

Financial Sector Development and Economic Growth in Nigeria (1981-2017)

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Abstract

This study appraised the impact of financial sector development on economic growth in Nigeria using time series data from 1981 to 2017. The study used Principal component analysis techniques, ARDL, the result shows that financial sector development has a direct relationship with economic growth in Nigeria, that supports supply follow hypothesis.

The stability test showed that the three models were significant and stable. The granger causality results revealed that economic growth granger cause financial development which support the demand pull hypothesis of financial development. Furthermore, the granger causality also revealed that bank sector as a financial sector granger cause the stock market performance in Nigeria. The study recommended that Government should consolidate on previous financial sector reforms to make the financial sector a strong, virile and competitive sector to support the economic growth process in Nigeria. The Nigerian government should device a means to energize the deposit money banking sector so as to make credits available and accessible to the private sector. This will help boost the private sector development and investment which is the engine of growth.

Keywords: *Financial Development, Stock Market Index, Money Market Indicator, Capital Market Indicator, Market capitalization.*

JEL Classification: C32, C51, E27, H63

Date of Submission: 02-06-2020

Date of Acceptance: 17-06-2020

I. Introduction

Financial Sector of any economy in the world plays a vital role in the development and growth of the economy. The development of this sector determines how it will be able to effectively and efficiently discharge its major role of mopping up funds and channel same in the form of credit, loans or invested capital to business sector that most need these funds for investment. Financial Sector Development connotes improvements in the functioning of the financial Sector, which includes Increased access to financial intermediation, greater diversification opportunities, Improved information quality, better incentives for prudent lending and monitoring. Financial sector consists of Set of institutions, instruments and markets. It also includes the legal and regulatory frameworks that permit transactions to be made through the extension of credit. Financial Sector connotes Wholesale, retail, formal and informal financial institution in an economy offering financial services to consumers, business and other Financial sector .Most economic growth literatures agree that financial development and sustainable economic growth are highly related (see... King and Levine 1993; Mckinnon 1973; Shaw,1973;). Financial Sector Development is a fundamental requisition for economic development. For growth to take place, financial institutions must pool savings and direct them to viable investments that are needed for economic growth. The pursuit of financial development sector and economic growth is one of the macroeconomic goals in every nation. Economic growth is associated with the Financial sector development, Studies on financial sector development in African countries are few , this is attributed to poor level of Financial development and unavailability of quality data.

With the recent global financial crisis of the 80's, most countries appear to have recognized the role which financial sector development plays in sustaining economic growth. Most affected economies experienced a fall in stocks and commodities prices with consequent decline in the total market capitalization. These global financial crises which translated into economic meltdown of most nations led to several bail out of the financial sector (with public funds) by the governments of the affected countries with the believe that once the financial sector is revived it will translate into reviving the economy and stimulate growth. This scenario, however, will only be possible if there is positive relationship between the financial sector and the economic growth with causality running from the financial sector to economic growth. This provoked the need to further investigate the relationship between the financial sector development and economic growth as public funds should not be used in bailing out the financial sector where such relationship does not exist or where the causal relationship runs from economic growth to financial development (Balago, 2014).

However, Previous studies on financial sector development and economic growth in Nigeria such as, Adalakun (2009), Adeniran (2010), Nwosu and Metu (2015) used multiple money market indicators measures at the expense of capital market variable to measure the impact of financial sector development on economic growth. While Kolapo and Adaramola(2012), Emeh and Chigbu. (2014) and used capital market indicators to examine the linkages between financial sector development and economic growth. A closer examination of the previous studies revealed that conscious efforts were not made to explore this Financial sector index (banking financial development indices and stock market financial development index). Research on Financial sector development is expected to fill the knowledge gap with these indicators with the aim of establishing the linkage between Financial sector development and economic growth in Nigeria.

Assuming that a relationship exist between ,stock market financial development index and economic growth, what is the direction of the relationship? Is it stock market financial development index and economic growth that is causing economic growth or vice versa or both? There are divergent views as to the nature of the relationship between each of the components of the financial sector chosen for the study and the economic growth. While some found a positive relationship, some discovered a negative relationship and others did not find any relationship between the financial sector and economic growth. These controversial finding is expected to make this research an interest one, coupled with the need as it shed more academic light by focusing on Nigeria.

II. Literature Review

The relationship between financial development and economic growth has been examined extensively in the literature, but with conflicting results. For a long time the conventional wisdom has been in favour of the supply-leading response, where the development of the financial sector is expected to precede the development of the real sector. There are four views existing regarding the relationship between financial development and economic growth. The first view argues that financial development is important and leads to economic growth which is the supply- leading response. This view is widely supported by McKinnon (1973), Shaw (1973), and King and Levine (1993), Osinubi (2002) Ahmadu (2009) , Kagochi (2003) Nkoro (2013), Khan (2003) kiprop (2015), Adalakun (2010) Nzotta and Okereke (2009) Ubaje (2014), Ewetan, Ike and Ese (2015) Wadud (2005) ,Samatgandi, Fidrmuc and Ghosh (2013), Emecheta and Ibe (2014), Emmanuel, Abiola and Anthony (2015) Oluitan (2012), Ngugi, Amonja and Maana (2009) George; George and Justice (2013). Nwosu and Metu(2015), Emeh and Chigbu (2014).

The second view maintains that it is economic growth that leads to the development of the financial sector (demand-following response). The empirical studies, that are associated with this view include, Waqabaca (2004) and Odhiambo(2005), Mohammed and Sidropoulous (2006) Nzotta and Okereke (2009)

Despite the arguments in favour of the supply-leading response and demand-following response, the third empirical results from a number of studies have shown that financial development and economic growth can Granger-cause one another otherwise called feedback hypotheses. There is a positive relationship between financial sector development and economic growth that runs bi-directionally together with a mutually reinforcing effect. In other words, financial sector development promotes economic growth while economic growth itself stimulates further financial sector development, and the two mutually influence each other, studies associated this views include- Odeniran and Udejaja (2010), Demetriades and Hussein (1996), Odedokun (1998), Osuji (2012), Sunde (2012), Agu and Chukwu (2008), Esso (2010), Waiyaki (2013), Akinlo and Egbetunde (2010). Jalil, Wahid and Shahbaz(2010).

The absence of any relationship between financial development and economic growth presents the fourth view which is the neutrality hypothesis. It indicates that financial sector development and growth in output in an economy do not influence each other. Studies associated this views include Muchai(2013) and Muchai (2013), Tuck (2013) Iheanacho (2016) Osisanwo (2017) , Okpara, Onoh, Ogbonna, Iheanacho and Kelechi (2018)

Gaps in Literature

Most previous studies did not attempt to find a relationship between component of the Financial sector, banking financial development indices variable and economic growth, stock market financial development index variable and economic growth, this study would go further to uncover the relationship between the Banking financial development indices variable and stock market financial development index as it affects economic growth in Nigeria.

III. Methodology

3.1 Theoretical Framework

This is built in line with endogenous growth that is growth within the model. Our first objective is to identify finance-growth relationship in Nigeria. Therefore, the model will be derived using Cobb Douglas

Production Function. This is because Cobb Douglas function captures the amount of output in an economy taking note of labour and capital inputs. This consistent with the study by (Ang, 2008; Samargandi, Fidrmuc and Ghosh, 2013, Jalil, Feridun, & Ma 2010; Demirgüç-Kunt and Levine, 2008; Beck and Demirguc-Kunt, 2009; Coban and Topcu, 2013; Iheanacho, 2016 among others). Therefore,

Y measures economic growth (proxy with real GDP),

K denotes the amount of capital (measured by gross fixed capital formation), and

L denotes the amount of labour (measured by labour rate),

A is parameter that captures the effects of other factors of production which is also known as the efficiency parameter. Technically, A, measures a Total Factor Productivity (TFP). Augmenting the neoclassical Cobb Douglas Production function by incorporating Financial sector development and taking the natural log which is consistent with Ang, 2009; Samargandi, Fidrmuc and Ghosh, 2013, Jalil, Feridun, & Ma 2010; Demirgüç-Kunt and Levine, 2008; Beck and Demirguc-Kunt, 2009; Coban and Topcu, 2013; Iheanacho, 2016).

We have

$$\text{Log}(Y) = \text{Log}(A) + \alpha \text{log}(K) + \alpha - 1(\text{log}L) \quad \text{-----1}$$

Where

Log(Y) = real gross domestic product

Log (K) = Gross fixed capital formation (GFCF)

Log(L)= labour force (LAB)

A denote TFP as a function of financial sector development variables $A=f(\text{FINDEX})$.

A = Efficiency of financial intermediation to take place, it requires the combination of banking sector development index and capital stock development index, that is Findex_1 and Findex_2 . $A = \text{Findex}_1 + \text{Findex}_2$. This is in line with Principal Component Analysis techniques derived.

3.1 Model Specification

The model formulated for this study was inline with; Kolapo and Adaramola (2013), Balago (2014), Osuji (2015), and Iheanacho (2016). Specifically, Osuji (2015) that examine the impact of financial development on Nigeria economic growth. In-line with this study the model was drawn-

Real Gross Domestic Product (RGDP) as function of financial development (FD), interest rate (INT) and investment (R)

$$\text{RGDP} = f(\text{FD}, \text{INV}, \text{R}) \quad (2)$$

Where FD is financial development indicators which is proxied as multiple banking variables

INV = Output share of Investment (i.e Gross capital formation/GDP).

R = Interest rate

Therefore, the model for this study is specified as follows - banking sector model as model 1, stock market model as model 2, and the combined model of one and two as the main model as model 3.

Banking Sector Model as model one

$$\text{RGDP} = f(M_2/\text{GDP}, \text{BDL}/\text{GDP}, \text{CPS}/\text{GDP}, \text{BDC}/\text{GDP}, \text{GFCF}, \text{INT}) \quad (3)$$

The above functional relationship can be expressed as follows:

$$\text{RGDP}_t = \beta_0 + \beta_1 M_2/\text{GDP}_t + \beta_2 \text{BDL}/\text{GDP}_t + \beta_3 \text{CPS}/\text{GDP}_t + \beta_4 \text{BDC}/\text{GDP}_t + \beta_5 \text{GFCF}/\text{GDP}_t + \beta_6 \text{INT}_t + U_t \quad (4)$$

The apriori expectation $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, >0, \beta_6 <0$

Stock Market Model as model two

$$\text{RGDP} = f(\text{MCP}/\text{GDP}, \text{TNI}/\text{GDP}, \text{VOT}/\text{GDP}, \text{TEG}/\text{GDP}, \text{GFCF}/\text{GDP}, \text{INT}) \quad (5)$$

The above functional relationship can be expressed as follows:

$$\text{RGDP}_t = \beta_0 + \beta_1 \text{MCP}/\text{GDP}_t + \beta_2 \text{TNI}/\text{GDP}_t + \beta_3 \text{VOT}/\text{GDP}_t + \beta_4 \text{TEG}/\text{GDP}_t + \beta_5 \text{GFCF}/\text{GDP}_t + \beta_6 \text{INT}_t + U_t \quad (6)$$

The apriori expectation $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, >0, \beta_6 <0$

The Combined Model as model three- Using Financial development Index (PCA)

This involves expressing the model to explore the economic phenomenon empirically. According to Balago 2014, Osuji 2015, Iheanacho (2016), the efficiency of financial intermediation requires the combination of Banking Sector Financial Development index and Stock Market Financial Development index as measures of financial sector development on economic growth. In line with the theoretical framework, efficiency of financial intermediation is expressed as a function of indicators (F_t) and a set of control variables (Z_t)

$$Y_t = f(F_t Z_t) \quad (7)$$

Y_t = Is the real gross domestic product

F_t = Is the financial intermediation indicators (Findex_1 Findex_2). Where Findex_1 is the banking sector financial development index, while Findex_2 is the stock market financial development index supported by Balago 2014 and Iheanacho, 2016.

Therefore the combined relationship between financial sector development index and economic growth is model as;

$$RGDP_t = f(\text{Findex}_1, \text{Findex}_2, \text{GFCF}/\text{GDP}, \text{INT}) \quad (8)$$

The above functional relationship can be expressed as follows:

$$RGDP_t = \beta_0 + \beta_1 \text{Findex}_1 + \beta_2 \text{Findex}_2 + \beta_3 \text{GFCF}/\text{GDP}_t + \beta_4 \text{INT}_t + U_t \quad (9)$$

$$\beta_1, \beta_2, \beta_3 > 0, \beta_4 < 0$$

The above functional relationship can be expressed as follows:

Where:

RGDP =

M₂/GDP= ratio of broad money supply to GDP

BDL/GDP= the ratio of total bank liabilities to GDP

CPS/GDP= the ratio of private sector credit to GDP

BDC/ GDP= the ratio of Bank credit to GDP

MCP/GDP= ratio of Market Capitalization to GDP

TNI/GDP= ratio of Total New Issues to GDP

VOT/GDP= ratio of Value of Transactions to GDP

TEG/GDP= ratio of Total Listed Equities and Government Stock to GDP

GFCF/GDP= ratio of Gross capital formation to GDP

INT= Interest rate proxy by lending rate

Findex₁ = banking sector financial development index

Findex₂ = stock market financial development index

U_t= error terms

t = current time

IV. Data Representation, Analysis And Discussion Of Results

Discussion of Results

4.1: Descriptive Statistics

This study commences its empirical analysis using descriptive statistics. The descriptive statistics for the selected series are presented in table 1 and 2 below.

Table 1: Descriptive Statistics

	GFCFG	INT	M2GDP	MCPG	TEGG	TNIG	VOTG
Mean	12.66649	17.60198	14.53858	0.663784	0.563243	5.548919	49.75703
Median	11.97000	17.58000	12.65026	0.540000	0.490000	5.120000	27.80000
Maximum	35.22000	29.80000	24.34344	2.570000	1.990000	6.800000	210.0000
Minimum	5.460000	7.750000	9.151675	0.260000	0.150000	3.840000	3.210000
Std. Dev.	6.237860	4.689766	4.577581	0.449693	0.333892	0.840300	52.55984
Skewness	2.085909	0.185319	0.827559	2.180817	2.229343	-0.067253	1.749457
Kurtosis	7.909465	3.574389	2.147409	9.718119	10.09933	1.690850	5.630373
Jarque-Bera	63.98982	0.720414	5.343919	98.90865	108.3489	2.670114	29.54028
Probability	0.000000	0.697532	0.069117	0.000000	0.000000	0.263143	0.000000
Sum	468.6600	651.2732	537.9273	24.56000	20.84000	205.3100	1841.010
Sum Sq. Dev.	1400.792	791.7804	754.3529	7.280070	4.013411	25.41976	99451.34
Observations	37	37	37	37	37	37	37

Source: Regression output using Eviews 10 (2017)

Table2: Descriptive Statistics

	BDCG	BDLG	CPSG	FDINDEX1	FDINDEX2	GDP
Mean	0.615676	1.557838	11.17444	2725.436	14.13324	24861.44
Median	0.630000	1.500000	8.207608	353.1849	8.455000	5307.362
Maximum	0.970000	2.140000	23.07600	12615.01	55.18500	113711.6
Minimum	0.380000	1.280000	5.917270	10.99798	2.272500	144.8312
Std. Dev.	0.141255	0.203990	5.855521	3939.948	13.43860	34308.70
Skewness	0.728203	0.967928	1.015998	1.259616	1.718614	1.290054
Kurtosis	3.517989	3.312641	2.259734	3.169036	5.518095	3.299437
Jarque-Bera	3.683708	5.928146	7.210372	9.828281	27.98949	10.40105
Probability	0.158523	0.051608	0.027182	0.007342	0.000001	0.005514
Sum	22.78000	57.64000	413.4541	100841.1	522.9300	919873.5
Sum Sq. Dev.	0.718308	1.498027	1234.336	5.59E+08	6501.452	4.24E+10
Observations	37	37	37	37	37	37

Source: Regression output using Eviews 10 (2017)

In Table 1 and .2 above, the average (i.e. mean and median) of each series showed a good degree of consistency. This was evidenced by the fact their values lied between the Maximum and Minimum values. With regard to level spreadness of the series around its average, all the selected series except for GDP were relatively evenly spread. This was evidenced by the low values of standard deviation that each of the series had. As such, the series had no out-liers or extreme large values except GDP. The first two descriptive statistics are the mean and median which measures the central tendency for all the variables. Specifically, the mean shows the arithmetic average of the distribution. While the median shows the meddle value for the entire distribution. The average value of gross domestic product within the period of this study was 24861.44and has the highest value while total listed equities and government stock (TEGG) have the least value. The standard deviation shows the level of volatility in the variables. It displays the rate at which each variable deviate from the mean value. From the table 4.4, GDP is the most volatile 34308.70 while total Bank credit (BDCG) is less volatile (0.141255).

All the series are positively skewed except for total new issues in the Nigerian Stock market that is negatively skewed. In terms of Kurtosis, only ratio of broad money supply to GDP(M2), total new issues (TNIG) and ration of total private credit to GDP (CPSG) have a kurtosis that is less than 3 indicating that ratio of broad money supply to GDP(M2), total new issues (TNIG) and ration of total private credit to GDP (CPSG) are not normally distributed.

4.2. Principal Component Analysis

The result of the principal component analysis is shown below.

Table 3: Result of the Principal Component Analysis for FINDEX₁

Principal Components Analysis					
Included observations: 37					
Computed using: Ordinary correlations					
Extracting 4 of 4 possible components					
Eigenvalues: (Sum = 4, Average = 1)					
				Cumulative	Cumulative
Number	Value	Difference	Proportion	Value	Proportion
1	3.818977	3.673837	0.9547	3.818977	0.9547
2	0.145141	0.114512	0.0363	3.964118	0.9910
3	0.030628	0.025375	0.0077	3.994746	0.9987
4	0.005254	---	0.0013	4.000000	1.0000
Eigenvectors (loadings):					
Variable	PC 1	PC 2	PC 3	PC 4	
BDCG	0.500389	-0.529893	0.147574	0.668615	
BDLG	0.502938	-0.462552	-0.076311	-0.726137	
CPSG	0.500026	0.445026	-0.729697	0.139531	
M2G	0.496626	0.554266	0.663281	-0.078801	
Ordinary correlations:					
	BDCG	BDLG	CPSG	M2G	
BDCG	1.000000				
BDLG	0.993781	1.000000			

CPSG	0.918503	0.931702	1.000000		
M2G	0.909133	0.915414	0.969271	1.000000	

Source: Regression output using Eviews 10

Table.3: Presents the result of the principal component analysis. It shows the index of bank financial development: the ratio of broad money supply to GDP (M₂G), ratio of total bank liabilities to GDP (GBDLG), ratio of private sector credit to GDP (CPSG), total Bank credit (BDCG). The first eigenvalue indicates that 95.47 percent of the variation is captured by the first principal component while the second principal component explains 99.10 percent of the total variation. The third principal component account 99.87 percent of the total variation while the fourth principal component accounts only 1.00 percent of the total variation. From the table, it shows that the third principal component (ratio of private sector credit to GDP) is the best measure of the index of bank performance to the Nigerian economy since it captures about 99.87% of the information from these proxies.

Table 4: Result of the Principal Component Analysis for FINDEX₂

Principal Components Analysis					
Included observations: 37					
Computed using: Ordinary correlations					
Extracting 4 of 4 possible components					
Eigenvalues: (Sum = 4, Average = 1)					
				Cumulative	Cumulative
Number	Value	Difference	Proportion	Value	Proportion
1	3.578973	3.239358	0.8947	3.578973	0.8947
2	0.339616	0.265117	0.0849	3.918589	0.9796
3	0.074499	0.067587	0.0186	3.993088	0.9983
4	0.006912	---	0.0017	4.000000	1.0000
Eigenvectors (loadings):					
Variable	PC 1	PC 2	PC 3	PC 4	
MCPG	0.520774	-0.162235	-0.479954	-0.687109	
TEGG	0.520009	-0.223259	-0.395751	0.723276	
TNIG	0.453761	0.877175	0.154356	0.028984	
VOTG	0.502480	-0.392938	0.767594	-0.062556	
Ordinary correlations:					
	MCPG	TEGG	TNIG	VOTG	
MCPG	1.000000				
TEGG	0.992228	1.000000			
TNIG	0.791749	0.773579	1.000000		
VOTG	0.931041	0.942015	0.707784	1.000000	

Source: Regression output using Eviews 10

Table 4: Presents the result of the principal component analysis. It shows the index of financial development from the proxies of financial indicators, the ratio of total new issues to GDP (GTNIG), total Value of Transactions in the Nigeria stock market (VOTG) and Total Listed Equities and Government Stock (TEGG). The first eigenvalue indicates that 89.47 percent of the variation is captured by the first principal component; the second principal component explains 97.96 percent of the total variation while the third principal component explains 99.83 percent of the total variation. The fourth principal component account is only 1.00 percent of the total variation. From the table, it shows that the third principal component is the best measure of the stock market development index since it captures about 99.83% of the information from these proxies. It also shows the third vector performed best in the analysis.

4.3 Unit Root Test:

Most times series data are prone to spurious results, in order avert such condition we conduct first the unit root test, the result is stated at the table 5 below.

Variable	ADF Calculated Value In Level	ADF Calculated Value At 1st Difference	Mckinnon 5% Critical Value	Order Of Integration
LOG(GDP)	-0.792280	-3.157565*	-2.948404	1(1)
LOG(BDCG)	-0.366590	-5.294606*	-2.948404	1(1)
LOG(CPSG)	-0.913808	-5.865971*	-2.948404	1(1)
LOG(M2G)	-1.009688	-5.478424	-2.948404	1(1)

LOG(GFCFG)	-1.759709	-5.508859*	-2.948404	1(1)
INT	-3.492921	-	-2.945842	1(0)
LOG(MCPG)	-0.449169	-4.559088*	-2.948404	1(1)
LOG(TEGG)	-1.795612	-5.240793*	-2.948404	1(1)
LOG(TNIG)	-1.410829	-6.933060*	-2.948404	1(1)
LOG(VOTG)	-0.310995	-5.711416*	-2.948404	1(1)
LOG(BDLG)	-2.382199	-5.658775*	-2.948404	1(1)
LOG(FDINDEX1)	-0.284070	-3.584976*	-2.948404	1(1)
LOG(FDINDEX2)	-1.310053	-7.172194*	-2.948404	1(1)

Source : Author’s Computation Using E-views 10

All the variables are stationary at first difference, with the exception interest rate that is stationary at level, with the calculated value greater than the critical value significant at 5%.

4.4. Table 6: Summary of Johansen Co-Integration Trace Test for model one

There exist at least one co-integration relationship and significant at 5% level.

No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.8397	153.4613	125.6154	0.0003
At most 1	0.5295	89.3982	95.7537	0.1264
At most 2	0.4507	63.0099	69.8189	0.1548
At most 3	0.3790	42.0445	47.8561	0.1575
At most 4	0.3115	25.3697	29.7971	0.1486
At most 5	0.2156	12.3054	15.4947	0.1429
At most 6	0.1030	3.8058	3.8415	0.0511

Source: Author’s Computation Using E-views 10

Table 7: Summary of Johansen Co-Integration Maximum Eigen value for model one

There exist at least one co-integration relationship and is significant at 5% level.

Hypothesized No. of CE (s)	Eigenvalue	Max-Statistic	0.05 Critical Value	Prob **
None *	0.8397	64.0632	46.2314	0.0003
At most 1	0.5295	26.3883	40.0776	0.6758
At most 2	0.4507	20.9654	33.8769	0.6867
At most 3	0.3790	16.6748	27.5843	0.6080
At most 4	0.3115	13.0643	21.1316	0.4463
At most 5	0.2156	8.4996	14.2646	0.3302
At most 6	0.1030	3.8058	3.8415	0.0511

Source: Author’s Computation Using E-views 10

Table 8: Long Run Regression

All the explanatory variable met their apriori expectations with the except of GFCFG. BDLG,CPSG,M2G, has a direct and significant relationship at 5% level, while BDCG has a direct and insignificant relationship with the dependent variable. GFCFG has an inverse relationship but significant at 5% , while interest rate is inversely related and insignificant to the dependent variable.

Variable	Coefficient	Standard Error	t-statistic	Prob**
LOG(BDCG)	0.1352	0.1183	1.1426	0.2622
LOG(BDLG)	0.7994*	0.1256	6.3638	0.0000
LOG(CPSG)	0.2664*	0.1249	2.1328	0.0412
LOG(M2G)	0.5763*	0.2346	2.4567	0.0200
LOG(GFCFG)	-0.3898*	0.0703	-5.5428	0.0000
INT	-0.0028	0.0752	-0.0377	0.9702
C	3.8392*	0.3091	12.4215	0.0000

Source: Author’s Computation Using E-views 10

$R^2 = 0.8988$ that is 90% of the variation of the independent variable is explained by the dependent variable, while 10% is as a result of unobserved variance, called the error term. $R^2 = 0.8286$ that is 83% of the variation of the independent variable is explained by the dependent variable. F-Statistic = 100.2958* is significant at 5%, with a pro value of 0.000D.W Statistic 1.8918 – is approximately 2, which implies absence of auto correlation

ECM MODEL ONE

ECM is the shortest speed of adjustment to equilibrium. BDCG, BDLG,M2G,INT, met their apriori expectations, while CPSG,GFCF, was not in conformity with apriori expectations.M2G, BDLG- has a direct and significant effect on economic growth in Nigeria. While BDCG has a direct and insignificant effect on economic growth in economic growth. CPSG has an inverse and insignificant relationship on economic growth in Nigeria.ECM is negative, is rightly signed and significant at 5% levels. BDCG has a direct and insignificant

relationship with EG in Nigeria, both in the LR and SR analysis. It is a reflection of poor financial credit policy in the banking sector.

Table 9.

Variable	Coefficient	Standard Error	t-statistic	Prob**
DLOG(BDCG)	0.0954	0.0702	1.3584	0.1852
DLOG(BDLG)	0.5817*	0.1211	4.8041	0.0000
DLOG(CPSG)	-0.0031	0.0981	-0.0312	0.9753
DLOG(M2G)	0.5426*	0.1488	3.6459	0.0011
DLOG(GFCFG)	-0.2056*	0.0694	-2.9619	0.0062
D(INT)	-0.0246	0.0565	-0.4360	0.6662
ECM(-1)	-0.5232*	0.1614	-3.2413	0.0031
C	0.0585	0.0231	2.5314	0.0173

Source: Author’s Computation Using E-views 10

ECM is negative, is rightly sight and significant at 5% levels. $R^2 = 0.7177$ that is 72% of the variation of the independent variable is explained by the dependent variable, while 28% is as a result of unobserved variance, called the error term . $R^2 = 0.6472$ that is 65% of the variation of the independent variable is explained by the dependent variable, while 35% is as a result of unobserved variance, called the error term . F-Statistic = 10.1712 with Prob value of 0.0000 – expresses the goodness of fit the model, significant at 5%.D.W Statistic 1.8369 –is approximately 2. Connotes absence of auto-correlation

4.4.8. Co-integration Test for model two

The next step is to establish the co- integration relationship between the dependent variable and independent variable.

Co-integration test for model two

At least, five co- integration relationship and significant at 5% level,using trace statistics.

Table 10

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.8326	181.6640	125.6154	0.0000
At most 1 *	0.6767	119.1079	95.7537	0.0005
At most 2 *	0.5361	79.5908	69.8189	0.0068
At most 3 *	0.4539	52.7103	47.8561	0.0163
At most 4 *	0.3836	31.5382	29.7971	0.0312
At most 5	0.2193	14.6052	15.4947	0.0678
At most 6 *	0.1561	5.9411	3.8415	0.0148

Source: Author’s Computation Using E-views 10

Co-integration test for model two-

While using maximum eigenvalue – it shows at least one co-integration relationship and significant at 5% level

Table 11.

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob**
None *	0.8326	62.5560	46.2314	0.0005
At most 1	0.6767	39.5172	40.0776	0.0577
At most 2	0.5361	26.8805	33.8769	0.2698
At most 3	0.4539	21.1721	27.5843	0.2659
At most 4	0.3836	16.9330	21.1316	0.1752
At most 5	0.2193	8.6641	14.2646	0.3152
At most 6 *	0.1561	5.9411	3.8415	0.0148

Source: Author’s Computation Using E-views 10

Long Run Statistic Regression of Model Two

MCPG, TNIG,TEGG met the apriori expectation with direct and significant impact on Nigeria economic growth. VOTG and GFCFG do not met the apriori expectations, having an inverse and insignificant effect on economic growth in Nigeria. While INT do not met the expected apriori expectation, having a direct relationship with economy growth in Nigeria.

Table 12

Variable	Coefficient	Standard Error	t-statistics	Prob**
LOG(MCPG)	4.8262	1.0226	4.7196	0.0001
LOG(TEGG)	3.0423	0.9582	3.1749	0.0035
LOG(TNIG)	7.7686	1.8409	4.2201	0.0002
LOG(VOTG)	-0.5757	0.3145	-1.8302	0.0772
LOG(GFCFG)	-0.8664	0.5268	-1.6446	0.1105
(INT)	1.2125	0.8919	1.3595	0.1841
C	-3.4838	2.8576	-1.2191	0.2323

Source: Author’s Computation Using E-views 10

$R^2 = 0.8368$ that is 84% of the variation of the independent variable is explained by the dependent variable, while 16% is as a result of unobserved variance, called the error term. $R^{-2} = 0.8082$ that is 81% of the variation of the independent variable is explained by the dependent variable, while 19% is as a result of unobserved variance, called the error term. F-Statistic = 48.6671 with a prob value of 0.00 expresses the goodness of fit the model, significant at 5%. D.W Statistic 2.006 is approximately 2. Connotes absence of auto-correlation

ECM For Model Two

The explanatory variable met their expected signs with the except of TNIG, GFCFG and INT. MCPG, TEGG, has a direct and significant impact on economic growth in Nigeria. VOTG has a direct and insignificant impact on economic growth in Nigeria, TNIG has an inverse and insignificant impact on economic growth in Nigeria.

MCPG and TEGG posted a similar result in the LR and SR, which connotes government influence and participation in the stock market.

Table 13.

Variable	Coefficient	Standard Error	t-statistics	Prob**
DLOG(MCPG)	5.5977 *	2.2572	2.4799	0.0190
DLOG(TEGG)	1.6734*	0.3361	4.9788	0.0000
DLOG(TNIG)	-0.0054	0.0182	-0.2954	0.7699
DLOG(VOTG)	0.0229	0.0311	0.7364	0.4676
DLOG(GFCFG)	-0.1196	0.0598	-2.0003	0.0553
D(INT)	0.2060*	0.0535	3.8527	0.0006
ECMM(-1)	-0.4418*	0.1209	-3.6547	0.0011
C	-0.4318	0.1518	-2.8439	0.0082

Source: Author’s Computation Using E-views 10

ECM is negative and rightly signed, significant 5% level

$R^2 = 0.6440$

$R^{-2} = 0.5551$

F-Statistic = 70.3745

Prob (F-Statistic) = 0.0000

D.W Statistic 1.9681

Note: *Significant at 5 per cent

Co-integration test for model three-

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level

Table: 14

Hypothesized of No of CE (s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob**
None *	1.0000	1259.230	69.8189	1.0000
At most 1 *	0.5711	50.3449	47.8561	0.0286
At most 2	0.3226	20.7209	29.7971	0.3753
At most 3	0.1643	7.0903	15.4947	0.5672
At most 4	0.0228	0.8068	3.8415	0.3691

Source :Author’s Computation Using E-views 10

CO- INTEGRATION TEST FOR THREE MODEL

Maximum eigen-value test indicates 2 cointegrating eqn(s) at the 0.05 level

Table: 15

Hypothesized No of CE (s)	Eigenvalue	Max- Eigen Statistic	0.05 Critical Value	Prob **
None *	1.0000	1208.885	33.8769	1.0000
At most 1 *	0.5711	29.6241	27.5843	0.0270
At most 2	0.3226	13.6305	21.1316	0.3961

At most 3	0.1643	6.2836	14.2646	0.5771
At most 4	0.0229	0.8068	3.8415	0.3691

Source: Author’s Computation Using E-views 10

Long Run Regression For Model Three

Banking sector development index, consistent with its apriori expectations. Unlike stock market development index (FINDEX2)and GFCF, INT which are not in conformity with the apriori expectations.FINDEX1 has a direct and significant impact on EG in Nigeria on the LR.FINDEX2 has a indirect and insignificant impact on EG in Nigeria on the LR.GFCFG has an inverse and significant impact on EG in Nigeria on the LR.INT has a direct and significant impact on EG in Nigeria on the LR.

Table : 16

Variable	Coefficient	Standard Error	t-statistic	Prob**
LOG(FDINDEX1)	0.986369*	0.017327	56.92796	0.0000
LOG(FDINDEX2)	-0.029922	0.022872	-1.308194	0.2001
LOG(GFCFG)	-0.538833*	0.053429	-10.08508	0.0000
(INT)	0.215804*	0.068391	3.155458	0.0035
C	3.451647*	0.223382	15.45178	0.0000

Source: Author’s Computation Using E-views 10

R² =0.9084

R⁻² =0.8883

F-Statistic = 100.7285*

Prob (F-Statistic) = 0.0000

D.W Statistic 1.8522

Note: *Significant at 5 per cent

Error Correction Mechanism (ECM) Results For Model Three

All the explanatory variable met their apriori expectation with the except of GFCFG and INT variables. FINDEX1 and FINDEX2 has a direct and significant impact on economic growth in Nigeria. The ECM is negative, rightly signed.

BSFDI – has a direct and significant impact on Nigeria economic in the LR and SR. BothBanking sector and stock market index has a direct and significant impact on economic growth in Nigeria in the short run.

Table: 17

Variable	Coefficient	Standard Error	t- statistic	Prob**
DLOG(FDINDEX1)	0.6434*	0.1194	5.3907	0.0000
DLOG(FDINDEX2)	0.0451*	0.0184	2.4457	0.205
DLOG(GFCFG)	-0.3537*	0.0626	-5.6478	0.0000
D(INT)	0.1385*	0.0625	2.2170	0.0343
ECM(-1)	-0.3514*	0.1628	-2.1579	0.0391

Source: Author’s Computation Using E-views 10

R² = 0.5977

R⁻² =0.5307

F-Statistic = 8.9156

Prob (F-Statistic) = 0.0000- is significant at 5%,expressing the fitness of the model.

D.W Statistic 1.7167 – apprioximately 2, implies absence of autocorrection.

Note: *Significant at 5 per cent

Stability Test.

Stability test is performed using Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUM Q) of residual for the three models. This reveals that economic growth is stable at 5 percent level of significance.

5. Granger Causality Test Result

Granger Causality test was carried out to determine the direction of causality between the variables of interest. The results of the test are presented as follows.

Granger Causality Test for FINDEX1 and GDP

From table below- the null hypothesis that bank sector development index (FDINDEX1) does not granger cause GDP has an F-statistic of 1.1771 and a pro value of 0.3220. Since the pro value is greater than 0.05, it implies that the null hypothesis that FDINDEX1 does not granger cause GDP is accepted.

Secondly, the null hypothesis that FDINDEX1 does not granger cause GDP has a F-statistic of 11.2288 with a pro value of 0.0002. This null hypothesis is rejected because the pro value of 0.0002 is less than 0.05. Thus, this indicates that bank sector development index granger cause economic growth in Nigeria. There is unidirectional

causality between FDINDEX1 and GDP. This finding implies that economic growth lead to financial development which is consistent with the demand pull hypothesis of financial development.

Table: 18

Null Hypothesis:	Obs	F-Statistic	Prob.
FDINDEX1 does not Granger Cause GDP	35	1.1771	0.3220
GDP does not Granger cause FDINDEX 1		11.2288	0.0002

Source: Author’s Computation Using E-views 10

Granger Causality Test for FDINDEX₂ and GDP

From the table below, the null hypothesis is accepted first, that stock market development index does not granger cause GDP having an F-statistic of 1.0816 and a pro value of 0.3519, is accepted. Since the pro value is greater than 0.05, it implies that the null hypothesis that FDINDEX2 does not granger cause GDP is accepted. This implies that stock market development index does not granger cause economic growth in Nigeria. Second, the null hypothesis is rejected, that GDP does not granger cause FDINDEX2 having a F-statistic of 4.1971 with a pro value of 0.0247 is rejected. Therefore, the null hypothesis is rejected because the pro value of 0.0247 is less than 0.05. This implies that economic growth granger cause stock market which also conform to the demand pull hypothesis of financial sector development. The direction of causality is uni-direction.

Table: 19

Null Hypothesis:	Obs	F-Statistic	Prob.
FDINDEX2 does not Granger Cause GDP	35	1.0816	0.3519
GDP does not Granger cause FDINDEX2		4.1971	0.0247

Source: Author’s Computation Using E-views 10

Granger Causality Test for FDINDEX1 and FDINDEX2

From table below, the null hypothesis that FDINDEX2 does not granger cause FDINDEX1 has an F-statistic of 2.6217 and a pro value of 0.0893. Since the pro value is greater than 0.05, it implies that the null hypothesis is accepted. FDINDEX2 does not granger cause FINDEX1 is accepted. This implies that stock market development index does not granger cause banking sector development in Nigeria. Secondly, the null hypothesis is rejected, that FDINDEX1 does not granger cause FDINDEX2 has a F-statistic of 5.0667 with a pro value of 0.0127, because the pro value of 0.0127 is less than 0.05. This indicates that banking sector development granger cause stock market development. Hence the direction of causality is uni-directional. This support demand pull hypothesis.

Table 20

Null Hypothesis:	Obs	F-Statistic	Prob.
FDINDEX2 does not Granger Cause FDINDEX1	35	2.6217	0.0893
FDINDEX1 does not Granger Cause FDINDEX2		5.0667	0.0127

Source: Author’s Computation Using E-views 10

Granger Causality Test for GFCF and FDINDEX₁

The pro value of the null hypothesis that GFCF does not granger cause FDINDEX₁ is 0.2300 which is greater than 0.05, this implies that the null hypothesis that FDINDEX₁ does not granger cause GFCF is accepted. Secondly, the null hypothesis that FDINDEX₁ does not granger cause GFCF is accepted because the pro value of 4.E-05 is greater than 0.05. Thus, this indicates that banking sector development granger cause gross fixed capital formation is rejected.

Table 21

Null Hypothesis	Obs	F-Statistic	Prob**
GFCFG does not Granger Cause FDINDEX1	35	1.5442	0.2300
FDINDEX1 does not Granger Cause GFCFG		14.6172	4.E-05

Source: Author’s Computation Using E-views 10

Granger Causality Test for INT and FDINDEX1

From table 22, the two null hypotheses can be accepted because the probability values are greater 0.05. Hence, we reject the alternative hypotheses. This implies that banking sector development does not granger cause interest rate and interest rate does not granger cause banking sector development in Nigeria.

Table: 22

Null Hypothesis	Obs	F-Statistic	Prob**
INT does not Granger cause FINDEX 1	35	0.1427	0.8676
FINDEX 1 does not Granger Cause INT		0.1924	0.8260

Source: Author’s Computation Using E-views 10

Granger Causality Test for GFCF and FDINDEX2

From table .23, the two null hypotheses can be accepted because the probability values are greater 0.05. Hence, we reject the alternative hypotheses. This implies that gross fixed capital formation does not granger cause stock market development and stock market development does not granger cause gross fixed capital formation in Nigeria.

Table 23

Null Hypothesis	Obs	F-Statistic	Prob**
GFOFG does not Granger Cause FINDEX2	35	0.4920	0.6163
FINDEX2 does not Granger Cause GFCFG		2.7430	0.0805

Source: Author’s Computation Using E-views 10

Granger Causality Test for INT and FDINDEX2

From table.24, the two null hypotheses can be accepted because the probability values are greater 0.05. Hence, we reject the alternative hypotheses. This implies that interest rate does not granger cause stock market development and stock market development does not granger cause interest rate.

Table 24

Null Hypothesis	Obs	F-Statistic	Prob**
INT does not Granger cause FDINDEX2	35	0.0385	0.9623
FDINDEX 2 does not Granger Cause INT		0.8374	0.4427

Source: Author’s Computation Using E-views 10

Granger Causality Test for INT and GFCFG

From table 25, the two null hypotheses can be accepted because the probability values are greater 0.05. Hence, we reject the alternative hypotheses. This implies that interest rate does not granger cause gross fixed capital formation and gross capital formation does not granger cause interest rate.

Table 25

Null Hypothesis	Obs	F-Statistic	Prob**
INT does not Granger Cause GFCFG	35	1.0182	0.3734
GFCFG does not Granger Cause INT		0.0914	0.9129

Granger Causality Test for GFCFG and FDINDEX₂

From table 26, the two null hypotheses can be accepted because the probability values are greater 0.05. Hence, we reject the alternative hypotheses. This implies that gross fixed capital formation does not granger cause stock market development and stock market development does not granger cause gross fixed capital formation in Nigeria.

Table 26

Null Hypothesis:	Obs	F-Statistic	Prob.
GFCFG does not Granger Cause FDINDEX2	35	0.49120	0.6163
FDINDEX2 does not Granger Cause GFCFG		2.7430	0.0805

Source: Author's Computation Using E-views 10

Summary of granger causality

GDP granger cause Findex1 and significant at 5%

GDP granger cause Findex2 and significant at 5%

Findex1 granger cause Findex2 and significant at 5%

This supports the Demand pull Hypothesis- where economic growth is stimulated through real sector that influence financial services

Policy Implication of the Study

This review is challenging, because most reviewed literature, used BMI or SMI as a linkage to Economic growth but produced significant relationship between FSD and Economic Growth in Nigeria. The assumed positive relationship had made us to ignore the volatile nature of not combining BMI and SMI as a linkage to EG in Nigeria. Research of this nature, should focus more on the combination of MMI and CMI as a linkage to EG in Nigeria. Since the bedrock of financial sector development, is built on short term and long terms transactions.

V. Summary, Conclusions And Recommendations

5.1 Summary

The study exposes the inadequacy, weakness, inappropriateness arising from the use of banking sector financial development index or stock market financial development index alone to determine the impact of financial sector development on economic growth in Nigeria. The volatile nature of the banking sector and stock market variable coupled with unending quest in economic literature on the relationship between financial sector development and economic growth in Nigeria has made this research a challenging one. In economic literature, it is still a discussion, whether financial sector development affects economic growth or economic growth spurs financial sector development. In economic literature, there exists four conflicting hypothesis that argue the relationship between financial sector development and economic growth. The first one, supply-leading hypothesis, assumes a causal relationship from financial sector development to economic growth. The second is the demand following hypothesis, which emphasizes the role of the real sector in promoting the financial development. The growth in the real sector increases the demand for financial services which stipulates a response from the financial sector in the form of increased supply and financial innovation. Reciprocal / bidirectional Relation. –financial sector stimulating economic growth, economic growth influencing financial sector, leading to mutual relationship, called feedback hypothesis. Independence or neutrality– presence absence of any financial sector relationship to economic growth, rather is influence by other factor. In this study, we used the unit root time series and OLS to empirically analyze FSD and economic growth in Nigeria. The unit root shows that all the variables are stationary at first difference $I(1)$, while only interest rate is stationary at level $I(0)$. Having established the order of co integration- using trace test and maximum eigenvalue test, result shows the existence of relationship between the dependent variable and the independent variable. For Model One, the LR and SR posted the following results - M2G, BDLG has a direct and significant relationship to economic growth both in the long run and short run analysis. BDCG has a direct and insignificant relationship with economic growth in Nigeria, both in the long run and short run analysis. It is a reflection of poor financial credit policy in the banking sector. CPSG has a direct and significant relationship to economic growth in the long run, while in the short run it posted an inverse and insignificant relationship to economic growth in Nigeria. ECM is negative, with Durbin Watson approximately 2, which connotes absence of autocorrelations. FOR MODEL TWO - the LR and SR posted the following results- MCPG and TEGG has a direct and significant impact on economic growth in Nigeria in the Short and long run result. VOTG- has an inverse and insignificant in the LR, while SR has a direct and insignificant relationship to Economic Growth. The insignificant nature of the value of total transactions in the stock market expresses the poor performance of stock markets transaction. TNIG has a direct and significant impact on economic growth in the LR, in the SR, has an inverse and insignificant relationship to Economic growth. For Model Three-BSFDI – has a direct and significant impact on Nigeria economic in the long run and short run. while SMFDI has a direct and insignificant on the long run. Both Banking sector and stock market index has a direct and significant impact on economic growth in Nigeria in the short run. ECM posted a negative sign. (CUSUM & CUSUM Q) of the model shows that model is stable. Economic growth granger cause financial development, which support demand pull hypothesis. Further results proves banking sector financial index granger cause stock market index.

5.2 Conclusion

This study appraised the impact of financial sector development on Nigeria economic growth from our findings we can reasonably conclude that - financial sector development has direct and significant impact on Nigeria economic growth. Economic growth granger causes financial sector development in Nigeria. There is

no bi-directional causality between them which is in conformity to the demand pull hypothesis. Furthermore, the study also shows that banking sector development granger causes the stock market development in the country. The banking sector driving the economy, rather than stock market activities. The result is uncommon in financial economics analysis as it affects economy growth rate in Nigeria, though the choice of variables determines the result and its output.

5.3 Recommendations

The following policy recommendations are suggested; There is the need for consistent, transparent and fair policy to all the players in the sector. The need to develop viable and responsive financial services in the country. Government should intensify its efforts at promoting public confidence, through effective regulation and supervision of the financial system. The reforms in the financial sector should be sustained so as to be able to channel more resources for investment for productive purposes. The stock market is pre-supposed to be relatively cheap source of funds when compared to money market and other sources, but rather the cost of raising funds in this market is high. Financial policy should be reviewed periodically, to attract competitiveness among players in the financial sector of the economy. There should be no policy turns around, sincere pursuit of policy implementations. Government should encourage policies that encourages savings, which at the long run will enhance financial credit policies. The stock market should be reactivate towards stimulating economic growth through enhancing the value of transaction in the stock market.

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Jude Ofili Ikubor, Ph.D. "Financial Sector Development and Economic Growth in Nigeria (1981-2017)." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 11(3), 2020, pp. 01-16.