

FINANCIAL DEEPENING AND ECONOMIC GROWTH NEXUS IN NIGERIA (1981-2014): A CAUSALITY ANALYSIS

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ABSTRACT

This paper investigates the nexus between financial deepening and economic growth in Nigeria for the period spanning 1981 to 2014. The main objective of the study was to determine the causal linkage between financial deepening and economic growth. The study used annual time series data sourced from Central Bank of Nigeria Statistical Bulletin 2015. The data collected were analyzed using, Johansen co-integration test, Vector Error Correction Mechanism (VECM) test vis-à-vis Granger causality test used as tools for data analysis. The pair-wise Granger causality test result revealed that there is a bidirectional causality running from financial deepening proxied by ratio of money supply to GDP to economic growth proxied by real GDP and from economic growth proxied by real GDP to financial deepening proxied by ratio of money supply to GDP, ratio of credit to private sectors to GDP as well as stock market capitalization. The co-integration test result revealed that there is long run relationship among financial deepening proxied by ratio of money supply to GDP, ratio of private sector credit to GDP, stock market capitalization and economic growth proxied by real GDP. Hence, it is recommended among others that policies that would guarantee increase in the level or rate of Money supply to GDP in Nigeria such as diversification of sub-markets, trading in different financial instruments, offering savers and investors a wide range of financial instruments which differ in terms of liquidity and yields among others should be observed considerably so as to witness unprecedented increase in the level of economic growth in Nigeria.

Keywords: Economic Growth, Financial Deepening, Ratio of Money Supply to GDP, Ratio of Private Sector Capital to GDP, Stock Market Capitalization, Nigeria.

Introduction

The significance of financial deepening or development as many economists call it to long run economic growth and development cannot be overemphasized. This owes to the fact that the growth of money in an economy contributes largely to the increase in the volume of economic activities which leads to the growth of national output as it makes some key macroeconomic variables like unemployment, Gross Domestic Product, Savings and investment to mention a few amongst others to improve in condition which tends to augment the level of economic growth and development. It is far and widerecognized that financial deepening is a multidimensional notion and forms potentially imperative machinery for long run economic growth. It plays deep-seated roles in the development and growth of the economy. The effectiveness and efficiency in performing these roles, particularly the intermediation between the surplus and deficit sectors of the economy, hinge to a large extent on the level of development of the financial system. Also, the success of the financial system all over the globe in providing its developmental roles has been predicated on the initiation of financial sector reforms such as the introduction of market-based procedures for monetary control, the promotion of competition in the financial sector, and

the relaxation of restrictions on capital flows (Emeka&Aham, 2013). The aim of initiating these reforms is to create a more efficient and stable system, which will facilitate optimum performance in the economy. This means providing a foundation for implementing effective stabilization policies and successfully mobilizing capital and putting it to effective use, which leads to achieving higher rates of economic growth (Johnston& Sundararajan, 1999).

Given the financial crisis experienced since 1986, many emerging economies, including Nigeria, embraced financial sector reforms (Iganiga, 2010). However, the Nigeria's financial system is not effectively providing its development roles as such and is currently not in a position to fulfill its potential as a propeller of economic growth and development. The formal financial system is relatively shallow and a relatively low level of credit to the private sector (Iganiga, 2010). A parallel World Bank review of financing for Rural Micro and Small-Scale Enterprises has also revealed that the absence of efficiently operating rural financial markets in Nigeria has become a serious constraint on sustainable rural development. In sum, both the formal and informal financial sectors in Nigeria are not currently in a position to effectively support a strong expansion of the real sector and maximize their contribution to economic growth and development. Also, in spite of the reforms, Nigeria's major productive sectors have considerably shrunk in size since the 1980s. Poverty is deep, severe and pervasive, with about 70% of the population living below poverty line. Poverty is also becoming entrenched in Nigeria—with the threat that the children of the poor are also likely to end up poor. Income distribution is so skewed that the country is one of the most unequal societies in the world, with 50% of the population having only 8% of the national income (Emeka & Aham, 2013).

Economic theories show that, financial deepening indicators which include the ratio money supply to GDP, ratio of credit to private sectors to GDP as well as stock Market capitalization among others have the potentials of causing economic growth in an economy with the assumption that when the ratio of money supply to GDP, ratio of credit to private sectors and stock market capitalization rises, it goes a long way in boosting economic activities through increased investment and consumption spending in the economy thereby lifting up the level of output aggregately. This is where the need for financial deepening to enhance growth arises (Ohwofasa&Aiyedogbon, 2013).

Taking cognizance of the vital role played by financial deepening in an economy, many researchers have over the years devoted to conducting researches on the relationship between financial development and economic growth around the world as well as Nigeria, considering that it is a country whose financial industry has witnessed many reforms in a relatively short time. For instance, Emeka and Aham (2013) studied the relationship between financial deepening and economic growth in Nigeria between 1980 to 2009 and found a positive relationship between the two variables in question, Olofin and Afangideh (2009) in their study financial structure and economic growth in Nigeria, using three stage least square estimation technique on a data spanning 1970 to 2005, discovered that a developed financial system alleviates growth financing constraints by increasing bank credit and investment activities with resultant rise in output. However, Nzotta and Okereke (2009), in their study using two stage least squares analytical framework for a period spanning 1986 to 2007 observed that financial deepening did not support economic growth in Nigeria. However, none of the previous researchers was able to conduct a study on the causal and long run relationship between financial deepening and economic growth covering the period spanning 1981 to 2014 in Nigeria which is

the thrust of this paper. Hence, the big question that this paper seeks to answer is what is the type of causal and long run equilibrium relationship that is there in existence between financial deepening and economic growth in Nigeria between 1981 and 2014? Hence, the main objective of this paper is to investigate the causal and long run relationship between financial deepening and economic growth in Nigeria for the period 1981 to 2014.

Literature Review

Concept of Financial Deepening

Financial deepening is a term used often by economic development experts. It refers to the increased provision of financial services with a wider choice of services geared to all levels of society. It also refers to the macro effects of financial deepening on the larger economy which can play an important role in reducing risk and vulnerability for disadvantaged groups, and increasing the ability of individuals and households to access basic services like health and education, thus having a more direct impact on [poverty reduction](#) (Nzotta and Okereke, 2009).

Financial deepening implies the ability of financial institutions to effectively mobilize savings for investment purposes. The growth of domestic savings provides the real structure for the creation of diversified financial claims. It also presupposes active operations of financial institutions in the financial markets, which in turn entail the supply of quality (financial) instruments and financial services (Nzotta and Okereke, 2009).

The earliest establishment of the link between finance and growth in literature could be traced to the work of Schumpeter (1911) in which he contends that entrepreneurs require credit in order to finance the adoption of new production techniques with banks as key agents to facilitate financial intermediating activities. In this way, it is expected that a well functioning banking system will provide intermediation services to productive entrepreneurial activities which will spur technological, innovative, and productive activities that increase real sector growth. Gurley and Shaw (1955), Goldsmith (1969) and Hicks (1969) have also argued along this line, positing that development of a financial system is crucial in stimulating economic growth and under-developed financial systems retard economic growth hence policies aimed at expanding the financial system should be formulated in order to foster growth (Onwumere, Imo, Frank & Oge, 2012)

Determinants of Financial Deepening

Popiel (1990) conducted one of the most elaborate studies on financial deepening. According to him, financial markets are deep from a qualitative standpoint when:

- i. They offer savers and investors a broad range of financial instruments which differ in terms of liquidity, yields, maturities and degree of risk including debt instruments, equity instruments and in between quasi-equity instruments.
- ii. They encompass a diversity of sub-markets, trading in different financial instruments.
- iii. Mature, domestic financial markets are integrated into the international financial markets.
- iv. They are linked together through financial instruments.
- v. Finally, the markets are linked together through various financial institutions which function as market makers and financial intermediaries.

The conclusions of Popeil (1990) agrees with the views of Shaw(1973) who contends that financial deepening is an outcome of the adoption of appropriate real finance policy and the broadening of the markets. The attempt to affect this in Nigeria resulted in the deregulation of the financial system in 1986 and the various reforms in the financial system since then. Financial deepening implies the ability of financial institutions to effectively mobilize savings for investment purposes. The growth of domestic savings provides the real structure for the creation of diversified financial claims. It also presupposes active operations of financial institutions in the financial markets, which in turn entail the supply of quality (financial) instruments and financial services (Ndekwa, 1998). The views above conform to the conclusions of a study by Nnanna and Doga (1999) that financial deepening represents a system free from financial repression. Their findings in this study is that policies of financial repression aimed at encouraging domestic investments through suppressing interest rates produced negative results. Here, negative real interest rates did not encourage greater investments but rather encouraged the banks to be more risk averse and more hesitant to lend. On the other hand, when interest rates are more market oriented and less negative in real terms, bank lending increases and same to domestic investments and national savings.

Financial deepening generally entails an increased ratio of money supply to Gross Domestic product Popiel (1990), Nnanna and Dogo (1999) and Nzotta (2004).Financial deepening is thus measured by relating monetary and financial aggregates such as M1, M2 and M3 to the Gross Domestic Product (GDP).

Supply - Leading Hypothesis

The supply-leading hypothesis suggests that financial deepening spurs growth. The existence and development of the financial markets brings about a higher level of saving and investment and enhance the efficiency of capital accumulation. This hypothesis contends that well-functioning financial institutions can promote overall economic efficiency, create and expand liquidity, mobilize savings, enhance capital accumulation, transfer resources from traditional (non-growth) sectors to the more modern growth inducing sectors, and also promote a competent entrepreneur response in these modern sectors of the economy. The recent work of Dernirguc-Kunt and Levine (2008) in a theoretical review of the various analytical methods used in finance literature, as cited in Ohwofasaand Aiyedogbon (2013), found strong evidence that financial development is important for growth. To them, it is crucial to motivate policymakers to prioritize financial sector policies and devote attention to policy determinants of financial development as a mechanism for promoting growth (Ohwofasa & Aiyedogbon, 2013).

Demand - Following Hypothesis

The demand-following view of the development of the financial markets is merely a lagged response to economic growth (growth generates demand for financial products). This implies that any early efforts to develop financial markets might lead to a waste of resources which could be allocated to more useful purposes in the early stages of growth. As the economy advances, this triggers an increased demand for more financial services and thus leads to greater financial development (Ohwofasa & Aiyedogbon, 2013).

Concept of Economic Growth

The concept of economic growth has been defined differently by different economic scholars and theorists across the globe based on their perception of the concept. Ahuja (2008) defined economic growth as the annual increase in real per capita income of a country over a long period. Thus, Arthur Lewis said that “economic growth means the growth of output per head of population” since the main aim of economic growth is to raise the standard of living of the people. Another point which is very important to note about the definition of economic growth is that the increase in national income or more correctly the increase in per capita income or output, must be a ‘sustained’ increase if it is to be called economic growth (Ahuja, 2008).

Determinants of Economic growth

The process of economic growth is a highly complex phenomenon and is influenced by numerous and varied factors such as economic, political, social and cultural factors. It is believed by some economist that capital is the only requirement for growth and therefore the greatest emphasis be laid on capital formation to bring about economic development. Nevertheless, Ahuja (2008) identified the following factors amongst others:

Supply of Natural Resources: the quantity and quality of natural resources play a significant role in economic development of a country. The quality of natural resources in a country puts a limit on the level of output of goods which can be attained (Ahuja, 2008).

Capital formation: labor is combined with capital to produce goods and services. Workers need machines, tools and factories to work. In fact, the use of capital makes workers more productive (Ahuja, 2008).

Foreign Capital: Foreign Aid and Foreign Investment

As domestic savings are not sufficient to make possible the necessary or desired accumulation of capital goods, borrowing from abroad may play an important role. Professor A.J. Brown as cited in Ahuja (2008) rightly says that, “Development demands that people somewhere should refrain from spending part of their income, thus allowing part of the world’s productive resources to be used for accumulation of capital goods.

Technological Progress: another important factor in economic growth is progress in technology, use of advanced techniques in production progress in technology brings about a significant increase in per capita output (Ahuja, 2008).

Empirical Literature

Vipin, Pokhriyal and Arvind (2015) investigated the causal impact of financial deepening on economic growth in case of India from 1991 to 2013 using annual time series data. For analyzing the long term equilibrium relationship between the desired variables, they have employed Autoregressive Distributed Lag (ARDL) Bound testing approach and the Granger Error Correction Model (ECM) technique as tools for data analysis. The findings suggest that there exist an equilibrium relationship in long run between financial deepening and economic development. Results suggested that financial deepening causes economic growth in the long run and also in the short run. However, beautiful is their findings but it cannot be applied or generalized for the Nigerian economy being different country on a different continent.

Onwumere, Imo, Frank and Oge, (2012) investigated the impact of financial deepening on economic growth in Nigeria from 1992 to 2008 using annual time series data sourced from CBN Statistical Bulletin. Variables such as broad money velocity, money stock diversification, economic volatility, market capitalization and market liquidity as proxies for financial deepening and gross domestic product growth rate foreconomic growth. Ordinary Least Squares Multiple liner regression technique was used as tool for data analysis. They found that broad money velocity and market liquidity promote economic growth in Nigeriawhile money stock diversification, economic volatility and market capitalization did not within the period studied (1992-2008). However, their study only covered but a limited period and does not tell us what happened between financial sector development and economic growth between 2009 and 2014 and also did not conduct staionarity test on their data which is very necessary.

Emeka and Aham (2013) investigatedfinancial sector development-economic growth nexus in Nigeria. the study employed the co-integration/Error Correction Mechanism (ECM) with annual dataset covering the period, 1980-2009. Five variables, namely; ratios of broad money stock to GDP, private sector credit to GDP, market capitalization-GDP, banks deposit liability to GDP and Prime interest rate were used to proxy financial sector development while real gross domestic product proxy growth. The empirical results show that there is a positive effect of financial sector development on economic growth in Nigeria. However, their study does not tell us what happened between economic growth and financial sector development in from 2010 to 2014 and does not tell us if there is any causal linkage between financial deepening and economic growth in Nigeria. It is not up-to-date.

Samuel and Emeka (2009) examined financial deepening and economic development in Nigeria between 1986 and 2007 using annual time series data sourced from CBN Statistical Bulletin 2008. The central focus of their study was to find out if a high level of financial deepening is a necessary condition for accelerating growth in an economy. The two stages least squares technique and trend analysis were used as tools for data analysis and the result revealed that, financial deepening index is low in Nigeria over the years. Nevertheless, their finding does not tell us the line of causation between economic growth and financial deepening as well as the relationship between financial deepening and economic growth between 2008 and 2014. It is not up-to-date. Chang, Jia and Wang (2010) examined bank fund reallocation and regional economic growth based on 1991–2005 provincial-level data of four state-owned commercial banks of China. They found no correlation at the regional level between fund reallocation and bank loans on the one hand and economic growth on the other. However, they did not use Nigerian economy bas a case study as such; their findings cannot be applied to Nigerian economy.

Garba (2014) examines the relationship between Financial Sector Development and Economic Growth in Nigeria. Time series data from 1990-2009 were fitted into the regression equation using various econometric techniques such as Augmented Dickey Fuller (ADF) test, Johansen Multivariate Co-integration Test, Ordinary Least Square Regression and Vector Error Correction Model (VEC). The result shows that development in financial sector variables viz: banking sector credits, total market capitalization and foreign direct investment positively affect economic growth variables – Real Gross Domestic Product. However, they only succeededin telling us the impact and type of linear relationship that exists between financial sector development and economic growth in Nigeria but not the causal linkage between financial sector development and economic growth. In addition, their result does not give explanation to the

relationship between financial sector development and economic growth from 2010 to 2014 as they case may which renders it not up-to-date.

Frances, Chukwuedo, Oburota andChukwunonso (2016) examined the relationship between financial deepening and investment in Nigeria. Secondary data spanning from 1970 to 2013 was used for the empirical analysis. It adopted the Gregor-Hansen Endogenous structural break methodology and the supply-leading hypothesis in building the model. The study also employed the Unit Root Test, Co Integration Test and Granger Causality Test. It discovered a unidirectional causality, running from financial deepening to investment. It also found that the financial deepening has a statistically significant impact on domestic investment. However, the study did not focus on economic growth but domestic investment as the dependent variable investment and still did not capture the year 2014 in its time scope.

Gap in the Literature

The major gap observed in the literature is in terms of the time frame or time scope of the study, so far, none of the researchers reviewed in this work to the complete knowledge of the researcher was able to give an up-to-date information on the impact of financial deepening on economic growth in Nigeria and the causal link between financial deepening and economic growth in Nigeria between the period spanning 1981 to 2014 as would be considered in this research work.

Theoretical Framework

This paper makes use of the endogenous growth theory as it stresses the significance of capital for growth. The fundamental theories of growth are quite explicit on the roles of capital, labour, and technological progress. However, the endogenous growth models were more explicit on the relationship between finance and growth. Carlin and Soskice (2006) as cited in Ohwofasa and Aiyedogbon (2013) gave a brief explanation of these models as follows:

$$X = \gamma * \delta * q \dots \dots \dots (1)$$

Where technological progress (X) is defined as a function of research and development (q), while the two parameters define the probability that each unit spent on R&D yields a successful innovation (γ) and the extent to which each innovation raises the productivity parameter (δ), respectively. The economic determinants of the R&D are assumed to be taken as exogenous by the entrepreneur. Thus, these may include; the discounted value of expected returns, the real interest rate, capital per efficiency unit, and institution features of the economy.

$$q = q \{ \gamma, \delta, r, comp, ppr, \epsilon \} \dots \dots \dots (2)$$

From the equation above; the R&D intensity (q) is assumed to be positively related to the discounted value of expected return as measured by γ and δ , negatively related to real interest rate (r), and positively related to capital per efficiency unit (k), while product market competition (comp.) and property right (ppr) are examples of institutional features within the economy. ϵ depicts all other institutional features of the economy not cited in the equation. From equation 1 and 2, the “endogenous relationship” can be derived as:

$$X = x \{ k \} \dots \dots \dots (3)$$

This states that since the rate of technology (x) depends on q , which in turn, depends on k , x is a function of k , the capital efficiency per unit. A positive relationship also exists between the two variables. Thus, an increase in the saving rate in the economy will increase the capital efficiency per unit, which in turn stimulates more R&D activities via innovation. This will bring about growth in the economy. Thus, in a steady state, x is similar to economic growth.

Methodology

Sources and Type of Data

This research work made use annual time series data sourced from CBN statistical Bulletin 2015 with respect to economic growth proxied by real GDP, ratio of broad money supply to GDP at current price as a proxy for financial deepening and the ratio of private sector credit of the economy to Gross Domestic Product at current prices.

Model specification

This paper adopted the Pair wise Granger causality model and it is stated below;

$$GDP_t = \sum r_1 RMGDP_{t-1} + \sum q_1 RCGDP_{t-1} + \sum s_1 GDP_{t-1} + \sum v_1 SMC_{t-1} + \mu_{1t} \dots \dots \dots (1a)$$

$$RMGDP_t = \sum w_1 RMGDP_{t-1} + \sum g_1 RCGDP_{t-1} + \sum z_1 GDP_{t-1} + \sum v_2 SMC_{t-1} + \mu_{2t} \dots \dots \dots (1b)$$

$$RCGDP_t = \sum k_1 RMGDP_{t-1} + \sum l_1 RCGDP_{t-1} + \sum y_1 GDP_{t-1} + \sum v_3 SMC_{t-1} + \mu_{3t} \dots \dots \dots (1c)$$

$$SMC_t = \sum k_2 RMGDP_{t-1} + \sum l_2 RCGDP_{t-1} + \sum y_2 GDP_{t-1} + \sum v_4 SMC_{t-1} + \mu_{4t} \dots \dots \dots (1d)$$

Where; GDP = real Gross Domestic Product (a proxy for economic growth)

RMGDP = ratio of Broad money supply to GDP at current price (a proxy for financial deepening)

RCGDP = ratio of private sector credit to GDP at current price (additional proxy for financial deepening)

SMC = stock market capitalization (a proxy for financial deepening)

GDP_t = current value of real Gross Domestic Product (a proxy for economic growth)

$RMGDP_t$ = current value of the ratio of Broad money supply to GDP at current price

$RCGDP_t$ = current value of the ratio of private sector credit to GDP at current price

SMC_t = current value of stock market capitalization

GDP_{t-1} = lag value of real Gross Domestic Product (a proxy for economic growth)

$RMGDP_{t-1}$ = lag value of the ratio of Broad money supply to GDP at current price

$RCGDP_{t-1}$ = lag value of the ratio of private sector credit to GDP at current price

SMC_{t-1} = lag value of current value of stock market capitalization

v_1, v_2, v_3 and v_4 = coefficients of SMC

r_1, w_1, k_1 and k_2 = coefficients of RMGDP

q_1, g_1, l_1 and l_2 = coefficients of RCGDP

s_1, z_1, y_1 and y_2 = coefficients of GDP

μ_{1t} and μ_{2t} and μ_{3t} = the disturbance terms

Variables and Measurements

Real Gross Domestic Product is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

Ratio of Money Supply to GDP is the sum of currency outside banks; demand deposits other than those of the central government; divided by the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

Ratio of Credit to private Sector to GDP is the financial resources provided to the private sector by financial corporations that establish a claim for repayment divided by the gross domestic product at current price.

Stock Market Capitalization is the market value of a company's outstanding shares. This figure is found by taking the stock price and multiplying it by the total number of shares outstanding.

Estimation Technique

This research made use of Granger causality technique, Johansen co-integration technique and Vector Error Correction Mechanism Technique as tools for data analysis to determine the causal linkages, long run relationship as well as long equilibrium relationship among economic growth proxied by real GDP, ratio of broad money supply to GDP at current price as a proxy for financial deepening, the ratio of private sector credit of the economy to Gross Domestic Product at current prices and stock market capitalization.

Results and Discussion

Granger Causality Analysis

This test was conducted to check the causal linkage between economic growth proxied by real GDP, ratio of private credit to GDP, Ratio of money supply to GDP used as a Proxy for financial deepening, and stock market capitalization. The result can be observed in table 4.1.

Table 4.1: Pair Wise Granger Causality Result

Pair wise Granger Causality Tests

Date: 10/17/16 Time: 05:59

Sample: 1981 2014

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
RCGDP does not Granger Cause GDP	32	33.3260	5.E-08
GDP does not Granger Cause RCGDP		9.52457	0.0007
RMGDP does not Granger Cause GDP	32	15.1713	4.E-05
GDP does not Granger Cause RMGDP		4.16861	0.0264
SMC does not Granger Cause GDP	32	2.28245	0.1214
GDP does not Granger Cause SMC		4.95645	0.0147
RMGDP does not Granger Cause RCGDP	32	0.74694	0.4834
RCGDP does not Granger Cause RMGDP		0.75352	0.4804

SMC does not Granger Cause RCGDP	32	7.65736	0.0023
RCGDP does not Granger Cause SMC		0.37589	0.6902
SMC does not Granger Cause RMGDP	32	3.65132	0.0395
RMGDP does not Granger Cause SMC		0.17442	0.8409

Source: Authors' Computation using E-view 8.0. 2016.

From table 4.1, it can be observed that, the pair wise Granger causality result revealed that there is a bidirectional causality running from ratio of credit to private sector to GDP to economic growth proxied by real GDP and from economic growth proxied by real GDP to ratio of credit to private sector at 5% level of significance. There seemed to also be a bidirectional causality running from ratio of money supply to GDP which is a proxy for financial deepening to economic growth proxied by real GDP and from economic growth proxied by real GDP to the ratio of money supply to GDP proxy for financial deepening at 5% level of significance. There is unidirectional causality running from economic growth proxied by real GDP to capital market capitalization at 5% level of significance but not the other way round. There seemed to be no causality between ratio of money supply to GDP which is a proxy for financial deepening and ratio of credit to private sector to GDP at 5% and even at 10% level of significance. However, there is a unidirectional causality running from stock market capitalization to the ratio of credit to private sector to GDP at 5% level of significance. Finally, there seemed to be a unidirectional causality running from stock market capitalization to the ratio of money supply to GDP which is a proxy for financial deepening at 5% level of significance.

Co-integration Analysis

This test was carried out to check if there long run relationships among economic growth proxied by real GDP, ratio of credit to the private sector to GDP, Ratio of money supply to GDP and stock market capitalization using Johansen Co-integration test. The result is summarized in table 4.1:

Table 4.1: Johansson Co-Integration Test Result

Date: 10/17/16 Time: 06:26
Sample (adjusted): 1983 2014
Included observations: 32 after adjustments
Trend assumption: Quadratic deterministic trend
Series: GDP RCGDP RMGDP SMC
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 *	0.916347	113.7877	55.24578	0.0000
At most 1	0.530597	34.39335	35.01090	0.0582
At most 2	0.269726	10.19194	18.39771	0.4622
At most 3	0.004154	0.133192	3.841466	0.7151

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.916347	79.39437	30.81507	0.0000
At most 1	0.530597	24.20141	24.25202	0.0508
At most 2	0.269726	10.05875	17.14769	0.3918
At most 3	0.004154	0.133192	3.841466	0.7151

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: authors' computation using E-View 8.0, 2016.

From table 4.1, the Johansson co-integration test result reveals that there is long run relationship among economic growth proxied by real GDP, ratio of credit to the private sector to GDP, Ratio of money supply to GDP and stock market capitalization because both the trace test and the maximum eigenvalue revealed the presence one co-integrating vector.

Vector Error Correction Mechanism Analysis

This test was carried out to determine the long run equilibrium relationships among economic growth proxied by real GDP, ratio of credit to the private sector to GDP, Ratio of money supply to GDP and stock market capitalization.

Table 4.3: Vector Error Correction Mechanism Test Result

Vector Error Correction Estimates				
Date: 10/17/16 Time: 05:27				
Sample (adjusted): 1984 2014				
Included observations: 31 after adjustments				
Standard errors in () & t-statistics in []				
Error Correction:	D(GDP)	D(RCGDP)	D(RMGDP)	D(SMC)
CointEq1	-0.224842	-0.000100	3.59E-05	-0.002402

	(0.05076)	(7.5E-05)	(8.8E-05)	(0.07081)
	[-4.42917]	[-1.33322]	[0.40842]	[-0.03393]
R-squared	0.958170	0.857491	0.775417	0.398196
Adj. R-squared	0.940242	0.796415	0.679167	0.140280

Sources: Authors' computation using E-view 8.0, 2016.

The vector error correction result revealed that, economic growth proxied by real GDP is properly signed and is also statistically significant at 5% level of significance. This shows the convergence of economic growth towards long run equilibrium path at a speed below average (i.e. 22.48%). The result also indicated that about 22.5% short run disequilibria in the past period is being corrected for in the current period meaning that in the next period, there is a sign of convergence toward steady growth or long run equilibrium path. The result also revealed that the ratio of private sector credit to GDP is properly signed though it is statistically not significant at 5% level of significance. Ratio of money supply (M2) to GDP was not properly signed and is statistically insignificant which shows its divergence from steady growth path. Ultimately, the result further revealed that stock market capitalization is properly signed but is statistically insignificant. It shows convergence to long run equilibrium path but it is not a significant factor that can bring the economy into equilibrium position.

Conclusion

This research work investigated the nexus between financial deepening and economic growth in Nigeria for period spanning 1981 to 2014 using annual time series data sourced from Central Bank statistical Bulletin 2015. The main objective of the study was to determine the causal linkage between financial deepening and economic growth. Granger causality test, co-integration test as well as Vector Error Correction Mechanism (VECM) test were used as tools for data analysis. The pair-wise Granger causality test result revealed that there is a bidirectional causality running from financial deepening proxied by ratio of money supply to GDP and ratio of private credit to GDP to economic growth proxied by real GDP and from economic growth proxied by real GDP to financial deepening proxied by ratio of money supply to GDP and ratio of credit to private sectors to GDP. The co-integration test result revealed that there is long run equilibrium relationship among financial deepening proxied by ratio of money supply to GDP, ratio of private sector credit to GDP, stock market capitalization and economic growth proxied by real GDP.

Policy Recommendations

Based on findings arrived at, the study recommends the following;

- i. It is recommended that, all the necessary policies that would guarantee increase in the level or rate of Money supply to GDP in Nigeria such as diversification of sub-markets, trading in different financial instruments, offering savers and investors a wide range of financial instruments which differ in terms of liquidity and yields among others should be

observed considerably so as to witness unprecedented increase in the level of economic growth in Nigeria.

- ii. Since economic growth seems to cause augmentation in the level of stock market capitalization, policies that can improve economic growth level such as provision of basic infrastructures, stable or adequate power supply, creation of employment opportunities for the citizens to mention a few should be formulated and properly implemented by the government and stakeholders concerned.
- iii. Credits that are directed to the private sector of the economy should be ensured that it is used for what it is meant for and not to be mismanaged and siphoned.

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