Measuring the Impact of Financial Sector Development on Nigeria's Economic Growth

By

Alexander Abraham Anfofum
Department of Economics,
Nigerian Defence Academy PMB 2109 Kaduna.
abrahamlex2@gmail.com.
Corresponding Author Phone Number: +2348057371739

Okpanachi Joshua
Department of Accounting,
Nigerian Defence Academy PMB 2109 Kaduna
E-mail: okpasmg@yahoo.com

And
Samuel Gambo Joshua
Department of Accounting,
Nigerian Defence Academy PMB 2109 Kaduna.

Abstract

The low industrial capacity utilization and poor technological level of developing countries can be improved upon by a sound financial sector. This study investigates financial sector development and economic growth nexus in Nigeria. The study employed the Johansen cointegration and Granger causality, techniques as well as the vector error correction model (VECM) technique to measure the impact of financial sector development on Nigeria's economic growth. The Empirical result of the Johansen cointgration test revealed the presence of long run equilibrium relationship between GDP and financial sector development variables SMC, BSC, DCU and GNS. The Granger causality test result showed that GDP causes financial sector development variables. Basically, growth leads and finance follows. The VECM revealed a speed of adjustment of 34 per cent, indicating that the previous year disequilibrium from long run equilibrium was corrected by 34 per cent. This implies that there is a relatively slow feedback effect from the long run relationship to the short run dynamics of the model. The implication of this study is that ignoring the need to re-engineer financial sector development policies that will affect economic growth will only relegated development process.

Key word: Financial Sector Development, Economic Growth, Error Correction Model

1 INTRODUCTION

The Nigerian financial sector deals with mobilization of savings and allocates credit across to financial and non financial organization. It is an outlet that does not only make payment services, but more importantly provide products which enable firms and households to cope with economic uncertainties by hedging, pooling, sharing, and pricing risks. An efficient financial sector reduces the cost and risk of production as well as that of trading in goods and services, thus, providing an important contribution for economic growth and poverty reduction (Herring and Santomero, (2000)). Developing nations strive to develop their financial sector to spur economic growth and reduce poverty rate. Schumpeter (1912) contends that well-functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chances of successfully implementing innovative products and production processes. In contrast, Robinson (1952) declares that "where enterprise leads finance follows." According to this view, economic development creates demand for particular types of financial arrangements, and the financial system responds automatically to these demands. Other economists differ. Lucas (1988) asserts that economists "badly over-stress" the role of financial sector development in economic growth, while development economists frequently express their scepticism about the role of the financial system by ignoring it Chandavarkar (1992). The series of inconsistency provides the leeway for further study in this area.

Despite the absence of a consensus, there is a preponderance of evidence that a developed financial sector positively influenced real economic activity. Unfortunately, a country that mirrors high level of inflation rate, inefficient rural financial market system, fiscal deficit, increasing rate of unemployment and a large income disparity between the rich and poor, will certainly impact negatively on the development of the financial sector. In spite of the attendant series of financial reforms in Nigerian, the private sector has continued to decrease with some business organization disappearing while others have relocated to neighbouring countries due largely to incessant or epileptic energy supply. Obviously, this has heightened the rate of poverty in the country. A review of the measure of financial sector development impact in Nigeria's economic growth is quintessential for review. Basically, this paper is an attempt to explain the long run equilibrium relationship and the causal effect between financial sector development and economic growth in Nigeria between 1986 - 2011. Therefore, the paper is structured into six sections. Following the introduction is the literature review on financial sector development and economic growth in section two. In section three, the study concentrates on methodology of the study while section four present and discuss the result of the study. Finally, section five is the conclusion of the paper.

2 THEORETICAL CONSIDERATIONS AND EMPIRICAL EVIDENCE

The Keynesians in macroeconomics postulates that the impact of money in an economy depends on the ability of money to influence interest rate, rate of interest in turn influence demand for investment fund and for investment fund in turn to influence national income. In the same vein, the Harrod-Dommar model suggests that changes in national income depend linearly on changes in capital stock. The Harrod-Domar growth model summaries as follows, economic growth will proceed at the rate which society can mobilise domestic saving resources coupled with the productivity of the investment (Somoye, 2002). According to Schumpeter (1973) bank financial intermediation does not only entail creation of a pool of investible funds, it also involves allocating funds. In support of this view, King and Levine (1993) submit that financial development is likely to affect growth by improving the efficiency of investment through project selection, innovation and entrepreneurship growth.

The pioneering work by Shaw (1973) emphasized the role of financial intermediation in enhancing savings, investment and consequently economic growth. Jalilian and Kirkpatrick, (2001) lend support to the above view when they argued that the provision of savings facilities has enable the poor to accumulate funds in a secured place over time in order to finance a relatively large, anticipated future expenditure or investment, and can sometimes provide a return on their savings. Nigeria's financial system, like those of other developing countries, overtime remained weak and a cause of concern to policymakers. The comprehensive financial sector reforms of the mid 1980s brought fundamental changes since capital market, along with banking sector, grew very fast and are now positioned to play traditional roles of providing resources for long-term investment and growth of the economy (Olofin and Afangideh, 2008). The creation of a pool of investment fund is the objective of bank financial intermediation. In the same vein, expanding the supply of financial services creates access to increase income and growth with a direct impact on poverty reduction. Greenwood and Smith (1996) emphasized that stock market are relevant in mobilising savings thus facilitating investment into most productive technologies. In the same direction, Bencivenga, Smith, and Starr (1996) and Levine (1997) have concluded that market liquidity and the ability to trade equity easily play a key role in economic growth. They affirmed that stock market provide assets to savers who would easily and readily liquidate them whenever they desire, while simultaneously allowing firms permanent access to capital raised through equity issue. When a financial sector is progressing, it enables firms to take advantage of profitable investment opportunities when it arises, which in turn, reduces their reliance on internally generated finance.

2.1 Empirical Literature

Greenwood and Jovanovic (1990) came up with a formal dynamic model for the relationship between finance and growth. Their results illustrated that financial development and economic growth actually reinforce each other. Furthermore, King and Levine (1993) and Levine and Zervos (1996) empirically examined the nexus between economic growth and finance by estimating cross country regressions, they found that initial financial development level is a close predictor of the subsequent economic growth. They therefore concluded that finance causes growth. Other researchers who found a similar relationship include Garretsen, Lensink and Sterken (2004). Parallel to this view, is the empirical studies of the effects of financial development on economic growth which produced mixed evidence especially no role or positive relationship (Xu, 2000).

Erdal, Okan and Behiye (2007) empirically examine the relationship between financial development and economic growth in Northern Cyprus. They applied Ordinary Least Square (OLS) estimation method. The result showed that there is a negligible positive effect of financial development on economic growth of Northern Cyprus. Although Granger causality test showed that financial development does not cause economic growth on one hand, while, there is evidence of causality from economic growth to the development of financial intermediaries on the other hand. Afangideh (2009) investigated the relationship between financial development and agricultural investment using three stage least squares estimation technique and simulation experiment. The empirical result indicates that bank lending to agriculture has a positive and significant effect on real gross national saving, real output of agricultural sector and gross domestic product of Nigeria. Furthermore, the empirical model tracks the economy very well with historical simulation matching the behaviour of the real world rather closely.

Moses (2004) investigated the empirical relationship between the level of development by financial intermediaries and economic growth in Nigeria. The study employed a descriptive statistic. Using aggregate data of deposit money bank credit over time the result established that a moderate

positive relationship exist between the variables under study. Riman, Esso and Eyo (2008) developed a Vector Error Correction Model (VECM) in establishing a long-run relationship between stock market performance and economic growth in Nigeria. The empirical outcome suggests that a long-run relationship does exist between stock market and economic growth as indicated by the significance of the (VECM). The study concludes that stock market as one of the key factors for financial development is significant in determining economic growth in Nigeria. Ayadi, Adegbite and Ayadi (2004) evaluate the Structural Adjustment Programs (SAP) in Nigeria with a view to find its effect on the level of financial development. Also, the relationship between financial development and economic growth during post-SAP period was investigated using the Spearman rank correlation. The outcome of the result suggests that financial development and economic growth are inconsistent in post-SAP Nigeria. Onwioduokit (2007) conducted a study on financial sector development and economic growth in Nigeria. The causality test estimated for the study showed unidirectional causality running from financial sector development variables to economic growth. On the contrary, Ukeje and Akpan (2007) study the link between financial sector development and economic growth in Nigeria given the scope 1980 – 2006, the study showed a unidirectional causality running from economic growth to financial development in Nigeria.

Tabi, Aloysius and Neba (2011) developed a Johansen method of cointegration to analyze various measures of financial development. The empirical findings indicated that financial development has a positive effect on economic growth in the long run through efficient collection and allocation of financial resources. Also, they find a long term causality relationship running from financial development to economic growth. Tafirenyika (2013) used Granger causality, impulse response and variance decomposition to measure the relationship between financial sector indicators and economic growth in Namibia. The findings showed a unidirectional relationship between running from economic growth to financial development. Maduka and Onwuka (2013) investigated the long run and short run relationships between financial structure and economic growth using time series data in Nigeria. The estimated results reveal that financial market structure has a negative and significant effect on economic growth. This suggests a low level of development of the country's financial sector. In another related development, Emeka and Aham (2013) measured the impact of financial sector development on economic growth by employing a cointegration and Error Correction Mechanism (ECM) between 1980-2009 for Nigeria. The empirical results show that there is a positive effect of financial sector development on economic growth in Nigeria. However, credits to private sector and financial sector depth are ineffective and fail to accelerate growth.

The series of empirical results reviewed in this study showed that financial sector development impacted positively on economic growth in Nigeria on one hand, in another hand, the position of the causality test does not provide any consensus amongst the various studies. The series of articles reviewed clearly suggests the need to apply a causality test in order to determine the direction of relationship and to find out if past values of the variables can be used to predict the future relationship. More so this study redefined and decomposed financial sector variables into series of useful variables, this was to enable an independent outcome of some of financial sector variables influence on growth variable.

3 METHODOLOGY

3.1 Source of data

The time series data for this study was obtained from Central Bank of Nigeria (CBN) statistical bulletin of 2011. The study covers the period 1986 – 2011. This period was chosen because the financial sector reforms in Nigeria gained much recognition following the commencement of structural adjustment programme in 1986.

3.2 Empirical framework for the study

3.2.1 Unit root test

The need to avoid spurious result was taken into consideration in this study. In this regard, the data for analysis involves checking the temporal properties of the variables in the model via unit root tests. This was to ascertain the stationary level of the variables in the model. Thus, the Augmented Dickey-Fuller (ADF) test were used. The ADF test is given as

$$\Delta X_t = \beta_0 + \beta_1 X_{t-1} + \sum_{i=1}^{p} \beta \Delta X_i + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

$$\Delta X_t = \beta_0 + \beta_1 X_{t-1} + \sum_{i=1}^{p} \beta \Delta X_i + \Omega_t + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Given the unit root equation, the null hypothesis is that the coefficient statistically equal to zero that is $\beta = 0$. If there is no unit root, the series X_{t-1} will be stationary at the level or integrated of order zero expressed as I(0). The presence of unit root as a result of first differencing of the series will give stationary level, that is first order integration denoted as I(1). Where X_t is a process of autoregressive AR(1), and it represent the time series and its linear time trend. Change (Δ) is the first difference operator and β_0 is the constant, p is the optimum number of lags in dependent variable, e is the white noise.

3.1.2 The ordinary least squire (OLS) techniques.

The methodology employed for the analysis of this study arises from the objectives, theoretical and empirical findings of the nexus between financial sector development variables and economic growth. The study applied OLS technique to measure empirically the relationship between financial sector development variables and economic growth. The OLS model is expressed as:

$$GDP = F(BSC, SMC, GNS, DCU) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

$$LGDP_t = \beta_0 + \beta_1 L\,BSC_t + \beta_2 LSMC_t + \beta_3 LGNS_t + \beta_4 LDCU_t + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

β_0 = is constant whereas $\beta_1 - \beta_5$ is the intercept of the regression line, e is the error term which has the usual properties of zero mean, and non-serial correlation. The error term covers those independent variables that explain the variation in the dependent variable but where omitted from the model. The subscript t represents time series data and L is the natural log form of the variables.

3.1.3 The characteristics and expected signs of the variables in the model

The gross domestic product (GDP) is the economy growth component. Increase in the performance of the financial sector components is expected to impact positively on GDP. The gross national savings (GNS) represent the aggregate national savings of the economy. Increase in saving will obviously improve the potency of the financial sector to be solvent and provide more loans consequently; improving investment which leads to GDP prosperity. The size of financial sector

(SFS) in the works of King and Levine (1993) and Tabi, Aloysius and Neba (2011) was represented by currency plus demand deposits and interest bearing liabilities of banks and other financial intermediaries divided by GDP. But in this study, the size of the financial sector is disaggregated into currency plus demand deposits, interest bearing liabilities of banks (DCU) on one hand and stock market development on the other hand. This was due to the immense impact of the stock market on the development of the financial sector and the growth of the economy of Nigeria especially with the emergence of the global financial Tsunami or global financial crisis. The stock market variable is represented by stock market capitalisation (SMC), a positive relationship is anticipated between SMC and gross domestic product (GDP). Credit provision to private sector or investors by the financial sector (BSC) is an indication of financial sector efficiency. Theory hypothesized a positive relationship between allocation efficiency and growth King and Levine, (1993). Increase in bank credit allocation to investors is expected to increase investment and in turn economic growth. Thus a positive outcome between BSC and GDP is expected in this study.

3.14 The cointegration test procedure

The Johansen cointegration was used because it performs better in multivariate model. The cointegration test helps to determine the presence or otherwise of long run equilibrium relationship between the dependent and independent variables in the model. The estimation procedure here assumed a vector autoregressive (VAR) based cointegration test (Johansen 1991) of order p which is given as

$Y_t = A1y_{t-1} + \ldots + Apy_{t-p} + Bx_t + e_t$ ……5

Where y_t is a - vector of x_t non-stationary I(1) variables, is a d -vector of deterministic variables, and e_t is a vector of innovations. This VAR can be expressed as:

$$\Delta y_t = \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma \Delta\, y_{t-1} + Bx_t + e_t \quad \ldots\ldots 6$$

Where

$$\Pi = + \sum_{i=1}^{p} Ai - I \quad \text{and} \quad \Gamma i = \sum_{j=i+1}^{p} Aj \quad \ldots\ldots 7$$

3.1.5 The Granger causality test model

According to Granger (1969), Y is said to “Granger-cause” X if and only if X is better predicted by using the past values of Y than by not doing so with the past values of X being used in either case. In this study, where only the lagged value of the financial sector variable in equation 8 is significant, it infer that financial development Granger causes economic growth. If the lagged independent variables in the two equations are significant, then, it inferred a bi-directional causality between financial development and economic growth, but where only the lagged value of the growth variable in equation 9 is significant, it suggests that economic growth Granger causes financial development. To determine whether there is Granger causality between financial development and economic growth in Nigeria, the Granger causality model was adopted in line with Engle and Granger (1987), Adeolu (2007), Khan, (2007) and Egbo (2010) with some remarkable modification in the interest of this study.

$$GDP_t = M_1 + \sum yiGDP_{t-1} + \sum \beta FD_{t-1} + \sum {}_{1t} \quad \text{.....8}$$

$$FD_t = M_2 + \sum \beta_1 FD_{t-1} + \sum yiGDP_{t-1} + \sum {}_{2t} \quad \text{.....9}$$

Where

M_1 and M_2 are constants, and Σ_{1t} and Σ_{2t} are the stochastic term. GDP is measure of gross domestic product and FD is financial sector development variable.

The statement of hypothesis is

H_{01}: GDP does not Granger cause FD

H_{02}: FD does not Granger cause GDP

3.1.6 The vector error correction model.

A Vector Error Correction Model (VECM) is a restricted Vector Autoregressive (VAR) model designed for use with nonstationary series that are known to be cointegrated. The purpose of the VECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the coefficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long run state will be. Therefore, equation (4) will be represented to include VECM to reflect the short run dynamics.

$$\Delta LGDP_t = \beta_0 + \sum \beta_1 t\, \Delta LBSC_{t-1} + \sum \beta_{2t} \Delta LSMC_{t-1} + \sum \beta_{3t} \Delta LDCU_{t-1} + \sum \beta_{4t}\, \Delta LGNS_{t-1} + \delta VECM_{t-1} + e_t \quad \text{.....10}$$

Where

Δ is the first difference operator and δ is VECM coefficient and other variables have been defined above.

4 PRESENTATION AND ANALYSIS OF ESTIMATED RESULTS.

TABLE 1: Augmented Dickey Fuller test result

Variables	Order of Integration	Included in Test Equation	ADF Statistic	Mackinnon Critical Value
GDP	I(2)	Intercept	-3.181292	5% = -3.0038
BSC	I(2)	Intercept	-5.630433	5% = -3.0038
DCU	I(1)	Intercept	-3.404479	5% = -2.9969
GNS	I(2)	Intercept	-3.573207	5% = -3.0038
SMC	I(1)	Intercept	-4.918985	5% = -2.9969

Source: Computed from econometric views 7 software by the authors.

4.1 Augmented Dickey Fuller (ADF) test result

This study presents the result of ADF statistic test in Table 1 above. The test was performed with the inclusion of intercept since it enhances a better outcome. The variables were non stationary at the level, but after the first and second differencing at 5% all the variables became stationary and significant, thus, indicating the avoidance or absence of a spurious regression estimates and misleading interpretation of results in this study.

Table 2: The Johansen Cointegration - unrestricted integration rank test (trace)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	5 percent Critical Value	1 percent Critical Value
None **	0.993586	342.9793	94.15	103.18
Almost 1**	0.979334	221.7971	68.15	76.07
Almost 2**	0.928538	128.6947	47.21	54.46
Almost 3**	0.790402	65.36866	29.68	35.65
Almost 4**	0.644140	27.86717	15.41	20.04

*(**) denotes rejection of the null hypothesis at the 5%(1%) level
Trace test indicates 5 cointegrating equation(s) at bothm 5% and 1% levels
Source: Computed from econometric views 7 software by the authors.

Table 3: Unrestricted cointegration rank test (maximum eigenvalue)

Hypothesized No. of CE(s)	Eigen Value	Max-Eigen Statistics	5 percent Critical Value	1 percent Critical Value
None **	0.993586	121.1821	39.37	45.10
Almost 1**	0.979334	93.10245	33.46	38.77
Almost 2**	0.928538	63.32604	27.07	32.24
Almost 3**	0.790402	37.50149	20.97	25.52
Almost 4**	0.644140	24.79725	14.07	18.63

*(**) denotes rejection of the hypothesis at the 5% (1%) levels
Max-eigenvalue test indicates 5 cointegrating equation(s) at both 5% and 1% levels

Source: Computed from econometric views 7 software by the authors.

4.2 The Johansen co-integration test result.

The result of the Johansen cointegration test in table 2 above indicates 5 cointegrating equations or vectors in the series at 5% level of significance. Similarly, the result of Max-eigenvalue test in table 3 above indicates 5 cointegrating equation(s) at 5% level. The result suggests the presence of a long run equilibrium relationship between the financial variables and real gross domestic product. Linear deterministic trend was assumed for the test. From the result in table 2 the trace statistics for null hypothesis was rejected at 5% level, thus, confirming a long run significant relationship between GDP and SMC, BSC, DCU and GNS. This findings supports Tabi, Aloysius and Neba (2011) and Emeka and Aham (2013).

Table 4: Pairwise Granger Causality Tests

Null Hypothesis	Observation	F - Statistics	Probability	Remarks
SMC does not granger cause GDP	24	0.11571	0.8914	A
GDP does not granger cause SMC		7.69739	0.0036	R
BSC does not granger cause GDP	24	0.10799	0.8982	A
GDP does not granger cause BSC		5.81081	0.0107	R
DCU does not granger cause GDP	24	0.19297	0.8261	A
GDP does not granger cause GDP		4.31391	0.0285	R
GNS does not granger cause GDP	24	0.11422	0.8927	A
GDP does not granger cause GNS		5.84839	0.0105	R

Note: R = rejection, A = accepted. Source: Computed from econometric views 7 software by the authors.

4.3 Granger causality tests

Table 4 above represents the estimated results of the Pair wise Granger causality test where maximum lag is 2 and this lag length was considered appropriate in order to avoid the problem of spuriousness of regression at 5 % level of significance. The empirical outcome of the Pair wise Granger causality suggests that gross domestic product Granger causes financial sector development variables. This established relationship is unidirectional running from GDP to SMC, BSC, DCU and GNS. For this reason, this study cannot reject the hypothesis that gross domestic product does not Granger cause financial sector development variables, but reject the hypothesis that financial sector variables does not Granger cause gross domestic product. This result was expected in this study. This result only exposed the distressed and insolvency nature of some banks in the late 1980s stretching through early 1990s and global financial Tsunami in 2007 which enabled the totality of banks impact on economic growth to be generally insignificant. Instead, the economic growth provides the lead for financial system to follow. This outcome is consistent as well as a further confirmation of earlier finding by Ukeje and Akpan (2007).

4.4 The Short Run Model Results

$GDP = 83611.03 - 0.09BSC - 59.34SMC + 0.19GNS + 0.27DCU - 0.34ECM_{t-1}$……11

(1.72) (2.71) (-3.46) (2.53) (1.80) (1.69)

SE 0.029 0.17 0.08 0.15 0.02

$R^2 = 0.86$, $R^{-2} = 0.71$. F- Statistics = 6.00

With the confirmation that the residuals from the cointegration regression are stationary, the dynamic version of the long run model was specified with the residuals from cointegration model as vector error correction model (VECM). The coefficients of the variables of BSC and SMC are signed negative to GDP, but are statistically significant at 5 per cent. However, GNS and DCU are signed positive to GDP in Nigeria. Only GNS is statistically significant at 5%. The adjusted coefficient of determination R^2 (0.71) reveals that about 71% of the variation in gross domestic

product is explained by the endogenous variables that entered the parsimonious model. The F-Statistic of 6.00 indicates that the totality of the model fit is significant at 5%. The VECM model with BSC, SMC, DCU and GNS as a measure of GDP suggests that the model is able to correct any deviation from long run equilibrium between gross domestic product and financial sector development variables. The coefficient (0.34) of the error correction term which measures the speed of adjustment back to equilibrium whenever the system is in disequilibrium indicates that the speed of adjustment is 34%. In other words, 34% of the previous year disequilibrium from long run equilibrium was corrected. This implies that there is a relatively slow feedback effect from the long run relationship to the short run dynamics of the model. The outcome of this study does not agree with Emeka and Aham (2013). The VECM result is negative and statistically significant at 5% as anticipated for this study. But this only mirrors a slow speed of adjustment of the GDP to changes in the financial system variables in the long run.

4.5 The ordinary least square (OLS) result

$$LGDP = 296062.5 + 27.95LSMC + 0.03LBSC - 0.081LGNS - 010LDCU \quad \ldots\ldots\ldots 12$$
$$(2.42) \qquad (0.40) \qquad -(0.85) \qquad -(2.17)$$
$$R^2 = 0.88. \quad R^{-2} = 0.86. \quad \text{DW Statistics} = 2.28$$

The result of the estimated long run regression is presented in equation 12. The result showed that the adjusted coefficient of determination R^{-2} is 0.86. This is an indication of goodness of fit of the regression line. The DW value of 2.28 is a good measure of the absence of serial correlation. The coefficients of the regression line revealed that LSMC and LBSC are positively signed, whereas LGNS and LDCU are signed negative. This is an indication that LSMC and LBSC have an increasing effect on LGDP but LGNS and LDCU have a decreasing effect on LGDP. The result revealed that a 10% increase in LSMC and LBSC will result in 270% and 8.5% increase respectively on gross domestic product (LGDP) in Nigeria. This outcome was anticipated in this study. On the contrary, a 100 % increase in LGNS and LDCU will have a decreasing effect of 8.1% and 3.0 % on LGDP in Nigeria within the period under review. The outcome of the regression line showed that stock market variable (SMC) and demand deposit and interest bearing liabilities of the bank (DCU) are statistically significant at 5% level but gross national savings (GNS) and banks credit allocation to investors (BSC) were statistically insignificant at 5% level.

Table 5: Sensitivity and stability test

Diagnostic Test Result		
	Statistic	**Probability**
Jarque Bera Normality Test	4.696728	0.095525
Breusch-Godfrey LM Test	4.460740	0.018445
Arch LM test	0.972972	0.314479
White Heteroskedasticity Test	5.742960	0.001231
Ramsey RESET	18.02382	0.000396
R^{-2}	0.86	
DW	2.28	

Computed from econometric views 7 software by the authors

Table 5 above depicts the diagnostic test results for the variables used for the analysis of this study. The variables in the model passed through the necessary diagnostic tests regarding Breusch-Godfrey serial correlation LM test, autoregressive conditional LM test and white heteroskedisticity. Similarly, the diagnostic test conducted for this study in table 5 showed that the variables in the model passed through the Ramsey RESET stability test which satisfies that the functional form of the model was adequately specified. This is an indication of the absence of specification errors in the model. The residual tests revealed the absence of autoregressive conditional heteroskedisticity, thus, satisfying no evidence of serial correlation in the long-run regression line. The diagnostic test showed evidence of normality of the residual and homoskedasticity which concludes that the specified model for this study is adequate. The Durbin Watson (DW) test result indicates the absence of serial correlation while the adjusted coefficient of determination suggests goodness of fit of the model as the independent variables had over eighty per cent explanatory power of what happens to the dependent variable.

5 CONCLUSION AND RECOMMENDATION

This study was an attempt to measure the impact of financial sector development on economic growth in Nigeria. Previous empirical studies demonstrated financial sector development impetus for economic growth, particularly, in less developed countries. This study employed the Johansen cointegration and Granger causality, as well as the vector error correction model technique to measure the impact of financial sector development on economic growth in Nigeria spanning 1986 – 2011. The Empirical result of the Johansen cointgration test revealed the presence of long run equilibrium relationship between GDP and SMC, BSC, DCU and GNS. The Pair wise Granger causality test result was very robust as GDP Granger cause financial sector development, indicating support for Robinson that economic growth leads and finance follows and lending no supports for Schumpeter's argument that finance lead and economic growth follows. The VECM model with BSC, SMC, DCU and GNS as a measure of GDP showed a coefficient (0.34), revealing that a 34% of the previous year disequilibrium or drift in equilibrium between gross domestic product and financial sector development variables was corrected. This is a relatively slow feedback effect from the long run relationship to the short run dynamics of the model. The implication of this study is that any effort to strengthen the financial sector for a meaningful economic prosperity without innovative policies in for the size of financial system and improvement on bank loans with a lower interest rate will only leave the financial system lagging behind.

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