



# Financial Deepening and Economic Growth in Nigeria: A Causality and Impact Analysis

<sup>1</sup>Adedeji, L. O., <sup>2</sup>Adekanye, T., <sup>3</sup>Babatunde, M. A. & <sup>4</sup>Balogun, O.J.

<sup>1</sup>&<sup>2</sup>Department of Banking and Finance, <sup>3</sup>&<sup>4</sup>Department of Banking and Finance,  
Osun State Polytechnic, Iree.  
adedejiltf@yahoo.com +2348034628369

---

**Abstract:** *The controversial issues surrounding the direction of causality links between financial deepening and economic growth have been the issues of much concern in the finance literature. This paper investigates the long and short-run and causality relationship between financial deepening and economic growth in Nigeria for the period 1986-2019. Times series data are obtained from secondary source, that is, from the Central Bank of Nigeria Statistical Bulletin. The paper adopted ex-post facto research design and employed Johansen co-integration techniques, Error Correction Model as well as the Toda-Yamamoto Granger causality test was also employed to investigate the long and short run and causality relationship between financial deepening variables (broad money supply, credit to private sector and value of stock traded and insurance assets) and economic growth (gross domestic product growth rate). Findings from the study reveal that there are short and long run relationship between economic growth and financial deepening variables. The vector regression estimates showed sufficient evidence that the financial deepening significantly impacts on economic growth in Nigeria in the short and long-run while Toda - Yamamoto VAR Granger Causality tests reveal that there was a strong and significant unidirectional causality, running from the money supply, credit to private sector and stock market turnover proxies for financial deepening to economic growth but no causality relationship between stock market liquidity and economic growth. This lends support to the supply-leading hypothesis. Therefore, the paper concludes that the financial sector is a catalyst for economic growth in Nigeria. It recommends amongst other that the policy makers should design policies that will promote an efficient banking and non-banking, and capital markets deepening, remove obstacles that impede their growth and strengthen healthy and competitiveness of the financial intermediaries in order to boost economic growth in Nigeria.*

**Keywords:** *Financial Deepening, Financial Intermediaries, Economic Growth, Causality*

---

## Introduction

### Background to the Study

Globally, financial system development has been found to be significant and critical to the development and growth of any economy. This is because of the intermediation function it performs through the provision of required financial assets and services to the real sector. The state of economic growth and development in Nigeria is invariably associated with the extent of the financial sector development. This is because the channels through which financial developments could lead to economic growth are based on the causality links between the financial deepening and economic growth variables (Odeniran & Udeja, 2010).

Financial sector development is the process that marks improvement in quantity, quality and efficiency of financial intermediary

services. Financial deepening therefore helps fund the real sector and ensures that these funds are properly utilized. That is, having a well-functioning financial system that directs fund to their most productive uses in place is crucial and prerequisite for economic growth and development of a nation (Kromtit & Tsenkwo, 2014). The main task of the financial system is therefore to channel funds from sectors that have a surplus to deficit sectors of the economy. In achieving this, the financial sector is said to perform the task of reducing information and transaction costs, and facilitating the trading, diversification, and management of risk which subsequently enhance economic growth (Okafor, Onwumere & Chijindu, 2016).

Financial depth is an important measure of financial system development as it measures the size of the financial intermediary sector.

Therefore, an optimal measure of financial deepening must include the total amount of banking and nonbanking financial assets and services including domestic credit to the private sector, broad money supply (liquidity), stock and bond market liquidity/capitalization as well as Treasury bill among others (Ndebbio, 2004; Nzotta & Okereke, 2009).

Apart from the banking institution, the functions of financial intermediation through the non-banking financial institution such as insurance as well as capital markets ensure continuous availability of funds in promoting investment and increasing capital formation. For instance, insurance sector has links to real sectors of the economy by mitigating sudden and devastating occurrences thereby stimulating economic growth. In addition, insurance generates large fund to the capital market from the premium paid by all individuals insured and according to Fahagba (2018), this provides additional capital to finance economic activities towards the desired growth. It is therefore assumed that the economic growth and development of a country is determined by the extent to which finance and financial services are made available to the productive sectors of the economy. Hence, the depth and width of these financial assets and services in any society has significant effects on economic growth. (Okoli, 2014).

Given the profound changes in the Nigerian financial system over the recent years, this paper aims at assessing the concept of Nigerian banking, non-banking financial institutions and stock market sectors deepening with a view to unveiling its implications on the economic growth and development of the country. It is also designed to evaluate the causal effect of broad money supply, credit to private sector, stock market liquidity and insurance development as proxies for financial deepening on economic growth and to equally determine a long run relationship between these financial deepening variables and economic growth in Nigeria within the period of the study.

Statement of the problem

The major problem faced by the productive

sectors in Nigeria is that it has been shrinking in size considerably over the years. This is because the financial system has not been effectively providing its developmental roles to stimulate a strong expansion of the real sector. Also, in spite of the government efforts to strengthen and deepen the financial sector as well as to grow the economy through the adoption of several policies and reforms in the Nigerian banking, non-banking financial institutions and stock markets since 1986, the sectors have not been able to effectively perform as the propeller of economic growth and development in Nigeria (Oriavwote & Eshanake, 2014).

According to Edori, Edori & Needam (2016), the Nigeria financial system is faced with some challenges such as instability in the financial market, banks' and insurance failure as well as lack of trust and confidence by the public due to the 2007-2008 financial crises imported from developed countries. Even, this problem of lack of confidence in banks and non-bank financial institutions has forced the public into patronizing informal markets and this has adversely affected the depth of financial sector in performing its intermediation functions to stimulate economic growth. Another growing concern is the controversies surrounding the relationship that exists between financial deepening variables and economic growth. This is because many empirical studies came up with mixed results. Prior studies in Nigeria investigated the effect of financial deepening on economic growth and have mostly favored the use of Ordinary Least Square (OLS) method of analysis which appears static and not robust enough to show the causal and nature of relationship between the variables whereas, the Vector Autoregression (VAR) Granger non causality, Co-integration and Vector Error Correction (VEC) models are ignored, these techniques were used in this current study because they are considered more appropriate to establish the causal relation, short and long-run relationships among the financial deepening variables and Nigerian economic growth. This study therefore attempts at filling the gaps identified in the literature by determining whether or not

financial deepening accelerates economic growth.

### **Objectives of the Study**

The main objective of this study is to examine the causal link, the nature and extent of the relationship that exists between financial deepening variables and economic growth in Nigeria. Specifically, the study examines the causal link between the broad money supply, bank credit to private sector, stock market liquidity and insurance development, and economic growth in Nigeria.

The following null hypotheses were formulated to guide the study:

- i. Ho: There is no significant causal link between the broad money supply and economic growth in Nigeria.
- ii. Ho: The bank credit to private sector cannot significantly granger cause economic growth in Nigeria.
- iii. Ho: There is no significant relationship between the stock market liquidity and economic growth in Nigeria.
- iv. Ho: There is no significant causal effect the insurance development on economic growth in Nigeria.

This study upon completion will provides a reliable result and equally contributes significantly to existing studies for policy formulation by the financial regulators. This is because of using a different set of banking and non-banking financial institutions and capital market based financial deepening variables with different methodological approach such as Toda-Yamototo Vector Auto-regressive VAR Granger non-causality test to analyze the most recent and long period (33 years) data set spanning 1986 to 2019, to determine the direction of relationship between financial deepening and economic growth in Nigeria.

The study will also provide the required clues for government and economic stakeholders to tackle financial and economic crisis or problems from its root while financial regulators will have better understanding of how financial deepening contributes to economic growth.

## **Review of Literature**

### **Conceptual Review**

#### **Financial Deepening**

There is no universal definition of financial deepening but few amongst scholars such as; Nzotta and Okereke (2009); Ndebbio (2004) defined financial deepening as a measure of financial development and stressed further that it implies the ability of financial institutions to effectively mobilize savings for investment purposes. Financial deepening therefore means an increase in assets and the provision of needed financial services to the economy in order to make improvement in quantity, quality, and efficiency of financial intermediary services (Nguena&Abimbola, 2013; Ohwofasa & Aiyedogbon, 2013 and Aye 2006). Ndebbio (2004),Nwannaand Chinwudu (2016) also defined financial deepening as is a process that involves the interaction of a number of markets, instruments and stakeholders such as banks and stock markets. That is, it is a process by which the range of financial products, assets and players widens to play a role in risk coverage and diversification. According to Shittu (2012) financial deepening measures the banking, non-banking and stock market sectors development. However, the prominent variables in the banking sector are the ratio of broad money supply (M2) to gross domestic product (M2GDP) and the ratio of credit to the private sector to gross domestic product (CPSGDP), for that of non-banking financial institutions; insurance assets size or premiums are good measures while the ratio of total value of stock traded to gross domestic product (TVSTGDP) and Stock market turnover ratio (STOVR) and market capitalization are for stock market liquidity and size respectively, are variables for stock market sector development.

#### **Broad Money Supply**

Broad money supply (M2) shows the degree of monetization in the economy and it comprises of both narrow money supply (M1) and quasi-money. It however captures the financial capacity of the bank to mobilize fund for investment purposes. According to Dehesa, Druck and Plechanov (2007); Ang

(2008); Odeniran and Udejaja (2010) and Mandief (2015) the practical indicator related to financial deepening is the ratio of money supply (M2) to gross domestic product (M2/GDP) which means the proportion of transferable deposits and currency outside banks, plus all time-related deposits and non-institutional money market funds to gross domestic product (GDP) in a certain year. Thus, an increase in this ratio implies an extensive use of currency rather than an increase in bank deposits that leads to economic growth. This shows that an increase in monetization causes economic growth (Adenuga & Adams, 2007).

### **Bank Credit to Private Sector**

Bank credit to private sector (CPS) is the quantum of loan allocated to the private sector from the deposit money bank and this measures the financial opportunities of private firm. The ratio of bank credit to private sector to gross domestic product (CPS/GDP) is bank-based activity level and is the most comprehensive indicator of the activity of financial intermediaries (Levine, Loayza & Beck, 2000). According to Olofin and Afangideh (2010) credit to private sector has a positive effect on economic growth because the more the funds are channel to profitable venture inform of credits, the higher the rate of economic growth.

### **Stock Market Liquidity**

The liquidity of a stock market relates to the ease with which shares are traded in the market. It is measured as the total value of shares traded on the stock market exchange divided by gross domestic product (total value traded/GDP). According to Adenuga (2010) it measures the degree of trading relative to the size of the securities market and economy. Stock market liquidity facilitates profitable interactions between the equity and the money market, according to Osinubi (2002), shares are accepted as collateral by banks for lending purposes and this led to increasing access to credit for growth.

### **Insurance Intermediation development**

Insurance is a social contract that manages the transfer of risk between two or more parties

(Fashagba, 2018). That is, insurance contracts involve small periodic payments in return for protection against uncertain, but potentially severe losses (Ubom, 2012). The availability of insurance services such as the indemnification and risk pooling, income smoothing facilitate commercial transactions and the provision of credit as well as mitigating losses, promoting higher productivity and growth. The insurance development or size can be measured as the ratio of insurance total asset to nominal gross domestic product (Edori, Edori & Needam, 2016). This tends to capture the non-banking financial institution as part of the financial system. According to Arena (2006), insurance contribute to the economic growth by channeling domestic saving into productive investments.

### **Economic Growth**

According to Bakang (2014) there are two main indicators for measuring economic growth. The first is increase in Gross National Product (GNP) that computes the total value of goods and services produced by all nationals within and outside the country over a given period, and the second is Gross Domestic Product (GDP) considered as the broadest indicator of economic output and growth. This is otherwise known as increase in per capital income of a country. In addition, Adenuga (2010) used Gross Domestic Product (GDP) to measure economic growth in monetary terms and ignored the other aspects of development. GDP can be expressed in nominal terms, short-terms or long-terms. The nominal term GDP includes inflation or in real terms which are adjusted for inflation. Short term GDP is the annual percentage change in real national output while long term GDP is the increase in trend or potential GDP. In order to compare the countries of different population sizes, GDP per capita is generally used.

### **Theoretical Review**

This paper is anchored on financial development and growth theory which can be traced to research works such as Bagehot (1873), Robinson (1952), Goldsmith (1969)



and Schumpeter (1911). Under this theory, the supply-leading and demand following hypotheses were discussed to explain the relationship between financial deepening and economic growth. In between the supply-leading and demand-following hypotheses are other views; the feedback hypothesis and neutral hypothesis.

Theoretically, the linkage between finance and economic growth may take different forms. Following these considerations, causality runs from finance to growth and this indicates supply-leading hypothesis. The supply-leading hypothesis asserts that the presence of robust and efficient financial markets increases the supply of financial services and assets to meet up with their demand by the sector for increase in goods and services (real sector of the economy). On the other hand, financial development may also be stimulated by economic growth. This is also referred to as demand-following hypothesis. The demand-following hypothesis argued that it is economic development which creates the demand for financial services and not vice versa. That is, the expansion of an economy will create new demand for financial services and assets.

### **Empirical Studies**

There have been growing concern and controversies on the relationships that exist between financial deepening variables and economic growth and development. This is because many empirical studies came up with conflicting results. Some are in support of a positive or negative relationship, some short or long-run relationship and others do not find any empirical evidence to support such conclusion. For example, few among the studies such as Islam and Osman (2011); Shittu (2012); Mandiefe (2015); Okoye, Modebe, Taiwo and Okorie (2016), Nkoro and Uko (2013), Okafor, Onwumere and Chijindu (2016); Ayila, Akighir and Iorember (2014); Ohwofasa and Aiyedogbon (2013); Ghildiyal, Pokhriyal and Mohan (2015); Oniore (2014) observed that there are short-run and long-run relationship between financial deepening and economic growth in Nigeria. Some studies such as Igwe, Edeh and

Ukpere (2014), Oriavwote and Eshenake (2014); Ebiringa and Duruibe (2015) even though supported that there is relationship between financial deepening and economic growth but suggested that financial deepening does not have desired impact on economic growth.

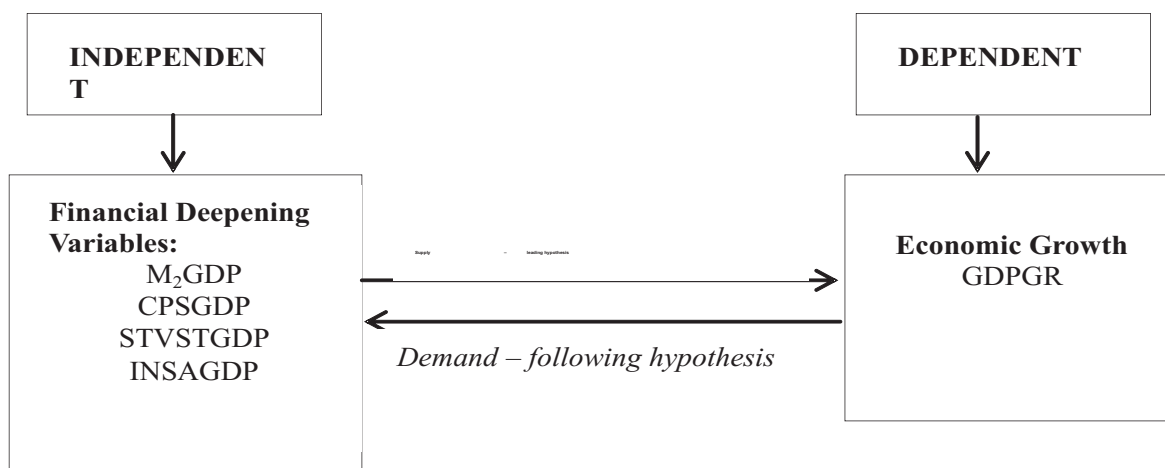
Okoye, Modebe, Taiwo and Okorie (2016), Karimo and Ogbonna (2017); Ogwumike and Salisu (2010); Onyemachi (2012), Nkoro and Uko (2013) observed that there is unidirectional causation links between financial deepening and economic growth. Findings also revealed that causality running from the financial deepening to economic growth which supported supply leading hypothesis in Nigeria. However, Odeniran and Udeja (2010) suggested that there exists a bi-directional relationship between financial deepening and economic growth. This shows the evidence of a feed-back relationships which also conformed to supply-leading hypothesis.

Given this conflicting views, it is left to empirical investigation to determine whether or not financial system development accelerates economic growth or not. Therefore, finance and economic growth cannot be undermined and this provides justification for this current study.

### **Conceptual and Theoretical Framework**

This study is anchored on two theoretical frameworks namely: supply leading and demand following hypotheses. The supply-leading hypothesis asserts that the presence of robust and efficient financial markets increases the supply of financial services and assets to meet up with their demand by the real sector of the economy for increase in goods and services. On the other hand, demand-following hypothesis asserts that financial development may also be stimulated by economic growth. That is, demand-following hypothesis argued that it is economic development which creates the demand for financial services and not vice versa through the expansion of an economy that will subsequently create new demand for financial services and assets.

**Figure 2.1 Conceptual Models for Financial Deepening and Economic Growth**



**Source: Authors Compilation (2019)**

This conceptual framework in Figure 2.1 comprises supply-leading and demand-following hypotheses suitability to explain the interactions between the dependent and independent variables of the study. This framework will show whether the independent variables jointly or individually, causes or predicts economic growth (GDPGR) as in supply-leading hypothesis. In the same vein, whether the dependent variable, that is, economic growth rate (GDPGR) causes or predicts financial deepening indicators as in demand-following hypothesis within the period of study.

**Methodology**

The paper employs quantitative technique based on expo-facto and descriptive research designs. This is because it examines events that have already taken place with the used of already established data which cannot be manipulated by the researcher.

All the data for these variables were obtained from various editions of the Central Bank of Nigeria (CBN) Statistical Bulletin, the National Bureau of Statistic (NBS), Statistical Fact Book, Nigeria Stock Exchange Annual Reports and Accounts, Securities and Exchange Commission and National Insurance Commission (NAICOM) Annual Reports and Accounts for the period of the study. These data were subjected to diagnostic test in order to improve the reliability of the result and ensure that it is not spurious. The

data was analyzed by employing Johansen co-integration techniques, Error Correction Model as well as the Toda-Yamamoto Granger causality test to investigate the long and short run and causality relationship between financial deepening variables (broad money supply, credit supply to private sector, value of stock traded and insurance assets) and economic growth (gross domestic product rate) with the aids of E-view version 9.0 statistical packages. This is consistent with the study of Kaimo and Ogbona (2017). These methods of analysis were used to determine the implicit direction of the causation, impact and degree of association between dependent and independent variables of this study.

**Model Specification**

The model of this paper is patterned after the model adopted as growth equation model by Levine (2000) and modified by Onwumere et al. (2012), Adekunle, Ganiyu & Adegbite (2013) and Igwe, Edeh & Ukpere (2014). The model is therefore firstly presented in this form;

$$G_y = f(FD) = \alpha_0 + \alpha_1 (FD)_t + \varepsilon_t$$

.....1

Where  $G_y$  is growth per capita; FD is financial sector deepening,  $\alpha_0$  and  $\alpha_1$  are constant and coefficient,  $\varepsilon_t$  is the error term.

While its functional relationship is as follow:

$$GDPGR = f (M2GDP, CPSGDP, TVSTGDP) \dots \dots \dots 2$$

Econometric transformation of the model can be presented in linear equation and adding the error term to obtain an explicit estimable econometric model as follows;

$$GDPGR = \alpha_0 - \beta M2GDP - \varphi CPSGDP - \lambda TVSTGDP - \varepsilon_t \dots 3$$

Where:

GDPGR = Annual growth rate of real gross domestic product

M2GDP = Ratio of broad money supply to gross domestic product

CPSGDP = Ratio of bank credit to private sector to gross domestic product

TVSTGDP = Ratio of total value of stock traded to gross domestic product

INSAGDP = Insurance total asset to gross domestic product.

Following the studies in Odeniran & Udejaja (2010) and Lee & Wong (2005) cited in Mandief (2015), Odeniran & Udejaja (2010) and Karimo & Ogbonna (2017), the model was modified by incorporating the VAR Granger Causality/Wald test developed by Toda and Yamamoto (1995) so as to evaluate the causality relationship between the variables of the study.

This is because the model can be applied to the level of non-stationary series and provides valid estimations as long as the maximal order of the integration of the series (d-max) is added into model. The equation (2) can be transformed model to test the causality is estimated from regression as:

$$GDPGR_t = \alpha_0 + \sum_{i=1}^{k+dmax} \alpha_{1i} GDPGR_{t-i} + \sum_{i=1}^{k+dmax} \alpha_{2i} M2GDP_{t-1} + \sum_{i=1}^{k+dmax} \alpha_{3i} CPSGDP_{t-1}$$

$$+ \sum_{i=1}^{k+dmax} \alpha_{4i} TVSTGDP_{t-1} + \sum_{i=1}^{k+dmax} \alpha_{5i} INSTAGDP_{t-1} + \varepsilon_{1t} \dots \dots \dots 4$$

$$M2GDP_t = \beta_0 + \sum_{i=1}^{k+dmax} \beta_{1i} GDPGR_{t-i} + \sum_{i=1}^{k+dmax} \beta_{2i} M2GDP_{t-1} + \sum_{i=1}^{k+dmax} \beta_{3i} CPSGDP_{t-1} + \sum_{i=1}^{k+dmax} \beta_{4i} TVSTGDP_{t-1} + \sum_{i=1}^{k+dmax} \beta_{5i} INSTAGDP_{t-1} + \varepsilon_{2t} \dots \dots \dots 5$$

$$CPSGDP_t = \varphi_0 + \sum_{i=1}^{k+dmax} \varphi_{1i} GDPGR_{t-i} + \sum_{i=1}^{k+dmax} \varphi_{2i} M2GDP_{t-1} + \sum_{i=1}^{k+dmax} \varphi_{3i} CPSGDP_{t-1} + \sum_{i=1}^{k+dmax} \varphi_{4i} TVSTGDP_{t-1} + \sum_{i=1}^{k+dmax} \varphi_{5i} INSTAGDP_{t-1} + \varepsilon_{3t} \dots \dots \dots 6$$

$$TVSTGDP_t = \lambda_0 + \sum_{i=1}^{k+dmax} \lambda_{1i} GDPGR_{t-i} + \sum_{i=1}^{k+dmax} \lambda_{2i} M2GDP_{t-1} + \sum_{i=1}^{k+dmax} \lambda_{3i} CPSGDP_{t-1} + \sum_{i=1}^{k+dmax} \lambda_{4i} TVSTGDP_{t-1} + \sum_{i=1}^{k+dmax} \lambda_{5i} INSTAGDP_{t-1} + \varepsilon_{4t} \dots \dots \dots 7$$

$$\begin{aligned}
 INSTAGDP_t = & \delta_0 + \sum_{i=1}^{k+dmax} \delta_{1i} GDPGR_{t-i} \\
 & + \sum_{i=1}^{k+dmax} \delta_{2i} M2GDP_{t-1} \\
 & + \sum_{i=1}^{k+dmax} \delta_{3i} CPSTGDP_{t-1} \\
 & + \sum_{i=1}^{k+dmax} \delta_{4i} TVSTGDP_{t-1} \\
 & + \sum_{i=1}^{k+dmax} \delta_{5i} INSTAGDP_{t-1} \\
 & + \varepsilon_{5t} \dots \dots \dots \dots \dots \dots \dots 8
 \end{aligned}$$

Where:  $\alpha_0, \beta_0, \varphi_0, \lambda_0$  and  $\delta_0$  are constant, k is the lag length, dmax is order of integration and (k + dmax) is the order of VAR. Similarly,  $\alpha_{1t}, \beta_{1t}, \varphi_{1t}, \lambda_{1t}$ , and  $\delta_{1t}$  are parameters to be estimated; and  $\varepsilon_{1t}, \varepsilon_{2t}, \varepsilon_{3t}, \varepsilon_{4t}$  and  $\varepsilon_{5t}$  are error terms that are assumed to be white noise and other variables are as earlier defined.

**Decision Criteria**

For the relationship between M2GDP<sub>t</sub> and GDPGR<sub>t</sub>, equations (3) and (4) are relevant. Causality runs from M2GDP<sub>t</sub> to GDPGR<sub>t</sub> if  $\alpha_{2i} \neq 0$  in equation (3), and from GDPGR<sub>t</sub> to M2GDP<sub>t</sub> if  $\beta_{1i} \neq 0$  in Equation (4). If  $\alpha_{2i} \neq 0$  and  $\beta_{1i} \neq 0$  do (not) hold simultaneously then, there is feedback (independent) relationship between M2GDP<sub>t</sub> and GDPGR<sub>t</sub>. This is applicable for the rest of the models.

**Co-integration Test**

The study employed the Johansen Co-integration tests (Johansen 1988; Johansen and Juselius, 1990) to test whether there exists a long-term relationship among the financial deepening and economic growth variables. The maximum given value ( $\lambda_{max}$ ) trace ( $\lambda_{trace}$ ) tests statistics were used estimate the co-integration rank r Cointegration model set up the non-stationary time series as a vector auto regression (VAR) of order is stated as follows:

$$\Delta Y_t = \sum_{i=1}^p \Gamma_i \Delta Y_{t-i} + \sum_{k=1}^p \Gamma_{k-i} \Delta Y_{t-k-i} + \Pi Y_{t-1} + \mu_t \dots \dots \dots \dots \dots \dots \dots 11$$

Where:  $Y_t$  is a vector of non-stationary I(0) variables,

$Y_{t-1}$  are I(1) and  $\Pi Y_{t-1}$  must be I (0) in order to have

$\mu_t \approx I(0)$  and therefore to have a well-behaved system.

$\mu_t$  is an identically and independently-distributed error term.

**Error Correction Model (ECM)**

The study also employed Error Correction Model (ECM) to investigate the direction of causality for the hypothesis testing, ascertain the speed of adjustment towards equilibrium and direction and magnitude of impact. The presence of co-integrating relationship forms the basis of the use of Vector Error Correction Model. This model is estimated by modifying the study baseline equation thus:

$$\begin{aligned}
 \Delta GDPGR_t & = \beta_0 + \sum_{i=0}^n \beta_1 \Delta GDPGR_{t-i} + \sum_{i=0}^n \beta_2 \Delta M2GDP_{t-1} \\
 & + \sum_{i=0}^n \beta_3 \Delta CPSTGDP_{t-1} + \sum_{i=0}^n \beta_4 \Delta TVSTGDP_{t-1} \\
 & + \sum_{i=0}^n \beta_5 \Delta INSTAGDP_{t-1} + \beta_6 ECT_{t-1} \\
 & + \varepsilon_{1t} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 12
 \end{aligned}$$

Where:  $\beta > 0$ ,

$ECT_{t-1}$  is the lagged value of error correction term.

**Economic A Priori Expectation**

According to economic theory, money supply, bank credit to private sector, stock turnover and the total value of stock traded has a positive relationship with gross domestic product (GDP).

Mathematically:  $\beta > 0, \varphi > 0, \lambda > 0, \delta > 0$



**Table : 3.2 Description of Variables Used, Their Sources and Expected Effects**

S/N	Variables	Definitions	Measurement	Authors	Sign
	<b>Dependent Variables</b>				
1	GDPGR	Real Gross Domestic Product Growth		Yinusa&Akinlo (2013); Mandief (2015); Okaforet al (2016)	
	<b>Independent Variables</b>				+
2	M2GDP	Broad Money Supply Ratio	$M2 \div GDP$	Okaforet al (2016)	+
3	CPSGDP	Bank Credit to Private Sector	$CPS \div \text{Total Assets}$	Okaforet al (2016), Olofin&Afangideh (2010)	+
4	TVSTGDP	Stock Market Liquidity (Total value of stock traded)	$TVST \div GDP$	Adenuga (2010)	+
5	INSAGDP	Insurance Asset size	$\text{Ins. Total Asset} \div GDP$	Ederi, Edori&Needam (2016)	+

## Results and Discussion

### Descriptive Results

Appendix 1 presents the descriptive statistics and correlations for the dependent variable and independent variables. The results shows that the mean values are 22.28%, 15.34%, 12.11%, 8% and 11.95% for the gross domestic product growth rate, broad money supply, credit to private sector, stock market liquidity and insurance asset size respectively. This indicates that the variables exhibit significant variation in terms of magnitude, suggesting that estimation in levels may introduce some bias in the results. All the variables have positive mean values while the minimal deviation of the variables from their means as shown by the standard deviation ranges from 13.59565 to 0.913255 gives indication of growth or fluctuation of these variables over the period. Even, all the variables displayed a high level of consistency as their median values were falls within the minimum and maximum values of the series while the skewness of GDPGR is positive 1.159332 and this indicate that the degree of departure from the mean of the distribution is positive. This implies that there was a consistent increase in GDPGR between 1986 and 2019.

### Correlation Results

The correlation matrix results in Appendix 1

revealed that gross domestic product growth rate (GDPGR) and the four financial deepening indicators; M2GDP, CPSGDP, INSTAGDP and STVTGDP are negatively correlated with low coefficient values of -0.52, -0.54, -0.25 and -0.22 percent respectively. Generally, the result indicates that all correlation coefficient are less than the 0.9 bench mark which implies that there is absence of multicollinearity problem among the variable under study.

### Unit Root Test Results

The unit root tests presented in Appendix 1 shows the results of both Augmented Dickey-Fuller (ADF) and Phillips-Peerron (PP) unit root tests for the order of integration of the time series. The results revealed that series indicate a different integration order for the study. The Gross Domestic Product growth rate (GDPGR) series are integrated order null  $I(0)$  while all the financial deepening variables; broad money supply, credit to private sector, value of stock traded and insurance asset ratio series are integrated in first differences  $I(1)$  indicating the maximum order of integration of the time series is  $I(1)$ . The optimal lag length used for the augmented Dickey-Fuller tests (ADF) and the truncation lag parameter in the Phillips and Perron tests (PP) were determined using Schwarz Information Criterion (SC) as shown in Appendix 1.

The VAR Lag Order Selection results in Appendix 1 revealed that Schwarz Information Criterion (SC) reports the optimal lag length of one (  $k = 1$  ) out of a maximum of 3 lag lengths as selected.

**Diagnostics Test**

For a model to be efficient there should be no serial correlation among the residuals, no heteroskedasticity and the residuals should be normally distributed and stable. Thus, the serial correlation LM- tests were carried out and results shown in Appendix 1. The result suggest that the null hypothesis that no serial correlation at lag 2 cannot be rejected because the lag-value of 32.4533 with probability value of 0.1453 is greater than 0.05 hence, we accept it and conclude that there is no serial correlation among the variables. Even, Breusch-Godfrey serial correlation LM test also confirmed this with the Obs R-square value of 2.1830 and p-value of 0.3357 which is greater than 5% level of significance.

**Normality and Stability Test**

Appendix 1 presents normality test for the relevant variables underlying the sourced data set. The result indicates that the p-values of JarqueBera-statistic are all greater than the critical value of 0.05 except for TVSTGDP of

0.0000 which is less than 0.05. Based on this, we accept the null hypothesis that the variables of the study are normally distributed.

**Heteroskedasticity Test**

Also, the VAR residual heteroskedasticity test show that the value of the Obs R-square is 5.348920 with p-value of 0.2533 and this is greater than 0.05 level of significance, we do not reject null hypothesis rather we accept it and conclude that the model does not have heteroskedasticity. The model is however, homoskedastic.

**Co-integration Analysis Results**

Table 4.1 represents the Johansen co-integration test results. The results indicate the existence of long-run relationship in GDPGR, M2GDP, CPSGDP, TVSTGDP and INSAGDP respectively. The co-integration analysis results revealed that we do not reject the hypothesis is of at most 1 co-integrating equation in the model. This implies the existence of 1 co-integrating long run relationship at 5% level of significance; hence there is the possibility of a long run causality relationship between the variables used in the model.

**Table 4.1a: Unrestricted Cointegration Rank Test (Trace)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.703133	85.27260	69.81889	0.0018
At most 1	0.549010	47.62402	47.85613	0.0526
At most 2	0.373239	22.93843	29.79707	0.2491
At most 3	0.205869	8.455521	15.49471	0.4180
At most 4	0.041372	1.309805	3.841466	0.2524

Trace test indicates 1 cointegratingeqn(s) at the 0.05 level

**Source: Authors computation (2019)**

**Table 4.1b: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.703133	37.64858	33.87687	0.0169
At most 1	0.549010	24.68559	27.58434	0.1125
At most 2	0.373239	14.48291	21.13162	0.3267
At most 3	0.205869	7.145717	14.26460	0.4720
At most 4	0.041372	1.309805	3.841466	0.2524

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

Source: Authors computation (2019)

**Vector Error Correction Model (VECM) Results**

As the long-run co-integrating equilibrium has been established which provides for short-run fluctuations among the variables then error-correction model can be estimated. This is to absolve these fluctuations and determine the dynamic behavior of financial deepening indicators on Nigerian economic growth. This is due to the fact that there could be deviations in the short-run as a result of some shocks in the Nigerian economy. The result of the VECM presented in Table 4.2 indicates the proportion of disequilibrium error that is accumulated in the previous period, which is corrected in the current period. The ECM(-1) of -1.02 indicates that about 102% of any disequilibrium between the short run dynamics (shocks) and the long run

equilibrium value of GDPGR is corrected or eliminated at a faster rate in the current period. That is, the speed at which GDPGR will adjust to economic shock on financial deepening variables. The effect of this ECM is not only large but also has a negative sign as expected and is significant at 5% probability level. This result confirmed that the variables under study indeed co-integrated. The coefficient of R2 shows that the combined effect of financial deepening variables impacted on gross domestic product growth rate by 64% in Nigeria. This implies that every percentage change in economic growth is as a result of the financial deepening variables and this is significant at 5% level.

Table 4.2 Vector Error Correction Model Results

Variables	Coefficient	t	Std. Error	t-Statistic	Prob.
ECM(-1)	-1.024534		0.228083	-4.491928	0.0002
D(M2GDP(-1))	1.981272		1.541920	1.284938	0.2111
D(CPSDP(-1))	0.592662		1.226022	0.483403	0.6332
D(TVSTGDP(-1))	0.395980		2.741128	0.144459	0.8863
D(INSGDP(-1))	-1.940731		0.898286	-2.160482	0.0409
C	-1.842128		1.715891	-1.073569	0.2937
R-squared	0.637190	Mean dependent var		-0.519355	
Adjusted R-squared	0.546487	S.D. dependent var		13.58328	
S.E. of regression	9.147440	Akaike info criterion		7.460505	
Sum squared resid	2008.216	Schwarz criterion		7.784308	
Log likelihood	-108.6378	Hannan-Quinn criter.		7.566057	
F-statistic	7.025048	Durbin-Watson stat		1.747163	
Prob(F-statistic)	0.000210				

**Table 4.3: T.Y Granger non-causality Modified WALD (MWALD) Test Result**

Null Hypothesis	Chi-square	d.o.f	Probability	Granger Causality
M <sub>2</sub> GDP does not cause GDPGR	11.2001	2	0.0037	Unidirectional Causality
GDPGR does not cause M <sub>2</sub> GDP	3.6973	2	0.1574	M <sub>2</sub> GDP → GDPGR
CPSGDP does not cause GDPGR	8.3274	2	0.0155	Unidirectional Causality
GDPGR does not cause CPSGDP	1.4810	2	0.4769	CPSGDP → GDPGR
TVSTGDP does not cause GDPGR	3.7203	2	0.1556	No causality
GDPGR does not granger TVSTGDP	0.4694	2	0.7908	No causality
INSTAGDP does not cause GDPGR	13.9445	2	0.0009	Unidirectional Causality
GDPGR does not cause INSAGDP	5.6327	2	0.0598	INSAGDP → GDPGR

**Source: Author’s Computation (2019).**

**Granger Non-Causality test Results - Testing of Hypotheses**

The Toda-Yamamoto TY approach uses a modified Wald test (MWALD) to test for non-causality. This approach does not consider whether series are stationary or co-integrated; it requires that the maximum order of integration (dmax) and optimal lag length (p) to give (p + dmax) of optimal lag length used for the TY VAR model in Table 4.6. in order to address the problem of this study, the TY Granger non-causality MWALD is used to test each null hypothesis in the study as follow:

**Testing of Hypothesis (Ho) 1: There is no significant causal link between the broad money supply and economic growth in Nigeria.**

The results of Granger non-causality test based on the Toda Yamamoto MWALD estimated are reported in Table 4.3 indicates that we can reject the null hypothesis that money supply (M<sub>2</sub>GDP) does not Granger cause economic growth since its X<sup>2</sup> test statistic of 11.20009, with probability values of 0.0037 is less than 0.05 level of significance, meaning that M<sub>2</sub>GDP granger cause GDPGR. However, we cannot reject the null hypothesis that economic growth (GDPGR) does not granger cause money supply (M<sub>2</sub>GDP) because its prob – values of 0.1574 is greater than 0.05 level of significance meaning that GDPGR does not granger cause M<sub>2</sub>GDP. This implies that there is a uni-directional short-run causality running from M<sub>2</sub>GDP proxied for financial deepening to economic growth (GDPGR) without feedback. Hence, the alternative hypothesis that there is significant causal link

between the broad money supply and economic growth in Nigeria is accepted. The result also supports the supply-leading hypothesis as well as conform to the findings in Ogwumike & Salisu (2010) and Mandiefe (2015).

**Testing of Hypothesis (Ho) 2: The bank credit to private sector cannot significantly granger cause economic growth in Nigeria.**

The results of Granger non-causality test shows that null hypothesis that CPSGDP does not Granger cause economic growth (GDPGR) cannot be rejected because its X<sup>2</sup> test statistic of 8.327418, with probability values of 0.0155 is less than 0.05 level of significance, meaning that CPSGDP granger cause GDPGR. Contrary to this, we can reject the null hypothesis that GDPGR does not granger cause CPSGDP because its prob – value of 0.4769 is greater than 0.05 level of significance, meaning that GDPGR does not granger cause CPSGDP. This result indicates that there exists a uni-directional causality running from CPSGDP to GDPGR and implies that the bank credits to private sector can significantly granger cause economic growth in Nigeria. This result also supports the supply-leading hypothesis and in tandem with finding in Okoye, et al. (2016).

**Testing of Hypothesis (Ho) 3: There is no significant causal relationship between the insurance asset size and economic growth in Nigeria.**

The results show that the X<sup>2</sup> test statistic from the null hypothesis of the causality test running from INSAGDP to GDPGR is 13.94452 with a probability value 0.0009 and from GDPGR to INSAGDP with the X<sup>2</sup> test



statistic of 5.63269 and probability value of 0.0598 indicating a uni-directional causality from INSAGDP to GDPGR at 5% level of significance. This result also shows that there is significant causal relationship between the value of stock traded and economic growth in Nigeria within the period of study hence, supports the supply-leading hypothesis to explain the finance-growth nexus within the period of the study.

**Testing of Hypothesis (Ho) 4: Stock market liquidity does not significantly granger cause economic growth in Nigeria.**

The Granger non-causality test in Table 4.3 shows the evidence of no causality existing between stock market liquidity (TVSTGDP) and economic growth (GDPGR) as their X2 test statistic values of 3.72033 and 0.46935 with probability values of 0.1556 and 0.7908 respectively are greater than 5% level of significance. This implies that both stock market liquidity and economic growth cannot granger cause each other within the period of the study. Hence, the null hypothesis that stock market liquidity does not significantly granger cause economic growth in Nigeria is accepted. The result is consistent with the under developed of the Nigerian stock markets.

**Summary, Conclusion and Recommendation**

**Summary**

This paper broadly examines the causal effect of financial deepening on economic growth in Nigeria for the period 1986 – 2019 using Toda and Yamamoto (1995) Granger non-causality approach estimated by the modified wald (MWALD) test procedure. The paper specifically determined the presence and direction of causal relationship between the financial deepening's variables (such as money supply, bank credit to private sector, insurance asset size and stock market liquidity and economic growth in Nigeria. That is, investigates the extent to which the supply-leading hypothesis or demand – following hypothesis holds, and whether the direction of causal relationship is uni-directional, bi-directional or both in the Nigeria context within the period of the study.

The results of the unit root tests (ADF and PP)

show that all the variables were integrated at I(1) except economic growth which is I(0), suggesting a test for co-integration to determine the long run relationship though, not sufficient condition for determining causality between the variables. The Johansen co-integration results revealed that there exists a co-integrating equilibrium or long-run relationship between gross domestic (GDP) growth rate proxy for economic growth and the financial deepening variables such as money supply, bank credit to private sector, insurance asset size and stock market liquidity.

In addition, the vector error correction regression estimates show sufficient evidence that the financial deepening significantly impacts on economic growth in Nigeria in the short and long-run. This result is further reinforced by the Granger non-causality test proposed by Toda and Yamamoto (1995) estimates that there is unidirectional causality running from the money supply, credit to private sector and insurance asset to economic growth as well as amongst the individual financial deepening variables. In essence, as causality relationship can be established between money supply, credit to private sector, and insurance development, and economic growth in Nigeria is strong and significant, this means that changes in the level of gross domestic product (GDP) can be predicted with changes in these financial deepening variables in the country. The result also suggests that any policy targeted to improve the financial system is expected to influence economic growth in a positive way.

This result supports the financial development theory supply-leading hypothesis which means that the Nigerian economic growth and development depends greatly on the deepening of its financial system within the period of the study. However, the result shows no causal relationship between the stock market liquidity and economic growth. This may be as a result of under-developed of capital market in Nigeria. The policy implication for these findings are that there is need for pragmatic and more inclusive monetary policies that would improve availability, accessibility and usage of

financial assets and services in order to boost economic growth and development in Nigeria.

### **Conclusion**

This paper presented some rather careful tests of causality between financial deepening and economic growth in multivariate systems using the Toda and Yamamoto methodology. The conclusion drawn from this study, going by the p-values of the causality tests that there are three fundamental variables such as money supply, bank credit to private sector and insurance total assets from banking and non-banking financial institutions proxied for financial deepening that cannot be ignored since individually and all jointly Granger-caused economic growth. This is in conformity with the supply-leading hypothesis. In addition, findings revealed that financial deepening has significant impact on economic growth within the period of the study. This clearly implies that there is a short and long-run causal relationship amongst the banking and insurance development indicators and stock market liquidity which equally influence one another to propel the country on the part of economic growth. Thus, any policy targeted to improve the financial system is expected to influence economic growth in a positive way therefore, it can be concluded that the financial sector is a catalyst for economic growth. In the light of the above findings and the debate over the finance-growth nexus, the outcome of this study should not be viewed as conclusive empirical evidence, but rather an additional motivation for further research in the area with regards to the use of different financial deepening indicators and scope of studies.

### **Recommendations**

The study recommends that efforts should be made to deepen the financial sector in the country by improving availability, accessibility and usage of financial assets to boost economic growth and development in Nigeria in view of the strong and significant causality relationship established between broad money supply, credit to private sector, and insurance services, and economic growth

in Nigeria within the period of study.

In addition, the government and policy makers should design policies that will promote the efficient banking, non-banking financial institutions and capital markets to broaden their financial markets to accelerate financial development and improve the financial structure that leads to increase economic growth in Nigeria.

Equally, banks should continue pursuing proactive and aggressive policies to remove all obstacles that could undermine the growth of financial intermediation through savings transformation in form of credit to the private sector. That is, banks should be encouraged to embark on an effective means of improving credit channels and liquidity to private firms at avoidable costs.

The CBN and NAICOM should improve their supervisory capacity and pursue such policies that would enhance the safety, soundness, efficiency and development of the insurance sector to better influence economic growth the more.

As stock market liquidity has not significantly granger cause economic growth in Nigeria within the period under study, effort should be made to reduce the impediments and ensure that stock prices truly reflect their actual values. In addition, government should redirect its policy efforts towards ensuring effective and efficient functioning of the stock exchange market devoid of malpractices in order to allow investors access to long term resources to grow the economy. Through this, the development of financial system in Nigeria may gradually contribute more to real sector activities and consequently facilitating economic growth.

### **Recommended For Further Studies**

The outcome of this study should not be viewed as conclusive empirical evidence, but rather an additional motivation for further research in the area of financial deepening and economic growth in Nigeria with regards to the use of different financial deepening indicators and scope of studies.

References

- Adenuga, A. O. (2010).** Stock Market Development Indicators and Economic Growth in Nigeria: Empirical Investigations. *Economic and Financial Review*, 48 (1); 33–70
- Adenuga, A. O. and Adams, Y. J. (2007)** The Granger Causality Analysis of Some Financial and Real Sectors Variables: The case of Nigeria. *Journal of Banking; The Chartered Institute of Bankers of Nigeria*, 2(1), 31 - 56
- Ang, J. B. (2008).** Are Financial Sector Policies Effective in Deepening the Malaysian Financial System? Discussion Paper. 33: 1-13.
- Arena, U. (2006).** Does Insurance Market Activity Promote Economic Growth? A Cross-Country Study for Industrialized and Developing Countries, World Bank Policy Research Working Paper. The World Bank.
- Aye, G. C. (2013)** Causality between Financial Deepening, Economic Growth and Poverty in Nigeria. *The Business and Management Review*, 3(3); 1-12
- Ayila, N., Akighir, D. T. & Iorember, P. T. (2014).** Financial Deepening and Economic Growth in Nigeria: An ARDL Model Approach. *Journal of Economic Studies*, 11(1)
- Bagehot, W. (1873).** Lombard Street: A Description of the Money Market. (R. D. Irwin 1962. Ed.) Homewood: Hyperion Press, Inc.
- Bakang, M. L. N. (2014).** Effect of Financial Deepening on Economic Growth in Kenya. *International Journal of Business And Commerce*, 4 (07), 1-150
- Beck, T. Levine, R. & Loayza, N. (2000).** Industry Growth and Capital Allocation: Does Having a Market or Bank System Matter? *Journal of Financial Economics*, 64 (2): 147-180. CBN Statistical Bulletin (Various issues),
- Dehesa, M., Druck, P. and Plekhanov, A. (2007).** Relative Price Stability, Creditor Rights and Financial Deepening. IMF Working Paper, WP/07/139, 2-21.
- Ebiringa, O. T. & Duruibe, S. C. (2015).** Financial System Development and Economic Growth: Evidence from Nigeria. *American Journal of Economics, Finance and Management*, 1 (5), 329-335
- Edori, I. S., Edori, D. S. & Needam, B. B. (2016).** Financial Intermediation and Economic Growth in Nigeria: Long Run Analysis and Test of Demand Following Hypothesis (Nigerian Experiences). *Journal of World Economic Research*, 5(6), 101-107
- Fashagba, M. O. (2018).** The Impact of Insurance on Economic Growth in Nigeria. *Afro Asian Journal of Social Sciences*, IX (I), 1-9
- Goldsmith, R. W. (1969).** Financial Structure and Development, New Haven, CT: Yale University Press.
- Ghildiyal, V., Pokhriyal, A.K. & Mohan, A. (2015).** Impact of Financial Deepening on Economic Growth in Indian Perspective: ARDL Bound Testing Approach to Co-integration. *Asian Development Policy Review*, 3(3):49-60
- Igwe, A., Edeh, C. E. & Ukpere, W. I. (2014).** Financial Deepening and economic Growth in Nigeria (1981-2012): A Managerial Economic Perspective. *Risk Governance & Control; Financial Market & Institutions*, 4 (4), 120-131.
- Islam, M. and Oslam, J. (2011).** Development of Non-Bank Financial Intermediaries on Economic Growth in Malaysia: An Empirical Investigation, *International Journal of Business and Social Sciences*, 2 (14), 187-198.
- Karimo, T. M. & Ogbonna, O. E. (2017).** Financial Deepening and Economic Growth Nexus in Nigeria: Supply-Leading or Demand-Following? *Economics*, 5 (4); 1–18.
- Kromtit, M. J. & Tsenkwo, J. B. (2014).** Recent Trend Of Financial Deepening And Economic Growth: Empirical Evidence from Nigeria's Data.

- Economy & Business; 1204-1219
- Lee, C. C. and Wong, S. Y. (2005).** Inflationary Threshold Effects in the Relationship between Financial Development and Economic Growth: Evidence from Taiwan and Jordan. *Journal of Economic Development*, 30(1), 1-12
- Mandiefe, P. S. (2015):** The impact of financial sector development on economic growth: Analysis of the financial development gap between Cameroon and South Africa. Munich Personal RePEc archive MPRA Paper, 65763: 15-41 National Bureau Statistical (Various issues)
- Nguena, C. L. & Abimbola, T. M. (2013).** Financial Deepening Dynamics and Implication for Financial Policy Coordination in a Monetary Union: the case of WAEMU. Johannesburg, Article Presented at African Economic Conference; Regional Integration in Africa, October, 30th
- Nwanna, I. O. & Chinwudu, C. F. (2016).** The Effect of Financial Deepening on Economic Growth in Nigeria (1985 - 2014). *IOSR Journal of Economics and Finance (IOSR- JEF)*, 7 (4), 11-28
- Ndebbio, J. E. U. (2004)** Financial Deepening, Economic Growth and Development: Evidence from selected sub-Saharan African countries. African Economic Research Consortium (AERC) Research Paper 142; 1-30
- Nkoro, E. & Uko, A. K. (2013).** Financial Sector Development-Economic Growth Nexus: Empirical Evidence from Nigeria. *American International Journal of Contemporary Research*, 3(2); 87-93
- Nzotta, S. M & Okereke, E. J. (2009).** Financial Deepening And Economic Development Of Nigeria: An Empirical Investigation. *African Journal Of Accounting, Economics, Finance And Banking Research*; 5 (5)
- Odeniran, S. O. and Udejaja, E. A. (2010).** Financial Sector Development and Economic Growth: Empirical Evidence from Nigeria, *CBN Economic and Financial Review*, 48 (3): 91-124
- Ogwumike, F. O. and Salisu, a. a. (2010).** Financial Development and Economic Growth in Nigeria. *Journal of Monetary and Economic Integration*, 12 (2), 91-119.
- Okafor, I. G., Onwumere, J.U.J. & Chijindu, E. H. (2016).** Financial Deepening Indicators and Economic Growth in Nigeria: A Causality and Impact Analysis. *Asian Journal of Economics, Business and Accounting*, 1 (2), 1-11
- Okoli, M. N. (2014).** Evaluating The Nexus Between Financial Deepening And Stock Market In Nigeria. *European Scientific Journal*, July Edition; 8 (15); 1-22
- Okoye, L. U., Modebe, N. J., Taiwo, J. N. and Okorie, U. M. (2016).** Impact of Capital Market on the Growth of Nigerian Economy. *Research Journal of Financial Sustainability*, 1 (1), 24-32.
- Ohwofasa, B. O. & Aiyedogbon, J. O. (2013).** Financial Deepening and Economic Growth in Nigeria, 1986-2011: An Empirical Investigation. *Journal of Economics and Development Studies*, 1(1); 24-42
- Olofin, S. O. and Afangideh, U. J. (2009).** Financial Structure and Economic Growth in Nigeria: A Macroeconomic Approach. *Nigerian Journal of Securities and finance*, 13 (1), 47-68.
- Onwumere, J. U. J., Onudugo, V. and Ibe, I. G. (2013).** Financial Structure and Economic Growth: Evidence from Nigeria. *Global Journal of Management and Business Research Finance*, 13 (5)
- Onyemachi C. (2012)** An Empirical Analysis of Financial Deepening and Economic Growth in Nigeria: (1986 – 2010). A Thesis Submitted to the Postgraduate



- School in Partial Fulfilment for the Award of Masters of Science in Economics (M.Sc), Department of Economics, Ahmadu Bello Univesity, Zaria, Nigeria. May 2012
- Oniore, J. O. (2014).** Impact of Financial Deepening and Foreign Direct Investment Effectiveness on Economic Growth in Nigeria. International Journal of Economics, Commerce and Management, II (10), 1-16.
- Oriavwote, V. E. and Eshenake, S. J. (2014).** An Empirical Assessment of Financial Sector Development and Economic Growth in Nigeria. International Review of Management and Business Research, 3 (1), 139-149.
- Robinson, J. (1952).** The Generalization of the General Theory: In the Rate of Interest and Other Essays.London; MacMillan Publishing Co.,
- Schumpeter, J. A. (1911).** The Theory of Economic Development, translated by Redvers Opie. Cambridge, MA: Harvard University Press.
- Shaw, E. S. (1973).** Financial Deepening in Economic Development, New York and London:Oxford University Press.Inc.
- Shittu, A. I. (2012).** Financial Intermediation and Economic Growth in Nigeria.British Journal of Arts and Social Sciences, 4 (2), 164-179
- Toda, H.Y. and Yamamoto, T. (1995).** Statistical Inferences in Vector Autoregressions with Possibly Integrated Processes.Journal of Econometrics 66, 225-250.
- Ubom, U. K. (2012).** Investment Portfolio of Insurance Firms and Economic Development of Nigeria, International Journal of Finance and Accounting, 3(5)

**APPENDIX 1:**

**Unit Root Test based on Augmented Dickey -Fuller Results**

VARIABLES	ADF Test Statistics	5% Critical Values	Prob.Values	Remarks	Order of Integration
GDPGR	-3.2761	-2.9571	0.0246	Stationary	I(0)
M <sub>2</sub> GDP	-5.5165	-2.9604	0.0001	Stationary	I(1)
CPSGDP	-6.0706	-2.9604	0.0000	Stationary	I(1)
TVSTGDP	-5.6027	-2.9604	0.0001	Stationary	I(1)
INSGDP	-5.0506	-2.9604	0.0003	Stationary	I(1)

Source: Author Computation: E-view 9.0 (2019)

**Unit Root Test based on Phillip Peron Test Results**

VARIABLES	PP Test Statistics	5% Critical Values	Prob. Values	Remarks	Order of Integration
GDPGR	-3.3052	-2.9604	0.0230	Stationary	I(0)
M <sub>2</sub> GDP	-5.5177	-2.9604	0.0001	Stationary	I(1)
CPSGDP	-6.0706	-2.9604	0.0000	Stationary	I(1)
TVSTGDP	-5.9787	-2.9604	0.0000	Stationary	I(1)
INSGDP	-5.0631	-2.9604	0.0003	Stationary	I(1)

Source: Author Computation: E-view 9.0 (2019)

**Summary Statistics and Correlation Analysis**

Status	GDPGR	M <sub>2</sub> GDP	CPSGDP	TVSTGDP	INSGDP
Mean	22.27879	15.33939	12.11212	0.818182	11.94545
Median	18.70000	13.10000	8.300000	0.700000	9.900000
Maximum	64.20000	24.30000	23.10000	4.300000	22.70000
Minimum	5.300000	9.200000	6.200000	0.100000	5.900000
Std. Dev.	13.59565	4.754007	6.107463	0.913255	4.479055
Observations	33	33	33	33	33

Source: Author Computation from E-view 9.0

**Correlation Matrix**

VARIABLES	GDPGR	M <sub>2</sub> GDP	CPSGDP	TVSTGDP	INSGDP
GDPGR	1.000				
M <sub>2</sub> GDP	-0.5184	1.000			
CPSGDP	-0.5442	0.9689	1.000		
TVSTGDP	-0.2539	0.4723	0.4178	1.000	
INSGDP	-0.2188	-0.2680	-0.3068	-0.1632	1.000

Source: Author Computation from E-view 9.0 (2019)

**VAR Lag Length Selection Criteria Results**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-391.1286	NA	86457.82	25.55669	25.78797	25.63208
1	-297.1329	151.6059	1033.486	21.10535	22.49308*	21.55772
2	-266.2500	39.84892*	810.5578*	20.72581*	23.26998	21.55514*

Source: Author's Computation (2019)

**Breusch-Godfrey Serial Correlation LM Test**

F-statistic	0.920870	Prob. F(2,26)	0.4108
Obs*R-squared	2.182960	Prob. Chi-Square(2)	0.3357

Source: Author's Computation (2019)

**VAR Residual Serial Correlation LM Test**

Lags	LM-Stat	Prob
1	28.52633	0.2842
2	32.45332	0.1453
3	21.46630	0.6663
4	22.83404	0.5873

Probs from chi-square with 25 df.

Source: Author's Computation (2019).

**VAR Residual Normality Tests**

<b>Variables</b>	<b>Jarque-Bera</b>	<b>Df</b>	<b>Prob.</b>
GDPGR	1.768890	2	0.4129
M2GDP	1.659991	2	0.4361
CPSGDP	1.982169	2	0.3712
TVSTGDP	29.49865	2	0.0000
INSAGDP	2.550771	2	0.2793
Joint	37.46047	10	0.0000

**Source: Author's Computation (2019).**

**Heteroskedasticity Test: Breusch -Pagan-Godfrey**

F-statistic	1.354104	Prob. F(4,28)	0.2749
Obs*R-squared	5.348920	Prob. Chi-Square(4)	0.2533
Scaled explained SS	7.117828	Prob. Chi-Square(4)	0.1298

**Source: Author's Computation (2019).**