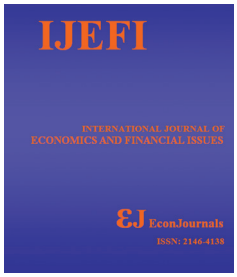

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Relationship between Financial Development and Economic Growth in Nigeria: A Triangulation Approach

Modebe Nwanneka Judith[1], Ezeaku Hillary Chijindu[2]*

[1]Department of Banking and Finance, University of Nigeria, Enugu Campus, Nigeria, [2]Department of Banking and Finance, Caritas University, Enugu, Nigeria. *Email: gijindu@gmail.com

ABSTRACT

This paper aims at evaluating relation between financial development and economic growth in Nigeria, taking exception from existing literatures by integrating broad distinctive indicators of financial development into our model and using different econometric techniques to assess the finance-growth link between 1987 and 2014. The findings indicate that financial development and economic growth move along together in the long run. It was revealed that credit to the private sector, stock market capitalization and inflation have negative and impact on the economy, while broad money supply, trade openness and foreign direct investment exert positive influence on the economy. The error correction term in the model availed us the correctional influence in the speed of adjustment which indicated that errors of divergence from equilibrium was corrected at the speed of 86% each year. The Granger causality tests show that gross domestic product was granger causal for foreign direct investment, without a feedback system.

Keywords: Financial Development, Economic Growth, Error Correction Model
JEL Classifications: G10, G18, G20

1. INTRODUCTION

An efficient financial system provides an enabling environment for economic growth and development. Financial system is comprised of financial institutions and markets that play major role in promoting economic growth through various channels. This very aim is realized through the intermediary roles of both banking and non-banking financial institutions, which underlie strict policies that regulate and guide the operations of such institutions. Financial innovation and intermediation enhance financial development mechanism. Financial intermediaries acquire fund in the form of deposits, premiums, financial claims etc., and transform the funds so acquired into assets that are attractive and preferred by the public. This way, financial intermediaries perform the economic functions of: (i) Providing maturity transformation, (ii) reduction of risk through diversification, (iii) cutting of cost of contracting as well as information processing, and (iv) provision of payment mechanism. The above economic functions propel financial development as funds are effectively transferred from net savers to the investors. In a competitive banking sector, as explained by Carbo et al. (2003), borrowing rates are higher while lending rates are lower, thus the transformation of household savings into productive capital investment is faster.

Availability of investible funds thus stimulates economic growth by increasing the level of economic activities hence real output. Schumpeter (1911) argues that financial services provided by financial institutions are critical drivers of innovation and growth.

The theoretical and empirical discourses on finance and economic growth nexus have emphasized importance of financial development as a critical factor in enhancing the amount of capital and therefore economic growth. However, the relevance of finance to growth has always been vigorously contentious. Traditional growth models, notably the neoclassical model developed by Solow (1956), have undermined the role of financial development. Solow's growth model otherwise known as exogenous growth model was founded on the premise that technical progress is the key determinant of growth and is independent of funding or finance. In essence, technical progress is exogenous, and changes in savings and the financial system were not factored into the growth model. The fallout from the Solow's growth model has over

the years prompted empirical studies on finance-growth relation to determine the responsiveness of economic growth to the financial system, and the roles of key components of financial system like the banking system and stock markets in promoting growth.

The endogenous growth model however considers technical progress as important but endogenous, and therefore recognized funding as crucial and the financial system as key to stimulating growth (Khalil, 2014). Simwaka et al. (2012) posit that the endogenous growth literature portrays the significance of financial development for long-run economic growth highlighting the impact of financial services on capital accumulation and technological innovation. Lending credence to the role of finance in engineering growth, Sahay (2015) buttress that financial development increases a country's pliability and boosts economic growth through savings mobilization, provision of information about investment, and efficient resource allocation, effective corporate control, and the facilitation of risk diversification and management.

Financial system has always played a major role in supporting economic activity. Obviously, all developed countries have one thing in common and that is a developed financial system (Nguena and Abimbola, 2013).The central bank of Nigeria over the years has continued to put in place action plans geared towards promoting sustainable economic growth. Since 1986, the monetary authorities have adopted various measures with the aim of deepening the financial system and reducing the level of financial repression embedded in the system (Nzotta, 2009). This effort stems from monetary policies to adequate regulation and supervision of the Nigerian financial system. But, mastering the key drivers of growth is critical to understanding the mechanism and interrelationship between finance and growth. This is very important since such knowledge will have significant regulatory and policy implications. Nigeria has a long history of financial reforms which were at different staged introduced with the aim of fostering economic development. Hence this study adopts broader measures of financial development while employing various novel econometric techniques to assess both causation and nature of relationship existing between finance and growth. The study also extended the coverage to 35-year period, spanning 1981-2014.

2. LITERATURE REVIEW

Financial development is defined as a combination of depth (size and liquidity of financial markets), access (ability of individuals to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets). Financial development promotes financial stability, and enables deep and liquid financial systems with diverse instruments cushion the impact of shocks. Like the law of diminishing return, there is a point beyond which the benefits of financial development begin to decline and costs start to rise (Sahay et al., 2015).

The quest to ascertain the nature of relation between finance and growth has been on the front burner of economic debate. Some studies establish a supply-leading hypothesis where finance is believed to drive economic growth, whereas some other empirical investigations suggested a demand-following hypothesis, in which case economic growth precedes finance. Some studies have argued that there is a feedback response (or bidirectional causality) from growth to finance, and from finance to growth hence rejecting the postulations of a unidirectional causation between finance and growth. Also contended in the literature is whether the association between finance and economic growth is long-run or short-run. An overriding consensus thus far seems unrealistic as the characteristic that define the natures of such linkage is both country and region specific. Atemnkeng et al. (2011) explain that financial sector development and efficiency determine the direction of causality. They argue that growth is most likely causal for finance in the developed countries whereas the reverse becomes the case for developing countries. Unlike the developed countries, information asymmetry, poor risk diversification and management, and high cost of contracting characterize the financial system in developing countries. If this argument should stand then one can explicitly infer that economic growth promotes financial development in developed countries while the reverse is the case for developing countries like Nigeria. According to Ardic and Dama (2006), evidence suggests that the connection between financial development and economic growth may vary under adverse financial sector conditions compared to well-functioning financial intermediaries. Arestis (2005) maintains that in a more complicated financial sector, finance is usually endogenous and responds to demand.

We may well have the need now to review existing empirical literatures and explore their lines of argument. Caporale et al. (2009) examined the relationship between financial development and economic growth in ten new EU members by estimating a dynamic panel model over the period 1994-2007. The evidence suggests that the stock and credit markets are still underdeveloped in these economies, and that their contribution to economic growth is limited owing to a lack of financial depth. Granger causality test indicate that causality runs from financial development to economic growth, but not in the opposite direction.

Adu et al. (2013) investigated the long-run growth effects of financial development in Ghana and found that both the credit to the private sector as ratios to gross domestic product (GDP) and total domestic credit have positive effect on growth, while growth appears to be insensitive to broad money supply to GDP ratio.

Kang and Liu (2008) explored the relationship between financial development indicators and economic growth in India and Taiwan over the period 1997-2005. The study respectively discussed and compares the determinants of economic growth in India and Taiwan as well as the effect of financial development on economic growth in both countries. The results of the multiple regression indicate that broad money stock and stock market value have positive effects on growth in India and Taiwan.

Ngongang (2015) applied the dynamic panel GMM technique in assessing the linkage between financial development and economic growth in Sub-Saharan Africa. The dynamic analysis revealed the existence of positive link between financial sector development and economic growth in the region.

Highlighting the importance of intermediary role of the Nigerian financial system, Onwumere et al. (2013) used the ordinary least squares (OLS) to determine the impact of financial structure on economic growth in Nigeria. The results show that financial structure exerts positive and significant impact on economic growth.

Aye (2015) used the bootstrap rolling window estimation to relation between financial development on economic growth in Nigeria within the period 1961 and 2012. The study highlighted the influence of structural break in the coverage period and revealed that direction of causality was not same over the period. It can be inferred that time variation and structural break effects might undermine the granger causality outcome.

Using a province-level data set for 1996-2001 on Turkey, Ardic and Dama (2006) analyzed the effects of financial sector deepening on economic growth. The results of both OLS and GMM estimation indicate that financial deepening has direct and robust effect on economic growth. Similarly, Khalil (2014) employed the GMM dynamic panel to re-examine the empirical relationship between financial development and economic growth using data set from 1973 to 2012. The results showed that financial development have significant positive impact on economic growth.

Olusegun et al. (2013) examined the impact of financial sector development on economic growth in Nigeria using the OLS estimation technique. The results indicate that financial development influences growth but the influence exerted is weak and non-significant.

Akingunola (2013) examined the relationship between financial liberalization and economic growth in Nigeria using the vector error correction model (VECM). It was shown that while financial liberalization proxies do not significantly explain economic growth, financial deepening indicators were confirmed to have significant positive effect on economic growth.

Gyimah et al. (2012) examined the effects of financial sector development on economic growth in Ghana using the Johansen co-integration analysis. The paper aimed at empirically determining the causal link between financial sector development and economic growth in Ghana. The Johansen co-integration techniques within a bivariate vector auto-regressive framework were employed for the regression with data set from 2000 to 2009. Using a quarterly time series set of data on Ghana over a 10-year period (2000-2009), the result of the study showed that there exist a statistically significant positive relationship between the financial sector development and economic growth in Ghana.

Rashti and Shayeste (2014) studied the influence of financial development on economic growth during the period 1990-2010, with special emphasis on the recent financial crisis. The study utilizes the GMM. The results revealed that the financial crisis had greater influence on developing countries and much less of influence on developed countries. Moreover, it was shown that financial development indexes relating to banking sector have had negative effect on economic growth, whereas capital market demonstrated a positive effect on economic growth during the period.

Atemnkeng et al. (2011) investigated the relationship between financial development and economic growth in Cameroon using time series data for the period 1970-2005. It was found that financial development has a positive effect on economic growth in the long run, while a long term causal relationship running from financial development to economic growth without a feedback system.

Simwaka et al. (2012) assessed the causal relationship between financial development and economic growth in Malawi using the autoregressive distributed lag approach. Results show that there is positive and significant relationship between financial development and economic growth in the long-run. Granger causality tests show that economic growth drives financial development with no feedback effects as financial development has no causal effects on economic growth.

Bakay (2014) drew evidence from regional panel data in examining the causality between financial deepening and economic growth. The results suggest that credits alone do significantly explain the amount of export and import of a particular province, and amount of deposits is negatively associated with the level of imports. Selected measure for provision of financial services (sum of loans and deposits) statistically explains foreign trade (sum of exports and imports). Granger causality test revealed that there is bi-directional causality between financial deepening and international trade.

Kargbo et al. (2015) analyzed financial deepening in low, middle and high income countries using the OLS and multiple regression model econometrics technique. The empirical results suggest that financial sector development and economic growth are positively co-integrated. The results support the view that, financial deepening is a necessary causal factor of economic growth, although the strength of the evidence varies across countries.

Mirdala (2011) used the VECM and the Granger causality test in evaluating the main aspects of the financial deepening in the ten European transition economies within the period 2000-2010. The outcome revealed that countries with lower GDP per capita appear to benefit from financial deepening as the financial deepening indicators influence real economic activity with greater intensity in the short-run and Granger causal for real output in the long-run.

2.1. Trend Analysis

For the Nigerian case, Figures 1 and 2 demonstrate the trends of various financial development indicators over the period 1987 to 2014.

3. MODEL SPECIFICATION, METHODOLOGY AND DATA

This study exclusively sourced secondary data between 1987 and 2014 from the World Bank national account data files and

the Organization for Economic Co-operation and Development national accounts data files. Having reviewed literatures exploring links between finance and growth, various empirical works applied different tools while assessing the relation between financial development and economic growth. Our choice of model in this discourse is dependent on the availability of data and existence of variables. Hence this study will be patterned after the work of Soltani et al. (2014), and modified by Ngongang (2015). The model is of the form:

$$TGDP_{j,t}=\alpha_0+\alpha_1 CBBSP_{j,t}+\alpha_2 CBPH_{j,t}+\alpha_3 IC_{j,t}+\alpha_4 LF_{j,t}+\alpha_5 TOXM_{j,t}+\alpha_6+\alpha_7 IP_{j,t}+\varepsilon_{j,t} \quad (1)$$

Where, *TGDP* = The growth rate of real GDP per capita; *CBBSP* = Private sector credit relative to GDP, *CBPH* = Stock market capitalization relative to GDP per capita; *IC* = Dummy variable which representing corruption; *LF* = Dummy variable, representing financial liberalization; *TOXM* = Openness rate measured by total exports and imports relative to GDP; *INF* = Inflation rate; *IP* = Dummy variable, representing political instability; ε = Random variables; *t* = Years; *j* = Counties.

For the Nigerian case, we modified the model above to accommodate financial development indices as follows:

$$GDPGR_t=\beta_0+\beta_1 CPS_t+\beta_2 BMS_t+\beta_3 DPT_t+\beta_4 OPS_t+\beta_5 SMC_t+\beta_6 FDI_t+\beta_7 INF_t+\varepsilon_t \quad (2)$$

Where, *GDPGR* = Growth rate of real GDP at current basic prices; *CPS* = Banking credit to private sector as a percentage of real GDP; *BMS* = Broad money stock as a percentage of real GDP; *DPT* = Financial depth, measured as total deposit as a percentage of real GDP; *OPS* = Trade openness, measured as sum of imports and exports relative to real GDP; *SMC* = Stock market capitalization as a percentage of GDP; *INF* = Inflation rate; and ε = Error term and *t* = Years that ranges from 1 to 28.

Johansen cointegration will be employed in estimating our model equation. The Philip-Perron unit root test will first be applied to ascertain the stationarity, and order of integration of the variables. If the variables are found to be integrated of the same order 1 (1), then a cointegration test will be run to determine the presence of cointegrating relationships among the variables. If the variables are cointegrated, it indicates the existence of one or more long-run equilibrium relationship (s). The relationship which Johansen cointegration test is set to establish was amplified by Atemnkeng et al. (2011) but expressed for our purpose in a modified form as follows:

$$\Delta Y_t = \text{JJ}\ Y_t - 1 + \sum_{\text{i}}^{k} \oint i Y_t - i + \mu_t \quad (3)$$

Y_t = Vector of variables for which its dynamics will be studied
JJ*i* = A matrix number
$\oint$ = A matrix whose rank explains the number of cointegration relationships.

Optimum lag selection will be guided by the Akaike and Schwarz information criteria. Establishment of long-run relationship would permit us integrate error correction measures in basic model (Equation 2) to take care of any short-run disequilibrium and determine the rate of convergence to equilibrium in the long-run. Modifying our baseline model to achieve purpose entails bringing in the error correction term, and the error correction model can therefore be expressed as follows:

$$\begin{aligned}\Delta GDPGR_t = {} & \beta_0 + \sum_{i=0}^{n}\beta_1 \Delta GDPGR_{t-1} + \sum_{i=0}^{n}\beta_2 \Delta CPS_{t-1} \\ & + \sum_{i=0}^{n}\beta_3 \Delta BMS_{t-1} + \sum_{i=0}^{n}\beta_4 \Delta DPT_{t-1} \\ & + \sum_{i=0}^{n}\beta_5 \Delta OPS_{t-1} + \sum_{i=0}^{n}\beta_6 \Delta SMC_{t-1} \\ & + \sum_{i=0}^{n}\beta_7 \Delta FDI_{t-1} + \sum_{i=0}^{n}\beta_8 \Delta INF_{t-1} + \beta_9 ECT_{t-1} + \varepsilon_t\end{aligned} \quad (4)$$

Where Δ is the first differencing operator, and ECT is the error correction term.

3.1. Causality Test

Granger (1969) defines causality between two variables *Y* and *X* as follows; *Y* causes *X* if *Y* increases the predictability of *X*. the directional influence can be one-way (unidirectional causality) or two-way (bidirectional causality) in which case there exist e feedback effect. Granger causality is based on linear predictions of time series (Dhamala et al., 2007). We establish bivariate linear prediction models for *X*(*t*) and *Y*(*t*) in AR representations thus:

$$X(t) = b_1 + \sum_{j=1}^{\bar{v}} b_{11,j} X(t-j) + \sum_{j=1}^{\bar{v}} b_{12,j} Y(t-j) + \varepsilon_1 : 2(t) \quad (5)$$

$$Y(t) = b_2 + \sum_{j=1}^{\bar{v}} b_{21,j} X(t-j) + \sum_{j=1}^{\bar{v}} b_{22,j} Y(t-j) + \varepsilon_2 : 1(t) \quad (6)$$

If past values of *X*(*t*) help to predict *Y*(*t*), we say *X*(*t*) Granger causes *Y*(*t*). The test of H_o: $b_{12} = 0$; H_o: $b_{21} = 0$ can be carried out with the F-test.

4. RESULTS AND ANALYSIS

4.1. Descriptive Statistics

Table 1 explains statistical description of each variable over a 28-year period. It can be observed that GDP grew at an average rate of 5.47% and was at its highest peak in 2002 at 21.18%. Financial depth and stock market capitalization were moderate over the years while the trend of inflation was found to be quite erratic. BMS and private sector credit which like other variables (except inflation) were expressed relative to GDP averaged 17.33% and 13.13% respectively. It can also be observed from the table that the probability values of the JB-statistic for each of the variable indicate that our variables are normally distributed. The p-values are significantly >5% significant level, and we therefore reject the null hypothesis that our variables are not normally distributed.

4.2. Unit Root Test

The result of the unit test as presented in the Table 2 above shows that all the variables included in the model are all not stationary at level, and have unit root. This however will take us to the next step in ADF approach which requires differencing of the variables to see if it will be stationary at first difference.

The representation in Table 3 shows that all the variables have no unit root and therefore are stationary at 5% level of significance. They all attained stationarity at first difference i.e. at same order one. This outcome permits us now to go ahead with Johansen co-integration test.

4.3. Johansen Cointegration Test

Table 4 presents two panels demonstrating the cointegration test results - The trace statistic and the Max-Eingen statistic. We are guided by the trace and max-Eingen values to reject the null hypotheses of no cointegrating equations and accept the alternate hypotheses that there exist at most two cointegrating equation at 0.05 level of significance. This implies that our variables are cointegrated. In other words, our estimated variables have long-run relationship, and move together in the long run.

4.4. Regression Results

Table 5 presents the error correction model estimation. The result reveals that credit to the private sector, stock market capitalization and inflation do not have positive effect on the economy whereas broad money supply, trade openness and foreign direct investment exert positive influence on the economy. Even though the cointegration results confirm presence of cointegrated equations, there are always digressions along the equilibrium path. Such deviation is addressed by the speed of adjustment as explained by the ECT in Table 5. The speed of adjustment is 86%, which means that 86% errors due to departures from equilibrium is corrected each year as the variables converge towards long-run equilibrium relationship.

Table 1: Descriptive statistics of variables

Variables	GDPGR	CPS	BMS	DPT	OPS	SMC	FDI	INF
Mean	5.465714	13.13214	17.32857	0.281071	0.610357	0.178214	3.708214	20.53214
Median	6.205500	11.10000	17.30000	0.285000	0.615000	0.120000	3.305000	12.55000
Maximum	21.17700	36.70000	38.00000	0.540000	0.910000	0.700000	8.280000	72.80000
Minimum	−10.75200	5.900000	8.600000	0.160000	0.370000	0.030000	1.600000	5.400000
Standard deviation	5.507416	7.113579	6.508562	0.087574	0.137988	0.171940	1.585280	18.13378
Skewness	−0.113280	1.679197	1.487607	0.909273	0.233448	1.641309	1.543984	1.550624
Kurtosis	5.796230	5.786260	5.617604	4.008563	2.677085	5.184323	5.097580	4.239662
Jarque-Bera	3.181938	2.21573	5.32103	5.045023	0.375978	0.13799	6.25795	3.843922
Probability	0.510143	0.650015	0.084376	0.080258	0.828624	0.927115	0.066295	0.592736
Sum	153.0400	367.7000	485.2000	7.870000	17.09000	4.990000	103.8300	574.9000
Sum squared deviation	818.9540	1366.281	1143.757	0.207068	0.514096	0.798211	67.85401	8878.521
Observations	28	28	28	28	28		28	28

Source: Authors'

Table 2: ADF unit root test at level

Variable	ADF statistic	Critical (%)			Remark
		1	5	10	
GDPGR	−2.482651	−3.763435	−2.830411	−2.928433	Non-stationary
CPS	−2.341573	−3.761432	−2.830411	−2.987436	Non-stationary
BMS	−2.537128	−3.763435	−2.837410	−2.989164	Non-stationary
DPT	−2.511736	−3.763431	−2.837410	−2.928436	Non-stationary
OPS	−2.331091	−3.763431	−2.837411	−2.928433	Non-stationary
SMC	−2.481662	−3.753431	−2.837410	−2.928433	Non-stationary
FDI	−2.522001	−3.763431	−2.837410	−2.928433	Non-stationary
INF	−2.527725	−3.763435	−2.830410	−2.928433	Non-stationary

Source: Authors Eviews result. ADF: Augmented Dickey-Fuller

Table 3: ADF unit root test at first difference

Variable	ADF statistic	Critical (%)			Remark
		1	5	10	
GDPGR	−9.206349	−3.546323	−2.981038	−2.772901	Stationary
CPS	−6.555023	−3.546323	−2.981038	−2.772901	Stationary
BMS	−4.914152	−3.546323	−2.981038	−2.772901	Stationary
DPT	−6.126586	−3.546323	−2.981038	−2.772901	Stationary
OPS	−8.720884	−3.546323	−2.981038	−2.772901	Stationary
SMC	−14.81073	−3.546323	−2.981038	−2.772901	Stationary
FDI	−16.04422	−3.546323	−2.981038	−2.772901	Stationary
INF	−5.090500	−3.546323	−2.981038	−2.772901	Stationary

Source: Authors' Eviews results. ADF: Augmented Dickey-Fuller

Table 4: Johansen cointegration test results

Date: 03/13/16 Time: 17:19
Sample (adjusted): 1989-2014
Included observations: 26 after adjustments
Trend assumption: Linear deterministic trend
Series: *GDPGR CPS BMS DPT OPS SMC FDI INF*
Lags interval (in first differences): 1 to 1
Unrestricted cointegration rank test (trace)

Hypothesized		trace	0.05	
Number of CE (s)	Eigenvalue	Statistic	Critical value	Probability**
None*	0.983967	250.4441	159.5297	0.0000
At most 1*	0.880158	142.9829	125.6154	0.0028
At most 2	0.769850	87.82170	95.75366	0.1550
At most 3	0.583151	49.62709	69.81889	0.6539
At most 4	0.444629	26.87625	47.85613	0.8589
At most 5	0.279307	11.58517	29.79707	0.9453
At most 6	0.109943	3.069095	15.49471	0.9637
At most 7	0.001571	0.040889	3.841466	0.8397
Unrestricted cointegration rank test (maximum eigenvalue)				
Hypothesized		Max-Eigen	0.05	
Number of CE (s)	Eigenvalue	Statistic	Critical value	Probability**
None*	0.983967	107.4612	52.36261	0.0000
At most 1*	0.880158	55.16121	46.23142	0.0044
At most 2	0.769850	38.19461	40.07757	0.0803
At most 3	0.583151	22.75084	33.87687	0.5496
At most 4	0.444629	15.29108	27.58434	0.7249
At most 5	0.279307	8.516078	21.13162	0.8694
At most 6	0.109943	3.028205	14.26460	0.9448
At most 7	0.001571	0.040889	3.841466	0.8397

Source: Authors' Eviews results. Max-eigenvalue test indicates 2 cointegrating equation (s) at the 0.05 level. *Rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1999) P values

Table 5: ECM results (Equation 4)

Variable	Coefficient	Standard error	t-statistic	Probability
C	−0.044941	0.832302	−0.053997	0.9576
D (*CPS*(−1))	−0.455083	0.480187	−0.947721	0.3565
D (*BMS*(−1))	0.567744	0.583176	0.973536	0.3439
D (*DPT*(−1))	−1.652167	11.23001	−0.147121	0.8848
D (*OPS*(−1))	12.47662	8.229091	1.516160	0.1479
D (*SMC*(−1))	−2.670322	4.093311	−0.652362	0.5229
D (*FDI*(−1))	0.741504	0.422408	1.755424	0.0972
D (*INF*(−1))	−0.064096	0.065670	−0.976037	0.3420
ECT(−1)	−0.858494	0.253245	−3.389979	0.0033
R^2	0.659794			
Adjusted R^2	0.508591			
Durbin-Watson stat	1.738349			
F-statistic	32.363640			
Probability (F-statistic)	0.000013			

Source: Authors' Eviews results. ECM: Error correction model

Table 6: Result of the long-run regression (baseline) model, Equation (2)

Variable	Coefficient	Standard error	t-statistic	Probability
C	−39.27608	21.31252	−1.842864	0.0802
CPS	−7.030192	7.481681	−0.939654	0.3586
BMS	0.003269	0.000611	5.351321	0.0000
DPT	−5.484441	4.548755	−1.205702	0.2420
OPS	0.080949	0.011876	6.816086	0.0000
SMC	−3.220516	1.713988	−1.878960	0.0749
FDI	−1.512864	3.209795	−0.471327	0.6425
INF	−1.936422	1.908855	−1.014442	0.3225
R^2	0.858011			
Adjusted R^2	0.832775			
Durbin-Watson stat	1.966472			
F-statistic	52.265414			
Probability (F-statistic)	0.000000			

Source: Authors' Eviews results

While Equation model (4) and Table 4 demonstrated the short-run dynamics among our variables, our baseline model in Equation (2) and Table 6 explain the long-run dynamics of our model proxies. The coefficient of determination shows that 86% variations in economic growth were explained by the regressors while the remaining 14% was explained by variables not included in the model. Private sector credit, financial depth, stock market capitalization, foreign direct investment and inflation rate all exerted negative influence on economic growth whereas BMS and trade openness both have significant positive impact on economic growth within the period 1987-2014.

4.5. Granger Causality Test

The results of Granger causality test in Table 7 indicate that among the variables explaining growth, GDP is found

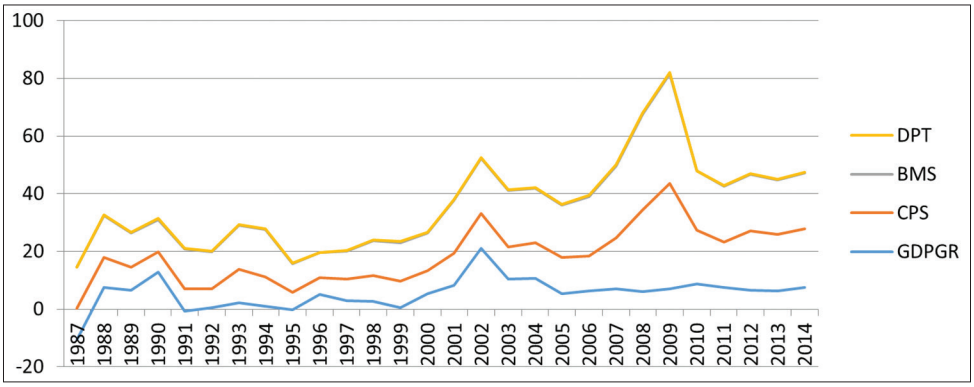
Table 7: Pairwise Granger causality tests

Date: 05/02/16 Time: 17:32
Sample: 1987-2014
Lags: 2

Null hypothesis	Observations	F-statistic	Probability
CPS does not Granger cause *GDPGR*	26	0.28594	0.7542
GDPGR does not Granger cause *CPS*		0.23843	0.7900
BMS does not Granger cause *GDPGR*	26	0.53198	0.5952
GDPGR does not Granger cause *BMS*		0.45214	0.6423
DPT does not Granger cause GDPGR	26	0.10861	0.8976
GDPGR does not Granger cause *DPT*		0.93660	0.4077
OPS does not Granger cause *GDPGR*	26	0.20932	0.8128
GDPGR does not Granger cause *OPS*		0.56739	0.5755
SMC does not Granger cause *GDPGR*	26	6.33345	0.0070
GDPGR does not Granger cause *SMC*		0.52091	0.6015
FDI does not Granger cause *GDPGR*	26	1.87611	0.1780
GDPGR does not Granger cause *FDI*		7.13291	0.0043
INF does not Granger cause *GDPGR*	26	2.06461	0.1519
GDPGR does not Granger cause *INF*		0.36524	0.6984

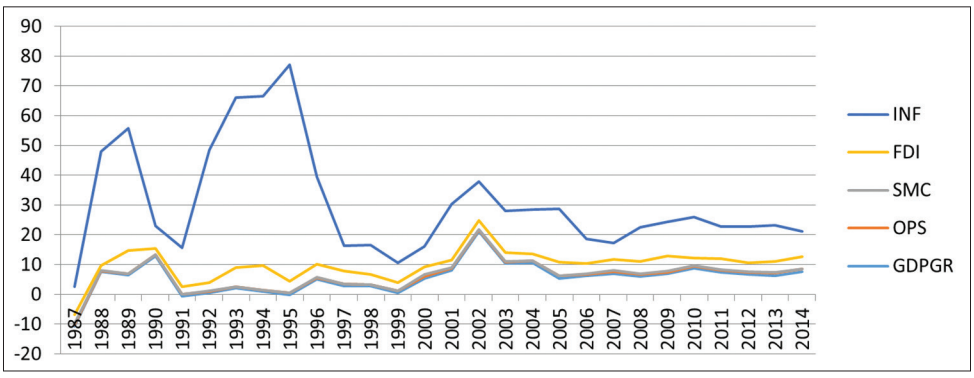
Source: Authors' Eviews results

Figure 1: Trend analysis real gross domestic product growth rate, private sector credit, broad money stock and financial depth, from 1987 to 2014



Source: Computations from CBN annual reports and statistical bulletins (various years)

Figure 2: Trend analysis real gross domestic product growth rate, trade openness, stock market capitalization rate, foreign direct investment and inflation rate, from 1987 to 2014



Source: Computations from CBN annual reports and statistical bulletins (various years)

to be causal for foreign direct investment though without a feedback system. Stock market capitalization granger causes GDP, unidirectional causality. There is no causality between GDP and the rest of the proxied variables as explained by the Table 7.

5. CONCLUSION AND RECOMMENDATIONS

Financial development and its linkage with economic growth have continued to receive considerable attention from scholars, the academia and economists. The threads of discourses on the subject vary widely from country to country. In this study, we have attempted to evaluate relation between financial development and economic growth in Nigeria, taking exception from existing literatures by integrating broad distinctive indicators of financial development into our model and using different econometric techniques to assess both direction and magnitude of impact. The findings indicate that financial development and economic growth move along together in the long run. The long-run association between thee to variable was confirmed by Johansen trace and max-Eigen statistics. It was further revealed that Private sector credit, financial depth and inflation rate exerted negative influence on economic growth both in the short-run and long-run. Foreign direct investment had positive impact on growth in the short-run but the effect was negative in the long-run. BMS and trade openness had positive effect on the explained variable but while this effect was non-significant in the short-run, their effect was positive and significant in the long-run. Moreover, the error correction term in the short-run model availed us the correctional influence in the speed of adjustment which indicated that errors of divergence from equilibrium was corrected at the speed of 86% each year. The Granger causality tests show that GDP was granger causal for foreign direct investment, without a feedback system, stock market capitalization found to granger cause GDP but not vice-versa.

We therefore recommend that effort should be put in place to ensure that credit extended to the private sector are invested in real productive sector of the economy and not diverted or misallocated. Over time, this will lead increase in output for both domestic consumption and for export. By extension, trade openness will be significantly augmented and would have sustained influence on the economy in significant positive ways.

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