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An Empirical Analysis of the Effect of Deregulation of Money Market Operations on the Performance of the Nigerian Economy

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Abstract:
Financial markets are vital components of the financial system of any nation. The importance of these markets in any modern economy is enormous. It is in the light of the importance placed on money market operations that this study focused on the effect of deregulation of money market operations on the performance of the Nigerian economy. It examined the relationship between GDP vis-à-vis money market instruments namely, Treasury bills (TB), Treasury Certificate (TC), Certificates of Deposit (CD), Commercial papers (CP) and Bankers' Acceptances (BA) in the Nigerian economy for the period 1986 to 2015. Data for the study were analyzed using the OLS multiple regression techniques and empirical estimation was carried out using E-views econometric software version 8.0. The findings show robust evidence of linear relationship. Results derived from empirical analysis are thought-provoking and a wakeup call for policy makers to get more committed to revitalizing the Nigerian money market for efficiency, effectiveness and more robust activities in the sector. In concluding, the study holds that there exists a unique longrun equilibrium relationship between money market instruments and economic growth in Nigeria. Similarly, the result show that money market deregulation have significant impact on the performance of the Nigerian economy within the period under reference. The study thus recommended that the Nigerian monetary authorities should initiate policies that would encourage money market operations and also be proactive in CBN surveillance role in order to check practices that could undermine or sabotage market integrity and soundness. Finally, there is the need for the creation of an enabling (investment friendly) environment by concerned authorities (both government and monetary policy regulators), as it will further deepen the popularity of the instruments and subsequently create market for those instrument(s).

Keywords: Money Market; Deregulation; Instruments; Economic Growth*; OLS*

1.0 Introduction

1.1 Background to The Study

There are various financial markets, which are institutional arrangements that facilitate the intermediation of funds in an economy. The core reason for the existence of financial markets is aimed at balancing the financial disequilibrium that exist within an economy. Financial markets are institution or arrangements which facilitates the exchange of financial assets such as deposit and loans, stock and government securities (Martin, 2014). The financial market is segmented into two: one is the money market, which deals in short term funds and the other, the capital market that is for long–term dealings in loanable funds (Anyanwu, 1998). The basis of distinction between the money market and the capital market lies in the degree of liquidity of instruments bought and sold in each of the market, which can be further sub-divided into the primary and secondary markets.

Money markets play a key role in banks' liquidity management and the transmission of monetary policy. 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 business liquidity risk. The banking system and the money market represent the exclusive setting which monetary policy operates in. A developed, active and efficient interbank market enhances the efficiency of central bank's monetary policy, transmitting its impulses into the economy best. Thus, the development of the money market smoothes the progress of financial intermediation and boosts lending to economy, hence improving the country's economic and social welfare. Therefore, the deregulation of the money market is in all stakeholders' interests: the banking system itself, the Central Bank and the economy on the whole (Madura, .2006);

Financial Deregulation and liberalization is a matter of degree, and does not imply a shift to total laissez-faire. It entails the removal or relaxation of regulations affecting the type of business financial firms may undertake, the type of firms permitted to deal in the particular markets, or the terms on which dealing is allowed. Regulations which have been relaxed include controls on interest rates at which banks can lend or borrow, controls on operations by banks outside their country of registration and restrictions on the types of business particular financial institutions can transact, direct credit abolition and exchange rate deregulation. Deregulation has been favoured as it leads to more competition and efficiency gains, causing both developed and developing economies to incorporate such policies into their Structural Adjustment Programs (SAP, 1986 for Nigeria) as opposed to its opposite; financial regulation or repression.

The Nigerian financial sector is undoubtedly the most important in the political economic system because it provides the necessary lubricant that keeps the wheel of the economy turning and it is an engine for economic growth. The sector provides fund for investment and also allocates these funds for investment as efficiently as possible to those projects that offer best returns to fund owners. The well being of the sector to a very large extent determines a growing economy. However, if the sector happens to be weak, the economy suffers for it.

1.2 Problem Statement

Deregulation is one of the major developments that affects the Nigerian financial system in recent years. The policy includes both reduction in regulation and a change in the nature of regulations, which might be properly referred to as deregulation and liberalization. Deregulation as defined by (1999) means removal of official restrictions on consumer choice and the introduction or extension of competition on the supply side of the market. It must be emphasized that deregulation does not mean the absence of any regulation but it means extension of consumer right and the extension of production base. Although the money market in Nigeria has witnessed some expansion in recent times, there are still observed problems which the market is contending with. However, despite these various reforms in the financial sector, the Nigerian money market is still shallow compared to money markets in some advanced and emerging countries. The question that comes to mind is: does the Nigerian money market promotes or hinders economic growth? This study is out to find answer to this question. The study therefore is to determine the effect of deregulation of money market operations on the performance of the Nigerian economy for the period 1986 to 2015. The study scope shall be restricted to 1986-2015, a period deliberately chosen to coincide with the era of restructuring of the Nigeria economy through the introduction of Structural Adjustment Programme by the General Ibrahim Babangida administration, which sought to liberalize many sectors of the national economy towards efficiency and more profit-oriented goals. The following are questions to which empirical evidence are expected: what is the impact of treasury bills on economic growth in Nigeria? what is the impact of commercial papers and certificate of deposits on the Nigerian economy? And what is the causality relationship between money market instruments and economic growth in Nigeria.

The main objective of this study is to examine money market deregulation and economic growth in Nigeria. The specific objectives as formulated in this study are as follows: (i) to examine the impact of treasury bills on economic growth in Nigeria; (ii) to examine the impact of call money and commercial papers on the

Nigerian economy and (iii) to determine the causality relationship between money market instruments and economic growth in Nigeria.

In concluding this section, this research shall be guided by the following key research hypotheses stated in its null form: (i) money market deregulation has no significant impact on the performance of the Nigerian economy; (ii) there is no causality relationship between money market instruments and economic growth in Nigeria.

The remaining part of this study is organised as follows: Section two is dedicated to literature review, section three is study methodology. In section four, results are presented and discussed, while section five is summary, conclusions and policy recommendations.

2.0 Conceptual Framework

2.1 The Concept of Deregulation

To deregulate means to do away with the regulations concerning financial markets and trades. Basically, Ernest and Yong (1988) posits that deregulation and privatization are elements of economic reform programmes charged with the ultimate goals of improving the overall economy through properly spelt out ways. For example, freeing government from the bondage of continuous financing of extensive projects which are best suited for private investment by the sale of such enterprises; encouraging efficiency and effectiveness in resource utilization; reducing government borrowing while raising revenue; promoting healthy market competition in a free market environment; improving returns from investment and broadening enterprises share ownership thus, engendering capital market development.

2.2 The Nigerian Money Market

The money market is a market for short-term funds, and as the name suggests, it is a market in which money is bought and sold. The market is used by business enterprises to raise funds for the purchase of inventories, by banks to finance temporary reserve loss, by companies to finance consumer credit and by government to bridge the gap between its receipts and expenditure. Unlike the market for textiles, for example, there is no place that one can call a money market. The activities in the money market can be concentrated in a particular street. For example, all streets in New York, Lombard street in London and Broad street in Lagos. Thus, it is a market for the collection of financial institutions set up for the granting of short-term loans and dealing in short-term securities, gold, and foreign exchange (Anyanwu, 1993).

No money market existed in Nigeria prior to the establishment of the Central Bank of Nigeria. This is however not to say that a market for short-term funds did not exist before then. Before the advent of commercial banking, there existed some elements of short-term lending and borrowing based on commercial papers. The market was an integral part of the London Money Market. It worked by moving funds from London to Nigeria during the season in order to finance the export of produce. At the end of the season, the funds were moved back to London, when there was all-season money-market activity. The establishment of the Nigerian money market involved, on the part of the Central Bank of Nigeria, repatriating these "roving" funds to Nigeria for the country's economic development. The development of the Nigerian money market is not unconnected with the systematic introduction of the various instruments used in the market. The instruments traded in the Nigerian Money Market are treasury bills, treasury certificate, call money, bankers' acceptance (bill of exchange), commercial papers or commercial bills and certificate of deposits.

2.3 Money Market Role in Economic Growth

There are various channels by which monetary policy works. Monetary policy is carried by the Central Bank of Nigeria to facilitate the regulation and control of the various macroeconomic goals such as full employment, price stability, economic growth, balance of payment equilibrium, etc which is mostly facilitated by the activities of the money market. These controls of the CBN on the money market affect the quantity of funds in the economy, while sales or purchase of Treasury bill reduce or increase the stock of reserve money. On the relevance of money and monetary policy in controlling economic activities, the monetarists view has been divided into weak and strong monetarist theses. The weak thesis is compared

with some aspects of the income-expenditure approach to the determination of national economic activity discount from face value. The amounts of discount are set by the agency and its duration ranges between three months and a year. Like the federal agency discount note, short-term municipal security is a note issued by government when they are expecting receipt from tax and other revenue either from sales of bond, etc. It is both interest bearing and discount notes.

2.4 Empirical Literature

The role of money market in any economy has continued to enjoy debates, hence a number of studies have evolved over the years. Money markets play a key role in banks liquidity management and the transmission of monetary policy. In normal times, money markets are among the most liquid in the financial sector by providing the appropriate instrument and partners for liquidity trading.

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 Co-integration Test and Vector Error Correction Model were used to examine both the long-run and short-run relationship. Evidence from the study suggests that though 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. The link between the money market and the real sector of the economy remains very weak. This implies that the market is not yet developed enough to produce the needed growth that will propel the Nigerian economy because of several challenges. It was therefore recommended that 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.

Mohammad (2014) observed that money market instruments such as treasury bills, commercial papers, bankers' acceptance, certificate of deposit are very liquid and considered extraordinarily safe. Most money market instruments are traded in high denominations. This limits the access of individual investors. Thus, Timothy and Robert (1993) noted that these financial instruments enable borrowing and lending for periods of a year or less and also facilitates the transfer of large sums of money quickly at a low cost from one economic unit (business, government bank etc) to another for relatively short periods of time. They are characterized by high degree of safety of principal and are most commonly issued in units of millions of currencies or more. Some of them (market instruments), yielded interest at maturity and are generally exempted from government income taxes, which makes them particularly attractive to investors in high income tax brackets, for instance treasury bills.

2.5 Theoretical Framework

This study is hinged on two main theories as the framework upon which the study on money market deregulation and economic growth in Nigeria shall be anchored.

2.5.1 The General Equilibrium Theory

The theoretical foundation of deregulation draws largely from the general equilibrium theory which among other things indicates the relevance of efficient pricing in ensuring optimal allocation of society's limited resources for efficient production of the various needs of society and efficient distribution of the commodities and services among various consumers. Thus, the concept of perfect competition and free market imply that the general equilibrium analysis will tend to yield an optimal allocation of resources since competitive equilibrium prices ensure that supply and demand are equal and in the long-run, all firms which can produce profitably will enter the industry to ensure long-run stable and sustainable growth (CBN, 1993). It is obvious that such optimality results cannot be achieved under centralized planning or command economies which depend on elaborate control. This is because such system is hardly able to arrive at a set of efficient prices which will ensure that all firms maximize their profits by covering their costs and earning reasonable margins, while consumers maximize their unity.

2.5.2 Fry's Theory on Money Market

According to Fry (1997) finance and financial institutions have become relevant in a world of positive information, transaction and monitoring costs and if monitoring costs are high, a sample debt instrument would dominate a more complicated state that resembles equity. His stand is that positive real interest rates act as inducement to savers and also enable banks to give credit to the most efficient firms which can make profits to pay the high rate of borrowing. Over the years, policies regarding financial development of emerging market economies have shifted towards market-based financial systems and lessons learnt from financial crises. The approach to financial policy in developing countries has shifted from mainly direct controls to more market oriented systems.

As Fry (1988) stresses the role of money markets, he points out that the real rate of interest can be reduced by financial repression as liquidity preference pushes the real interest rate above its equilibrium level. He emphasizes that money markets in which interest rates are freely determined by interaction of supply and demand are few and far in between the developing world. Fry (1988) asserts that a measure of financial intermediation often used is the real interest rate. When this rate hovers below its competitive levels it indicates the extent of financial repression. A positive real interest rate encourages financial savings and financial intermediation leading to an increase in the supply of credit to the private sector and hence investment. According to Fry (1997), a key aspect of financial liberalization is the development of the money market in which the "independent" central bank will implement indirect monetary policy. In his view, the absence of progress in the areas concerning the effect of financial development on growth follows directly from the fact that no attention is paid to the nature of banking or financial markets.

3.0 STUDY METHODOLOGY

3.1 Variables and Sources of Data Collection

The variables adopted for this research are mainly money market instruments (treasury bills (TB), treasury certificates (TC), certificate of deposit (CD), commercial papers (CP) and bankers acceptance (BA), which constitute the independent variables in this study and gross domestic product (a proxy for economic growth) as the dependent variable. The data for the study were essentially time series data (secondary). The data adopted were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin (2015) and the World Bank Development Indicators (2015) respectively.

3.2 Estimation Techniques

This study employed both descriptive and analytical statistics to examine the trends, flows and relationship of the variables. The study adopted econometric method of unit root test, cointegration test, Granger causality test, Ordinary Least Squares (OLS) and the Error Correction Modelling Approach. The Econometric Software of E-view 8.0 was used in running the model. The Augmented Dickey-Fuller and Philips-Perron unit root tests were employed as a test of stationarity of the time series data, while the OLS was used to test for the long run equilibrium relationship among the variables in the model. The ECM was used to adjust the pitfall in the short run analysis to long run equilibrium relationship.

3.3 Model Specification

To examine the impact of money market deregulation on economic growth in Nigeria using the Ordinary Least Squares (OLS) technique, the following model is specified to achieve the objectives set out by this study. The model for this study is specified in both linear and non-linear relationship as follows:

The functional form of the model is specified hereunder

$$GDP = f(TB, TC, CD, CP, BA) \quad \ldots. \quad (3.1)$$

The mathematical form of the model is specified below

$$GDP = f(TB + TC + CD + CP + BA) \quad \ldots.. \quad (3.2)$$

The statistical form of the model is

$$GDP = \beta_o + \beta_1(TB) + \beta_2(TC) + \beta_3(CD) + \beta_4(CP) + \beta_5(BA) \quad \ldots \quad (3.3)$$

In order to capture the stochastic term μ_i of the variables, the explicit form of the models is given in econometric form below: $GDP = \beta_o + \beta_1(TB) + \beta_2(TC) + \beta_3(CD) + \beta_4(CP) + \beta_5(BA) + \mu_t$ …(3.4)

The estimated models are further transformed into log-linear form. This is aimed at reducing the problem of multi-collinearity among the variables in the models. Thus, the log-linear models are specified as shown below:

$$LnGDP = \beta_o + \beta_1(LnTB) + \beta_2(LnTC) + \beta_3(LnCD) + \beta_4(LnCP) + \beta_5(LnBA) + \mu_t \quad \ldots(3.6)$$
$$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0$$

Where,

GDP	=	Gross Domestic Product (proxy for economic growth)
TB	=	Treasury Bills
TC	=	Treasury Certificate
CD	=	Certificate of Deposit
CP	=	Commercial Papers
BA	=	Bankers Acceptance
μ_i	=	Stochastic or error term
Ln	=	Natural logarithms
β_0	=	Intercept parameter
$\beta_1 - \beta_1$	=	Slope parameters

3.3.1 Description of Variables in the Models

Dependent Variables

Gross domestic product is an aggregate measure of production equal to the sum of the gross value added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.

Independent Variables

(i) Treasury Bills (TBS):

These are money-market (short-term) securities issued by the federal government of Nigeria. They are sold at a discount (rather than paying coupon interest), mature within 90 days of the date of issue. They provide the government with a highly flexible and relatively cheap means of borrowing cash.

(ii) Treasury Certificate (TCS):

These are similar to TBS but are issued at par or face value and pay fixed interest rates. These fixed interest rates are called coupon rates. Thus, each issue promises to pay a coupon rate of interest and the investor collects this interest by tearing coupons off the edge of the certificate and cashing the coupon at a bank; post office, or other specified federal office. Each coupon is imprinted a year from the date of issue. In the Nigeria context, their rates became market-determined like TB rates following interest rates deregulation.

(iii) Certificates of Deposits (CDS):

Negotiable (NCO) or Non-negotiable (NNCO) deposits are inter-bank debt instruments designed mainly to channel commercial banks surplus funds into the merchant banks. NCO's are rediscountable with the CBN and those with more than 18 months tenure are eligible as liquid assets in computing a bank's liquidity ratio.

(iv) Commercial Papers or Commercial Bills:

These are short-term promissory notes issued by the CBN and their maturities vary from 50 to 270 days, with varying denominations (sometimes #50,000 or more). They are debt that arise in the course of commerce. Commercial papers may also be sold by major companies (blue-chips-large, old, safe, well-known, national companies) to obtain a loan.

(v) A bankers acceptance (**BA**, aka **bill of exchange**) is a commercial bank draft requiring the bank to pay the holder of the instrument a specified amount on a specified date, which is typically 90 days from the date of issue, but can range from 1 to 180 days. The bankers acceptance is issued at a discount, and paid in full when it becomes due—the difference between the value at maturity and the

value when issued is the interest. If the bankers acceptance is presented for payment before the due date, then the amount paid is less by the amount of the interest that would have been earned if held to maturity

3.3.2 A priori Expectation

This specifically has to do with sign expectation set by economic theory and it is expected that parameters in this model have the correct signs and sizes that conform to economic theory. If they carry the expected signs, then the hypothesis is accepted otherwise they are rejected. From the model, the expected theoretical relationship between the explanatory and independent variables are all expected to be positive as the various money market instrument (treasury bills, treasury certificates, commercial papers, certificate of deposits and bankers acceptance) are all expected to contribute positively and collectively to the growth of output (economic growth) all things being equal in Nigeria.

4.0 RESULTS / DISCUSION

4.1 Descriptive Statistics

Before estimating the models, we examined the descriptive statistics of the variables. This is to enable us unravel the nature of the distribution from which the data emanate. The Histogram approach to normality using Jarque-Bera statistic is adopted for this study. See below the histogram for the distribution.

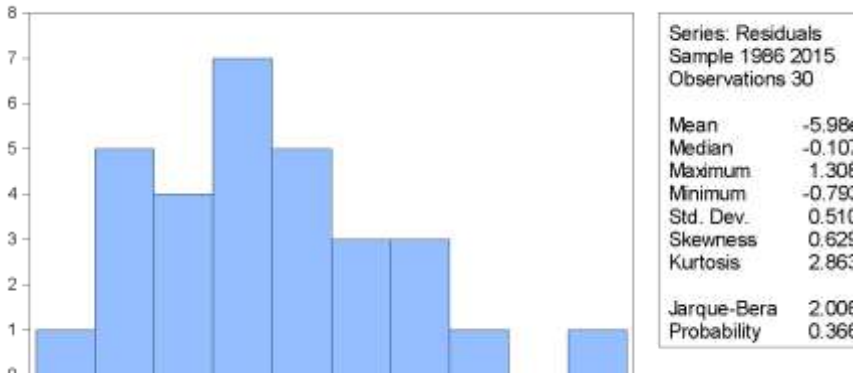


Figure 1: Normality Test
Source: E-views version 8.0

Due to the insignificant nature of the Jarque-Bera probability values of 0.366641, it means that the data are all normally distributed. Therefore, the descriptive statistic indicates that the data / variables are normally distributed hence the estimation techniques can be applied with certainty and without the fear of obtaining spurious results.

4.3 Trend Analysis

The trend analysis is presented in a graphical form for clarity and simplicity of understanding on the trends and pattern of money market instruments vis-à-vis gross domestic product (economic growth) within the period studied. The graphical representation of trend is presented in figure 1

Figure 1: Graph showing the trend between GDP, treasury bills, treasury certificate, certificate of deposits, commercial papers and bankers acceptance

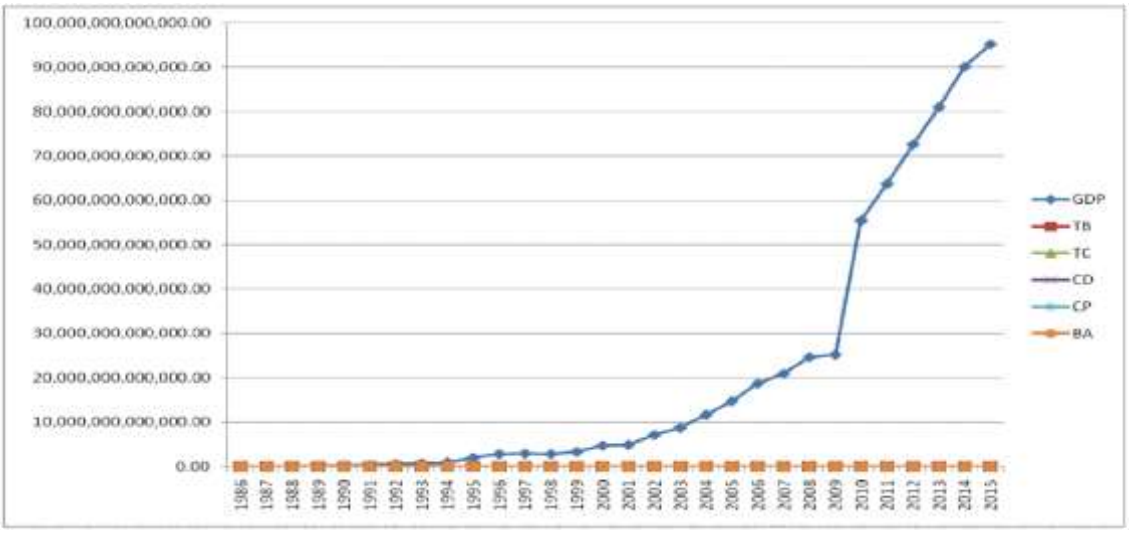


Figure 2: Trend in the growth of GDP and Money Market Instruments between 1986-2015
Source: Author's graphical presentation from Ms-Excel

The graphs depict trends in the growth of GDP and Money market instruments that represent our independent variables namely; Treasury bills (TB), Treasury Certificate (TC), Certificates of Deposit (CD), Commercial papers (CP) and Bankers' Acceptances (BA). The graphs gave very robust and distinct information on the growth relationship between gross domestic product and individual Money market instruments or variables in the period under reference. The growth trends in all the variables were very low through out the years studied. What this means is that gross domestic product in every year has been above any of the money market instruments. This low performance of the instruments traded in the money market may not be unconnected with recurrent financial crises that have hindered Money market operations severely resulting in a downward growth movement of some instruments.

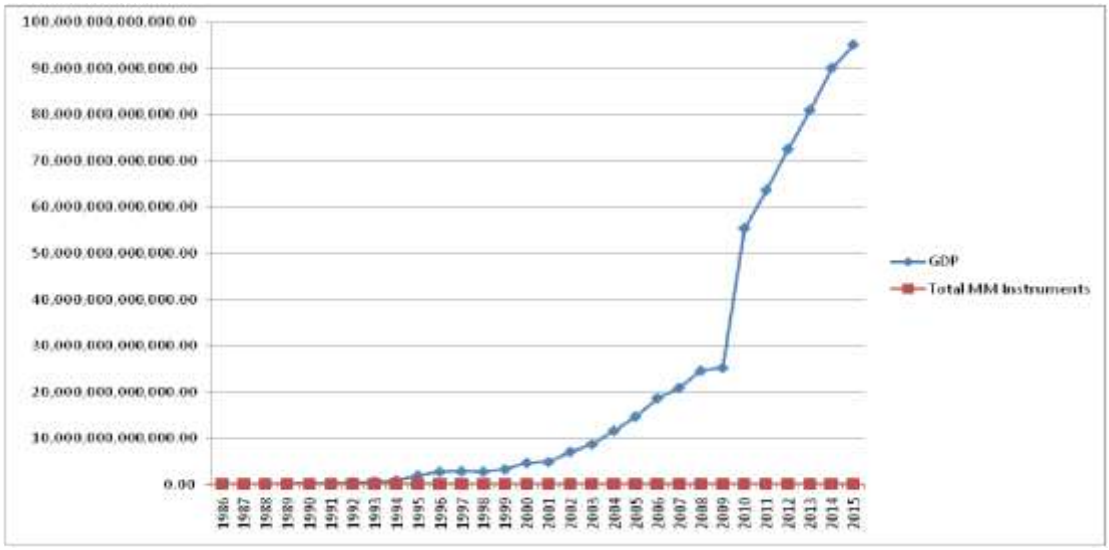


Figure 3: Trend in the growth of GDP and Total Money Market Instruments between 1986-2015
Source: Author's graphical presentation from Ms-Excel

In order to properly comprehend the relationship in the growth trends of GDP and aggregate money market instruments, figure 2 presents the graphic representation of GDP and total value of all money market instruments outstanding for the period under review. It was revealed from the graph that while the growth of GDP trended upwards during the period, the total outstanding balances of all Money market instruments trended downward, confirming the fact that money market activities was very low during the period under reference and so could not impact meaningfully or significantly on economic growth. From the foregoing findings, the contrast in the growth trends of GDP and the explanatory variables appear to suggest a non-correlation relationship and also cast serious doubts on whether money market operations made significant

contributions to GDP in the period under review. This will be further ascertained from our empirical regression results in the preceding sections.

4.4 Empirical Result of Augmented Dickey Fuller and Philips-Perron Unit Root Test

As this study involves time series data, the ordinary least squares (OLS) method cannot be applied unless it is established that the variables concerned are stationary. Before estimating the equations, the stability properties of the variables employed were first investigated. Two-unit root tests were used in the study, i.e. the Augmented Dickey-Fuller (ADF) and the Phillips-Perron (PP). The choice was informed by the imperatives of comparison and consistency. According to Hamilton (1994), the PP unit root test is generally considered to have a greater reliability than the ADF because it is robust in the midst of serial correlation and heteroscedasticity, though it has its own shortcomings.

Table 1: Augmented Dickey Fuller and Philip-Perron Unit Root Test with Intercept

Variable		Level t-statistic value	1st Difference t-statistic value	5% Critical Value	Order of Integration
Log(GDP)	*ADF*	Non-stationary	-5.216251	-2.971853	I(1)
	P-P	Non-stationary	-5.222040	-2.971853	I(1)
Log(TB)	*ADF*	Non-stationary	-4.904226	-2.971853	I(1)
	P-P	Non-stationary	-4.889432	-2.971853	I(1)
Log(TC)	*ADF*	Non-stationary	-7.003843	-2.971853	I(1)
	P-P	Non-stationary	-7.213589	-2.971853	I(1)
Log(CP)	*ADF*	Non-stationary	-6.320733	-2.971853	I(1)
	P-P	Non-stationary	-6.320733	-2.971853	I(1)
Log(CD)	*ADF*	Non-stationary	-6.847053	-2.971853	I(1)
	P-P	Non-stationary	-6.847053	-2.971853	I(1)
Log(BA)	*ADF*	Non-stationary	-6.337837	-2.971853	I(1)
	P-P	Non-stationary	-6.337837	-2.971853	I(1)

Source: Author's computation from E-views 8.0

Table 2 above shows the results of unit root test using both Augmented Dickey-Fuller (ADF) and Phillips-Perron (P-P) at level and first difference. The unit root test indicates that all the variables were first difference stationary or attained stationarity at their first difference. The null hypothesis is rejected if the test statistics in absolute terms is greater than the test critical values at the conventional levels of significance (1%, 5%, and 10%). For the purpose of this study, 5% level of significance would be applied.

4.5 Cointegration Test Result

To test for co-integration, we adopt the Johansen maximum-likelihood approach because the Engle-Granger approach can be extremely weak under mild cases of autocorrelation. The Johansen-Juselius also provides likelihood ratio statistics with exactly known distributions. If the variables are co-integrated, the final stage of the time-series analysis is to construct dynamic error correction models (ECMs) that take into account the underlying co-integration properties. Economically speaking, two or more variables will be cointegrated if they have a long-run or an equilibrium relationship between or among them (Gujarati, 2004:822). That is, if they can walk together for a long time without deviating from an established path.

The output from the Johansen's co-integration test in the appendix page indicates the presence of a unique long-run relationship among the variables in the models, that is, the series can walk together for a long time

without deviating from the established path. With a long run relationship established, it is pertinent to determine the short-run dynamic relationship among the series. This we achieve through the error correction model.

4.6 Error Correction Model

Table 2: ECM Extract

According to Granger Representation Theorem, if there is evidence of cointegration between two or more variables, then a valid error correction model exist between the two variables. .

Error Correction:	D(LOG(GDP))	D(LOG(TB))	D(LOG(TC))	D(LOG(CP))	D(LOG(CD))	D(LOG(BA))
CointEq1	-0.024746	0.081982	-0.014506	0.113792	-0.030015	0.017226
	(0.00775)	(0.00916)	(0.11060)	(0.09415)	(0.08569)	(0.07250)
	[-3.19095]	[8.95461]	[-0.13115]	[1.20868]	[-0.35027]	[0.23762]

Source: Extracted from E-views 8.0

The ECM coefficient is -0.024746 which indicates approximately 2.4746 percent of the previous year's disequilibrium in economic growth (GDP). This shows the speed at which the model converges to equilibrium – in this case a very sluggish pace. The magnitude of the ECM coefficient implies that 2.46% of any disequilibrium in economic growth (GDP) is corrected by the exogenous variables yearly. The adjustment speed is very slow. This long period of convergence calls for concern. It implies that a longer period of time is required for the various money market instruments to converge back to an equilibrium path. This long path to restoration of equilibrium is worrisome and calls for urgent policy measures by policy makers.

4.7 OLS Regression Output:

Below is the output of the ordinary least square regression. It is presented for the analysis of the relationship between the dependent and independent variables in the model.

Table 3: OLS Regression output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.85181	0.928596	25.68588	0.0000
LOG(TB)	0.777762	0.181669	4.281194	0.0003
LOG(TC)	0.041534	0.096123	0.432090	0.6695
LOG(CP)	0.094667	0.096373	0.982299	0.3358
LOG(CD)	0.077320	0.084825	0.911521	0.3711
LOG(BA)	0.227394	0.132102	1.721352	0.0981

R-squared/Adjusted R-squared: (0.945148/0.933721) F-statistic / Prob(F-statistic): 82.70830/0.000000

Source: Extracted from E-views 8.0

4.7.1 Coefficient of Determination

The coefficient of determination r-squared and adjusted r-squared are useful for throwing light at the explanatory power of the regression model. The model with an r-squared of 0.95 is impressive. This indicates that 95 percent of variation in the gross domestic product (GDP) is explained by the independent variables (money market instruments). The remaining 6 percent is explained by variables not included in this model. The Adjusted R^2 of 0.93 is close to the R^2 value of 0.94, meaning that the model is fit and useful for making valid conclusions on the topic of study.

4.7.2 Joint Statistical Significance of the Model

The F-statistic of 82.70830 which as a measure of the joint significance of the explanatory variables is found to be statistically significant at 1 percent level as indicated by the corresponding probability value 0.00000. This implies the rejection of the null hypothesis thus affirming that money market deregulation have significant impact on the performance of the Nigerian economy within the period under reference.

4.7.3 Student t-test / Individual Statistical Significance of Variables in the Model:

The Student t-test otherwise known as individual statistical significance of the parameters is adopted to test how significance each variable is in contributing to the independent variable: In doing this we compare the estimated t-statistic with the tabulated t-value, which by rule of thumb should be greater than 2 and significant at the 0.05 level of significance. Of the many money market instruments used in the study, only the coefficient for treasury bill appears statistically significant in relation to economic growth since it has a t-statistic value of 4.281194 and a probability value of 0.0003. The others are not statistically significant in the model judging from their low t-statistic value and insignificant probability values.

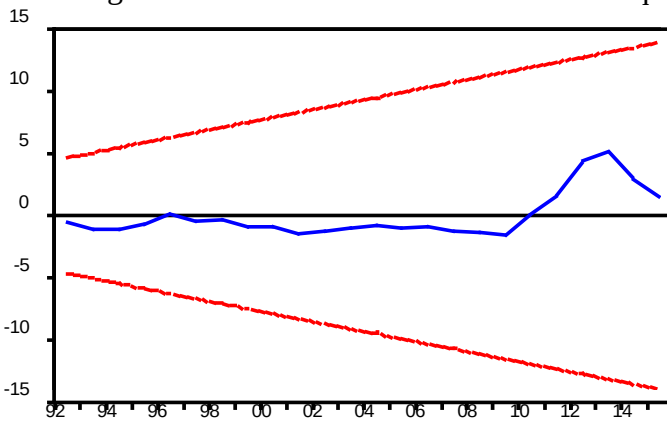
4.8 Discussion of Major Findings

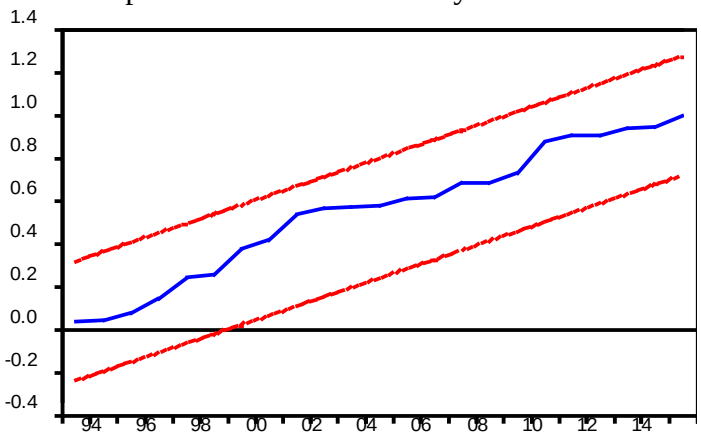
The constant is statistically significant implying that GDP does not only depend on treasury bills, treasury certificate, commercial papers, certificate of deposits and bankers acceptance but other variables not specified herein may affect GDP. Empirical evidence reveals that a naira increase in treasury bills leads to 0.777762 billion increase in the gross domestic product (economic growth of Nigeria). Similarly, a naira increase in treasury certificate, commercial papers, certificate of deposits and bankers acceptance caused the gross domestic product of Nigeria to rise by 0.041534, 0.094667, 0.077320 and 0.227394 billion naira respectively within the period of deregulated money market operations in Nigeria. The result of Pairwise Granger causality test is presented in the appendix page. It revealed that a unidirectional causality exist between treasury certificate and gross domestic product in Nigeria between 1986 – 2015. This means that deregulation of the money market operations contributed in bringing a boost to the economy through the issuance of treasury certificate. The causality relationship between variables leads to the rejection of the second hypothesis and stating otherwise that there is causal relationship between money market instruments and economic growth in Nigeria during the period examined.

Robustness / Diagnostic Test

To buttress the empirical analysis above, it is also necessary to examine the statistical properties of the estimated model. Robustness checks are crucial in this analysis, because if there is a problem in the residuals from the estimation of a model, it is an indication that the model is not efficient, such that parameter estimates from such model may be biased. The model was tested for serial correlation, heteroscedasticity and stability tests and the result is as tabulated above.

From the Breusch-Godfrey Serial Correlation LM Test results, the hypothesis of zero autocorrelation in the residuals was not rejected. This was because the probability value of 0.7201 is greater than 5%. Therefore, the Breusch-Godfrey serial correlation LM test did not reveal serial correlation problems for the model. Also, Breusch-Pagan test was conducted to test for heteroscedasticity and the result reveals a probability of 0.9825 which is in excess of 0.05. This leads to the rejection of the presence of heteroscedasticity in the residuals thus concluding that the residuals are homoscedastic. It can therefore be deduced that the model is valid and useful for policy making. The result of both the CUSUM and CUSUMsq stability test indicates that the model is stable. This is because both the CUSUM and CUSUMsq lines fall in-between the two lines at 5% significance level. The CUSUM/CUSUMsq outputs are as presented below for clarity.





Figures 4 and 5: Showing CUSUM and CUSUM of squares

5.0 Conclusion And Recommendations

In Nigeria, the financial market constitutes primarily of Money and Capital markets. Capital market provides long-term funds with maturity period of over one year through bonds and equity, thus it serves as the mechanism by which the savings of surplus economic units may be used to finance medium and long-term investments. Financial markets are vital components of the financial system of every country. In the words of Onyido (1994) money market primarily exist as a means of liquidity adjustment, in other words, it provides the mechanism for short-term funds of less than one year. The importance of these markets in any modern economy is enormous. The markets afford households, firms and even government the opportunity to raise funds from the savings of surplus economic units. It is in the light of the foregoing importance placed on money market operations that this study focused on the effect of deregulation of money market operations on the performance of the Nigerian economy. It examined the relationship between GDP and Money market instruments namely, Treasury bills (TB), Treasury Certificate (TC), Certificates of Deposit (CD), Commercial papers (CP) and Bankers' Acceptances (BA) in the Nigerian economy for the period 1986 to 2015.

The Data for the study were analyzed using the OLS multiple regression techniques and empirical estimation was carried out using E-views econometric software version 8.0. The findings showed robust evidence of linear relationship. Results derived from empirical analysis are thought-provoking and a wake-up call for policy makers to get more committed to revitalizing the Nigerian money market for efficiency, effectiveness and more robust activities in the sector. In concluding, the study holds that there exists a unique long-run equilibrium relationship between money market instruments and economic growth in Nigeria. Similarly, it was revealed that money market deregulation has significant impact on the performance of the Nigerian economy within the period under reference. Since money market provides veritable instruments for effective liquidity management and acts as the core source of raising short-term funds for lubricating economic activities in any nation, the study thus recommends that monetary authority should initiate policies that would encourage money market operations and also be proactive in CBN surveillance role in order to check practices that could undermine or sabotage market integrity and soundness. For effectiveness, policies must include means of effective implementation, monitoring and sanctions. It is also recommended that all economic stakeholders, monetary, regulatory and practitioners should combine efforts aimed at improving money market operations, entrench modalities for achieving set economic goals that are favourable for a productive-based economy that ensures growth in GDP. Finally, there is the need for the creation of an enabling (investment friendly) environment by concerned authorities (both government and monetary policy regulators). This will further deepen the popularity of the instruments and subsequently create market for those instrument(s).

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Appendix

Table 3(a): Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.992855	334.1354	95.75366	0.0000
At most 1 *	0.973976	195.7795	69.81889	0.0000
At most 2 *	0.875996	93.61463	47.85613	0.0000
At most 3 *	0.482421	35.16616	29.79707	0.0109
At most 4 *	0.326673	16.72555	15.49471	0.0325
At most 5 *	0.182755	5.650863	3.841466	0.0174

Trace test indicates 6 cointegrating eqn(s) at the 0.05 level
Source: Author's computation using Eviews 8.0

Table 4(b): Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.992855	138.3559	40.07757	0.0001
At most 1 *	0.973976	102.1649	33.87687	0.0000
At most 2 *	0.875996	58.44847	27.58434	0.0000
At most 3	0.482421	18.44062	21.13162	0.1142
At most 4	0.326673	11.07468	14.26460	0.1505
At most 5 *	0.182755	5.650863	3.841466	0.0174

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
Source: Author's computation using Eviews 8.0