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Keywords: financial development, economic growth, supply leading, demand following hypotheses, cointegration.

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Econometrics Analysis of Financial Development and Economic Growth: Evidence from Nigeria

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Abstract- This work explored the relationship between financial development and economic growth in Nigeria. Specifically it investigated the extent to which financial development engenders economic growth. It also verified the existence of supply leading and/or demand following hypotheses in Nigeria. To evaluate these, the researchers firstly determined the stationarity of the variables which informed the use of co integration and then the vector error correction model to finding the long run impact of financial development variables on the growth of the economy. The diagnostic test was employed to determine the authenticity and stability of our model. The researchers also employed the Granger Causality test to investigate the existence of supply leading and/or demand following hypothesis. The results of the analyses show that there is a long run relationship between financial development and economic growth in Nigeria and that besides the metric for banking system financing of the economy variable which is significantly inadequate, all other financial development indicators engender economic growth. Our diagnostic test shows that the model is adequate, plausible, and stable. The short run causality test shows bidirectional causality between capital market liquidity or economic volatility and the growth of the economy while market capitalization ratio, broad money velocity and the banking system rate of financing the economy drive economic growth with no feedback effect. On the basis of the findings, the researchers call on the government to articulate reform packages (such that may involve vigorous financial inclusion) capable of enhancing the banking sectors' involvement in the financing of the economy so as to achieve enormous economic growth.

Keywords: financial development, economic growth, supply leading, demand following hypotheses, cointegration.

I. Introduction

a) Financial Sector and Economic Growth and Development

The financial sector plays important role in economic growth and development through the process of financial intermediation. The sector's role in influencing the savings-investment process for acceleration of the rate of economic growth and poverty reduction cannot be overemphasized. Robinson (1954) refers financial sector to as the handmaiden of economic development. McKinnon (1973) contended that the financial sector can be more than a handmaiden to the real economy as it is the major driver of economic growth and development especially when it is liberalized. Williams Amaha (1988) added that if financial sector is free, it can provide the necessary fillip for economic growth and development. Levine et al (2000) also asserted that the growth of components of financial intermediation engenders positive growth in the real sector of the economy.

World Bank (2009) asserts that the financial sector is the brain of the economy and that when it functions properly, it allocates resources to the most productive and efficient uses. In the words of Sanusi (2002), well-functioning financial systems are able to mobilize household savings, allocate resources efficiently, diversify risk, enhance the flow of liquidity, reduce information asymmetry and transaction cost and provide an alternative to raising funds through individual savings and retained earnings. The question of whether Nigerian financial system is actually well functioning gives a food for thought. Furthermore, Soludo (2009) maintains that in terms of policy thrust, the banking sector reforms are expected to build and foster a competitive and healthy financial system to support development and to avoid systematic distress.

The stock market on the other hand is vital for the provision of investible funds and requires the participation of the key economic agents whose participation in Nigerian capital market seems passive rather than active. For instance a look at the participants in the stock market reveals that the leading sub-sector on the stock exchange is banking sector which accounts for about 50% of the total equity market capitalization. Each of the other sectors such as breweries and building materials takes a proportion which is at most 10 percent. Engineering technology has 0% of the total market capitalization. Heavy industries especially in the area of technology are virtually inactive or non-existent in the stock market (Onwumere and Modebe, 2007). These heavy industries are the core of industrial production and their products add heavily to the gross domestic product (NSE Fact Books 2005-2006). Invariably, the non-participation of

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these core industries in the stock market may have negative implications on the Nigerian stock market development and the economy at large.

Schumpeter (1911) posited that financial intermediation through the banking system played a pivotal role in economic development by affecting the allocation of savings thereby improving productivity, technical change and the rate of economic growth. By mobilizing savings from the surplus unit to the deficit unit who are desirous for productive investment, capital inflow are facilitated. The financial markets not only stimulate investments in both physical and human resources but also channel savings to more productive uses by collecting and analyzing information about investment opportunities (Jalloh, 2009). In the words of Sanusi (2011), Well functioning financial system are able to mobilize household savings, allocate resources efficiently, diversify risk, enhance the flow of liquidity, reduce information asymmetry and transaction costs and provide an alternative to raising funds through individual savings and retained earnings.

Finance is a life wire of every productive activity. Public as well as private sector operators need various financial instruments to enable them invest in short as well as long term investment. The financial market is divided into two - the money market and the capital market. The money market is a market where short term securities are traded while long term securities are traded in the capital market. Included in the money market are financial access that are short term, highly marketable and accordingly possess low risk and high degree of liquidity. The markets facilitate trading in short term debt instruments to meet short term needs of large users of funds. Government raises short term funds from the money market to finance its short term investment. The capital market on the other hand is a market which provides industrial and commercial firms with long term finance for their capital developments. Capital market therefore, adds to the stock of capital and generates capital formation for new investments (Okpara, 2012).

Government raises long term funds from the capital market to finance its long term investment projects such as social overheads like public hospital, construction of roads, airports, public schools, dam construction etc. Corporations issue corporate bonds to finance long term development projects like construction of new plants, new buildings, new technology and expansion of existing ones while issuing equities to raise additional financial resources for long term investments. Thus wealth creation for economic growth is facilitated by the financial markets.

II. Literature Review

a) Financial Development and Economic Growth

Patrick (1966) quoted in Isu and Okpara (2013) identified two possible causal relationships between financial development and economic growth. They include demand following hypothesis which sees the demand for financial services as dependent upon the growth of real output and the commercialization and modernization of agriculture and other subsistence sectors. In other words, it posits a unidirectional causation from economic growth to financial development.

In support of supply leading hypothesis, Clarke, (2002) and Jayaratne and Strahan (1996) concluded that banking sector development following deregulation has led to state level economic growth in the U.S.

Wadud (2005) in his study of long-run causal relationship between financial development and economic growth for 3 South Asian countries namely India, Pakistan and Bangladesh disaggregated financial system into "bank-based" and "capital market based" categories and by employing a cointegrated vector autoregressive model found that the results of error correction model indicate causality that runs from financial development to economic growth.

Nnanna (2004) using ordinary least square regression technique, concluded that financial sector development does not significantly affect per capital growth of output. Others who used various methods and data to establish a positive and significant relationship and/or causality running from financial development to growth are De Grgor and Guidotti (1995), Guiso, et al (2002), empirical work by Gelb (1989), Ghani (1992), King and Levine (1993), DeGregorio and Giudotti (1995), Levine and Zervos (1996) have all lent support to the supply-leading hypothesis in the case of many developing and developed countries (See Nwezeaku and Okpara, 2014).

Odiambo (2004) investigated the finance-growth nexus in South Africa using cointegration approach and vector error correction model and found out a demand-following response between financial development and economic growth and therefore discredited the supply-leading hypothesis. Guryay et. al (2007) examined the relationship between financial development and economic growth for Northern Cyprus for the period of 1986-2004 and concluded that there was evidence of causality from economic growth to the development of financial intermediaries in Northern Cyprus. Shan, et al (2001) in their study reached a conclusion that economic growth causes financial development in China.

Arestis and Demetriades (1997), using time series analysis, concluded that evidence favors a bidirectional growth. Also Murinende and Eng (1994) found evidence of such bi-directionality in the case of Singapore, while Demetriades and Hussein (1996) also found a feedback effect for 16 developing countries. Demetriades and Hussein (1996), using time series analysis for a study of developing economies also found causality running both ways.

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A study of China by Shan et al (2006) not only found a bidirectional causality between financial development and economic growth but also revealed that the Granger causality from economic growth to financial development is stronger than that from finance to growth. Likewise, Luintel and Khan (1999), investigated the finance-growth nexus in a multivariate VAR model and found bidirectional causality between financial development and economic growth in all their sample country.

Adelakun (2010) in his study of relationship between financial development and economic growth found that there is a substantial positive effect of financial development on economic growth in Nigeria. Using Granger causality test, he also found that financial development promotes economic growth. Akinlo, Enisan, Egbetunde and Tajudeen (2010), in examining the long run relationship between financial development and economic growth for ten countries in sub-Saharan Africa found that financial development is cointegrated with economic growth. They also added that financial development Granger causes economic growth in Central African Republic, Congo Republic, Gabon and Nigeria while economic growth Granger causes financial development in Gambia. However in Kenya, Chad, South Africa, Sierra Leone and Switzerland bidirectional relationship was established between financial development and economic growth. In their study, Odenira and Udeaja (2010) examined the relationship between financial sector development in Nigeria using Granger Causality and found a bidirectional causality between financial development and economic growth. Bi-directional causality hypothesis has been advocated by Altay and Atgur (2010).

III. Materials and Methods

To assess whether financial development impacts and/or drives economic growth (Supply leading) or whether it is economic growth that drives the financial sector (demand following) and leads to aggressive expansion of the financial sector or whether there exists a feedback effect?, the financial market indicators such as capital market liquidity proxied by value of share traded divided by GDP (VST/GDP), market capitalization ratio denoted by market capitalization divided by GDP (MKTCAP/GDP), broad money velocity denoted by broad money supply divided by GDP (M_2/GDP) economic volatility represented by credit to private sector over GDP (CPS/GDP), intermediation efficiency indicated by currency outside banks over broad money supply (COB/M_2) and the metric for banking system financing of the economy which is proxied by demand deposit over narrow money supply (DD/M_1) are presented in table 4.1.

The researchers therefore posit the following hypotheses stated in null form as follows:

Ho_1 : Financial development does not exert positive and significant impact on economic growth.

Ho_2 : Financial development does not drive economic growth

To assess these hypotheses, the researchers employed cointegration and error correction model as there are seen appropriate for impact determination. Also the Granger causality test was used for causality test.

It must have to be noted that one thing drives or predicts another must not be seen as leading the later to a fortune. Something can be led to a misfortune, in such a situation, the leader or driver has driven it/him to a wrong direction. It is on this note that Granger causality has failed to indicate the desired direction of a particular economic variable. To augment or authenticate Granger causality, the direction of any variable on another must have to be determined through a well built and tested model to avoid recommending a causal relationship that will be detrimental to economic policy. This argument can be justified by the fact that a variable say X can be found to be negatively related to the dependent variable Y yet such a variable X will be found to granger cause Y with no feedback effect. The question of the direction the variable X is driving Y must be of concern. Thus, the researchers diligently tested the parameters of the variables in order to determine the significance of the magnitude of each of the variables as well as exploring their direction.

IV. Estimation and Analysis of Data

The relevant data presented in table 4.1 are estimated and analyzed in lieu of the stated objectives and hypothesis.

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Table 4.1: GDP and Financial Development Indicators

Year	GDP	VSTGDP	Mcapgdp	M2GDP	CPSGDP	COBM2	DDM1
1981	94.33	323	5	15.3	9.1	27	49
1982	101.01	213	5	15.6	10.6	27	50
1983	110.06	362	5	16.1	10.6	27	50
1984	116.27	221	5	17.3	10.7	24	50
1985	134.59	235	5	16.6	9.7	22	50
1986	134.6	370	4	17.7	11.3	22	50
1987	193.13	198	3	14.3	10.9	22	53
1988	263.29	323	3	14.6	10.4	25	48
1989	382.26	160	3	12	8	21	39
1990	472.65	48	3	11.2	7.1	28	40
1991	545.67	44	3	13.8	7.6	31	44
1992	875.34	56	3	12.7	6.6	33	44
1993	1,089.68	74	3	15.2	11.7	35	42
1994	1,399.70	70	2	16.5	10.2	39	39
1995	2,907	63	4	9.9	6.2	37	39
1996	4032.3	172	7	8.6	5.9	34	42
1997	4189.25	25	7	9.9	7.5	32	48
1998	3989.45	34	7	12.2	8.8	32	45
1999	4679.21	301	5	13.4	9.2	30	51
2000	6713.57	419	7	13.1	7.9	31	54
2001	6895.2	837	8	18.4	11.1	27	55
2002	7795.76	762	8	19.3	11.9	26	53
2003	9913.52	1215	14	19.7	11.1	21	47
2004	11411.07	1979	19	18.7	12.5	22	55
2005	14610.88	1800	20	18.1	12.6	21	55
2006	18,564.59	2,533	28	20.5	12.3	17	66
2007	20657.32	5209	64	24.8	17.8	14	74
2008	24296.33	6911	39	33	28.6	11	75
2009	24794.24	2766	28	38	36.9	10	68
2010	54612.26	3465	18	20.2	18.6	10	69
2011	62980.4	1014	16	19.3	16.9	10	73
2012	71713.94	1124	21	19.4	20.4	10	68
2013	80092.56	2935	24	18.9	19.7	10	73
2014	89043.62	1499	19	19.9	19.2	8	75

Source: Compiled from CBN Statistical Bulletin

The GDP and financial development indicators in the table above are tasted for stationarity to avoid spurious results which could have arisen if non stationary data are used for regression. The result shows that all the variables are stationary at first difference. In other words all the variables are integrated of order one, I(1). The summary of these results is shown in table 4.2 as follows:

Table 4.2: Augmented Dickey-Fuller Unit Root Test

	Lag	ADF Test Statistic	Critical Values		
	SCI	1st difference	1%	5%	Remarks
GDP	4	-3.863830	-3.653730	-2.957110	Stationary
VSTGDP	8	-6.552533	-3.653730	-2.957110	Stationary
MCAPGDP	8	-5.879994	-3.653730	-2.957110	Stationary
M2GDP	8	-5.378874	-3.653730	-2.957110	Stationary
CPSGDP	8	-5.726112	-3.661661	-2.960411	Stationary
COBM2	8	-4.870376	-3.653730	-2.957110	Stationary
DDM1	8	-5.232303	-3.653730	-2.957110	Stationary

From the above table, the ADF statistics of all the series are more negative than their 1 percent critical values and far more than that of 5 percent at first difference. This implies that the series are differenced once for them to be stationary. They are therefore said to be integrated of order one.

This being the case, the researchers resorted to testing for cointegration between the variables and

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found that there are three cointegrating equations in the series which invariably suggest the existence of long run relationship between the GDP series and the financial market indicators in Nigeria. The result of the cointegration test is presented in table 4.3 below.

Table 4.3: Cointegration Test for GDP-Financial Development Data

Sample (adjusted): 1983 2014
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP COBM2 CPSGDP DDM1 M2GDP MCAPGDP VSTGDP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.940660	252.7749	125.6154	0.0000
At most 1 *	0.859101	162.3917	95.75366	0.0000
At most 2 *	0.818445	99.68086	69.81889	0.0000
At most 3	0.597176	45.08262	47.85613	0.0890
At most 4	0.262219	15.98641	29.79707	0.7132
At most 5	0.123385	6.254930	15.49471	0.6654
At most 6	0.061788	2.040926	3.841466	0.1531

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The existence of cointegrating equations formed the basis for the researchers' use of the error correction model. The parsimonious result of the error correction model is shown in table 4.4 as follows.

Table 4.4: Parsimonious Result of the Error Correction Model

Dependent Variable: D (GDP)
Method: Least Squares
Date: 03/04/17 Time: 17:16
Sample (adjusted): 1986 2014
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-3))	1.131716	0.092826	12.19176	0.0000
D(GDP(-4))	0.128731	0.045405	2.835145	0.0132
D(COBM2(-1))	-285.0871	112.1978	-2.540933	0.0235
D(COBM2(-3))	311.5502	113.4656	2.745768	0.0158
D(CPSGDP(-1))	316.4391	136.0973	2.325094	0.0356
D(CPSGDP(-2))	654.3071	67.66742	9.669456	0.0000
D(CPSGDP(-3))	783.8138	137.5658	5.697737	0.0001
D(DDM1(-2))	-194.4585	60.83273	-3.196609	0.0065
D(DDM1(-3))	-410.7492	109.3208	-3.757283	0.0021
D(M2GDP(-1))	417.7338	189.1424	2.208568	0.0444
D(MCAPGDP(-1))	109.6002	28.91204	3.790815	0.0020
D(VSTGDP(-1))	-3.163521	0.218548	-14.47518	0.0000
D(VSTGDP(-4))	2.407486	0.539429	4.463028	0.0005
ECT(-1)	-0.071766	0.028613	-2.508156	0.0251
C	320.4475	222.6680	1.439127	0.1721
R-squared	0.986988	Mean dependent var		3065.829
Adjusted R-squared	0.973976	S.D. dependent var		5894.833
S. E. of regression	950.9460	Akaike info criterion		16.85904
Sum squared resid	12660176	Schwarz criterion		17.56626
Log likelihood	-229.4560	Hannan-Quinn criter.		17.08053
F-statistic	75.85309	Durbin-Watson stat		2.476241
Prob(F-statistic)	0.000000			

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The results of the analysis show that past GDP at lags 3 and 4 reinforces the present GDP. In other words, increase in past GDP leads to increase in the present value of GDP. The intermediation efficiency indicator (COB/M2) is negative and significant at its immediate past level indicating that the rate at which the financial sector intermediates in the economy seems to initially impose untold hardship. However as time passes by, the intermediation efficiency increases and exerts positive impact on the economic growth. The broad money velocity (M2/GDP) is positive and significant while the metrics for banking system financing of the economy (DD/M1) is negative and significant implying that the banking sector financing of the economy is significantly inadequate to engender growth of the economy. The Stock market liquidity (VST/GDP) for the first lag is negative and significant suggesting that significant illiquidity which hampers the growth of the economy exists in the capital market at lag 1. However, this anomaly corrects as time passed by as the market liquidity exerts positive impact on the growth of the economy at lag 4. Economic volatility (CPS/GDP) and market capitalization ratio (MKT/GDP) are positive and significant. From these findings, \the researchers adduced that the financial market activities generally impact economic growth. To accept this model, we embarked on second order econometric tests namely serial correlation test, multicollinearity test using the condition index criteria, heteroskedasticity test, normality test and Model adequacy test. The serial correlation LM test is presented in table 4.5 as follows:

Table 4.5: The serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.074760	Prob. F (1,13)	0.3188
Obs*R-squared	2.214464	Prob. Chi-Square (1)	0.1367

The LM test accepts the hypothesis of no serial correlation up to order 2. Implying that the residuals are not serial correlated and the equation therefore should not be respecified before using it for hypothesis testing. The researchers also moved on to testing for multicollinearity using the condition index criteria. The test of multicollinearity is presented in Table 4.6 as follows:

Table 4.6: Multicollinearity Test

Variance Inflation Factors
Date: 03/04/17 Time: 17:26
Sample: 1981 2014
Included observations: 29

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
D(GDP(-3))	0.008617	9.709253	8.410134
D(GDP(-4))	0.002062	2.163407	1.929747
D(COBM2(-1))	12588.35	2.951161	2.857077
D(COBM2(-3))	12874.44	3.146364	3.004485
D(CPSGDP(-1))	18522.49	13.15236	13.09515
D(CPSGDP(-2))	4578.880	3.248920	3.232151
D(CPSGDP(-3))	18924.35	13.17132	13.14267
D(DDM1(-2))	3700.621	2.561753	2.516033
D(DDM1(-3))	11951.03	7.942701	7.701627
D(M2GDP(-1))	35774.85	21.96579	21.96230
D(MCAPGDP(-1))	835.9058	2.154706	2.143199
D(VSTGDP(-1))	0.047763	2.048665	2.035250
D(VSTGDP(-4))	0.290983	9.506051	9.396512
ECT(-1)	0.000819	2.387260	2.386915
C	49581.02	1.590017	NA

Table 4.6 shows that all the centered variance inflation factors VIF (which is numerically identical to 1/1-R^2) are less than 30 for one to talk of severe presence of multicollinearity. Precisely, eleven out of fourteen variables have VIF less than 10 while the remaining three variables have VIF less 30. Thus, the VIF indicates no severe multicollinearity among the differenced variables. The heteroskedasticity test is presented in table 4.7 as follows.

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Table 4.7: Test of Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.366528	Prob. F(14,14)	0.9647
Obs*R-squared	7.778335	Prob. Chi-Square(14)	0.9006
Scaled explained SS	2.868501	Prob. Chi-Square(14)	0.9993

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/04/17 Time: 18:50
Sample: 1986 2014
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	568553.5	223891.9	2.539411	0.0236
D(GDP(-3))	-72.87875	93.33653	-0.780817	0.4479
D(GDP(-4))	-33.52181	45.65501	-0.734242	0.4749
D(COBM2(-1))	-11069.69	112814.5	-0.098123	0.9232
D(COBM2(-3))	37468.49	114089.3	0.328414	0.7475
D(CPSGDP(-1))	126687.9	136845.5	0.925774	0.3702
D(CPSGDP(-2))	-7574.406	68039.38	-0.111324	0.9129
D(CPSGDP(-3))	-184679.0	138322.0	-1.335138	0.2031
D(DDM1(-2))	33204.94	61167.12	0.542856	0.5958
D(DDM1(-3))	48026.08	109921.7	0.436912	0.6688
D(M2GDP(-1))	-168869.5	190182.1	-0.887936	0.3896
D(MCAPGDP(-1))	-1271.794	29070.96	-0.043748	0.9657
D(VSTGDP(-1))	-115.3502	219.7492	-0.524917	0.6079
D(VSTGDP(-4))	617.9393	542.3940	1.139281	0.2737
ECT(-1)	37.68962	28.77029	1.310019	0.2113

R-squared	0.268218	Mean dependent var	436557.8
Adjusted R-squared	-0.463563	S.D. dependent var	790370.7
S.E. of regression	956173.2	Akaike info criterion	30.68551
Sum squared resid	1.28E+13	Schwarz criterion	31.39273
Log likelihood	-429.9399	Hannan-Quinn criter.	30.90700
F-statistic	0.366528	Durbin-Watson stat	1.646029
Prob(F-statistic)	0.964737		

The F statistic and the observed R^2 test show that the series are not hetroskedastic but homoskedastic. This is of course expected since the series has already been shown to be stationary. We proceed to test for the normality of the residual to ascertain the distributive condition of the stochastic variables in fig. 4.2.

Normality Test

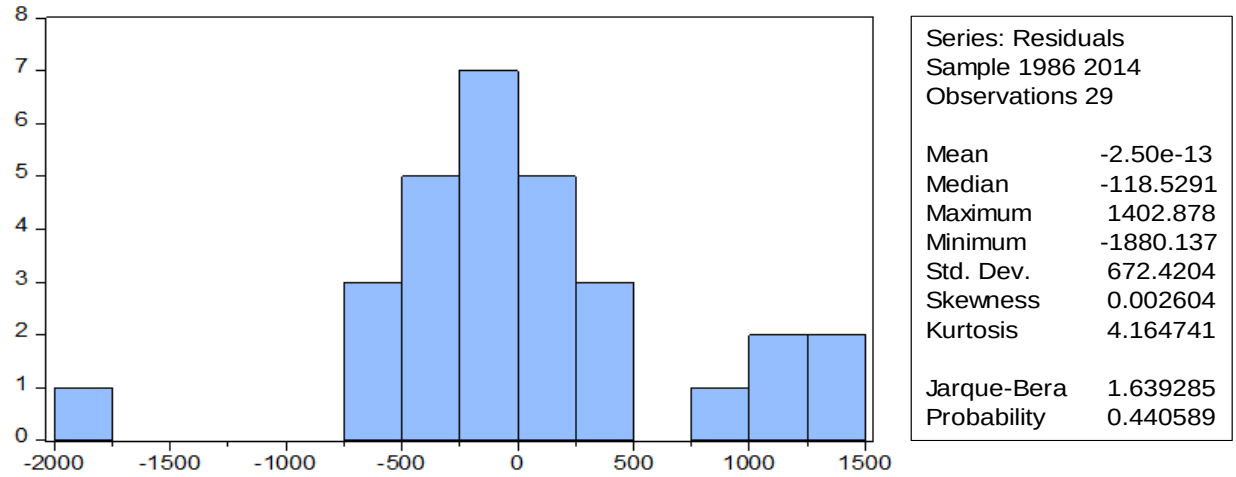

Fig. 4.1: Histogram-Normality Test

Figure 4.1 shows that the value of Jarque-Bera is 1.639285 with a probability of 0.440589 or 44.1 percent which is numerically greater than 5 percent. In the light of this, we concluded that the stochastic

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variables for the model is normally distributed. To make sure that our model is adequate, we carried out a test for model adequacy of output. Researchers and particularly Carter Hill (2012) contend that coefficient of determination R^2 and its adjusted component are not a good measure for goodness of fit or adequacy of a model when using two stage least square estimates. In the light of this, Ramsey reset test was used to test for goodness of fit of the model.

The essence of these diagnostic tests is to ascertain the authenticity of the model so as to be sure that we are not working with a misleading model that yields inconsistent estimates and spurious results. The Ramsey's reset test for the adequacy of the model is presented in table 4.8 as follows:

Table 4.8: Ramsey RESET Test

Equation: Untitled
Specification: D (GDP) D (GDP (-3)) D (GDP (-4)) D (COBM2 (-1)) D (COBM2 (-3)) D (CPSGDP (-1)) D (CPSGDP (-2)) D (CPSGDP (-3)) D (DDM1 (-2)) D (DDM1 (-3)) D (M2GDP (-1)) D (MCAPGDP (-1)) D (VSTGDP (-1)) D (VSTGDP (-4)) ECT (-1) C
Omitted Variables: Powers of fitted values from 2 to 6

	Value	df	Probability
F-statistic	2.638290	(5, 9)	0.0977
Likelihood ratio	26.17199	5	0.0001

F-test summary

	Sum of Sq.	df	Mean Squares
Test SSR	7525695	5	1505139
Restricted SSR	12660176	14	904298.3
Unrestricted SSR	5134481.	9	570497.9

LR test summary

	Value	df
Restricted LogL	-229.4560	14
Unrestricted LogL	-216.3700	9

The table shows that the probability of the calculated F statistic (0.0977) is greater than 5 percent. That is 0.0977 > 0.05 implying that the model is adequately specified and that that no variable is omitted. We therefore conclude that the model is adequate and plausible.

We also know from various Econometric literature that if two or more time series are cointegrated, then there must be Granger causality between them either on one way or in both directions. Thus, employing Granger causality test, we show the causal relationship between financial development indicators and the growth of the economy in table 4.9.

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Table 4.9: Granger Causality Test

Pairwise Granger Causality Tests
Date: 03/04/17 Time: 14:10
Sample: 1981 2014
Lags: 3

Null Hypothesis:	Obs	F-Statistic	Prob.
VSTGDP does not Granger Cause GDP	31	47.1264	3.E-10
GDP does not Granger Cause VSTGDP		7.18051	0.0013
MCAPGDP does not Granger Cause GDP	31	164.102	4.E-16
GDP does not Granger Cause MCAPGDP		0.30826	0.8192
M2GDP does not Granger Cause GDP	31	9.43084	0.0003
GDP does not Granger Cause M2GDP		2.36327	0.0963
CPSGDP does not Granger Cause GDP	31	19.9556	1.E-06
GDP does not Granger Cause CPSGDP		5.00972	0.0077
COBM2 does not Granger Cause GDP	31	1.06892	0.3808
GDP does not Granger Cause COBM2		0.71302	0.5538
DDM1 does not Granger Cause GDP	31	3.89079	0.0213
GDP does not Granger Cause DDM1		1.51774	0.2354

Table 4.9 shows that there is short run causality between capital market liquidity (VST/GDP) and the growth of the economy with a feedback effect. Economic volatility (CPS/GDP) also has a feedback effect with the growth of the economy. While Market Capitalization ratio (MKTCAP/GDP), Broad money velocity (M2/GDP) and the banking system rate of financing the economy (DD/M1) are one directionally driving economic growth. In other words, in the short run, financial development indicators drives economic growth.

V. Conclusion

The intermediation efficiency of the financial sector as well as capital market liquidity do not instantly impact positively on economic growth rather it takes a little time lag for them to manifest positive and significant impact on the economy. The broad money velocity, economic volatility, and market capitalization ratio engender economic growth in the country while the banking sector financing of the economy is significantly inadequate and consequently poses a negative impact on the growth of the economy.

There is bidirectional causality between capital market liquidity or economic volatility and the growth of the Nigerian economy. While market capitalization ratio, broad money velocity and the banking system rate of financing the economy drive the growth of economy with no feed-back effect. For the Nigerian economy to achieve an increased economic growth, government should embark on well articulated reform packages capable of increasing the banking sector involvement in the financing of the economy.

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