

# Financial Sector Development and Economic Growth in Nigeria: An Empirical Investigation

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**Abstract** The study 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. This result is consistent with a number of earlier studies reviewed in the literature that found financial sector variables to positively affect real gross domestic product.

**Keywords** Banking Credits, Market Capitalization, Foreign Direct Investment, Gross Domestic Product (GDP)

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## 1. Introduction

The link between financial sector and economic growth has been debated in financial and economic literatures. Many researchers are of the view that there still exists great dichotomy regarding the role of financial intermediaries in facilitating sustainable economic growth in the long term. Earlier studies by Schumpeter (1911), Gurley and Shaw (1955), attest to this claim. Later studies like Levine and Zervos (1996) argue that financial systems do not promote economic growth rather respond to real sector development in an economy.

According to the new growth theorists, a well-developed financial sector facilitates high and sustainable economic growth (Hicks, 1969). The Nigerian financial system comprises the money market, the capital market, and the institutions and channels that facilitate the smooth intermediation of financial transactions in the economy. The financial services sector is made up of the banking system, other financial institutions, and the securities, insurance and pension sub-sectors (CBN 2009). These institutions trade in financial instruments such as domestic currency, foreign currency, stocks, bonds and derivatives. The role of the financial sector in any economy is that of intermediation by mobilizing savings from the areas of surpluses to those of deficits. This means no profitable investment would be frustrated on account of lack of finance.

With the global financial crisis, most countries appear to

have recognized the role of financial sector development in sustaining economic growth. Most affected economies had a fall in stocks and commodities prices with consequent decline in the total market capitalization. For example, according to CBN (2008), the Nigerian capital market index which grew from a value of 12,137 in 2002 to 57,990 in 2007 fell to 20,827 in 2009, while total Market capitalization of N13.29 trillion in 2007 fell to N7.03 trillion in 2009.

The global financial crisis which translated into economic meltdown of most nations led to several bail out of the financial sector (with public funds) by the governments of the affected countries with believe that once the financial sector is revived it will translate into reviving the economy and stimulate growth. This scenario however, will only be possible if there is positive relationship between the financial sector and the economic growth with causality running from the financial sector to economic growth. This provoked the need to investigate the relationship between the financial development and economic growth as public funds should not be used in bailing out the financial sector where such relationship does not exist or where the causal relationship runs from economic growth to financial development.

Within the study period (1990-2009), Nigeria has witnessed development in its financial sector affecting the key sub sectors especially the ones chosen for this study. The effect of the development however, will not be appreciated without relating it with economic growth.

There have been several studies on the financial sector development and economic growth. However, most of them consider one component of the financial sector in relation to economic growth. Many studies have been conducted on Capital market and economic growth, banking credit and economic growth and like wise foreign direct investment and

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economic growth. The use of one component of the financial sector like banking credit or capital market as a representative of the entire financial sector is inadequate and in appropriate, because the essence of the financial sector which is that of intermediation cannot be solely performed effectively by only one subsector of the financial system like banking or capital market neither can it be handled by foreign direct investment alone. An effective financial intermediation will require the collective contribution of the various subsectors of the financial system (like banks, capital market, etc) simultaneously.

Therefore, to summarize, the gaps that prompted this study are, first, the fact that most studies conducted previously in Nigeria on the financial sector and economic growth used only one component of the financial sector such as Capital market, FDI or Banking credits. Taking one component of the financial sector to represent the whole financial sector will not be an adequate sample of the entire financial sector. This is because for an effective intermediation function which is the key purpose of any financial sector to take place for both short and long term tenors, the collaboration of at least these three components selected for this study will be more appropriate. To fill the gap therefore, this study considered three components of the financial sector comprising banking credits, capital market and foreign direct investment to the financial sector together in relation to economic growth. Secondly, this research employed a combination of two models of data analysis as against the use of only one in previous studies. For example Osinubi (2002) employed ordinary least squares regression (OLS) in his studies of capital market and economic growth in Nigeria. Folorunso (2009) used Spearman's rho in his studies of relationship between FDI and economic growth in Nigeria. This study however, used a combination of Vector Error Correction model and OLS. Thirdly, while other studies attempted to find the relationship between a component of the financial sector such as capital market and economic growth, this study went further to uncover the direction of causality in addition to the relationship. Assuming that a relationship exists between capital market, banking credit, FDI and economic growth, what is the direction of the relationship? Is it capital market that is causing economic growth or vice versa? Accordingly, is it inflow of FDI that is causing economic growth or economic growth causing inflow of FDI? Fourthly, there are divergent views as to the nature of the relationship between each of the component of the financial sector chosen for this study and the economic growth. While some studies found a positive relationship some discovered a negative relationship and others did not find any relationship between the financial sector and the economic growth.

The objectives of the study therefore are:

1. To examine the relationship between financial sector development and economic growth in Nigeria.
2. To determine the causal relationship between total Market capitalization, Banking sector credits, Foreign

Direct Investment inflow to financial sector, and Real Gross Domestic Product in Nigeria.

The following hypotheses are formulated in line with the research objectives.

### Hypothesis 1

- H<sub>01</sub> There is no significant relationship between financial sector development and economic growth in Nigeria.  
 H<sub>A1</sub> There is significant relationship between financial sector development and economic growth in Nigeria.

### Hypothesis 2

- H<sub>02.1</sub> There is no causal relationship between total Market capitalization and Real Gross Domestic Product in Nigeria.  
 H<sub>A2.1</sub> There is causal relationship between total Market capitalization and Real Gross Domestic Product in Nigeria.  
 H<sub>02.2</sub> There is no causal relationship between Banking sector credits and Real Gross Domestic Product in Nigeria.  
 H<sub>A2.2</sub> There is causal relationship between Banking sector credits and Real Gross Domestic Product in Nigeria  
 H<sub>02.3</sub> There is no causal relationship between Foreign Direct Investment to financial sector and Real Gross Domestic Product in Nigeria.  
 H<sub>A2.3</sub> There is causal relationship between Foreign Direct Investment to financial sector and Real Gross Domestic Product in Nigeria

The remainder of this paper is structured as follows: the second part covers review of some related literature and theoretical framework while the methodology is provided in the third section. The empirical results and discussion is provided in section four. Finally, conclusion and recommendations are provided in section five.

## 2. Literature Review and Theoretical Framework

Financial system serves as the medium of the savings-investment process. One fundamental question is: will the development of financial system exert a positive effect on economic growth? A vast empirical literature on the issue exists with varying and often contradicting views. However, the review will begin with theoretical framework followed by empirical studies.

### 2.1. Theoretical Framework

Most literature focus on two main diverging theoretical paradigm namely the "supply leading hypothesis" and "demand following hypothesis" in line with Patrick (1966) which postulated a feed back relationship between economic growth and financial development. While, the 'supply-leading' hypothesis posits a unidirectional causation that runs from financial deepening to economic growth implying that new functional financial markets and

institutions will increase the supply of financial services. This will definitely lead to high but sustainable real economic growth. This hypothesis performs two roles namely to transfer resources from low growth sectors to high growth sectors and to promote entrepreneurial response in the later sector.

Earlier scholars such as Schumpeter (1912), Goldsmith (1969), Shaw (1973) and McKinnon (1973), emphasized the importance of the financial system in economic growth. Hicks (1969) argued that the industrialization process in England was promoted by the development of the financial sector which increased the access of the government and people to funds that were used to finance capital projects which led to the development of the economy. This view was supported by King and Levine (1993), that financial development fosters economic growth. Moreover, Bensivenga (1995) concluded that well developed financial market induces long run economic growth. Other studies that supports the supply leading hypothesis include (Calderon and Liu, 2002); Neusser and Kugler (1998) and Levine, Beck and Loayza (2000).

The ‘demand-following’ hypothesis posits a unidirectional causation from economic growth to financial development. This implies financial system passive response to economic growth meaning that the increasing demand for financial services might lead to the aggressive expansion of the financial system as the real sector of the economy grows.

Previous studies that support this hypothesis include Gurley and Shaw (1955, 1967), Goldsmith (1969) and Jung (1986). Others are Guryay, Safakli and Tuze (2007) who empirically examined the relationship between financial development and economic growth. The study employed Ordinary Least Squares technique to show that there is significant positive effect of financial development on economic growth for Northern Cyprus. They posit that causality runs from growth to financial development without a feed back.

In addition, Patrick (1966) suggested a third hypothesis known as the “stage of development hypothesis” which posits that the supply-leading financial development can induce real investment in the early stages of economic development.

## 2.2. Empirical Literature

Unalmis (2002) investigated the direction of causality between financial development and economic growth in Turkey using Granger non-causality in the context of VEC model. Annual data from 1970 to 2001 were used. The study found that except for one of the proxies used causality runs from financial development to economic growth in the short-run, thus supporting the supply-leading hypothesis.

Odiambho (2004) investigated the role of financial development on economic growth in South Africa. The study used three proxies of financial development namely the ratio of M2 to GDP, the ratio of currency to narrow money and the ratio of bank claims on the private sector to GDP against economic growth proxied by real GDP per capita. He

employed the Johansen-Juselius cointegration approach and vector error correction model to empirically reveal overwhelming demand-following response between financial development and economic growth. The study totally rejects the supply leading hypothesis.

Waqabaca (2004) examined the causal relationship between financial development and growth in Fiji using low frequency data from 1970 to 2000. The study employed unit root test and cointegration technique within a bivariate VAR framework. Empirical results suggested a positive relationship between financial development and economic growth for Fiji with causality running from economic growth to financial development. He posits that this outcome is common with countries that have less sophisticated financial systems. The findings supports demand-following hypothesis.

Ndebbio (2004) investigated financial deepening, economic growth and development for Subsaharan African countries. The study used two financial deepening variables namely the degree of financial intermediation measured by M2 as ratio to GDP, and the growth rate of per capita real money balances. The study found that a developed financial sector spurs overall high but sustainable growth of an economy. Found that in the long run, there exists bidirectional causality between financial deepening and economic growth.

Using four countries, Caporale (2005) examined the hypothesis of endogenous growth models that financial development caused higher growth through its influence on the level of investment and its productivity. The study revealed that indeed, investment productivity was the channel through which stock market development enhanced the growth rate in the long run.

Wadud (2005) examined the long-run causal relationship between financial development and economic growth for 3 South Asian countries namely India, Pakistan and Bangladesh. He disaggregated financial system into “bank-based” and “capital market based” categories. The study employed a cointegrated vector autoregressive model to assess the long-run relationship between financial development and economic growth. The empirical findings suggested that the results of error correction model indicate causality between financial development and economic growth but running from financial development to economic growth lending its support to the supply-leading hypothesis.

Mohammed and Sidiropoulos (2006) investigated the effect of financial development on economic performance in Sudan from 1970 to 2004. The study estimated the short-run and long-run relationship between financial development and economic growth using the autoregressive distributed lag (ARDL) model to co-integration analysis by Pesaran and Shin (1999). Their empirical results indicated a weak relationship between financial development and economic growth in Sudan due to the inefficient allocation of resources by banks, the absence of an appropriate investment climate required to foster significant private investment in order to promote growth in the long run, and the poor quality of bank

credit allocation.

Amaral and Quintin (2007) asserted that financial market development raises output by increasing the capital used in production and by ensuring that capital is put into best uses. Agarwal (2001) argues that financial sector development facilitates capital market development, and in turn raises real growth of the economy. Thornton (1995), Rousseau and Sylla (2001), and Calderon and Liu (2002) support the claim that financial system development promotes economic growth, thus supporting the supply-leading hypothesis.

Hakeem (2009) employed a panel data framework, using fixed effect, random effects and maximum likelihood estimation techniques in his study of financial development and economic growth. The financial development indicators used include liquid liabilities, broad money, private credit and domestic credit, each taken as a ratio of the GDP. Financial development was found to have no strong impact on growth which, he attributed to the long period of financial repression in the region.

Chang, Jia and Wang (2010) examine 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.

Mixed results was found by Esso (2010) in a study that re-examine the co-integrating and causal relationship between financial development (ratio of private credit to GDP) and economic growth in the Economic Community of West African States (ECOWAS) over the period 1960–2005. The results Show that there is a long-run relationship between financial development and economic growth but with different direction of causality. In Ghana and Mali financial development leads economic growth while growth causes finance in Burkina Faso, Cote d'Ivoire and Sierra Leone, and bidirectional causality is found in Cape Verde and Liberia. The policy implication is that Cape Verde, Ghana and Mali should give policy priority to financial reform while Burkina Faso, Cote d'Ivoire and Sierra Leone should promote economic growth. This negates the view that stage of development determine the causal relationship between financial development as these countries are about at the same stage of development, yet they show inconsistent causality, the fact that the study used a single measure of financial development (ratio of private credit to GDP) might have limited the chances of revealing more relationship between finance and development in these countries.

Fadare, (2010) explore the effect of banking sector reforms on economic growth in Nigeria over the period 1999 - 2009. Using the ordinary least square regression technique, he found that interest rate margins, parallel market premiums, total banking sector credit to the private sector, inflation rate, inflation rate lagged by one year, size of banking sector capital and cash reserve ratios account for a very high proportion of the variation in economic growth in Nigeria.

Demetriades and James (2011) in a study of eighteen Sub-Saharan African countries reports that the link between

credit and growth is altogether absent while finance does not lead growth in the long run. Similar views are reported by Estrada *et al.* (2010) and Kumar (2011).

Yazdani (2011) investigates the role and performance of private bank's on the economic growth of Iran using the variables; economic growth, profitability, cash, and investment. He used Spearman correlation test, Pierson correlation test, David Watson test, independent t test, variance analysis F and linear regression chart to analyse the data. The result shows that all variables in the research impact on the economic growth of Iran.

Oluitan (2012), assesses the significance of real bank credit in stimulating real output growth in the case of Nigeria. The study observes that credit Granger causes output.

Zhang, Wang and Wang (2012) examine the relationship between financial intermediation and economic growth in China, using data from 286 Chinese cities over the period 2001–2006. Their results suggest that traditionally used indicators of financial development are generally positively associated with economic growth after controlling for many factors associated with growth.

Emmanuel and Adegboyege (2014) examine the relationship between banks and economic growth in Nigeria. The study adopts linear regression function and specifies that the level of real Gross Domestic Product, which is a measure of economic activity, is a function of banks credit to the economy which is a measure of the contribution of banks. The results of the models estimated show that banks have positive impacts on economic growth in Nigeria.

### 3. Methodology

The research plan that is adopted for this study is descriptive research method. Based on this, hypothesis 1 is tested using Ordinary Least Square (OLS) multiple regression model at 5% significant level while hypothesis 2 is tested using Vector Error Correction model. This study is interested in the long run and predictive effect of financial sector development on the real GDP.

Documentary evidence constitutes the instrument of data collection as the study is based on secondary data. The data is time series collected from the Central Bank of Nigeria statistical bulletin. The data used in the study is the aggregate of banking sector credits, total market capitalization of all listed instruments, foreign direct investment inflow to financial sector and Real GDP from 1990 to 2009.

#### Hypothesis 1

The linear regression equation for this model for hypothesis 1 is given as:

$$\text{Model 1 } \text{RGDP}_i = \alpha_1 + \beta_1 \text{MCAP}_i + \beta_2 \text{BSC}_i + \beta_3 \text{FDI}_i + \varepsilon_i$$

Where  $\text{RGDP}_i$  is the Real GDP for the sample period,  $\text{MCAP}_i$  represent the total Market capitalization contribution to Gross Domestic Product,  $\text{BSC}_i$  represent the Banking sector credit contribution to Gross Domestic Product,  $\text{FDI}_i$  represent the Foreign direct investment to financial sector

contribution to Gross Domestic Product,  $\varepsilon_i$  represents the “noise” or error term;  $\alpha_i$  and  $\beta_1$  represent the slope and coefficient of regression. The coefficient of regression,  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  indicate how a unit change in the independent variable (total market capitalization, banking sector credit and foreign direct investment) affects the dependent variable (Gross Domestic Product). The error,  $\varepsilon_i$ , is incorporated in the equation to cater for other factors that may influence GDP.

### Hypothesis 2

Step 1: We investigate the stationarity properties of the time series data using the Augmented Dickey-Fuller (ADF) test.

Step 2: Next, we employ Johansen Multivariate Co-integration Test.

Step 3: We investigate the direction of causality for the hypotheses using Vector Error Correction (VEC) Model based causality test.

The Vector Error Correction model specifications for the hypothesis 2 are stated as follows:

Model 2.1 RGDP and total Market Capitalization

$$\Delta \ln \text{RGDP} = \alpha_0 + \alpha_1 \Delta \ln \text{RGDP}_{t-1} + \alpha_2 \Delta \ln \text{MCAP}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t1} \quad (1)$$

$$\Delta \ln \text{MCAP} = \beta_0 + \beta_1 \Delta \ln \text{MCAP}_{t-1} + \beta_2 \Delta \ln \text{RGDP}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t2} \quad (2)$$

Model 2.2 RGDP and Foreign Direct Investment

$$\Delta \ln \text{RGDP} = \alpha_0 + \alpha_1 \Delta \ln \text{RGDP}_{t-1} + \alpha_2 \Delta \ln \text{FDI}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t1} \quad (3)$$

$$\Delta \ln \text{FDI} = \beta_0 + \beta_1 \Delta \ln \text{FDI}_{t-1} + \beta_2 \Delta \ln \text{RGDP}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t2} \quad (4)$$

Model 2.3 RGDP and Banking Sector Credits

$$\Delta \ln \text{RGDP} = \alpha_0 + \alpha_1 \Delta \ln \text{RGDP}_{t-1} + \alpha_2 \Delta \ln \text{BSC}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t1} \quad (5)$$

$$\Delta \ln \text{BSC} = \beta_0 + \beta_1 \Delta \ln \text{BSC}_{t-1} + \beta_2 \Delta \ln \text{RGDP}_{t-1} + \text{Ect}_{t-1} + \varepsilon_{t2} \quad (6)$$

Where  $\ln$  is natural logarithms, MCAP is the aggregate total market capitalization for the sample period. RGDP is Real Gross Domestic Product,  $\alpha$  is a constant,  $\beta_i$  is the coefficient of regression, Ect is the error correction term,  $\varepsilon$  is the error term and  $t$  is time. The error term,  $\varepsilon$  is incorporated in the equation to cater for other factors that may influence the variables. FDI is the foreign direct investment while BCS represent the banking sector credits to private sectors. In order to estimate the models, a statistical package, Eviews 4.0 econometric software is used.

## 4. Result and Discussion

### 4.1. Financial Sector Development and Economic Growth

The relationship between Financial Sector Development and economic growth is examined in this section. The hypothesis used to test the relationship is given below.

### Hypothesis 1

$H_{01}$  There is no significant relationship between financial sector development and economic growth in Nigeria.

$H_{A1}$  There is significant relationship between financial sector development and economic growth in Nigeria.

The test was conducted at 5% significant level, the result and other estimates are presented in table 4.1 below:

Table 4.1. Ordinary Least Square Multiple regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MCAP	0.001547	0.000393	0.184281	0.8561
BCRDT	0.004932	0.000647	1.352149	0.1951
FDI	0.508041	0.110131	4.613039	0.0003
C	267581.1	19262.59	13.89123	0.0000
R-squared	0.890649	Mean dependent var		408157.8
Adjusted R-squared	0.870145	S.D. dependent var		155323.8
Sum squared resid	5.01E+10	Schwarz criterion		25.07907
Durbin-Watson stat	0.295962	Prob(F-statistic)		0.000000

Source: Compiled from Eviews 4.0 result.

### Decision Criteria:

Hypothesis  $H_{01}$  would be rejected if the standard errors of the independent variables (MCAP, BCRDT and FDI) are less than half their estimated (coefficients), ie, where the standard error of each of the independent variable is less than half its coefficient (coefficient divided by 2).

The standard error measure the statistical reliability of the coefficient estimates - the larger the errors, the more statistical noise in the estimates. From the table above, the standard error of MCAP is 0.000393 while that of BCRDT and FDI are 0.000647 and 0.110131 respectively which appears insignificant and shows that MCAP, BCRDT and FDI are statistically reliable to predict Real GDP. From the above table, the standard error tests shows that all the standard errors are less than half their respective estimates (coefficients) meaning that hypothesis  $H_{01}$ , should be rejected

The least square multiple regression equation is:

$$\text{RGDP} = 267581.1 + 0.001547 * \text{MCAP} + 0.004932 * \text{BCRDT} + 0.508041 * \text{FDI}$$

The equation shows  $\alpha = 267581.1$  which is the intercept. This is the base level of prediction when the MCAP, BCRDT and FDI are equal to zero. The coefficient of MCAP, BCRDT and FDI measures how a unit change in independent variable affects the dependent variable. From the results, a unit change in total market capitalization leads to about 0.15% increase in Real GDP. While a unit change in banking sector credit leads to 0.49% increase in Real GDP and accordingly a unit change in FDI leads to 50.80% increase in Real GDP. This shows that there is a positive relationship

between total market capitalization, banking sector credit, foreign direct investment and the Real GDP.

R – Squared ( $R^2$ ) is the fraction of the variance of the dependent variable explained by the independent variable. In this result the  $R^2$  is about 89%, meaning that about 89% of Real GDP is explained by the MCAP, BCRDT and FDI.

Sum squared residual is a measure of error in using the estimated regression equation to estimate the values of the Real GDP. The mean and standard deviation of Real GDP is N408157.8 and 155323.8 million respectively.

## 4.2. Causal Relationship between Financial Sector Development Variables and Economic Growth

### 4.2.1. Investigation of the Stationarity Properties of Data

The properties of the time series data for the period of the study covering 1990 – 2009 was investigated in order to test its stationarity using the Augmented Dickey-Fuller (ADF) test statistics. The lag length was determined using Akaike's (1969) and Schwartz's (1978) Information criterion and Akaike's (1987) final prediction Error Criterion. The number of lags used in ADF regressions was selected using Akaike Information Criterion (AIC).

**Table 4.2.** ADF Unit Root Tests

Variables	ADF Test Statistics	Critical value	Lag	Stationarity
MCAP @ TREND	-3.483895	-3.0521	2	I(1)
BCRDT @ TREND	-7.329960	-3.0521	2	I(1)
FDI @ TREND	3.238244	-3.0400	1	I(0)
RGDP @ TREND	-2.548899	-1.9642	3	I(2)

ADF statistics with intercept are obtained by taking Akaike Information Criterion (AIC) into account.

Table 4.2 above shows the ADF test results of the time series.

### Decision Criteria

Variables at trend are stationary if their ADF Test Statistic is greater than their critical value in absolute terms. The results suggest that the null-hypothesis ( $H_0$ ) of unit root can be rejected in the first difference, I(1) for MCAP and BCRDT, while FDI and RGDP can be rejected at level and second difference respectively. All the series (i.e. MCAP, BCRDT, FDI and RGDP) are stationary and therefore their regression will not be a spurious regression. They are all stationary at 5% critical value.

### 4.2.2. Co-integration Analysis

Johansen's (1988, 1991) multivariate co-integration test was used to determine if the variables are co-integrated. Co-integration analysis is necessary in all times series data so as to determine whether or not there is a long run relationship between two variables.

The results of the Johansen Co-integration test is presented in table 4.3 below:

**Table 4.3.** Johansen Co-integration test

Variables	Max-Eigen statistic	Critical value	Trace Statistic	Critical Value
RGDP AND MCAP	15.42989	14.07	16.09099	15.41
RGDP AND BCRDT	24.31973	14.07	24.86930	15.41
RGDP AND FDI	20.17091	14.07	20.59399	15.41
Max-eigen value test indicates 1 co-integrating equation(s) at the 5% level				
Trace test indicates 1 co-integrating equation(s) at the 5% level				
Critical values are all at 5%				

Source: compiled from Eview 4.0 result

### Decision Criteria

Two variables are co-integrated if both their Max-Eigen and Trace statistic are greater than their respective critical values.

The co-integration test results show that all the variables (MCAP, BCRDT, FDI and RGDP) have their Max-Eigen and Trace statistic greater than their respective critical values, meaning that they are co-integrated. Since the variables are stationary, integrated of order one, and co-integrated, it shows that there is a long run relationship between the variables.

### 4.2.3. Causality Test

According to Granger (1969), measuring the correlation between variables will not be enough to construct a complete understanding about the relationship between two or more time series. This is because some correlations may be spurious and not useful, as there might be a third variable that cannot be accounted for. This is the essence of performing the causality test. The causality test used is the Vector Error Correction based causality test and the results are presented in table 4.4 to 4.6 below.

**Table 4.4.** Vector Error Correction based causality test for RGDP and MCAP

Model 2.1	RGDP	MCAP	CAUSALITY
Standard Error	0.02174	1.15925	Causality runs from MCAP to RGDP

Source: compiled from Eviews 4.0 result.

The above table presents the result of causality test between total Market capitalization and Real GDP. Hypothesis 2.1 used to test the causal relationship is stated below

**Hypothesis 2.1**

H<sub>02.1</sub> There is no causal relationship between total Market capitalization and Real Gross Domestic Product in Nigeria.

H<sub>A2.1</sub> There is causal relationship between total Market capitalization and Real Gross Domestic Product in Nigeria.

**Decision Criteria**

The direction of causality can be determined by comparing the t-statistic of the two variables. Causality runs from the variable with higher t-Statistic to the variable with lower t-Statistic.

From the above table it shows that causality runs from the MCAP to the RGDP since the t-Statistic of MCAP is greater than that of the RGDP. This means that hypothesis H<sub>02.1</sub> should be rejected and H<sub>A2.1</sub> be accepted

**Table 4.5.** Vector Error Correction based causality test for RGDP and BCRDT

Model 2.3	RGDP	BCRDT	Causality runs from BCRDT to RGDP
Sstandard Error	0.08355	13.0818	
t-Statistic	-0.61731	-4.17259	

Source: compiled from Eviews 4.0 result.

The above table presents the result of causality test between Banking Credits and Real GDP. Hypothesis 2.2 used to test the causal relationship is stated below

**Hypothesis 2.2**

H<sub>02.2</sub> There is no causal relationship between Banking sector credits and Real Gross Domestic Product in Nigeria.

H<sub>A2.2</sub> There is causal relationship between Banking sector credits and Real Gross Domestic Product in Nigeria

From the above table, using the decision criteria above, it shows that causality runs from the BCRDT to the RGDP since the t-Statistic of BCRDT is greater than that of the RGDP, which means that hypothesis H<sub>02.2</sub> should be rejected and H<sub>A2.2</sub> be accepted.

**Table 4.6.** Vector Error Correction based causality test for RGDP and FDI

Model 2.2	RGDP	FDI	Causality runs from FDI to RGDP
Sstandard Error	0.15029	0.33465	
t-Statistic	0.49145	5.00298	

Source: compiled from Eviews 4.0 result

The above table presents the result of causality test between Foreign Direct Investment and Real GDP. Hypothesis 2.3 used to test the causal relationship is stated below

**Hypothesis 2.3**

H<sub>02.3</sub> There is no causal relationship between Foreign Direct Investment to financial sector and Real Gross Domestic Product in Nigeria.

H<sub>A2.3</sub> There is causal relationship between Foreign Direct Investment to financial sector and Real Gross Domestic Product in Nigeria

From the above table, the result shows that causality runs from FDI to the RGDP since the t-Statistic of FDI is greater than that of the RGDP and hence hypothesis H<sub>02.3</sub> should be rejected and H<sub>A2.3</sub> be accepted.

The various results of the test shows that causality runs from total market capitalization to the real GDP, causality runs from foreign direct investment to the real GDP and causality runs from banking sector credit to the real GDP.

The research findings are:

1. a one-way directional trend between MCAP, BCRDT, FDI and RGDP
2. all the variables are stationary and cointegrated
3. a positive relationship between total market capitalization, banking sector credit and foreign direct investment inflow to financial sector and the Real GDP
4. that causality runs from MCAP, BCRDT and FDI to the RGDP
5. support for the supply leading hypothesis which is the theoretical framework upon which this study is based.

The preliminary tests of the data using statistical tools shows that they are stationary and co-integrated. This means that their combinations will not lead to spurious regression and there exist a long run relationship between the variables which can be sustained.

The Ordinary Least Square multiple regression of RGDP with MCAP, BCRDT, and FDI was run to find if relationship exist between the total market capitalization and the real gross domestic product, the banking credits and the real gross domestic product as well as between the foreign direct investment and the real gross domestic product.

The result of the OLS shows that, there is positive relationship between each of the MCAP, FDI, BCRDT and RGDP. R-square which is the coefficient of variation shows that about 89 per cent of changes of the real gross domestic product is explained by total market capitalization, banking credits and foreign direct investment while only 11 percent is explained by other factors. The standard errors for the independent variables are all insignificant. This shows that the independent variables are statistically reliable to predict the dependent variable, implying reliability of the results.

From the results, a unit change in total market capitalization leads to about 0.15% increase in Real GDP. While a unit change in banking sector credit leads to 0.49% increase in Real GDP and accordingly a unit change in FDI leads to 50.80% increase in Real GDP.

The causality test between the variables which was conducted using vector error correction model shows that causality runs from the three independent variables (total market capitalization, foreign direct investment to financial sector and banking sector credit) to the dependent variable (Real GDP). This means that total market capitalization, foreign direct investment and the banking sector credit causes Real GDP.

The relationship between the variables derived from the OLS and the Vector error correction models in this study support the supply leading hypothesis. As explain earlier, supply leading hypothesis states that, development of financial institutions and their related services induce real investment and growth. This means, countries with better developed financial systems particularly those with large efficient banks and a large well organized and smoothly functioning stock markets tend to grow much faster by providing access to much needed funds for financially constrained economic enterprises.

The key question then is what is the implication of these findings? The implication of this result is that, development of functional financial market and institutions (in form of increase banking sector credits, increase flow of FDI, efficient capital market) will increase the supply of financial services in an economy. This will ultimately lead to high and sustainable economic growth in the form of increase in real gross domestic product.

The findings based on the data for the period 1990 – 2009 from both the OLS and the vector error correction models provide evidence, in support of earlier findings from studies both here in Nigeria and other economies. The result is in line with some of the studies conducted outside Nigeria like World Bank (1995) and Agarwal (2001). Other studies having similar findings include Unalmis (2002) conducted in Turkey, Nedebbio (2004) conducted in Sub Saharan African countries, Wadud (2005) in South Asian countries (India, Pakistan and Bangladesh), and Amaral and Quintin (2007), Esso (2010). Narrowing down to Nigeria, the findings of this research are in line with results of Osinubi (2002), Adam and sanni (2005), Obamiro (2005), Demirguc- Kunt & Levine (2008), Agu and Chukwu (2008) and Nurudeen (2009), Akinlo & Egbetunde (2010), Fadare, (2010), Johannes *et al.* (2011), Oluitan (2012), Onuorah & Ozurumb (2013), Obademi and Elumaro (2014).

On the other hand, there are some studies conducted having contrary results with the findings of this research. Studies like Nyong (1997), Akinlo (2004), Oyejide (2005), Odiambho (2004) conducted in South Africa, Waqabaca (2004) conducted in Fiji, Mohammed and Sidiropoulos (2006) in Sudan, Guryay, Safakli, Tuze (2007), Chang, Jia and Wang (2010) conducted in China, Estrada *et al.* (2010), Kumar (2011), Demetriades and James (2011) and Zaghoudi & Soltani (2013) all have results in contrast with this finding.

## 5. Conclusions and Recommendations

The study makes contributions to the emerging evidence of the validity of supply-leading hypothesis for the Nigerian case over the period of 1990 to 2009. It adds to the debate and existing literature about financial sector development and its relationship with economic growth. Recent advances in econometric techniques were applied in the analysis. The stationarity properties of the data were investigated using the

Augmented Dickey-Fuller (ADF) test, we also applied Johansen co-integration test to all the models formulated for the hypotheses.

The co-integration results suggest that financial sector development and economic growth is positively co-integrated indicating a stable long-run relationship. The Vector Error Correction (VEC) model shows that there is a unidirectional causality running from total market capitalization, banking credits and foreign direct investment to financial sector to the real gross domestic product. This means that financial sector development will lead to high and sustainable economic growth. The regression result shows a positive relationship between the total market capitalization, foreign direct investment to financial sector and banking credits with the real gross domestic product. The result is consistent with that of the VEC.

The conclusion that emerges from this study is that market capitalizations, banking credits as well as foreign direct investment to financial sector will impacts significantly on the real gross domestic product. Therefore, the development of financial sector in form of increase credits by banks to the private sectors, increase in foreign direct investment flow into the economy and efficient and robust capital market influences real gross domestic product in form of economic growth.

The findings from this study have some policy implications which will reinforce the observed benefits derivable from financial sector development especially in the form of economic growth arising from the established positive link between the variables. The policy issues relate to the individual component of the financial sector included in this study viz; capital market and economic growth, banking credit and economic growth and foreign direct investment and economic growth.

The first policy implication which relates to capital market and economic growth is that, investor's protection policies and other rules and regulations governing capital market operation should be re-examined with a view to enhancing public confidence in the market and increasing the level of activity for enhance liquidity and growth of the market. For example, reduction of listing requirements to ease listing of new companies on the exchange, lowering of charges and other fees payable by investors for buying and selling securities and establishment of an effective legal framework that will enable investment related dispute to be resolved timely and satisfactorily.

The banking credits and economic growth's policy implications relate to the need to reassess the the minimum capital requirement of N25 billion with a view to having banks that will focus on specific areas like real sector of the economy instead of having few banks carrying businesses that divert more of their funds to trading and less productive sectors of the economy as mostly practice by banks hiding under the provision of the current universal banking license. The review of the current minimum capital requirement downward to a more realistic level depending on the nature of the banking business a particular bank will want to



specialized on and its associated risks. This will enhance banks' lending to the most productive sectors of the economy while curtailing their speculative activities in other sectors in the name of universal banking. This will likely increase the total credits granted by banks to the economy with ultimate positive impact on the economic growth.

The policy implications of this findings relating to foreign direct investment and economic growth is for the policy makers to evaluate the existing traditional approach of the country towards attracting FDI to an engineered strategic approach. The engineered approach for example can be in form of reassessment of the current funding of some social service project from the current government funding to a public private partnership, where one or two private individuals partner with the government in financing public project. The private individuals own/acquire the project after completion and transfer to government after recouping its capital in accordance with an agreed term like Murtala Mohammed Airport (MM2) in Lagos. This will attract new FDI into the economy with consequent impact on the economic growth.

On the basis of the findings of this study the following are the researcher's recommendations:

1. The stock market is known as relatively cheap source of funds when compared to money market and other sources. The cost of raising funds in the Nigerian market is however, high. There should be a review downward, of the cost, so as to enhance its competitiveness and improve the attractiveness as a major source of raising funds. Considering the benefits being enjoyed by the stock market through the internationalization of its operations, provision of adequate liquidity, creation of robust electronic trading systems and domestic financial liberalization, such as steps to improve the legal and accounting framework, there should be no policy turns around but a sincere pursuit of this policy.
2. Government should employ favourable policies (like lower tax and tax holidays for new investors) that promote the inflow of international capital and foreign investment, so as to enhance the production capacity of the nation. Moreover, government should strengthen the capacity of the Nigerian Securities and Exchange Commission so as to check and prevent sharp practices by market operators (particularly speculators) in order to safeguard the interest of shareholders. Recent experience has shown that the confidence of many shareholders is waning due to the declining fortune of the stock market and many are reluctant to invest in shares and other securities. Besides, it has been argued by some analysts that most activities on the stock market are manipulated by some operators (speculators). This tends to undermine the growth potential of the stock market with its negative consequences on the economy. To this end, government should take a bold step in arresting the meltdown and

restoring the confidence of operators and shareholders, and the possibility of a bail-out of the stock market should not be ruled out.

3. Stock market instruments should be diversified to include more of fixed security instruments. This will enable more companies to source finance for long term financing there by freeing the money market and reducing the current problem of credit mismatch whereby companies borrow short term from banks to finance long term projects. This practice has also led to some of the non-performing loans in the banking industry.
4. The Asset Management Corporation of Nigeria (AMCON) just established for the purpose of efficiently resolving the toxic assets (non-performing loans) of banks in order to free the banks' balance sheets so as to enable them resume better lending is a good step toward enhancing the capability of banks to lend more to the economy. However, its operation should be monitored by the relevant supervisory bodies (Federal Ministry of Finance and the CBN) to ensure its mandate is delivered efficiently. An effective operation of this corporation will resolve the current banking problems of low appetite to lending especially to the real sector.
5. The Financial System Strategy 2020 (FSS2020) initiative aimed at making Nigeria Africa's financial hub and proactively developing a financial system that will support Nigeria quest at being among the 20 largest economies in the world by year 2020 should be carried out to completion. The strategy for achieving the growth includes strengthening domestic financial market, enhancing integration with the external financial market and building international financial centre. All these will impact on the overall financial sector development there by increasing economic growth in line with the findings of this research.

For the purpose of further research relating to this topic, the researcher may expand the component of the financial sector to include additional components like community banks, insurance, pension funds etc. Another important area would be expanding the number of proxies representing each of the variables. For example, the researcher may consider using both total market capitalization and all share index for the capital market and using two or more proxies as well for the banking sector and other variables.

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