# MONEY MARKET INSTRUMENTS AND ECONOMIC GROWTH OF NIGERIA

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**Abstract:**

This study investigated the relationship between the money market instruments and economic growth of Nigeria using time series analysis from 1981-2019. The relevant variables for which data were sourced include: Real gross domestic product, Financial deepening indicator [ratio of money supply ($M_2$) to gross domestic product – ($M_2$/GDP)(%)], value of treasury bills outstanding, value of Certificate of deposit outstanding, value of commercial paper outstanding, and value of banker acceptance outstanding. The data extracted from the CBN statistical bulletin, vol. 30, 2019. The Augmented Dickey Fuller (ADF), Johansen cointegration test and Error Correction Mechanism (ECM) were adopted. The research findings found that, there is significant relationship between money market instruments and economic growth in Nigeria. Furthermore, there is insignificant relationship between money market instruments and the development of the Nigerian financial system. The study recommends amongst others, the need for Government to create appropriate macroeconomic policies, legal framework and consolidate and improve on reforms with a holistic view to developing and deepening the market so as to promote productive activities, investments, and ultimately economic growth.

**JEL:** E41; E50; E51

**Keywords:** money market, economic growth, banker acceptance, treasury bills, certificate of deposit

## 1. Introduction

The money market is an integral part of the Nigeria economy since it plays a vital role in the economic growth process of the country (Kehinde & Adejuwon, 2011). Specifically, it plays a key role in banks liquidity management and the transmission of monetary policy (Rigg & Zibell, 2009). Money markets play a key role in banks' liquidity management and

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the transmission of monetary policy by providing the appropriate instruments for liquidity trading. The money market also allows the refinancing of short and medium-term to facilitate and mitigate business liquidity and risk (Iwedi & Igbanibo, 2015); and control of money supply and demand-pull inflation, determination of short-run interest rate (Ekmekcioglu, 2013). In normal times, money markets are among the most liquid in the financial sector. By providing the appropriate instruments and partners for liquidity trading, the money market allows the refinancing of short and medium-term positions and facilitates the mitigation of your business' liquidity risk. The banking system and the money market represent the exclusive setting monetary policy operations. Unarguably, a developed, active and efficient interbank market enhances the efficiency of central bank's monetary policy, transmitting its impulses into the economy best policy. Thus, the growth of the money market smoothes the progress of financial intermediation and boosts lending to economy and hence improving the country's economic and social welfare (Ochei & Osabuohien, 2012; Dabwor, 2009). Therefore, the growth of the money market is in all stakeholders' interest; the banking system itself, the Central Bank and the economy as a whole.

The existence of money market facilitates trading in short-term debt instruments to meet short term needs of large users of funds such as governments, banks, and similar institutions (Ehigiamusoe, 2013). Moreover, the level of development of money market serves as a barometer for measuring the level of development of the economy. The money market is one of the categorizations of the financial markets. The other category is the capital market. While the money market deals in short-term funds, the capital market deals in long-terms loanable funds (Anyanwu, 1996). The basis of distinction between the money and capital market lies in the degree of liquidity of instruments bought and sold in each of the markets.

In developing economies like Nigeria money markets are still underdeveloped. As such the absence of a well-developed money market in these countries poses a challenge in pooling funds large enough to fund private enterprises. Despite that in recent times the Nigeria money market has witnessed robust reforms and expansion, there are still some problems and challenges which the market is confronted with. The Nigerian money market is still superficial when compared to her contemporaries in some advanced and emerging economies like U.S.A.; it is also characterized by immature secondary market, undiversified instruments, lack of proper coordination in the issuance of debt instruments, inadequate and deficient information flow among others. Can it be concluded therefore that money market operatives hamper economic growth in Nigeria? This is the question which previous studies have not fully answered. It is therefore the crux of this study to answer this question by examining the nexus between money market instruments and Nigeria's economic growth.

## 1.2 Statement of the Problem

A critical characteristic of the money market is that it should deep and broad so as to absorb large volume of transactions without significant effects on security prices and interest. The characteristic requires that there exist money active market participants such

that the transactions of an individual investor will have just infinitesimal effect on security prices and interest rates. The characteristic also requires that there are many varieties of securities so as to ensure that there are always alternative investment instruments available to satisfy the respective return-risk desires of investors in the market. A money market that has depth and breadth will be informational as well as operationally efficient and will contribute significantly to the growth of the economy.

Money market constitutes the most important institution for creating liquidity for government, companies and individuals (Ochei & Osabuohien, 2012). But in Nigeria, the money market is inadequate and constrained by the absence of sub-markets and availability of adequate credit instruments required for the smooth operations of the market. Despite the robust reforms in the market in recent times, the money market in Nigeria has remained underdeveloped. This is reflected in the inability of many programmes establish by government to achieve their targeted goals, resulting from poor local participation by the federal government established economic programmes, with hope to foster economic and financial development, such as Structural Adjustment Programme (SAP) 1986, Vision 2020, Millennium Development Goals (MDGs), National Economic Empowerment Development Strategy (NEEDs), State Economic Empowerment Development Strategy (SEEDs), and other development plans. We are not sure therefore that the money market instruments have significant relevance in the market environment, hence the need for the study.

The main objective of this study is to examine the operations and activities of Nigerian money market. The specific objectives of the study are stated below:
1) To evaluate the relationship between money market instruments and Nigeria's economic growth.
2) To ascertain the effect of money market instruments on financial development in Nigeria.

## 2. Review of Related Literature

### 2.1 Conceptual Framework
### a. Money Market
The money market is the market where securities of short term nature of not more than one year are bought and sold. It has no central location; businesses are usually transacted on telephone, fax, telex, and so on (Ikpefan & Osabuohien, 2012). Prices of securities dealt with are usually determined by the influence of the Federal Government of Nigeria's monetary policies being issued annually and monitored by the Central Bank. They are of high quality, unsecured but relatively low risks financial assets such as: savings of various forms, negotiable and non-negotiable certificate of deposits, bankers' acceptances, commercial papers, call money, treasury bills and treasury certificate.

Well-developed money markets exist in developed countries, particularly in the high-income ones, while those in the low-income countries mirror the state of their development. In the latter, the markets are narrow, poorly integrated, and in some instances, non-existent in the real sense of it (Nwosu & Hamman, 2008). The level of

development of a money market serves as a barometer for measuring the level of development of the economy. They assert that the degree and tempo of development of one reflects the spate of development of the other.

According to Senbet and Otchere (2005), the money market plays an important role in the mobilization of financial resources for short term investment through financial intermediation. Well-functioning money markets are very crucial for the promotion of global integration. An efficiently functioning domestic financial market can better position a country's competitiveness in the market for global capital. Through an efficient intermediation process, money markets improve the productivity of investment by channeling funds to the most profitable investment projects which translate into economic growth.

## b. Economic Growth

Economic growth is an important concept in Economics that is used to assess the performance of an economy. Though it is often used interchangeably witheconomic development in the literature, they do not mean the same thing in the strict sense. According to Abdulkadir, *et al.*, (2010) economic growth simply means increase in per capita income or increase in Gross National Product (GNP). Pietak (2014) described economic growth as a measure of describing the dynamics of economic processes in a country. Cvetanovic, *et al.*, (2019) described economic growth as the "*increase in the value of a country's production over time*". According to them, the extent of growth that a country can achieved depends on its ability and capacity to accumulate the direct factors of production and invest in knowledge acquisition. They highlighted the most significant fundamental factors of growth to include: population growth, financial development, qualitative macroeconomic environment, income distribution, political and social environment etc.

## 2.2 Theories of Money Market
### a. Modern Growth Theory

Modern growth theory developed by Grossman and Helpman, 1999; Lucas, 1988 and Romer, 1986) identifies two main channels through which the financial sector might affect long-run growth in a country. They include; through catalyzing the capital accumulation (including both human and physical capital) and by increasing the rate of technological progress. The five basic functions of an efficiently working financial sector (such as mobilizing and pooling savings; producing information ex-ante about possible investments and allocating capital; monitoring investments and exerting corporate governance; facilitating the trading, diversification and management of risks; and facilitating the exchange of goods and services) allow the above two channels to work for promoting growth by mobilizing savings for investment; facilitating and encouraging capital inflows; and allocating the capital efficiently among competing uses (Mordi, 2010).

## b. Financial Intermediation Theory

Financial intermediation theory was first formalized in the works of Goldsmith, 1969; McKinnon, 1973; Senbet and Otchere, 2005) who see financial markets, both money and capital markets playing a pivotal role in economic development, attributing the differences in economic growth across countries to the quantity and quality of services provided by financial institutions. According to Goldsmith (1969), the positive correlation between financial development and the level of real per capita GNP is attributed to the positive impact that financial development has on encouraging more efficient use of the capital stock. Also, the growth process has impact on financial markets because it creates incentives for further financial development. McKinnon's thesis is based on the complimentarity hypothesis, which is in contrast to the Neo-classical monetary growth theory. He argued that there is a complimentarity between money and physical capital which is reflected in money demand. This complimentarity links the demand for money directly and positively with the process of physical capital accumulation because the conditions of money supply have a first order impact on decision to save and invest. Furthermore, Shaw (1973) proposed a debt intermediation hypothesis, whereby expanded financial intermediation between the savers and investors resulting from financial liberalization (higher real interest rates) and development increase the incentive to save and invest, stimulates investments due to an increase supply of credit, and raises the average efficiency of investment. This view stresses the importance of free entry into and competition within the financial markets as prerequisites for successful financial intermediation (Dabwor, 2009).

McKinnon (1973) and Shaw (1973) also posited that policies that adversely affect the financial markets would adversely affect the incentive to save because it will cause repression of the financial markets. The key elements of financial repression according to them include: high reserve requirements on deposits; legal ceilings on bank lending and deposit rates; directed credit; restriction on foreign currency capital transactions; and restriction on entry into banking activities.

Even though the McKinnon-Shaw framework informed many low-income countries to design and reform their financial sectors, experiences later showed that the McKinnon-Shaw framework explain some of the quantitative changes in savings and investment at the aggregate level, but it failed to describe the micro-level interactions in the financial markets and among financial institutions. This affects the supply of savings and the demand for credit by economic agents and the subsequent effect on economic growth. Consequently, the agency theories of financial intermediation were developed.

The link between financial sector and real economy has long been believed by economists that financial markets and institutions are important factors in supporting economic development (See Goldsmith, 1969; McKinnon, 1973; Schumpeter, 1934 and Shaw, 1973). However, these early literatures failed to give theoretical linkage between financial development and growth. Recently, many economists have developed a model that drives a formal link between financial intermediation and growth. This literature considers two interrelated issues: it analyses how financial intermediation affects economic growth, and it studies how economic growth might itself affect the evolution

and growth of financial intermediation. Levine (1999) for instance agrees that financial intermediaries enhance economic efficiency and, eventually, growth by helping to allocate capital to its best uses. Several other cross-country and panel data studies such as (Khan, et al., 2006; King & Levine,1992; and Levine, 2004) showed that financial development had a positive impact on economic growth.

## 2.3 Review of Empirical Studies

Iwedi and Igbanibo (2015) examine the nexus of money market operations on economic growth in Nigeria from 1980 to 2013. The descriptive statistical tools and sophisticated econometric tools of the vector auto-regressions (VAR), Johansen Co-integration, and Granger causality tests was employed in the analysis. The research findings revealed that there is a positive significant short-run and long-run relationship between money market operations and economic growth in Nigeria. The result shows that causality flows from economic growth proxy by GDP to money market operations but not vice versa. Using Ordinary Least Square (OLS) of simple regression model, Ezeanyeji and Ejefobihi (2015) examined the impact of inflation on economic growth of Nigeria between 1991 and 2013 and study showed that inflation has impacted negatively on economic growth of Nigeria. Again, Okpe, (2013) examine the impact of money market on the Nigerian economic development in Nigeria from the period 1987 and 2007. The Ordinary Least Square was employed. The research findings revealed that the Nigeria stock exchange has contributed to some extent in financing small and medium scale enterprises. Also, Ikpefan and Osabuohien, (2012) investigates the interactions between discount houses, money market instruments and economic growth in Nigeria from 1992 to 2007. The co-integration and vector error correction was employed. It was established, among others, that a long-run relationship exists between discount houses operations and economic growth on one hand and money market instruments, on the other. This implies that discount houses can serve as a veritable stimulant in Nigeria especially in this era of global economic melt-down that is biting hard on the Nigerian stock market. Similarly, Ezeanyeji and Obi (2019) established the impact of interest rate deregulation on saving mobilization in Nigeria from 1981 to 2017. The Augmented Dickey-Fuller (ADF) test, co-integration test and Error Correction Model (ECM), were employed in the analysis. The research findings revealed that interest rate and Government policy, proxied by dummy variable, is negative and statistically insignificant on savings mobilization. Also, gross capital formation, inflation rate and real GDP are positive but statistically insignificant on savings mobilization in Nigeria.

Imoagwu and Ezeanyeji (2019) investigated the relationship between financial development and economic growth in Nigeria during the period of 1986 – 2017. The study adopted recent econometric techniques such as Augmented Dickey-Fuller (ADF) and the Phillip-Perron (PP), Unit Root Tests, cointegration test as well as the Toda-Yamamoto causality test was used to accomplish its objectives. The results revealed that financial development has significant positive relationship on economic growth in Nigeria only in the short-run while negative impact in the long-run and that causality runs from financial development to economic growth. Furthermore, the study revealed

that the stock market capitalization has significant positive impact on economic growth in Nigeria in the short run while negative significant in long run. The interest rate has positive insignificant effect on economic growth in Nigeria only in the short run while negative significant effect in the long run. The ratio of domestic credit to private sector to GDP have positive significant impact on economic growth in Nigeria only in the long run while positive insignificant in the short run. Causality also runs from stock market development, interest rate, banking sector development and recapitalization to financial development in Nigeria. In the same vein, Ehigiamusoe, (2013) examines the impact of money market on economic growth in Nigeria using data for the period 1980-2012. Econometrics techniques such as Ordinary Least Squares Method, Johanson's Co-integration Test and Vector Error Correction Model were used to examine both the long-run and short-run relationship. The research finding shows a long-run relationship exists between money market and economic growth, but the present state of the Nigerian money market is significantly and negatively related to economic growth.

## 2.4 Knowledge Gap

Generally, there are no conclusive results from the empirical literatures on the relationship between money markets instruments and economic growth of Nigeria. The major reasons for this difference perhaps are due to the difference in methods that have been used in making the analysis, difference in measurement, sample size, area of the research and data span. However, many studies on this topic often exclude government instruments in the market like Value of Certificate of deposit outstanding in their investigation, which is seen as one of the dominant players in the market, this research work intends to fill this vacuum, by including certificate of deposit outstanding in the study.

## 3. Research Methodology

This section specifically deals with the methodology of the study attention has been focused on theoretical framework, source of data, models specification, description of variables and method of data analysis. The data used in this study were mainly secondary data. They covered the period of (1981 – 2019) and obtained from CBN statistical bulletin, vol. 30, 2019 and analysed using the Augmented Dickey-Fuller (ADF) unit root test, Johansen Co-integration, and Error Correction Model (ECM). The study employed data which consists of Real gross domestic product, financial deepening indicator [ratio of money supply (M2) to gross domestic product – (M2/gdp)(%)], value of treasury bills outstanding, value of certificate of deposit outstanding, value of commercial paper outstanding, and value of banker acceptance outstanding.

## 3.1 Models Specification

This study is anchored on the theoretical framework of modern growth theory developed by Grossman and Helpman, 1999; Lucas, 1988 and Romer, 1986). Using the knowledge gained from the literature, the study examines the relationship between money market

instruments and economic growth of Nigeria. Two multiple regression models shall be used in the estimation. The *first* regression model shall seek to evaluate the relationship between money market instruments and Nigeria's economic growth. The *second* model seeks to investigate the relationship between money market instruments and financial development in Nigeria. The estimation period shall be restricted to the period between 1981 and 2019. Thus, the model specifications are as follows:

**Model I:**

$$RGDP = f(TB, CD, CP, BA \tag{1}$$

Equation 1 can be represented explicitly as:

$$RGDP = \beta_0 + \beta_1 TB + \beta_2 CD + \beta_3 CP + \beta_4 BA + \mu \tag{2}$$

Where;
RGDP = Real gross domestic product
TB = Value of treasury bills outstanding
CD = Value of Certificate of deposit outstanding
CP = Value of commercial paper outstanding
BA = Value of banker acceptance outstanding
$\beta_1 - \beta_4$ = Beta, representing the coefficients of variables used in the model.
$\mu$ = is the stochastic variable representing the error term in the model. It is usually estimated at 5% (0.05) level of significance.

**Model II:**

$$FDI = f(TB, CD, CP, BA \tag{3}$$

Equation 3 can be represented explicitly as:

$$FDI = \alpha_0 + \alpha_1 TB + \alpha_2 CD + \alpha_3 CP + \alpha_4 BA + \mu \tag{4}$$

However, in order to reduce the problem of spurious regression in the analysis, we adopt the log linear model. We thus have:

$$FDI = \alpha_0 + \alpha_1 LTB + \alpha_2 LCD + \alpha_3 LCP + \alpha_4 LBA + \mu \tag{5}$$

Where;
FDI = Financial deepening indicator [ratio of money supply ($M_2$) to gross domestic product – ($M_2$/GDP)(%)]
LTB = Log of value of treasury bills outstanding
LCD = Log of value of certificate of deposit outstanding
LCP = Log of value of commercial paper outstanding

LBA = Log of value of banker acceptance outstanding

$\alpha_0$ = Alpha, represent the model constant

$\alpha_1 - \alpha_4$ = Alpha, representing the coefficients of variables used in the model.

µ = is the stochastic variable representing the error term in the model. It is usually estimated at 5% (0.05) level of significance.

## 4. Discussion of Findings

### 4.1 Unit Root Test

The Augmented Dickey-Fuller (ADF) unit-root test was employed to test for stationarity or the existence of unit roots in the data. The results of the unit-root tests are presented below:

**Table 1:** Summary of Unit Root Test Results for model I and II respectively

| Model I | | | | | |
|---|---|---|---|---|---|
| Variables | ADF-Statistic | Critical Value | | | Order of Int. |
| | | 1% | 5% | 10% | |
| RGDP | -5.095495 | -3.646342 | -2.954021 | -2.615817 | 1(1) |
| TB | -4.919635 | -3.646342 | -2.954021 | -2.615817 | 1(1) |
| CD | -4.934631 | -3.689194 | -2.971853 | -2.625121 | 1(1) |
| CP | -4.740219 | -3.737853 | -2.991878 | -2.635542 | 1(1) |
| BA | -6.521529 | -3.639407 | -2.951125 | -2.614300 | 1(1) |
| Model II | | | | | |
| FDI | -5.258884 | -3.639407 | -2.951125 | -2.614300 | 1(1) |
| LTB | -4.893205 | -3.639407 | -2.951125 | -2.614300 | 1(1) |
| LCD | -6.585910 | -3.639407 | -2.951125 | -2.614300 | 1(1) |
| LCP | -7.307731 | -3.639407 | -2.951125 | -2.614300 | 1(1) |
| LBA | -6.686272 | -3.639407 | -2.951125 | -2.614300 | 1(1) |

**Source:** Author's Compilation Using E-views 9 Output.

From the above table 1, the empirical test shows that real gross domestic product, value of treasury bills outstanding (TB), value of Certificate of deposit outstanding (CD) and value of commercial paper outstanding (CP), value of banker acceptance outstanding (BA) and financial deepening indicator [ratio of money supply (M2) to gross domestic product – (M2/GDP)(%)], is stationary at first difference, that is, order of 1(1) in the respective models. This shows the possibility of the existence of long run relationship between the variables. Thus, we can now proceed to the second stage of testing for the long run relationship among the chosen variables.

### 4.2 Johansen Cointegration Test

Co-integration analysis is carried out to determine the existence of long-run relationship that exists between the dependent variable and its regressor. When one or all of the variables is/are non-stationary at level which means they have stochastic trend. Essentially, it is used to check if the independent variables can predict the dependent variable now (short-run) or in the future (long-run).

**Table 2:** Co-integration for Trace Statistic test for model I and II respectively

| Model I | | | | |
|---|---|---|---|---|
| **Hypothesized No. of CE(s)** | **Eigenvalue** | **Trace Statistic** | **Critical Value 0.05** | **Prob.**\*\* |
| None* | 0.987566 | 274.3490 | 69.81889 | 0.0000 |
| At most 1* | 0.915425 | 139.0801 | 47.85613 | 0.0000 |
| At most 2* | 0.746927 | 62.50653 | 29.79707 | 0.0000 |
| At most 3* | 0.308595 | 19.91011 | 15.49471 | 0.0101 |
| At most 4* | 0.239084 | 8.470194 | 3.841466 | 0.0036 |
| Trace test indicates 5 cointegrating eqn(s) at the 0.05 level | | | | |
| *denotes rejection of the hypothesis at the 0.05 level | | | | |
| **Mackinnon-Haug-Michelis (1999) p-values | | | | |
| **Unrestricted Cointegration Rank Test (Maximum Eigenvalue)** | | | | |
| None* | 0.987566 | 135.2688 | 33.87687 | 0.0000 |
| At most 1* | 0.915425 | 76.57360 | 27.58434 | 0.0000 |
| At most 2* | 0.746927 | 42.59643 | 21.13162 | 0.0000 |
| At most 3 | 0.308595 | 11.43991 | 14.26460 | 0.1335 |
| At most 4* | 0.239084 | 8.470194 | 3.841466 | 0.0036 |
| Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level | | | | |
| *denotes rejection of the hypothesis at the 0.05 level | | | | |
| **Mackinnon-Haug-Michelis (1999) p-values | | | | |
| **Model II** | | | | |
| None* | 0.929104 | 200.0907 | 69.81889 | 0.0000 |
| At most 1* | 0.858464 | 115.4014 | 47.85613 | 0.0000 |
| At most 2* | 0.545157 | 52.83496 | 29.79707 | 0.0000 |
| At most 3* | 0.417941 | 27.62528 | 15.49471 | 0.0005 |
| At most 4* | 0.275379 | 10.30743 | 3.841466 | 0.0013 |
| Trace test indicates 5 cointegrating eqn(s) at the 0.05 level | | | | |
| *denotes rejection of the hypothesis at the 0.05 level | | | | |
| **Mackinnon-Haug-Michelis (1999) p-values | | | | |
| **Unrestricted Cointegration Rank Test (Maximum Eigenvalue)** | | | | |
| None* | 0.929104 | 84.68935 | 33.87687 | 0.0000 |
| At most 1* | 0.858464 | 62.56642 | 27.58434 | 0.0000 |
| At most 2* | 0.545157 | 25.20968 | 21.13162 | 0.0126 |
| At most 3 | 0.417941 | 17.31785 | 14.26460 | 0.0160 |
| At most 4* | 0.275379 | 10.30743 | 3.841466 | 0.0013 |
| Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level | | | | |
| *denotes rejection of the hypothesis at the 0.05 level | | | | |
| **Mackinnon-Haug-Michelis (1999) p-values | | | | |

**Source:** Author's Compilation Using E-views 9 Output.

The Johansen co-integration test was used to determine if there exists long-run equilibrium relationship among the variables under study. The trace-statistic value and Max-Eigen statistic are shown to be greater than the critical values at both 1% and 5% levels, thus indicating 5 co-integrating equation at 5% levels respectively. We, therefore, reject the null hypothesis and conclude that there exists long run equilibrium relationship between the dependent variables [real gross domestic product and financial deepening indicator [ratio of money supply ($M_2$) to gross domestic product – (M2/GDP)(%)] and independent variables (value of treasury bills outstanding (TB), value of Certificate of

deposit outstanding (CD), value of commercial paper outstanding (CP), and value of banker acceptance outstanding(BA)). In any case, the existence of a long-run co-integrating equilibrium also provides for short-term fluctuations. In order to straighten out or absolve these fluctuations, an attempt was made to apply the Error Correction Mechanism (ECM).

## 4.3 Error Correction Mechanism (ECM) Results

Since the variables are cointegrated, the error correlation model is required to construct the dynamic relationship of the model. The purpose of the error correlation model is to indicate the speed of adjustment from short run dynamic to the long run equilibrium state.

**Table 3:** Error Correction Model Results for the Models

| Model I:Dependent Variable: D(RGDP) | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-statistic | Prob. |
| C | 863.1765 | 289.0684 | 2.986063 | 0.0000 |
| D(TB) | 6.664484 | 1.910037 | 3.489190 | 0.0000 |
| D(CD) | 44.35211 | 13.78521 | 3.217369 | 0.0151 |
| D(CP) | 3.905514 | 2.504607 | 1.559332 | 0.0001 |
| D(BA) | 39.99912 | 17.86049 | 2.239531 | 0.0003 |
| ECM(-1) | -0.149694 | 0.106731 | -1.402528 | 0.0017 |
| R-Squared: 0.358843; Adjusted R-squared: 0.248299; F-statistic: 3.246145; Prob(F-statistic): 0.018969; Durbin-Watson Stat: 1.161064 | | | | |
| Model II: Dependent Variable: D(FDI) | | | | |
| C | 0.175613 | 0.366456 | 0.479218 | 0.6355 |
| D(TB) | 0.511926 | 1.121204 | 0.456586 | 0.6515 |
| D(CD(-1)) | 0.070248 | 0.228959 | 0.306817 | 0.7613 |
| D(CP) | 0.057210 | 0.262183 | 0.218208 | 0.8288 |
| LBA(-1) | 0.062226 | 0.422105 | 0.147418 | 0.8839 |
| ECM(-1) | -0.224614 | 0.135774 | -1.654328 | 0.1092 |
| R-Squared: 0.112113; Adjusted R-squared: -0.046438; F-statistic: 0.707109; Prob(F-statistic): 0.622998; Durbin-Watson Stat: 1.666905 | | | | |

**Source:** Author's Compilation using E-views 9 Output.

The results presented above will be analyzed using three criteria; economic a priori criteria, statistical criteria and econometric criteria.

## 4.3.1 Economic a Priori Criteria
## Model I:
The results obtained showed that all explanatory variables have their correct expected signs, as predicted by the relevant economic theories. The positive intercept of $\beta_0$ in the equation above, indicates that when the independent variables explained in the model is zero, real gross domestic product (RGDP) is expected to be N 86317.65 billion in the model. The positive sign of the coefficient of value of treasury bills outstanding (TB), value of Certificate of deposit outstanding (CD), value of commercial paper outstanding (CP) and value of banker acceptance outstanding (BA) shows that there is a positive

relationship between TB, CD, CP, BA and economic growth (real gross domestic product) in Nigeria. This is consistent with the theoretical expectation, showing that a one billion naira increase in TB, CD, CP, and BA will lead to an increase in economic growth by 666.4, 4435.2, 390.5 and 3999.9 billion naira, other things being equal. Finally, the result of the error correction model indicates that the error correction term ECM (-1) is well specified and the diagnostic statistics are good. The ECM (-1) variable has the correct sign but statistically insignificant. The speed of adjustment of -0.149694 shows a very level of convergence. In particular, about 14.9% of disequilibrium or deviation from long run of economic growth in the previous period is corrected in the current year in model.

**Model II:**

The positive intercept of $\beta_0$ in the equation above, indicates that when the independent variables explained in the model is zero, financial deepening indicator (FDI) is expected to be 17.56% in the model. The positive sign of the coefficient of value of treasury bills outstanding (TB), value of Certificate of deposit outstanding (CD), value of commercial paper outstanding (CP) and value of banker acceptance outstanding (BA) shows that there is a positive relationship between TB, CD, CP, BA and financial deepening indicator (FDI) in Nigeria. This is consistent with the theoretical expectation, showing that a one billion naira increase in LCD, LCP and BA will lead to an increase in FDI by 51.%, 7.02%, 5.7%, and 6.22% respectively, other things being equal. Finally, the coefficient of error correction model as depicted in table 3 above, ECM was rightly signed and statistically significant at the 22.46% speed of adjustment. The implication of this is that over 22.46% disequilibrium in our dependent variable can be corrected by the selected independent variables over a year.

### 4.3.2 Statistical Criteria
**Model I:**

From the results obtained, all the independent variables (TB, CD, and BA) are statistically significant with exception of CP that is not significant. This is because their p-value of 0.0016, 0.0032 and 0.0330, respectively for TB, CD, CP and BA were all less than the t-statistics at 5% (0.05) level of significance. This result means that, value of treasury bills outstanding (TB), value of Certificate of deposit outstanding (CD) and value of banker acceptance outstanding (BA)are significant in causing short-run changes in economic growth (real gross domestic product) in Nigeria.

The coefficient of determination $R^2$ is 0.358843 which implies that 35.88% of the variation in economic growth is explained by the independent variables included in the model. While about 64.12% are accounted for by variables outside our model. Coincidentally, the goodness of fit of the regression remained too low after adjusting for the degree of freedom as indicated by the adjusted $R^2$ ($R^2$ =-0.248299 or 24.8%). The *f*-statistics value of 3.246145in the model, which are a measure of the joint significance of the explanatory variables, is found to be statistically significant at 5 percent level as indicated by the corresponding probability value of 0.018969. This indicates that the model is of good fit and significant.

**Model II:**

From the results obtained, the financial deepening indicator [ratio of money supply ($M_2$) to gross domestic product – (M2/GDP)(%)], value of banker acceptance outstanding, value of treasury bills outstanding, value of certificate of deposit outstanding and value of commercial paper outstanding are statistically insignificant. This is because their p-value of 0.6515, 0.7613, 0.8288, and 0.8839 respectively were all greater than the t-statistics at 5% (0.05) level of significance.

The coefficient of determination ($R^2$) for model four revealed that 11.2% variation in poverty were explained by the regression model, while the remaining 88.8% variation in poverty index may be as a result of other variables not included in the regression model. Adjusting further, the coefficient of determination via the adjusted $R^2$ entered a negative zone and thus confirms why the p-values of all the variables were not significant. Coincidentally, the goodness of fit of the regression remained too low after adjusting for the degree of freedom. The F-statistics 0.707109, which is a measure of the joint insignificance of the explanatory variables, is found to be statistically insignificant at 5 percent level as indicated by the corresponding probability value 0.622998. This indicates that the models are of bad fit and insignificant.

### 4.3.3 Econometric Criteria

In the model one and two, The Durbin-Watson statistics is employed here to test for the absence of autocorrelation in the model. The DW statistic which is a measure of auto correlation shows that the error correction model is free from the problem of serial correlation at 1 % level of significance due to its value (1.161064 and 1.666905). As a result of this, our model estimated can be confidently relied upon for making inferences.

### 5. Conclusion and Recommendations

The study empirically examined the relationship between the money market and economic growth in Nigeria. A growth models was constructed using the indicators of the money market as the explanatory variables and gross domestic product as a proxy for economic growth as well as financial deepening indicator [ratio of money supply (M2) to gross domestic product – (M2/GDP)(%)]. The money market indicators used as explanatory variables in the study include; treasury bills, bankers' acceptance, commercial papers and certificate of deposit. The study employed the error correction model (ECM) to examine the impact of these variables on economic growth and financial deepening indicator. Time series data for the study covering the period 1981-2019 were sourced from the Central Bank of Nigeria Statistical Bulletins, vol. 30, 2019.

The study discovered that the present state of the Nigerian money market has significant relationship between the Nigeria's economic growth. Furthermore, there is insignificant relationship between money market instruments and the development of the Nigerian financial system. This shows that the Nigeria money market developed enough to produce the needed growth that will propel the economy. The link between

the money market and the real sector of the economy remains very high and, thus propel the needed growth in the economy.

Government should create the appropriate macroeconomic policies, legal framework and sustain the present reforms with a view to developing the market so as to promote productive activities, investments, and ultimately economic growth. Also, government should both in short and long-run prioritized policies geared towards increasing/developing money markets operations in Nigeria in order to make the economy more stable.

The cost of raising funds in the Nigerian money market is however, regarded to be very high. There should be a downward review of the cost so as to enhance competitiveness and improve the attractiveness as a major source of raising funds. Furthermore, given the present political dispensation, all tiers of government should be encouraged to fund their realistic developmental programmes through the Nigerian money market. This will serve as a lee way to freeing the resources that may be used in other sphere of the economy.

**Conflict of Interest Statement**
The author declares no conflicts of interests.

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**References**

Abdulkadir, M. S., Jayum, A. A., Zaid, A. B. & Asnarulkhadi, A. S. (2010). Africa's Slow growth and development: An overview of selected Countries. *European Journal of Social Sciences*, 16(4), 619-635.

Anyanwu, J. C. (1996). *Monetary economics.* Lagos, Heinemann Educational Books (Nigeria) Plc. 247–274.

Cvetanovic, S.; Mitrovic, U. & Jurakic, M. (2019). Institutions as the driver of Economic Growth in Classic, Neoclassic and Endogenous Theory. *Economic Themes*, 57(1), 111-125.

Dabwor T. D. (2009). The Nigerian banking system and the challenges of financial intermediation in the Twenty First Century. *Jos Journal of Economics*, 4(1).

Ekmekcioglu, E. (2013). Role of financial markets in a global economy and the concept of uncertainty. *International Journal of Academic Research in Economics and Management Sciences*, 2(4), 199-206.

Ehigiamusoe, U. K. (2013). The link between money market and economic growth in Nigeria: Vector Error Correction Model Approach. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering* 7(12), 3076-3084.

Ezeanyeji, C. I. & Ejefobihi, U. F. (2015). Inflation and Economic Growth in Nigeria: An Impact Analysis. *Wilolud Journals: Continental Journal of Social Sciences*, 8(1), 1-12

Ezeanyeji, C. I. & Obi, C. O. (2019). Interest rate deregulation and savings mobilization in Nigeria: An impact analysis. *International Journal of Applied Research*, 5(3), 186-193

Grossman, G. & Helpman, E. (1999). Quality ladders in the theory of growth. *Review of Economic Studies*, 58, 43-61.

Goldsmith, R. W. (1969). *Financial Intermediaries in the American Economics since 1900*. Princeton: Princeton University Press.

Ikpefan, O. A. & Osabuohien, E. (2012). Discount houses, money market and economic growth in Nigeria: *Economic Insights- Trends and Challenges,* 1(3), 19-30.

Imoagwu, C. P. & Ezeanyeji, C. I. (2019). Financial development and economic growth nexus in Nigeria. *International Journal of Business and Management Invention (IJBMI),* 8(3), 50-63

Iwedi, M. & Igbanibo, D. S. (2015). The nexus between money market operations and economic growth in Nigeria: An empirical investigation. *International Journal of Banking and Finance Research*. 1(2),1-17.

Kehinde, J. S. & Adejuwon, K. D. (2011). Financial institutions as catalyst to economic development: The Nigerian experience. *European Journal of Humanities and Social Sciences*. 8 (1): 322-334.

Khan, M. S., Senhadji, A. S. & Smith, B. D. (2006). Inflation and financial depth, macroeconomic dynamics. Cambridge University Press, 10(02), 165-182.

King, R. G. & Levine, R. (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics,* 108:717-737.

Levine, R. (1999). Financial development and economic growth: Views and Agenda. *Journal of Economic Literature*, 35(2): 688-726.

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22, pp.3-42.

Mckinnon, R. I. (1973). Money and capital in economic development brooking institution. Washington, DC.

Mordi, C. N. O. (2010). The link between the financial (banking) sector and the real economy. Central Bank of Nigeria. *Economic and Financial Review*, 48(4), 9-24.

Nwosu, C. P. & Hamman, H. M. (2008). The Nigerian money market: issues and challenges: *Bullion, Publication of the Central Bank of Nigeria*, 32(2), 51-66.

Ochei, A. I. & Osabuohien, E. (2012). Discount houses, money market and economic growth in Nigeria (1992-2007). *Economic Insights Trends and Challenges*, 1(3),19-30.

Okpe I. I. (2013). Money market on the Nigerian economic development. *Journal of Economics and Sustainable Development*, 4(5).

Pietak, L. (2014). Review of theories and models of economic growth. *Comparative economic Research*, 17(1), 45-60.

Rigg, R. & Zibell, L. S. (2009). The financial crisis and money markets in emerging Asia. *Asian Development Bank (ADB) Working Paper Series on Regional Economic Integration*, (38), 1-48.

Romer P. M. (1986). Increasing returns and long-run growth. *The Journal of Political Economy*: 1002-1037.

Schumpeter, J. (1934). *The theory of economic development*. Cambridge: Harvard University Press.

Senbet, L. W. & Otchere, I. (2005). Financial sector reforms in Africa: *perspectives on issues and policies.* Annual World Bank Conference on Development Economics (ABCDE), Dakar, Senegal. Pp. 1-61.

Shaw, E. S. (1973). Financial deepening in economic development. New York: Oxford University Press.