

Finance and Economic Growth of Nigeria

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Abstract: *The study examined the relationship between finance and economic growth in Nigeria, and the direction of causality. The study made use of data spanning through 1980 – 2015 and various econometric analysis such as Augmented Dickey-Fuller (ADF) unit root test, Johansen Co-integration test, Error Correction Model (ECM) and the Granger causality test. Gross Domestic Product (GDP), proxied for economic growth, was included as the dependent variable, while finance, proxied by Credit to Private Sector (CPS), served as independent variable, with Lending Rate (LR) as a control variable. The results showed a positive, long-run and statistically significant relationship between finance and economic growth. The study also revealed a unidirectional causal relationship from finance to economic growth. It was therefore concluded that government and monetary authorities should develop and implement policies that will improve activities of financial institutions in order to ensure economic growth. It was also suggested that, financial institutions should make the accessibility to credits by private sector less stringent in order to encourage borrowings for investment, and ultimately, enhancing economic growth.*

Keywords: *Credit to Private Sector, Economic Growth, Finance, Financial Institutions, Gross Domestic Product*

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I. Introduction

The growth of the economy of a nation, measured in terms of the percentage increase in the real Gross Domestic Products (GDP), is dependent on a number of factors, principal among which is finance. Finance is needed in the right quantity and mix to propel increased productivity. Through intermediation, finance (or the financial sector of an economy) ensures funds are channeled from idle or surplus units to productive sectors for investment purposes. Consequently, the role of finance in the growth process has received a lot of scholarly attentions with initial disagreements on the actual role of finance in economic growth. There is however a convergence of opinions in recent literatures establishing critical roles finance play in the growth of the economy of a nation.

[1] pioneered the discussion on the relationship between finance and economic growth with a postulation that development in finance brings about economic growth given efficient and effective allocation of resources to the productive sectors of the economy while [2] argued that development in finance is only a by-product of economic growth and not the inducer of growth. These views sparked a debate in the literature. While some researchers ([3]; [4]; [5]) supported that finance induces economic growth as postulated by [1], others ([6]; [7]; [8]) agreed with [2] that financial development is a by-product of economic growth. [9] and [10] argued that the role of finance in the growth process may be determined by the existence (or non-existence) of some conditions. However, [11] and [12] established a bi – directional causality relationship between finance and economic growth in Nigeria. As a result of this diversity in opinions, this study aims to empirically establish the relationship between finance and economic growth as well as ascertain the causal relationship between finance and economic growth in Nigeria.

The study is organized as follows; following the introductory section is the empirical review of literature in section two. Section three is the methodology, followed by the analysis and interpretation of results in section four. The final section contains the conclusion and recommendations.

II. Literature Review

[1] initiated the debated on the relationship between finance and economic growth. It was postulated that financial development will bring about economic growth when there is efficient and effective allocation of resources to those sectors of the economy that are productive (supply leading hypothesis). Contrary to this view is [2] who argued that finance does not bring about economic growth rather economic growth brings about financial development. That is, when an economy improves, there will be need and motivation for demand for money to expand investments thereby, promoting financial development (demand following hypothesis).

In the finance – economic growth relationship debate, [2] was supported by a number of authors like [7] who found insignificant relationship between banks and economic growth suggesting that social infrastructures, political stability human resources, and technology may have more inducing effect on economic growth than banks. Similarly, a study by [8] centered on the causality issue in the finance and growth nexus with empirical evidence from the Middle East and North African (MENA) countries. The results of the granger causality tests showed that, causality is running from economic development to financial development in the MENA region. A study conducted by [13] provided little support to the fact that the process of economic growth is championed by finance. It was however observed that, there was a considerable evidence of bi-directional and proof of reverse causation between finance and economic growth.

A recent study by [14] investigated the impact of financial development on the economic growth of Nigeria. The study made use of domestic credit as a ratio of Gross Domestic Product, broad money supply (M_2) as a ratio of GDP and private credit as a ratio of GDP as independent variables proxied for finance while economic growth, proxied as change in per capita GDP as the dependent variable. The study found a bidirectional relationship between finance and economic growth but the causality from economic growth to finance was much stronger than from finance to economic growth. It was concluded that, in the Nigerian economy, finance follows economic growth supporting the demand following hypothesis.

[15]; [16] and [17] were some of the earliest scholars that supported the Schumpeterian hypothesis. [15] for instance argued that the financial sector of an economy is important to economic development, and that it can assist in the break-away from ponderous recurrence of suppressed economic performance to fast-tracked growth. [18], in establishing the relationship between finance and economic growth, employed data on 80 countries over a period of 1960-1989. It was observed that, the level of a country's financial development is strongly related to its real per capita GDP growth which is consistent with [1].

A recent study by [3] investigated the relationship between financial development and economic growth nexus in Turkey based on bootstrapped approach. It was observed that, finance, proxied as credit to private sector caused economic growth. Also, [4] analyzed the relationship between bank credit and Nigeria's economic growth using a time series data between 1983 and 2012. The study observed that, finance, proxied by bank credit was positively related to economic growth with a causality which runs from finance to economic growth. Similarly, [19] examined the relationship between finance and economic growth in Nigeria from 1975-2008 and employed the bound test Autoregressive Distributed Lag (ARDL) approach. The findings proved that, there was a long run and positive relationship between finance and economic growth. The results of the granger causality tests also showed a unidirectional relationship with causality running from finance to economic growth supporting the "supply leading" hypothesis of Schumpeter which is line with the findings of [20].

In the same vein, [21], obtained time series data from 1960-2008 and employed Error Correction Model (ECM) and granger causality test to investigate the finance-economic growth relationship in Nigeria. The results of the study found a positive relationship between finance and economic growth in Nigeria. However, the results of the granger causality test showed a bidirectional causal relationship between the variables. This is consistent with the findings of [12] and [11]. In order to establish the relationship between finance and economic growth, [5] concentrated on Islamic finance and the economic development of the UAE. It was unequivocally concluded that, there was a strong positive and significant relationship between Islamic finance and economic growth. The results also indicated a unilateral casual relationship between finance and economic growth. That is, finance caused economic growth which also agreed with Schumpeter's supply leading theory.

[22] examined the actual effects of financial development on economy growth and arrived at two conclusions. First, the financial sector of an economy has an inverted U-shaped effect on economic growth and development. That is, initial development of an economy's financial system has an upward effect on economic growth, and that further expansion of the financial system can reduce real economic growth. Secondly, the growth of the financial sector causes productivity growth to slow down. That is, the financial sector which is also a sector in the economy also competes for limited resources. The study therefore concluded that financial development is definitely not always good for economic growth. In the same vein, [23] studied the relationship between finance and economic growth by employing an innovative dynamic panel threshold technique. The study sample consisted of 87 developed countries. The findings showed that there was a threshold effect in the finance-growth relationship. It was particularly observed that, the level of finance was beneficial to economic growth to a certain level, after which further financial development tends to have an adverse effect on economic

growth. It was concluded that, increase in finance is not necessary for a favourable economic growth. Similarly, [9] found that finance propelled growth more in a deregulated financial system while in a heavily regulated financial system, it was observed that, too much regulation can repress the role of finance in the economic growth process. In addition, [10] examined the effect of inflation on the finance-growth relationship. The study found that there was a threshold of inflation for the finance-growth relationship to be maintained which was found to lie between 13% and 25%, but if inflation rate rises beyond 25%, finance stops to propel economic growth.

Summarily, it can be observed that, authors have diverse opinions as regards finance and economic growth nexus. On the one hand, there is the school of thought with the belief that there is a positive relationship between finance and economic growth and that finance enhances economic development. On the other hand, the other school of thought which opines that finance has no relationship with economic growth and the fact that economic growth induces financial development both in the developed and developing economies. Hence; the need for the study in order to ascertain the relationship between finance and economic growth as well as establish the direction of causality between the duo in the Nigerian economy.

III. Methodology

The study employed secondary time series data from 1981 to 2015 from Central Bank of Nigeria Statistical Bulletins. The macroeconomic variables employed include: Gross Domestic Product (GDP) as the dependent variable, Credit to Private Sector (CPS) as the independent variable and Lending Rate (LR) as a control variable. The tests conducted in the study included the unit root test for the presence of stationarity, co-integration test for determining the long run relationship between variables and the Granger causality test to establish the causal relationship as well as the direction of causality between economic growth and finance. The study employed the Error Correction Model (ECM) to establish the relationship between finance and Nigeria's economic growth.

Economic Model:

$$D(\text{GDP}) = B_0 + B_1D(\text{GDP}_{t-1}) + B_2D(\text{CPS}_{t-1}) + B_3D(\text{CPS}_{t-2}) + B_4D(\text{LR}_{t-1}) + B_5D(\text{LR}_{t-2}) + \text{ECT}_{t-1} + U_t \quad (1)$$

Where,

GDP = Gross Domestic Product

CPS = Credit to Private Sector

LR = Lending Rate (Control Variable)

ECT = Error Correction Term

U = Error Term

B₀ = Constant Term

B₁- B₅ = Parameters

IV. Analysis And Interpretation Of Results

In order to test for the presence of stationarity, the Augmented Dickey – Fuller (ADF) (1980) unit Root Test was used, as shown in Table 1.

Table 1: Results of the Unit Root Test

Variables	T-statistic	5% critical level	P-value	Stationary	Order of integration
GDP	/4.055334/	/2.954021/	0.0035	Stationary	1(1)
CPS	/8.887690/	/2.976263/	0.0000	Stationary	1(1)
LR	/5.808524/	/2.954021/	0.0000	Stationary	1(1)

Source: Authors' Computation, 2017

The results of the Unit Root Test in Table 1 revealed that all the variables (GDP, CPS and LR) were not stationary at level given the value of their t-statistic at 5% level of significance. At first difference, it was revealed that all the variables (GDP, CPS and LR) were free from unit root given the value of their respective t-statistic are greater than 5% critical value. It was concluded that the variables do not have unit root and the null hypothesis that there is no presence of a unit root in the variables series can be accepted. From Table 1 above, it can be concluded that all variables are integrated at first level hence, the need for a co-integration test to determine the existence of a long run relationship between the variables.

Table 2 presents the results of the co-integration test for determining the long run relationship between the variables.

Table 2: Results of Co-integration Test

Trace Test			Maximum Eigen Test		
T-statistic	95% Critical Value	P-value	T- statistic	95% Critical Value	P-value
95.91148	24.27596	0.0000**	84.97201	17.79730	0.0000**
10.93947	12.32090	0.0843	10.93940	11.22480	0.0561
6.99E-05	4.129906	0.9955	6.99E-05	4.129906	0.9955

Note: (**) denotes rejection of null hypothesis at 5% significant

Source: Authors' Computation (2017)

The results of the co-integration test in Table 2 showed that both the trace statistics and Max-Eigen value tests affirmed that 1 co-integration equation exists among the macroeconomic variables. That is, Credit to Private Sector (CPS) and Lending Rates (LR) are co-integrated with Gross Domestic Product (GDP) during the study period thereby leading to the rejection of the null hypothesis and the acceptance of the alternative hypothesis that there exists a long run equilibrium relationship between the variables. The result also indicated that in the long run, the independent variables (CPS and LR) can efficiently predict the dependent variable (GDP) in Nigeria. Hence, to estimate the long-run equilibrium relationship among the series, we therefore employ the Error Correction Model (ECM).

Table 3 presents the results of the Error Correction Model to determine the speed of adjustment from short run disequilibrium.

Table 3: Regression Results of Error Correction Model

	Coefficient	Std. Error	t-Statistic	Prob.
ECM(-1)	-0.382772	0.123185	-3.107296	0.0047
D(GDP(-1))	0.275534	0.156290	1.762965	0.0901
D(CPS(-1))	4.022284	0.782281	5.141738	0.0000
D(CPS(-2))	1.996077	0.957775	2.084078	0.0475
D(LR(-1))	-242.2532	164.7865	-1.470103	0.1540
D(LR(-2))	-183.8316	166.6977	-1.102784	0.2806
C	-862.0325	873.3954	-0.986990	0.3331
R-squared	0.687343	Mean dependent var		2938.397
Adjusted R-squared	0.612305	S.D. dependent var		5666.211
S.E. of regression	3528.075	Akaike info criterion		19.36553
Sum squared resid	3.11E+08	Schwarz criterion		19.68616
Log likelihood	-302.8485	Hannan-Quinn criter.		19.47181
F-statistic	9.159967	Durbin-Watson stat		2.568362
Prob(F-statistic)	0.000024			

Source: Authors' computation, 2017

Table 3 above presents results of the Error Correction Model as specified in the study. The ECM value of -0.382772 indicates that the speed of adjustment from short run dis-equilibrium state is corrected at a speed of 38% implying there is a tendency for Gross Domestic Product to restore its equilibrium in the short-run. In other words, any short run deviation will return to equilibrium in the long-run.

It was also revealed that the first period of lag of Gross Domestic Product was positive which indicated that a unit increase in GDP in the previous year will bring about 0.275534 increases in GDP in the current year. Also, the result of the analysis showed that first period lag of Credit to Private Sector (CPS) has a direct significant impact on GDP which implies that an increase in CPS will bring about 4.022284 increases in GDP. Likewise, the second period lag of CPS has a significant impact on GDP such that a unit increase in CPS will lead to 1.996077 increases in GDP. Finally, the results revealed both the first and second period lag of Lending Rate has an insignificant negative impact on GDP implying that, a unit increase in lending rate leads to decline in GDP both in the previous and current year.

The coefficient of determination of the model, that is, R^2 is 0.687343. This implies that the explanatory variables (Credit to Private Sector and Lending Rate) accounted for about 69% of the variations in Gross Domestic Product (GDP) from 1980-2015, while only 31% of the variation in Gross Domestic Product (GDP) is explained by other exogenous variables that are not included in the model (error term). This value of the R^2 indicates a goodness of fit.

The F-statistic value is 9.159967 with a P-value of 0.00024 which is less than 0.05 critical value implies that, the joint influence of all included explanatory variables is significant in explaining variations in Gross Domestic Product in Nigeria.

Table 4: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
CPS does not Granger Cause GDP	33	5.23091	0.0117
GDP does not Granger Cause CPS		1.90312	0.1679

Source: Authors' computation, 2017

The results of the granger causality test in Table 4 revealed a uni-directional relationship between Credit to Private Sector and Gross Domestic Product. The causality runs from Credit to Private Sector to Gross Domestic Product but without reversal causality from Gross Domestic Product to Credit to Private Sector. This implies that, finance induces development in the Nigerian economy and its importance cannot be overemphasized.

The results of the analysis from the co-integration test and VECM showed that finance, as proxied by Credit to Private Sector (CPS), has a long-run positive and significant relationship with Gross Domestic Product (GDP) in Nigeria both in the previous and current year. This implies that, finance is productive and contributes significantly to the growth of the Nigerian economy. Government at all levels, monetary authorities and the financial sector should take credit provisions to the economy more seriously and develop policies and strategies that will encourage borrowings from willing investors. The results also showed that a unit increase in Lending Rate (LR) will lead to 242.25 and 183.83 reduction in Gross Domestic Product (GDP) both in the previous and current years. This is because increase in lending rate will discourage investment by daunting borrowings from the financial sector. This supports the necessity of developing policies that will bring about reduction in lending rates in order to encourage investments and in turn, develop the Nigerian economy.

Furthermore, the results of the granger causality test revealed that, there is a uni-directional relationship between finance, proxied as Credit to Private Sector (CPS) and economic growth, proxied as Gross Domestic Product in Nigeria. This means that causality runs from finance to economic growth that is, finance induces economic growth while economic growth on the other hand, does not induce financial development in the Nigerian economy. The study, however, contradicts the studies by [11], [12] and [21] who found out that there exists a bi-directional causal relationship between finance and the growth in the Nigerian economy. The findings of this study negate the studies by [2], [8] and [7] who opined that finance does not bring about the development of an economy. However, the findings support the works by [1] and others like [3], [4] and [5] that finance induces economic growth.

V. Conclusion And Recommendations

Using the Vector Error Correction Model to analyze the time series data from 1980 – 2015, it can be concluded that finance has a positive and significant relationship with economic growth in Nigeria. Also, the results of the Johansen co-integration test showed that there exists a long run relationship between the variables. Finally, the results of the Granger causality test conducted showed a unidirectional relationship between finance and the growth of the Nigerian economy. It is therefore recommended that, government and monetary authorities should develop and implement policies that will improve the activities of financial institutions. Furthermore, financial institutions are encouraged to make credit to the private sector less stringent in order to encourage more borrowings for investment in order to impart positively on the economy both in the short and long run.

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