sectional analysis are unreliable and have several econometric problems. First of all, these results are sensitive to the sample of countries under study. In other words, it is inappropriate to draw policy implications from findings obtained from cross-country studies that treat different economies as homogeneous or similar entities. Secondly, cross-sectional studies do not take advantage of time-series variation in the data. Finally, the issue of causality cannot be handled formally in cross-sectional studies (Khan and Senhadji, 2003).

In addition to that, Ahmed (1998) and Ericsson et al. (2001) argue that using instrumental variables does not solve this problem when the data are averaged over long periods. Furthermore, using time-series data only does not resolve these problems either: for instance, Christopoulos and Tsionas (2004) and Beck (2008) argue that high frequency data is required to gain econometric power from the time series approach, which limits the analysis to just a few countries for which such data are available.

In order to reduce the shortcomings of both cross-sectional and time series analysis, researchers increasingly turn to panel data(using random effect or fixed effect models) that enable them to combine both time series and cross-sectional features and offer a variety of estimation approaches (Calderon and Liu, 2003; Christopoulos and Tsionas, 2004; Dawson, 2010). However, these studies apply either the traditional fixed or random effect methods, or the panel co integration technique. The former averages the data per country to isolate trend effects which hides the dynamic relationship between the variables of interests. The latter has the drawback that the evidence of long-term relationships can be obtained only when variables are integrated at the same level (Pesaran and Smith, 1995; Pesaran, 1997; and Pesaran and Shin, 1999).

The nexus between financial development and economic growth was in fact extensively studied by Goldsmith (1969), McKinnon (1973), and Shaw (1973). They come up with strong and positive correlations between the degree of financial market development and the rate of economic growth. An empirical study by King and Levine (1993) verified that a very strong relationship between each of their four financial development indicators. Another, empirical work by Jayaratne and Strahan (1996), Levine and Zervos (1998) and Roisseau and Sylla (2001) and Seetanah (2008) also manger to confirm the above findings. At a corporate level, Demirguc-Kunt and Maksimovic (1998) and Rajan and Zingales (1998) argues that financial institutions have been crucial for firm and industrial expansion. However, it is worth mentioning that there have been also some studies which could not come up with the beneficial economic impact of financial development, for instance Jappelli and Pagano (1994) and Ram (1999) among others. It should be pointed out that

is only recently that scholars have been incorporating the issue of causality and endogeneity in the debate. Among the very few studies, are Levine et al (2000) who used dynamic panel estimators to overcome the issue of dynamics in the system? Their results were seen to supports the fact that financial development is a good predictor of economic growth.

Theoretical Framework

The literature on financial development provides some theoretical explanation on the relationship between financial development and economic growth. The general view is that financial development can improve long run growth. This section discusses the two competing hypothesis that link financial development to economic growth. These theories are demand- following and supply- leading theories. Demand-following theory can also be known as the “growth-led finance” hypothesis. It refers to the growth of a particular economy generates additional and new demand for financial services; thereby bring about a supply response in the growth of the financial system (Patrick 1966). This theory argues that a demand – following relationship between financial and economic growth. An increase in economic growth leads to reduced demand for modern financial institutions, their services, assets and liabilities and arrangements, by investors and savers in the real economy. The financial market in turn responds to these demands. In this case, the evolutionary development of the financial system is a continuing consequence of the pervasive, sweeping process of economic development. The demand for financial services depends upon growth of real output in the economy, and commercialization and monetization of agriculture and other traditional substance sectors. (Patrick,1996, Meier, 1984). An accelerated growth rate of real national income induces greater demand for external funds by enterprises and this in turn brings about increase in the level of financial intermediation, as firms find it increasingly difficult to pursue expansion policy from internally generated funds. Moreover, the greater the variance in the growth rates among different sector of the economy, the greater will the responsibility of the financial system to perform the role of financial intermediation by allocating savings to fast growing industries away from slow growing industries and firms. In this way, the system can thus support and sustain the leading sectors in the process of growth.

The demand -following financial hypothesis states that there is high elasticity in the supply of entrepreneurship in the financial services “relative to growing opportunities for profits from provision of financial services”, in such a way that there is sufficient expansion in the number and diversity of types of financial institutions. It is also assumed that there is in existence favorable legal, institutional and economic environment. Supply leading theory can be described as the finance-lead hypothesis. It assumes that the existence of “financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them. This would provide efficient allocation of resources from surplus units to deficit units, thereby leading the other economic sectors in their growth process” (Patrick, 1996). The supply – leading phenomenon performs two functions: first it transfers resources from traditional sectors to modern sectors; and second, it promotes and stimulates an entrepreneurial response in the modern sectors.

The supply – leading financial intermediation can be attributed to the phrase “innovation financing” (Schumpeter, 1912). One of the most determining effects of supply – leading approach is that, as entrepreneurs have new access to the financial service, their expectations will go up and new environment to possible alternatives are opened, thereby making the entrepreneur to “think big”. A number of studies have argued in favor of finance – led growth approach (Cameron, 1963, Levine, 1997). It should however be emphasized that rationale for the supply – leading approach to the development of a country’s financial system and hence overall economic development, lies in its potential benefits to the economy in stimulating real economic development. Otherwise, if the use of resources (especially entrepreneurial talents and

managerial skills) in supply – leading finance generates more cost than benefits to the economy, then the objective of the approach is far from being achieved, and the entire supply – leading financial theory results to an exercise in futility. It can also be argued that while the supply – leading finance is not a necessity for launching a country to the path of “self - sustained economic development”, it presents an opportunity to induce real growth by financial means. Its use, analysts believe, is more result oriented at the early level of a country’s development than later. According to Gerschenkron (1962) “the more backward the economy relative to others in the same time period, the greater the emphasis on supply - leading finance”.

Financial Liberalization hypothesis, Mckinnon and Shaw (1973), points out the role of government intervention in the financial markets as a main constraint to savings mobilization, investment, and growth. Government’s role in controlling interest rates and directing credit to priority sectors of the economy in developing countries inhibits savings mobilization and impedes the holding of financial assets, capital formation, and economic growth. Indirectly, ceiling on deposit interest rates discourages financial savings, which leads to excess liquidity outside the banking system. According to Mckinnon and Shaw (1973), pervasive government intervention and involvement in the financial system through the regulatory and supervisory network, particularly in controlling interest rates and the allocation of credit, tends to distort financial markets. Government intervention, thus adversely affect savings and investment decision of market participants and lead to fragmentation of financial mediation. The ultimate result is a financial repressed economy. The central idea of Mckinnon and Shaw (1973) is that financial markets should be liberalized and allocation of credit determinants by the free market forces. In this case, the real interest rate will adjust to its equilibrium levels and low yielding projects will be avoided. This will lead to increase in overall efficiency of investment, savings and total real supply of credit would grow. This in turn induces a higher volume of investment which will then lead to economic growth.

The main critique of the financial liberalization theory emerged from the imperfect information paradigm. This school of thought opposes with the proposition of these scholars and examines the problem of financial development in the context of information asymmetry and costly information that results in credit rationing. As studied by Stiglitz and Weiss (1981), asymmetric information leads to two important problems, first, adverse selection and second, moral hazard. The implication here is that the information asymmetries of higher interest rates which actually follow financial reforms and financial liberalization policies in particular worsens risk taking throughout the economy and hence threatens the stability of the financial system, which can easily lead to financial crises while the Feedback theory suggests a two-way causality between economic growth and financial development. The analysis is as follows: a country with well – developed financial markets could stimulate and promote high economic growth through technology changes, and product and services innovation (Schumpeter, 1912); this in turn will create high demand in financial arrangements and services (Levine, 1997, Chong et al, 2005). As the financial institutions effectively respond to this demand, higher economic performance is ensured. In this regard, both financial development and economic growth are positively interdependent and their relationship could lead to feedback causality (Khan, 1999). In summary, none of the works so far reviewed considered the possibility that the financial markets may not consider it appropriate to lend to the private sector even when there are funds, and the ratio of credit issued to non-financial private firms to total domestic credit (BCR) is not taken seriously. However, the studies of Shahnoushi, et al. (2008), Abu- Bader and Abu-Qarn (2005) and Gryay et al (2007) are essential to this study as their models were augmented to suit the target of this study.

METHODOLOGY AND DATA SOURCE

The empirical investigation is carried out using annual data ranging from 1980-81 to 2040-15 which covers 35 annual observations. All of the data were obtained from the database of World Bank Economic Indicators and IMF, and annual reports of NBE. Using the time period, 1980-81 to 2040-15 for Ethiopia, this study aims to examine the causal dynamic relationships between the level of financial development and economic growth in Ethiopia. The estimation methodology employed in this study is the Johansen co integration test and granger causality approach.

Although it is the widespread practice to consider cross-country regression to judge the growth effects of financial development, it is also important to study individual-country evidence like Ethiopia at least at a simple level.

In this study, the association between financial development and economic growth is measured mainly by using the specification model of Odedokun's (1996) model which postulates that causation runs from financial development to economic growth. The model is based upon the conventional neoclassic alone-sector aggregate production in which financial development constitutes an input, along with other real sector variables as depicted in equation 1. To facilitate comparison with the Odedokun model, the same notation is used to describe the variables.

$$Y_t = f(L_t, K_t, F_t, Z_t) \quad (1)$$

Where Y represents aggregate output or real GDP; L represents labor; K indicates the capital stock; F is a measure of the level of financial sector development (FSD); Z represents a vector of other factors, such as the level of exports, that can be regarded as inputs in the aggregate production process, and t represents annual time series. A variable's annual rate of growth was computed as the first-difference of its natural logarithm. The equation was estimated by ordinary least squares. The presence of first-order serial correlation was detected by examining the Durbin-Watson (DW) statistic and corrected where necessary by including an autoregressive term in the estimation equations.. The specification of estimation equation is;

$$Y_t^* = a + b \cdot POPGRW_t^* + c \cdot (FCF)_t + d \cdot FSD_t^* + e \cdot EXPGRW_t^* + ut \quad (2)$$

Where,

Y_t = Economic growth was measured as the annual growth rate of the real GDP.

$POPGRW_t^*$ = Labor force growth was proxies by population growth which was calculated as the annual population growth rate.

FCF_t = The investment/GDP ratio was computed as gross nominal fixed capital formation divided by nominal GDP.

FSD_t^* = Financial sector development (FSD) was computed as the annual growth rate of the real stock of liquid liabilities (M3).

$EXPGRW_t^*$ = Real export growth was calculated as the annual growth rate of exports of goods and services

Unit Root Test

When dealing with time series data, a number of econometric issues can influence the estimation of parameters using OLS. Regressing of a time series variable on another time series variable using the Ordinary Least Squares (OLS)

estimation can obtain a very high R², although there is no meaningful relationship between the variables (Sarbpriya Ray, 2013). This situation reflects the problem of spurious regression between totally unrelated variables generated by a non-stationary process. Therefore, prior to testing and implementing the Granger Causality test, econometric methodology needs to examine the stationary; for each individual time series, most macro-economic data are non-stationary, i.e. they tend to exhibit a deterministic and/or stochastic trend. Therefore, it is recommended that a stationary (unit root) test be carried out to test for the order of integration. A series is said to be stationary if the mean and variance are time-invariant. A non-stationary time series will have a time dependent mean or make sure that the variables are stationary, because if they are not, the standard assumptions for asymptotic analysis in the Granger test will not be valid. Therefore, a stochastic process that is said to be stationary simply implies that the mean $[E(Y_t)]$ and the variance $[Var(Y_t)]$ of Y remain constant over time for all t, and the covariance $[covar(Y_t, Y_s)]$ and hence the correlation between any two values of Y taken from different time periods depends on the difference apart in time between the two values for all $t \neq s$. Since standard regression analysis requires that data series be stationary, it is obviously important that we first test for this requirement to determine whether the series used in the regression process is a difference stationary or a trend stationary.

We also use a formal test of stationary, that is, the Augmented Dickey-Fuller (ADF) test. To test the stationary of variables, we use the Augmented Dickey Fuller (ADF) test which is mostly used to test for unit root. Following equation checks the stationary of time series data used in the study:

$$\Delta Y_t = \beta_1 + \beta_{1t} + \alpha Y_{t-1} + \gamma \sum_{t=1}^n \Delta Y_{t-1} + \epsilon_t \quad (3)$$

Where ϵ_t is white noise error term in the model of unit root test, with a null hypothesis that variable has unit root. The ADF regression test for the existence of unit root of Y_t that represents all variables at time t. The test for a unit root is conducted on the coefficient of Y_{t-1} in the regression. If the coefficient is significantly different from zero (less than zero) then the hypothesis that y contains a unit root is rejected. The null and alternative hypothesis for the existence of unit root in variable Y_t is $H_0: \alpha = 0$ versus $H_1: \alpha < 0$. Rejection of the null hypothesis denotes stationary in the series. If the ADF test-statistic (t-statistic) is less (in the absolute value) than the Mackinnon critical t-values, the null hypothesis of a unit root cannot be rejected for the time series and hence, one can conclude that the series is non-stationary at their levels. The unit root test tests for the existence of a unit root in two cases: with intercept only and with intercept and trend to take into the account the impact of the trend on the series.

Granger Causality Test

Historically, Granger (1969) and Sim (1972) were the ones who formalized the application of causality in economics. Granger causality test is a technique for determining whether one time series is significant in forecasting another (Granger, 1969). The standard Granger causality test (Granger, 1988) seeks to determine whether past values of a variable helps to predict changes in another variable. The definition states that in the conditional distribution, lagged values of Y_t add no information to explanation of movements of X_t beyond that provided by lagged values of X_t itself (Green, 2003). We should take note of the fact that the Granger causality technique measures the information given by one variable in explaining the latest value of another variable. In addition, it also says that variable Y is Granger caused by variable X if variable X assists in predicting the value of variable Y. If this is the case, it means that the lagged values of variable X are

statistically significant in explaining variable Y.

Testable Hypotheses

- The null hypothesis (H_0): financial sector development (FSD) does not Granger cause economic growth (Y_t). If the estimation results reject this null hypothesis at the 5 % significant level, it supports Granger causality running from financial sector development (FSD) to economic development (Supply-leading).
- The null hypothesis (H_0): economic growth (Y_t) does not Granger cause financial sector development (FSD). If the estimation results reject this null hypothesis at the 5% significance level, it supports the Granger causality running from economic development to financial sector development (FSD) (Demand-following).

RESULTS AND DISCUSSION

This section discusses the results of data analysis using descriptive as well as econometric tool. Table 1 shows the summary of descriptive statistics of variables taken in to consideration for this study. Accordingly, the mean growth in real GDP of Ethiopia for the period of 1980-81 to 2014-15 is found to be 2.31 percent, with the maximum and minimum are 10.41 and -13.94 percent respectively. The average population growth of Ethiopia for the period of 1980-81 to 2040-15 is found to be 2.97 percent, with the maximum and minimum are 3.58 and 2.39 percent respectively. The mean ratio of fixed capital formation of Ethiopia for the period of 1980-81 to 2040-15 is found to be 21 percent, with the maximum and minimum are 38 and 15 percent respectively. The mean value liquid liability (M3) of Ethiopia for the period of 1980-81 to 2040-15 is found to be 23798.77 million ETB and the maximum and minimum are 154706.3 and 1498.6million ETB respectively. The average growth in annual export of Ethiopia for the period of 1980-81 to 2040-15 is found to be 5.66 percent, with the maximum and minimum are 14.1 and -1.6 percent respectively.

Table 1: summary statistics

Variable	Obs	Mean	Std. Dev	Min	Max
GDP	35	2.306314	6.635846	-13.939	10.41
POPGRW	35	2.973057	3322465	2.393	3.586
FCF	35	21.0018	5.498497	15.003	37.99372
FSD	35	23798.77	35036.64	1498.6	154706.3
EXPGRW	35	5.661429	3.11393	-1.6	14.1

Source: Author's own computation

Unit Root Test

The results of the stationary tests at level show that all variables are non-stationary as the absolute value of ADF test-statistic is less than Mackinnon critical value. Having found that the variables are not stationary, the next step is to difference the variables once in order to perform stationary tests on differenced variables. The results of the stationary tests on differenced variables are presented in Tables 3.

Table 2: Augmented Dickey-Fuller Test for Unit Root

Variables	Level		Difference	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
GDP	-0.989	-2.387	-3.759	-3.705
POPGRW	-1.270	-3.563	-5.205	-4.104

FCF		2.249	1.290	-6.817	-7.378
FSD		1.063	2.497	-3.621	-3.611
EXPGRW		-2.502	-2.625	-6.873	-6.611
Critical Value at	1%	-3.723	-4.343	-3.730	-4.352
	5%	-2.989	-3.584	-2.992	-3.588
	10%	-2.625	-3.230	-2.626	-3.233

Source: Author's own computation

The results reported in Tables 2 show that after differencing the variables once, all the variables were confirmed to be stationary. As the absolute value of ADF test-statistic is less than Mackinnon critical value, it is, therefore, worth concluding that all the variables are integrated of order one.

Table 3: Selection-order criteria

Sample: 1986 - 2015					Number of obs		=	30
Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-602.608				2.7e+11	40.5072	40.5819	40.7408
1	-458.921	287.37	25	0.000	1.0e+08	32.5947	33.043	33.9959
2	-392.251	133.34	25	0.000	7.3e+06	29.8167	30.6385	32.3856
3	-338.724	107.05	25	0.000	1.7e+06	27.915	29.1103	31.6515
4	-265.395	146.66	25	0.000	194192	24.693	26.2619	29.5972
5	410.595	1352*	25	0.000	4.8e-13*	-18.7063*	-16.7639*	-12.6345*

Source: Author's own computation

Co Integration Analysis

Thus having established that all the variables are non-stationary and integrated of order one, the next step is to proceed and test for the number of co integrating relationships by applying the Johansen Test for Co integration. Co integrated variables ensure that we eliminate spurious relations and as such share common stochastic trends. Further than that, they enable us to formulate an error correction model as we determine the long-run relationship among the variables. First a restricted VAR was estimated and determine the lag length selection criteria.

The optimum lag length selected is 5. The results are as presented in Table 3. The researcher thus then apply the Johansen test using the optimum lag length of 5. The results as presented in Table 4 suggest that there is two co integrating relationship amongst the variables.

The null hypothesis that there is no co integrating vector as well as there is one co integrating vector are rejected as the trace statistic is greater than the 5% critical value from the Johansen tables. However, the null hypothesis of there is two co integrating vector is can not to be rejected as the trace statistic is less than the 5% critical value from the Johansen tables We conclude therefore, that there is two co integrating vector.

Using the maximum eigenvalues we also come to the same conclusion that there is one co integrating relationship.

Table 4: Johansen Tests for co Integration

Trend: constant Number of obs = 31

Sample: 1985 – 2015 Lags = 3

Maximum Rank Prams	LL	Eigen Value	Statistic	Trace Value	5% Critical
0	55	-445.98764	.	96.7764	68.52
1	64	-425.94339	0.72560	56.6879	47.21
2	71	-411.23181	0.61292	27.2648*	29.68
3	76	-402.91744	0.41516	10.6360	15.41
4	79	-399.12065	0.21726	3.0424	3.76
5	80	-397.59943	0.09348		
Maximum Rank Prams	LL	Eigen Value	Statistic	Max Value	5% Critical
0	55	-445.98764	.	40.0885	33.46
1	64	-425.94339	0.72560	29.4232	27.07
2	71	-411.23181	0.61292	16.6287	20.97
3	76	-402.91744	0.41516	7.5936	14.07
4	79	-399.12065	0.21726	3.0424	3.76
5	80	-397.59943	0.09348		

Empirical Analysis

The results presented in the preceding section indicate that co integration between the variables under consideration has been accepted. The next step in this analysis, therefore, is to estimate Granger causality by including error correction term (ECM-1) lagged once in the bidirectional causality model. The results of the causality tests reported in Table 6 show that there is a distinct causal flow from financial development, which was proxied by stock of liquid liability (M3), to economic growth. That means the null hypothesis that FSD does not Granger cause economic growth is rejected supply-leading hypothesis is accepted. The causality from economic growth to financial development is also found to be significant. That means the null hypothesis that economic growth does not Granger cause FSD is rejected or demand-following hypothesis is accepted. This finding is supported by the lagged error-correction term and the lagged value of the economic growth variable in the financial development equation, which are both statistically significant. This shows that the causality between financial development and economic growth in Ethiopia takes bidirectional causation. The causality test among other macroeconomic variables under consideration (FCF, POPGRW, and EXPGRW) also took bidirectional causation with economic growth. The causality test among other macroeconomic variables under consideration (FCF and EXPGRW) also took bidirectional causation with FSD except POPGRW which does not have unidirectional causality that runs from POPGRW to FSD.

Table 5: Granger Causality Wald Tests

Equation	Excluded	chi2	dfProb>chi2
gdppopgrw	215.31	5	0.000
gdpfcf	163.44	5	0.000
gdpsfd	27.838	5	0.000
gdpepgrw	129.46	5	0.000
gdpALL	568.03	20	0.000
popgrwgdp	71.724	5	0.000
popgrwfcf	34.498	5	0.000
popgrwfsd	.97431	5	0.965

popgrwexpgrw	132.85	5	0.000
popgrwALL	370.68	20	0.000
fcfgdp	310.05	5	0.000
fcfpopgrw	585.02	5	0.000
fcffsd	1361.2	5	0.000
fcfexpgrw	180.8	5	0.000
fcfALL	2523.9	20	0.000
fsdgdg	54.917	5	0.000
fsdpopgrw	61.786	5	0.000
fsdfcf	52.937	5	0.000
fsdexpgrw	65.3	5	0.000
dfsdALL	123.1	20	0.000
expgrwgdg	319.78	5	0.000
expgrwpopgrw	423.25	5	0.000
expgrwfcf	386.98	5	0.000
expgrwfsd	674.8	5	0.000
expgrwALL	1411.1	20	0.000

Source: Author's own computation

CONCLUSIONS

The objective of this article is to explore the causal relationship between financial development and economic growth in Ethiopia over the period from 1980-81 to 2040-15. The estimated results shows that financial development, measured by stock of liquid liability, gross domestic capital formation, population growth, export growth have unit root problem(non-stationary) at the level data and at the first differences when using ADF test, they all are stationary at first difference. Results of johansen tests for co integration revealed that the existence of long term association among the variables considered for this study. The Granger- causality test finally in dictated that there is bidirectional causality between financial development and economic growth in Ethiopia between time span of 1980-81 to 2040-15. Therefore, financial development indicator variables can be used to solve economic growth problem in Ethiopia and vice versa. The implication of the above is that Ethiopia is in a better state of affairs as far as the growth potential is concerned and this could be attributed to a more efficient financial system in the country.

Consequently, government has to intensify the financial sector and carry out crucial measures to reinforce the long run relationship between financial development and economic growth in order to maintain sustainable economic growth. These measures embrace more financial integration, minimization of government intervention in the financial systems, escalating the status of financial institutions, opening the door of financial sector for foreign investor etc. It is recommended that financial systems need developed financial markets, which may complete its deepening to affect economic growth optimistically. For financial deepening, not only multiplicity in financial institutions, but also diversity in financial instruments is imperative. The current situation of limited credit granting inhibits the banking sector and hence limiting the money supply needed to grow the local economy. Therefore, government should make policies that will provide a conducive business environment that would ensure banks provide more credit to private sector (loans) for businesses, who will invest such funds for productive purposes that will yield the desired or required return and this will lead to an improvement in the GDP growth.

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