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Impact of Financial Development Indicators on Economic Growth In Nigeria, 1980 – 2013

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Abstract
An empirical investigation of the impact of financial development on economic growth in Nigeria was carried out in this paper by employing co integration test and VECM, using the data of annual time series for the period 1980 – 2013. The findings reveal the existence of 3 co integrating vectors which show a long run relationship among the variables. The VEC results show that the ratio of broad money supply to GDP and ratio of domestic credit to private sector to GDP have no significant impact on economic growth in Nigeria. The results suggest that economic growth can be enhanced through increases in ratio of broad money supply to GDP and ratio of domestic credit to private sector to GDP. Thus, if the objective of a policy is to sustain a high rate of economic growth in Nigeria, priority should be given to the development of financial sector. This paper finds support to "supply-leading" (i.e "finance- led growth") economic growth.
Keywords: Broad money supply, domestic credit, Economic growth, VECM, Finance-led growth.

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Since 1986, the monetary authorities have adopted various measures aimed at developing the financial system and reducing the level of financial repression in the system. The financial system comprises various financial institutions, instruments and regulators. The central Bank of Nigeria (CBN) (CBN, 2013), describe financial system as a set of rules and regulations and the aggregation of financial arrangements, institutions, agents, that interact with each other and the rest of the world to foster economic growth and development of a nation. The financial system serves as a catalyst to economic development through various institutional structures (Nzotta, 2009). The system seek and attract the reservoir of savings and idle funds and allocate same to entrepreneurs, businesses, households and government for investment projects and other purpose with a view of returns. This forms the basis for economic development.

Financial development is the process that marks improvement in quantity, quality and efficiency of financial intermediary service. This process involves the interaction of many activities and institutions and possibly associated with economic growth. Nouren(2009), defines financial development as the policies, factors and the institutions that lead to the efficient intermediation and effective financial markets. Financial reforms have been a regular feature of the Nigerian financial system. The reforms have evolved in response to the challenges posed by development in the system such as systematic crisis, globalization, technological innovation and financial crisis.

The process of financial sector reform consists of the movement from an initial situation of controlled interest rates, poorly developed money and securities market and under-developed banking system, towards a situation of flexible interest rates, and expanded role for market forces in resource allocation, increased autonomy for the central bank and a deepening of the money and capital markets. According to Kehinde & Adejuwo (2011), financial sector reforms have tried to address the financial gap in the system, remove rigidities in the system of credit allocation and control and achieve positive real interest rates and greater efficiency by the market operators in the intermediation process.

Akpan(2005), notes that the link between the financial sector and the growth of the economy in Nigeria has been weak. The real sector of the economy which is said to be economic growth drivers is not effectively and efficiently serviced by the financial sector. Audu, Pelesai & Pearce (2013), notes that Nigerian banks concentrate on short term lending as against the long term investment which form the bedrock of a virile economic transformation. From 1980 to 2013, financial sector development indicators have not been relatively stable.

In 1980, the ratio of M_2 to GDP (M_2/GDP) and ratio of domestic credit to private sector to GDP (DCPS/GDP) as financial sector indicators were about 12.2% and 28.6% respectively. These dropped to 11.5% and 20.55% respectively in 2013. On the other hand, the economic growth has witnessed remarkable fluctuations from 1980 to 2013. For instance, in 1980, it was 4.2%, in 2009 it was -13.13% and 2012 it rose to 9.7% (CBN, 2013). These challenges call for investigation into the finance growth nexus in Nigeria. This paper aims at evaluating the relationship between financial development and economic growth in Nigeria. The finding will be important to policy makers both in analyzing and determining the best policy mix to ensure financial development and stable real sector growth.

This paper is organized into five sections, section one comprises the introductory background of the study. Section two covers the theoretical framework and literature review. Section three gives information about the research methodology. Section four deal with empirical results and discussions, while section five covers the

summary of findings, policy implications and policy recommendations.

2. THEORETICAL FRAME WORK AND LITERATURE REVIEW

2.1 Theoretical framework

Financial system acts as a critical intermediary by effectively reallocating resources to newer and more efficient businesses. Finance serves a necessary function in promoting economic growth. The importance of the financial sector in providing the necessary capital to fund real economic activities especially the manufacturing sector which is regarded as an engine of economic growth and development cannot be over emphasized.

Patrick (1966), postulate stage – of - development hypothesis that involves a "supply - leading" and a "demand - following" phenomenon. The "supply - leading" hypothesis postulates that the development of the financial system will lead to economic growth while the "demand – following hypothesis" posits that as real economic growth takes place in the economy, it will spark the demand for financial services. Based on this development hypothesis, researchers assert that a feedback relationship may exist between financial development and economic growth. For "demand – following" hypothesis, it can also be called "growth – led finance" hypothesis. It states that the growth of the economy generates additional and new demand for financial services, which bring about a supply response in the growth of the financial system (Patrick, 1966). This hypothesis suggests a demand – following relationship between financial system and economic development.

2.2 Empirical literature

Earlier studies like Schumpeter, (1911); McKinnon, (1973), Shaw, (1973) note the importance of financial services and the critical role financial intermediaries play in stimulating economic growth. Demetriades & Hussein (1996), in their view were not convinced that finance strengthens economic growth rather financial development follows economic growth. Studies by Sayibo & Adekanye (1992) and Nnanna (2004) notes the importance of bank deposits and bank lending behavior in the level of productive investment and output growth in Nigeria. Recent studies revealed that financial sector development has significantly improved the level of economic performance in Nigeria and countries with well developed financial institutions tend to grow faster, especially the size of the banking system and the liquidity of the stock markets tend to have strong positive impact on economic growth. In Nigeria, the link between the financial sector and real sector is still weak to propel the needed economic growth (Victor and Samuel, (2014); Abdulsalam & Ibrahim (2013); Adekunle, Salami & Adedipe, (2013).

Equally, studies by Okpara(2010) and Audu, Pelesai & Pearce,(2013) find that financial liberalization strengthens the relationship between financial development and economic growth. But contrary to these findings, Akpan (2005) finds that following financial liberation, the economy has failed to experience any impressive performance. This study tends to support the view that financial development follows economic growth. Thus, attest to "growth – led finance" hypothesis. This controversy of "supply – leading and "demand – following" ("growth – led finance") hypothesis calls for more empirical studies.

3. DATA AND METHOD OF ANALYSIS

3.1 Data

The data used for this study are the time series covering 1980 – 2013 periods and are obtained from the statistical Bulletin of Central Bank of Nigeria (CBN), annual reports and Statement of Account of various issues and online service from – data.worldbank.org/indicators.

3.2 Method of Analysis

This paper made use of economic procedure in estimating the relationship between the variables. The Vector Error Correction Model (VECM) was employed in obtaining the numerical estimates of the coefficients of the equation. The VECM is used only when the variables are co integrated. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were used to test the stationary of variables. Equally, Johanson co integration procedure was used to test the existence of long-run equilibrium (stationary) relationship among the economic variables. In demonstrating the application of VECM, the multiple linear regression analysis was used where the growth rate of GDP (GGDP), the ratio of M_2 to GDP (M_2/GDP) and the ratio of domestic credit to private sector to GDP (DCPS/GDP) were the relevant variables. The GGDP was used as the dependent variable while the M_2/GDP and DCPS/GDP were the independent variables. The selection of this method was justified because the data were time series and all time series data exhibits a random walk.

3.3 Model specification

This paper employed a multiple linear regression and the theoretical basis of this study is anchored on stage of development hypothesis of financial development by Hugh Patrick (1996) which states that the direction of causality between financial development and economic growth changes over the course of development. That is, at the early stage of development "the supply – leading" is evident but as real growth occurs in the economy, it

will spark demand for financial services. The general model adopted from the works of Yanique et al (2012) is

$$\Delta Y_t = \mu + \sum_{i=1}^{p-1} \Phi_i \Delta Y_{t-i} + \P U_{t-i} + PX_t + \mathcal{E}_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:
Δ is the first difference operator,
Y_t is a nx1 vector of variables consisting of real GDP, the ratio of M_2 to GDP and ratio of credit to GDP,
X is a set of control variables,
μ is a n x 1 vector of deterministic variables,
Φ is a n x n coefficient matrix,
¶ determines the number of co integrating relationships,
U is the correcting term,
$\mathcal{E}$ is a n x 1 vector of disturbance with normal properties.
The VECM is used only when the variables are co integrated. In this study, we adopted VECM because of the co integrating nature of the variables. The functional relationship of the variables presented as
GGDP = f (M_2/GDP, DCPS/GDP)…….(2)
Where:
GGDP = growth rate of GDP,
M_2/GDP = ratio of M_2 to GDP,
DCPS/GDP = ratio of domestic credit to private sector to GDP.
The model is expressed in a mathematical equation as
$GGDP = bo + b_1 M_2/GDP_{t-1} + b_2 DCPS/GDP_{t-2} + U_t$……..(3)
Where:
U_t = the white noise random element and bo + b1 +……. + bn are parameters.

4. EMPERICAL RESULTS AND DISCUSSION

4.1 Unit Root Test

We first tested if the relevant variables in equation (3) were stationary as well as determining their orders of integration. We applied both the Augmented Dickey – Fuller (ADF) and Phillip Perron (PP) tests to find the existence of unit root in each of the time series. The result of both the ADF and PP tests are presented in Table 1
Table 1: Unit Root Test Result

Time series	ADF (Intercept & Trend)	PP (Intercept & Trend)	5% Level	10% Level	Order of integration
GGDP	-9.605547	-	-3.557759	-3.212361	1(1)
	-	-10.71308	-3.557759	-3.212361	
M_2/GDP	-5.002914	-	-3.557759	-3.212361	1(1)
	-	-6.908272	-3.557759	-3.212361	
DCPS/GDP	-5.033308	-	-3.557759	-3.212361	1(1)
		-8.087994	-3.557759	-3.212361	

Sources: Authors' estimation using E – view 7.0

The Table above (Table 1) reveals that all the variables of time series are stationary at first difference. On the basis of this fact, the null hypothesis of non stationary is rejected and we conclude that the variables are integrated of order one, i.e. 1 (1).

4.2 Co integration Test

Having confirmed the stationary of the variables at 1 (1), we proceeded to examine the presence or non presence of co integration among the variables. When a co integration relationship is present, it means that growth rate of GDP (GGDP), ratio of M_2 to GDP (M_2/GDP) and ratio of domestic credit to private sector to GDP (DCPS/GDP) share a common trend and long run equilibrium. Table 2 shows the result of the co integration test.
Table 2: Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace statistics	0.05 critical value	Prob.*
None*	0.392762	31.57101	29.79707	0.0309
At most 1*	0.274417	15.60831	15.49471	0.0481
At most 2*	0.153783	5.343359	3.841466	0.0208

Trace test indicates 3 co integrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, ** Mackinnon – Haug – Michelis (1999) P – value. Sources: Authors' estimation using E – view 7.0

The trace statistics indicates three (3) co integration equations at the five percent (5%) level of

significance, suggesting that there is a long run relation among the variables tested. The result in Table 2 was achieved after the sample was adjusted from 1980 to 2013, i.e. by including 32 observations with linear deterministic trend assumption and lags interval (in first difference) 1 to 1 in the series.

4.3 The VECM Result

The presence of long run equilibrium relation among the variables led us to apply VECM. With this approach, both the long run equilibrium and short run dynamic relations among the variables were established.

Table 3: VECM with P – values

Error correction:	Coefficient	Std.Error	t - statistic	P – values
cointEq1 = C (1)	-0.745617	0.208218	-3.580940	0.0013
D(GGDP(-1)) = C(2)	-0.224951	0.171042	-1.315180	0.1995
D (M_2/GDP (-1)) = C(3)	-0.213582	0.340334	-0.627565	0.5356
D (DCPS/GDP (-1)) = C (4)	0.240849	0.374594	0.642961	0.5257
C = C (5)	0.600894	0.869348	0.691201	0.4953

R^2 = 0.552073, F – statistics = 8.32, Prob (F – statistics) = 0.000165, DW = 2.191320. Source: Authors' estimation using E- view 7.0

From the results in Table 3 above, the t-statistic for M_2/GDP is -0.627565 while its P-value is 0.5356 and the chosen level of significance is 0.05 that is less than the P-value, it shows that the ratio of broad money supply to GDP (M_2/GDP) has no significant impact on economic growth in Nigeria. Equally, the results in Table 3 above shows the t-statistic for DCPS/GDP is 0.642961 while its P-value is 0.5257 and the chosen level of significance is 0.05 that is less than the P value, it shows that the ratio of domestic credit to private sector to GDP (DCPS/GDP) has no significant impact on economic growth in Nigeria. From Table 3, the coefficient of ECM (-1) is -0.745617 satisfying the negative condition and its P-value is 0.0003 that is less than 0.05 level of significance satisfy the second condition of statistical significance. The coefficient indicates that the speed of adjustment between the short run dynamics and the long run equilibrium is 74.56% in absolute value. The computed coefficient of determination (R^2 = 0.552073) shows that 55.21% of the total variation in the dependent variable are accounted for by the variation in the explanatory variable while 44.79% of the total variation in the GGDP is attributable to the influence of other factors not included in the regression equation.

5. SUMMARY OF FINDINGS, POLICY IMPLICATION AND POLICY RECOMMENDATION

This paper has empirically attempted to investigate the impact of financial development on economic growth in Nigeria by employing co integration test and VECM, using the data of annual time series for the period 1980 – 2013. The Johansen multivariate co integration test indicates 3 co integrating equation, showing a long run relationship between ratio of broad money supply to GDP (M_2/GDP), ratio of domestic credit to private sector to GDP (DCPS/GDP) and economic growth (GGDP). The VEC result shows that the ratio of broad money supply to GDP has no significant impact on economic growth in Nigeria. It equally, shows that the ratio of domestic credit to private sector to GDP has no significant impact on economic growth in Nigeria.

The results support the findings by Victor and Samuel; Abdulsalam & Ibrahim; Adekunle, Salami & Adedipe that the financial sector is still weak to propel the needed economic growth in Nigeria. The results suggest that economic growth can be enhanced through increases in ratio of broad money supply to GDP and ratio of domestic credit to private sector to GDP for there to be significant impact on economic growth.

Thus, if the objective of a policy is to sustain high rate of economic growth in Nigeria, priority should be given to the development of financial sector. An effective flow of finance to private sector economy is capable to stir prospective investors to invest and raise the nation's productivity. This can be achieved by a good monetary policy instruments mix.

Equally, the findings of this study by extension reveal that the controversy of "supply – leading" and "demand – following" hypothesis depends on the policy direction of the policy makers but this paper finds support to "supply – leading" economic growth.

FURTHER STUDIES

We recommend further studies to be carried on financial deepening to determine more variables that can stir up fast economic growth in Nigeria.

COMPETING INTERESTS

We hereby declare that no competing interests exist.

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