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MONEY MARKET INSTRUMENTS AND ECONOMIC GROWTH IN NIGERIA

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Abstract:
This paper examined the effect of money market instruments on economic growth in Nigeria from 1980 to 2020. To achieve the above objective, secondary data on real gross domestic product, treasury bills, commercial papers, bankers' acceptances and monetary policy rate were sourced from the statistical bulletin of Nigeria's apex bank. The Error Correction Mechanism (ECM) was used as the main analytical tool. The result revealed that all the instruments of money market – treasury bills, commercial papers and bankers' acceptances have positive effect on economic growth in Nigeria during the period of study. This means that money market instruments – treasury bills, commercial papers and bankers acceptances enhanced economic growth in Nigeria during the period of study. However, only bankers' acceptances significantly (meaningfully) influenced economic growth in Nigeria during the period of study. What this suggests is that though treasury bills and commercial papers have contributed to economic growth in Nigeria from 1980 to 2020, but their contribution is very low to trigger a meaningful increase in economic growth. At the same time, Monetary Policy Rate has negative and insignificant relationship with economic growth in Nigeria during the period considered in this study. The study concluded that money market instruments - treasury bills, commercial papers and bankers' acceptances have impacted on economic growth in Nigeria. Therefore, recommended that government should put in place policies that will increase the operations of money market in Nigeria in order to make short-term securities and loans available for investment. Deposit money banks and other operators in the money market should be encouraged to possess sufficient approved securities for trading in the money market. Government should ensure easy and effective communication between the operators in the money market. At the same time, there should be a downward review of the cost of raising funds in the Nigerian money market so as to enhance competitiveness and improve the attractiveness of the market as one of the major sources of raising funds for investment which in turn will increase economic growth in Nigeria.

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1. Introduction

Money market is a market for short-term securities. The market is made up of institutions that deal in short-term securities and loans. The major institutions include the Central Bank of Nigeria (CBN), deposit money banks and the discount houses. The traditional role of the market is to mobilize funds from the surplus spending units to the deficit spending units for short-term investments. That is, the function of the money market is to provide opportunities for the mobilization of short-term funds to meet the credit and financial needs of the private sector of the economy. It is also the responsibility of the money market to create liquidity, ensure diversification of risk among others. The market offers services that are important to a contemporary economy mostly by contributing to the formation of capital through financial intermediation, counseling services and enhancement of skills to make decisions. Therefore, a well-organized money market optimizes the quantity of savings that funds investment at whichever level of saving.

Since the introduction of money market in 1960 in Nigeria, the performance of money market has been impressive in terms of its operations. For instance, in 2016, total money market assets outstanding at end-December 2016 stood at ₦7,234.42 billion, representing an increase of 35.5 per cent from ₦5, 339.03 billion, at the end of 2015. The development was attributed to the 29.0 and 42.7 per cent increase in Nigerian Treasury Bills (NTBs) and Federal Government of Nigeria (FGN) Bonds outstanding, respectively, due to improved market confidence and expected yield (CBN, 2016). In the year 2019, total money market assets outstanding at end-December 2019, stood at ₦13, 043.59 billion, representing an increase of 6.21 per cent over the ₦12, 281.53 billion at end December 2018 (CBN, 2019). The development was attributed to increased investment in certificate of deposits, FGN bonds and commercial paper.

In spite of the impressive performance, the influence of money market on the growth of the Nigerian economy is still insignificant and disappointing when viewed from the nature of all the activities happening in the market. This is because meeting the objective of mobilizing funds from the surplus spending units to the deficit spending unit for short-term investments has constituted a problem regarding the performance of the money market in Nigeria. This may probably be attributed to a little amount of the total earnings of the public that actually make savings are quite small. Also, Gbosi (2005), as well Ajie, Akekere and Ewubare (2008) opined that the problems faced by Nigeria's money market include the dominance of government securities in the market, high interest rate, inconsistency in macroeconomic policies, high level of ignorance, inefficient infrastructure facilities, lack of professionals in money market activities, paucity of monetary tools, out-of-date regulatory frameworks, lack of timely and easy access to information, poor investment environment, predominance of low income investors in the

money market, and absence of a comprehensive mass media that deals with financial information.

However, the money market in Nigeria has undergone a series of reform or transformation in an effort to achieve adequate economic growth at the rate needed to have feasible impact in reducing unemployment and poverty. The reasons for the reforms included to make available better opportunities to mobilize funds, ensure improvement in the allotment of funds and make available relevant information for money market appraisal. Consequently, the money marketplace will make available variety of monetary instruments skilled enough to facilitating economic agents to pool, price and swap risk which will stimulate economic growth. Even with the reforms, Nigeria has not achieved adequate economic growth at the rate needed to make a meaningful impact in the reduction of poverty.

Available data reveals that the economy has not recorded adequate economic growth. For instance, in 2016, the economy was under pressure. Consequently, the economy contracted, as provisional data indicated that Real Gross Domestic Product (RGDP), measured at 2010 constant basic prices, declined by 1.5%, in contrast to 2.8% growth in 2015. Oil and non-oil sector output declined by 13.7 and 0.2%, respectively (CBN, 2016). In 2017, the economy witnessed a mild recovery from recession. The Real Gross Domestic Product (RGDP), measured at 2010 constant basic prices, grew by 0.83%, in contrast to the contraction of 1.58% in 2016 (CBN, 2017). In 2018, the real Gross Domestic Product (GDP), measured at 2010 constant basic prices, grew by 1.9%, compared with the growth of 0.8% in 2017 (CBN, 2018). In 2019, the economy maintained a modest growth. The Real Gross Domestic Product (RGDP) measured at 2010 constant basic prices grew by 2.3% (CBN, 2019).

Furthermore, a number of studies have been carried out on the association between money market instruments and economic growth. But the outcomes are conflicting. For instance, on one hand, empirical studies by distinguished scholars including Pavtar (2016); Eze and Mansi (2017); Etale and Ayunku (2017); Uruakpa (2019); Gbenga, Olorunleke, Tajudeen and Hamzat (2021); as well as Tsintop and Bala (2023) on money market and economic growth, revealed that the money market instruments have positive and significant (meaningful) influence on economic growth. On the other hand, empirical studies by Obi (2021); Ishola, Oni, Kolapo (2021) revealed that though money market instruments have positively influenced economic growth in Nigeria but their influence is not significant (meaningful).

Therefore, difference in opinion and empirical findings on how money market instruments have influenced economic growth in Nigeria is of serious concern and that is what necessitated this research. Therefore, the broad objective of this study was to examine the effect of money market instruments on economic growth in Nigeria. Specifically, this study examined how treasury bills, commercial papers and bankers' acceptances have influenced economic growth in Nigeria from 1980 to 2020. The remaining parts of this paper were structured into review of related literature, methodology, results and discussion, conclusion and recommendations.

2. Literature Review

2.1 Conceptual Issues

Money market is a market for short-term securities. The market is made up of institutions that deal in short-term securities and loans. The major institutions include the deposit money banks and the discount houses. Deposit money banks features prominently here because generally speaking they cannot lend for long periods. The reason for this is that the deposit money banks themselves borrow for short periods – the holders of deposit accounts which form the bulk of deposit money banks' funds can call for their money at any time. The market operators use several instruments in their transactions. They include treasury bills, treasury certificates, certificates of deposit, commercial papers and bankers' acceptances. These are devices for lending and borrowing, and they are distinguished by the terms they carry (Akpakpan, 1999).

Treasury bills are promissory notes issued by the Central Bank of Nigeria (CBN) on behalf of the Federal Government. It is a 91-day maturity short-term debt instrument, issue on weekly basis to raise funds for the Federal Government. The instrument is equally used as a monetary policy tool by the CBN to manage liquidity in the banking system through the Open Market Operation (OMO). The security could be sold at a price lower than its normal value and hence it is a discountable instrument. At maturity, bill is redeemed at its face value.

Furthermore, treasury certificates were first issued by the Central Bank of Nigeria (CBN) in 1968. This instrument was design to bridge the gap between short-term treasury bills of 91 day and the medium-term treasury certificates of one to two years. The instrument is used to manage liquidity in the banking system on a medium-term basis as well as raise funds for the Federal Government. The development of the local money market was facilitated by this instrument, which later led to localization of the country's credit base. The holders could rediscount the certificate in the money market if the need arises. Certificate of Deposits (CDs) are inter-bank instruments introduced in March 1975 with maturity dates ranging from 3-36 months. There are two categories of CDs; these are Negotiable Certificates of Deposit (NCD) and Non-Negotiable Certificates of Deposit (NNCD). These instruments are issued by merchant banks and held mostly by deposit money banks. Commercial papers are promissory notes issued by corporate entities evidencing indebtedness. As a principal supplement to bank loans, they were granted for the purpose of meeting seasonal credit requirements of the private sector. The dominant investors in the instrument have remained the deposit money banks, which over the years accounted for the greater percentage of the outstanding total.

In addition, Gbosi (2005) opined that the establishment of money market in Nigeria occurred in April 1960 when the first money market instruments (Treasury bills) were issued by the Central Bank of Nigeria (CBN). Thereafter, other money market instruments were floated depending on the liquidity of the monetary system. Since the shift from the direct to indirect system of monetary control which emphasized on Open Market Operation (OMO), discount houses have been established to serve as financial

intermediaries between the CBN, listed banks and other financial institutions. The scope of the market has now expanded.

The main function of the market is to mobilize funds from the surplus spending units to the deficit spending unit for short-term investments which in turn will influence economic growth. In 1999, Akpakpan defined economic growth in terms of achievement of yearly increases in both the total and per capita output of goods and services. In other words, economic growth is the sustained increase in the actual output of goods and services. Moreover, Ohale (2002) defined economic growth in two senses. In one sense, as the increase in the productive capacity of the economy leading to an increase availability of goods and services in the economy over some given period of time. In another sense, as sustained increase in per capita output of goods and services over a period of time. In a similar vein, Ekine (2011) wrote that economic growth is defined as the process whereby the real per capita income of a country increases over a long period of time.

According to Ekpo (2017), "*economic growth refers to a rise in national income and product; in other words, it is the percentage change in two consecutive years' output or GDP. It connotes a sustained increase in GDP over-time*." Economic growth is measured by the increase in the amount of goods and services produced in a country. Thus, growth is also expressed in terms of increases in the gross output of the economy per period of time. All countries desire to achieve faster rates of economic growth because economic growth is seen to be the most effective way to bring about higher living standards in the economy, economic growth also offers the prospect for the reduction of poverty and it is an important instrument for acquiring power and prestige – political and military strengths are dependent upon economic power, also the more a country can produce and satisfy the needs her citizens, the more the country will be respected by other countries (Ohale, 2002). An economy that is growing will produce more goods and services in each consecutive time period. Factors which lead to growth include improvements in the skill and training of labour force, increase in productivity, i.e., output per hour of work, better management and technology, enlarged excellence and higher excellence of the stock of capital. Economic growth is necessary if living standards must not fall. But, economic growth alone is not enough to promote social welfare (Akpakpan, 1999).

2.2 Theoretical Literature

Efforts to investigate the association between financial market and economic growth have resulted in a number of theories and general statements including the Efficient Market Hypothesis (EMH) and Finance-Led Growth Hypothesis. The EMH was developed by Fama (1965) in an attempt to provide a framework for examining the efficiency of the financial market. It is founded on the supposition that prices of securities in financial markets completely reflect all available information. This is because in a well-organized market, prospects or opportunities for all unexploited profit are eradicated or eliminated. An essential factor in this way of thinking is that not everybody in a financial or monetary market must be properly informed about a security or have rational or sensible

expectations for its price to be driven to the position at which the well-organized markets state holds (Inimino, Bosco and Abuo, 2018).

Evidence on the EMH is fairly mixed. Early evidence on the analysis of investment performance and mutual funds, whether stock prices reflect publicly available information, the random-walk behaviour of stock prices, and the success of so-called technical analysis was quite favourable to the EMH. However, Inimino, Bosco and Abuo (2018) explained that in recent years, evidence or proof on the small-firm effect, market overreaction, excessive volatility, means reversion, and new information is not always incorporated into stock prices, suggesting that the hypothesis may not always be entirely correct. The proof seems to suggest that the efficient markets hypothesis may be a sensible point to start evaluating behaviour in monetary or financial markets but may not be generalized to all behaviour in financial market. The Efficient Market Hypothesis (EMH) indicates that hot tips, investment advisors' published recommendations, and technical analysis cannot help an advisor out-perform the market. The explanation for investors is to pursue to buy-and-hold strategy-purchase stocks and hold them for long periods of time.

As reported by Okpoto (2015), previous test of the EMH have relied on long range dependence of equity returns. It revealed that previous information has been found to be in improving predictive correctness. This report seems not to support the EMH in majority of the developing nations. Given the fact that the regulatory and institutional arrangements in the market are immature, the equity price definitely would tend to exhibit long range dependence. In a state of affairs where the market is highly and unreasonably speculative, investors will be disheartened. This has a negative effect on economic growth of any country, meaning that investors will refuse to invest in financial assets. The implication of this is that companies cannot raise extra or additional capital for development. Therefore, efficient capital market is needed to achieve sustainable or adequate economic growth (Inimino, Bosco and Abuo, 2018).

In addition, the Efficient Market Hypothesis (EMH) is important to this study because it links money market and economic growth. It makes known the association between effectiveness of the money market and economic growth in Nigeria. Hence, it offers a structure for investigating money market efficiency (Obiakor, 2016; Inimino, Bosco and Abuo, 2018). On the other hand, the proponents of the finance-led growth hypothesis, including King and Levine (1993), Rajan and Zingales (1998), Darrat, (1999), Ghali, (1999), Luintel and Khan (1999), Jalilian and Kirkpatrick, (2002); Bhattacharya and Sivasubramanian (2003); and Habibullah and End (2006), postulated that a financial sector that is development has the ability to stimulate the economy. Put succinctly, the finance-led growth hypothesis postulates that a well-developed financial sector plays a major role in the economic growth of countries. The hypothesis holds that financial development promotes economic growth through several channels which include efficient allocation of capital, mobilization of savings through attractive instruments and lowering of cost of information gathering cum presenting (Bara, Mugano and Le-Roux, 2016).

Outstandingly, an efficient financial sector is seen as transmitter or supplier of limited credit resources from the surplus units to the deficits units. Through this process the financial sector helps to promote efficient allocation of resources. Empirical evidence in support of this hypothesis has been provided in the works of the above-mentioned proponents. Financial institutions are necessary for the capitalistic economy's development. Supporting the above, McKinnon (1973) and Shaw (1973) emphasized the role of financial services in promoting economic growth. A number of studies including Chowa and Fung (2013) have observed that financial intermediaries as the agents that watch, fund and promote entrepreneurship and hence, investment and growth in the economy of nations. This means that financial intermediation will influence saving rate, investment decisions, technology innovation and hence long-run growth rate (Inimino, Bosco and Abuo, 2018).

In addition, Inimino, et al. (2018) opined that the finance-led growth hypothesis has been criticized. For instance, Lucas (1988), McKinnon (1973) and Shaw (1973) argued that financial development is not a precondition for economic growth because investment in a typical developing economy is mostly self-financed and during crisis, countries with better developed financial systems are more adversely affected than those with underdeveloped financial systems (Bara and Le Roux, 2016; Inimino, Bosco and Abuo, 2018). Despite these criticisms, the finance-led growth hypothesis is realistic in that it takes into consideration the important of financial intermediation in influencing saving rate, investment decisions, technology innovation and hence long-run growth rate. Hence, it provides a framework for investigating the effect of money market instruments on economic growth in Nigeria.

2.3 Empirical Literature

Pavtar (2016) investigated the nexus between money market and Nigerian economic growth: A time series analysis from 1985-2014. The study adopted descriptive statistics and the ordinary least squares (OLS) multiple regression techniques. The study found that treasury bills, treasury certificate, commercial paper does not have any significant effect on the gross domestic product (GDP) of Nigeria while certificate of deposits significantly impacted on the gross domestic product (GDP) of Nigeria.

Aminu, Bambur and Aliyu (2017) utilized Ordinary Least Squares technique to examine money market-growth nexus in Nigeria from 1999-2017. Money market was found to contribute significantly to the economic growth of Nigeria. Specifically, all instruments - treasury bills, certificates of deposits, bankers' acceptances have negative effect on economic growth.

Eze and Mansi (2017) examined the relationship between money market instruments (treasury bills, treasury certificates, certificates of deposits, and bankers' acceptances) and economic development in Nigeria from 1990 to 2014 using parsimonious error correction model. The results revealed that the money market has significant impact on the growth of the Nigerian economy. However, the impact was specifically significant with respect to bankers' acceptances and certificates of deposits.

Etale and Ayunku (2017) employed ordinary least squares and granger causality techniques to investigate the association between money market and economic growth in Nigeria spanning 1989-2014. The money market instruments adopted in the study as independent variables are; treasury bills, commercial papers and bankers' acceptances. However, Gross Domestic Product (GDP) was used as a dependent variable. The result revealed strong evidence that treasury bills and commercial papers had positive and significant influence on GDP, while bankers' acceptances had positive but insignificant influence on GDP in Nigeria. The granger causality test result revealed no directional causality association between treasury bills, commercial papers, bankers' acceptances and GDP.

Akarara and Eniekezimene (2018) investigated the effect of selected money market instruments on the growth of the Nigerian economy from 1981-2017 using Autoregressive Distributive Lag (ARDL) Bounds testing approach. The results revealed that money market variables are positively related with economic growth rate both in the short and long-run, except for certificate of deposit and commercial paper that has an inverse relationship with economic growth in the long run. Broad Money Supply does not seem to have a meaningful association with economic growth both in the short and long-run, while treasury certificate has a significant positive impact on economic growth in the short-run but an insignificant impact on economic growth in the long-run.

Using ordinary least squares, cointegration test, variance impulse and variance decomposition techniques, Uruakpa (2019) examined the impact of money market reforms on economic growth of Nigeria spanning 1990-2017. The study established evidence of co-integration between money market value and GDP, with the former having positive and significant effect on the latter. TBS outstanding has positive but insignificant effect on economic growth.

Faith, Hakeem and Samuel (2020) investigated the impact of selected money market instruments on economic growth from 1989-2019. The study employed multiple regression and Granger Causality Test to analyse data. The study found out that commercial papers and treasury bills have a positive association with GDP, but the influence is insignificant in the long run. At the same time, bank's acceptance and credit to the private sector have a positive and significant effect on economic growth in the long run. In contrast, development stock has insignificant effect on economic growth in both short and the long runs with no granger causal association with economic growth.

Ishola, Oni, Kolapo (2021) investigated the impact of money market instruments (Treasury bill, Treasury certificates, Certificate of Deposits, Banker's Acceptances, Development Stock and Commercial Papers) on Economic growth spanning 1990-2020. The study employed statistical techniques ordinary least squares multiple-regression and Granger Causality Test to analysis data collected for the study. The results revealed that Bank acceptance and Commercial paper granger cause Gross Domestic Product (GDP). Treasury bill, Treasury certificate and commercial papers have a positive relationship with economic growth, but its effect is insignificant in the long run. But banker's acceptance and certificate of deposits have positive and significant effect on economic growth in the long run. In contrast, development stock has no significant effect on

economic in the short and the long run with no granger causal relationship with economic growth.

Obi (2021) employed an Error Correction Mechanism (ECM) to investigate the relationship between the money market instruments and economic growth of Nigeria from 1981-2019. The results showed that money market instruments significantly influenced economic growth in Nigeria during the period of study. However, the influence of money market instruments on the development of the Nigerian financial system was insignificant.

Gbenga, Olorunleke, Tajudeen and Hamzat (2021) studied the relationship between money market and economic growth from 1981-2018 based on Fully Modified Ordinary Least Squares (FMOLS) and Granger causality techniques. The findings revealed the existence of a positive, strong and significant correlation between money market and economic growth. The study also found that money market has positive and significant impact on economic growth in Nigeria. Causality flows from money market to economic growth but not vice versa. The study concludes that money market constitutes a veritable vehicle for achieving economic growth in Nigeria. It is imperative for Nigerian government to strengthen the money market by encouraging participants in the market through its various policies like tax incentives, extension of interest free short term investment loans to investing public.

Ishola, Oni and Kolapo (2021) examined the impact of money market instruments on economic growth in Nigeria from 1990-2020. The study employed statistical techniques such as ADF, Unit Root Test, OLS, multiple-regression and Granger Causality Test. The study observed that bank acceptance and commercial paper granger cause Gross Domestic Product. Treasury bill, treasury certificate and commercial papers have a positive relationship with Gross Domestic Product, but its effect is insignificant in the long run. But banker's acceptance and certificate of deposits has a positive and significant effect on Gross Domestic Product in the long run. At the same time, development stock has no meaningful influence on economic growth in the short and long run with no granger causal association with Gross Domestic Product.

With the aid of Vector Error Correction Model technique, Akpotor and Egharevba (2022) investigated the effect treasury bills issue on economic growth in Nigeria spanning 1986 to 2019. The result revealed that treasury bills have negative and insignificant influence on economic growth in Nigeria.

Tsintop and Bala (2023) employed the ordinary least squares econometric technique to examine the impact of money market activities on the economic growth of Nigeria 1981-2020. The results revealed that money market instruments (treasury bills, commercial paper and banker acceptance note) have positive and significant relationship with economic growth in Nigeria during the period covered by their investigation.

3. Material and Methods

The methods that were employed to analyze the research data are: unit root test, Johansen Co-integration test and Error Correction Mechanism (ECM). While the unit root test helps

to ascertain stationarity of the variables, the co-integration measures the long run relationship among the variables and the ECM corrects abnormalities that may affect regression results. It is important to note that time series data are prone to errors because of unsteadiness in business activities from which most of our data are derived. Hence, the adoption of the above econometrics techniques to help us determine how money market instruments have influenced economic growth proxy by Real Gross Domestic Product in Nigeria. In addition, quantitative data on real gross domestic product, treasury bills, commercial papers, bankers' acceptances and monetary policy rate were collected from the Central Bank of Nigeria Statistical Bulletin from 1980 to 2020. The model was specified in line with the conceptual, hypothetical and experimental literature reviewed. Momentously, this work adapted the model of Etale and Ayunku (2017). That is, the model was cast in agreement with that of Etale and Ayunku (2017), whose model is in the form GDP = F(TBs, CPs, BAs) but with slight modification. This present study replaced Gross Domestic Product (GDP) with Real Gross Domestic Product (RGDP) and at the same time, monetary policy rate was included in the model. Specifically, the study expressed the money market-economic growth functionally as:

$$RGDP = F(TBS, CPS, BAS, MPR) \quad (1)$$

The log-linear form;

$$LnRGDP_t = \acute{\alpha}_o + \acute{\alpha}_1 LnTBS_t + \acute{\alpha}_2 LnCPS_t + \acute{\alpha}_3 LnBAS_t + \acute{\alpha}_4 MPR + \tilde{\omega}_t \quad (2)$$

Where: RGDP is Real Gross Domestic Product, TBS is Treasury Bills, CPS is Commercial Papers, BAS is Bankers Acceptances, MPR is Monetary Policy Rate, Ln is natural Logarithm, $\tilde{\omega}$ is Error Term, $\acute{\alpha}_1, \acute{\alpha}_2, \acute{\alpha}_3$ and $\acute{\alpha}_4$ are the slope parameters and $\acute{\alpha}_0$ is the constant parameter. On the apriori: $\acute{\alpha}_1, \acute{\alpha}_2, \acute{\alpha}_3 > 0$ and $\acute{\alpha}_4 < 0$.

3.1 Techniques of Data Analysis

The unit root test encompasses testing the order of integration of the individual series in a model precedes Co-integration and ECM. The unit root test used in this study is the Augmented Dickey-Fuller (ADF). The general form of ADF is estimated by the following regression,

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \Sigma\alpha_1 \Delta y_i + \delta_t + u_t \quad (3)$$

Where,
y is a time series,
t is a linear time trend,
Δ is the first difference operator,
α_0 is a constant,
n is the optimum number of lags in the independent variables, and
u is random error term.

Co-integration is an econometric technique used for testing the correlation between non-stationary time series data. Two variables are said to be co-integrated if they have a long run or equilibrium relationship between them (Gujarati, 2007). This study used Johansen co-integration procedure. The basic argument of Johansen's procedure is that the rank of matrix of variables can be used to determine whether or not the two variables are co-integrated. A lack of co-integration suggests that such variables have no long-run relationship.

According to Johansen (1998), the general form of co-integration is given by:

$$RGDP_t = \mu + \Delta_1 RGDP_{t-1} + - - - + \Delta P\, y_{t-p} + u_t \quad (4)$$

Where,
Y_t is an nx1 vector of variables that are integrated of order commonly denoted (1), and
u_t is an nx1 vector of innovations.

However, an extension of this in the co-integration technique is the Error Correction Mechanism (ECM) (Engle and Granger, 1987). These authors have established that Co-integration is a sufficient condition for an Error Correction Model formulation.

Furthermore, co-integration was proven to exist, and then the next step was the construction of Error Correction Mechanism (ECM) to model dynamic relationship. The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run. The study represents the model specification with an error correction form that allows for inclusion of long-run information thus, the ECM can be formulated as follows:

$$\Delta Q_t = \beta_{10} + \Sigma\, \beta_{11t}\Delta Q_{t-1} + \Sigma\, \beta_{12t}\Delta Y_{t-1} + \Sigma\, \beta_{13t}\Delta Z_{t-1} + \delta_1 ECM_{t-1} + u_{1-t} \quad (5)$$

Where,
Q is the dependent variable,
$\beta_1 - \beta_2$ are the slope parameters,
$Y_1 - Y_3$ are the set of explanatory variables,
$\delta 1 ECM_{t-1}$ is the coefficient of ECM, Δ is change and μ is the disturbance term.

Based on our model in 2, the dynamic (error correction) representation is given below:

$$\Delta LnRGDP_t = \beta_0 + \Sigma\acute{\alpha}_1 \Delta LnRGDP_{t-1} + \Sigma\acute{\alpha}_2 \Delta LnTBS_{t-1} + \Sigma\acute{\alpha}_3 \Delta LnCPS_{t-1} + \Sigma\acute{\alpha}_4 \Delta LnBAS_{t-1} + \Sigma\acute{\alpha}_4 \Delta MPR_{t-1} + \delta_1 ECM_{t-1} + \mu_{1-t} \quad (6)$$

Note the variables as earlier defined. Furthermore, the data collected and utilized in this work were from Central Bank of Nigeria (CBN) Statistical Bulletin. It covers the period 1980-2020. It is taken that the data are a true representative of the Nigerian economy, trusting that the analysts and researchers of the CBN are efficient to the content that human error allows. Thus, the data remain secondary in nature.

4. Results and Discussion

To avoid spurious regressions which may arise as a result of carrying out regressions on time series data, this study subjected the data to stationarity test by using the Augmented Dickey Fuller (ADF) tests. The ADF test was done with the following hypotheses:

H_0: Variable contains unit root and hence is non-stationary.

H_1: Variable does not contain unit root and hence is stationary.

See Table 1 for unit root test results.

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	Level form		First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
RGDP	-2.109012	-3.533083	-7.360246	-3.529758	1(1)
TBS	2.445228	-3.568379	-4.917272	-3.568379	1(1)
CPS	-2.223242	-3.529758	-5.596445	-3.533083	1(1)
BAS	-2.024648	-3.529758	-7.092867	-3.533083	1(1)
MPR	-3.050399	-3.526609	-6.672627	-3.533083	1(1)

Note: RGDP, BTS, CPS, BAS and MPR as earlier defined,
Source: Authors' computed result from (E-Views 10).

The result of the ADF test for each of the series presented in Table 1 reveals that at five per cent level of significance, all the variables were stationary at first difference 1(1). The results of the variables being stationary at first difference makes it inappropriate for the application of the Ordinary Least Square (OLS) method, therefore the test to determine the long run relationship can be achieved with the aid of the Johansen Co-integration test which is presented in Table 2.

Table 2: Johansen Test for Co-integration Test Result

Eigen value	Trace Statistic	5% critical value	Prob.**	Hypothesis of CE(s)
0.647894	103.6822	69.81889	0.0000	None *
0.616992	64.01702	47.85613	0.0008	At most 1 *
0.369550	27.54840	29.79707	0.0889	At most 2
0.206454	10.01815	15.49471	0.2793	At most 3
0.031873	1.230908	3.841466	0.2672	At most 4

Source: Authors' computed result from (E-Views 10).

Table 2 indicates that there are two co- integrating equations because two of the Trace Statistic(s) are larger than critical value at 5%. Therefore, there is a long-run relationship among RGDP, TBS, CPS, BAS and MPR which prevent them from wandering apart without bound. That is, the null hypothesis (Ho) of no co-integrated among the variables was rejected. Given that there are two co-integrating equations, the requirement for fitting in an error correction model is satisfied. The Error Correction Mechanism (ECM) intends to validate the presence of long-run relationship and incorporate the short-run dynamics into the long-run equilibrium relationship. The ECM result is presented in Table 3.

Table 3: Parsimonious Error Correction Model

Dependent Variable: RGDP				
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.016083	0.010094	1.593376	0.1223
DLOG(TBS(-2))	0.004548	0.023941	0.189954	0.8507
DLOG(CPS(-2))	0.001421	0.005018	0.283176	0.7791
DLOG(BAS(-2))	0.016587	0.007533	2.201974	0.0361
D(MPR(-2))	-0.002404	0.001746	-1.376556	0.1796
ECM(-1)	-0.107174	0.041282	-2.596130	0.0148
R^2 = 0.524570. Durbin-Watson stat = 1.906276. F-statistic = 3.861754. Prob(F-statistic) = 0.003559.				

Source: Authors' computed result from (E-Views 10).

Table 3 shows the result of the short-run dynamic coefficients associated with the long-run relationships obtained from the ECM equation. The Error Correction Term in the model has the right sign (i.e., negative) and statistically significant at conventional level. This indicates adjustment to long-term equilibrium in the dynamic model. Put differently, it indicates it adjustment from short run equilibrium to long-run equilibrium in the dynamic model. This implies that deviations from the short-term in economic growth adjust quickly to long run equilibrium. The Durbin Watson (DW) value of 1.9 which is approximately 2.0, suggests that the model is free from autocorrelation.

Moreover, as expected, all the instruments of money market – treasury bills, commercial papers and bankers' acceptances have positive effect on economic growth in Nigeria during the period of study. This means that money market instruments – treasury bills, commercial papers and bankers acceptances enhanced economic growth in Nigeria during the period of study. The above outcome is consistent with the empirical studies of distinguished scholars including of Pavtar (2016); Eze and Mansi (2017); Etale and Ayunku (2017); Uruakpa (2019); Gbenga, Olorunleke, Tajudeen and Hamzat (2021); as well as Tsintop and Bala (2023) who investigated the impact of money market instruments on economic growth and affirmed that money market instruments have positive influence on economic growth. In addition, the coefficient of bankers' acceptances is statistically significant at conventional level. This suggests that bankers' acceptances have significantly (meaningfully) influenced economic growth in Nigeria during the period of study. Surprisingly, the coefficients of treasury bills and commercial papers are not statistically significant. Thus, it was concluded that treasury bills and commercial papers do not have significant relationship between economic growth in Nigeria during the period of study. This result also suggest that though treasury bills and commercial papers have contributed to economic growth in Nigeria from 1980 to 2020, but their contribution is very low to trigger increase in economic growth.

At the same time, the coefficient of Money Policy Rate (MPR) appears with right sign (i.e., negative). This is consistent with theoretical expectation in economics. That is, the result conforms to hypothesized economic theory. Thus, a percentage increase in MPR will decrease economic growth (RGDP) by 0.002404 per cent. Moreover, the absolute value of the t-statistic for the slope coefficient is not significant at conventional level (i.e., 5%). Thus, the study concluded that MPR has not significantly impacted on

economic growth in Nigeria. The implication of this result is that MPR variable has not significantly impacted on economic growth in Nigeria during the period of study. This outcome can be attributed to high interest rate in the country. This is instructive has it corroborated Ekpo (2017) who reported that high interest rate in Nigeria extremely discouraged investment and as a result reduced economic growth. It also means that policies towards interest rate have not been well articulated and coordinated towards increasing economic growth of the country during the period of study.

4.5 Post Estimate Tests

Post estimate tests were employed to examine the reliability of the estimated model for prediction or policy purposes. Specifically, Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity Test: Breusch-Pagan-Godfrey, Ramsey Reset Test and normality tests were applied. The post estimate tests revealed that the ECM model passed all the diagnostic tests considered. Specifically, the Jarque-Bera statistic revealed that the error term is normally distributed at the conventional level (i.e., 5%). This is because the probability value of the Jarque-Bera statistic of 0.592210 is greater than the 0.05% conventional level. The results of these tests are reported Table 4 below.

Table 4: Ramsey Test, Serial Correlation LM Test, Heteroskedasticity Test and Normality Test Results

Test	F-Statistic	Prob. Value	Decision
Breusch-Godfrey Serial Correlation LM Test	0.242584	0.7864	Accept H_o
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.619948	0.1639	Accept H_o
Ramsey Reset Test	0.590140	0.4490	Accept H_o
Jarque-Bera test for normality	1.04788	0.592210	Accept H_o

Source: Authors' computed result from (E-Views 10).

5. Conclusion and Recommendations

The study on money market instruments and economic growth in Nigeria from 1980-2020 is of great important to the Nigerian economy. This is because money market plays an important role in the growth process of the economy. With the utilization of data on Gross Domestic Product, Treasury Bills (TBS), Commercial Papers (CPS), Bankers Acceptances (BAS) and Monetary Policy Rate (MPR) from Central Bank of Nigeria (CBN) Statistical Bulletin and the used of Error Correction Model (ECM) to analyze the data. The result revealed that all the instruments of money market – treasury bills, commercial papers and bankers' acceptances have positive effect on economic growth in Nigeria during the period of study. This means that money market instruments – treasury bills, commercial papers and bankers acceptances enhanced economic growth in Nigeria during the period of study.

In addition, the coefficient of bankers' acceptances is statistically significant at conventional level. This implies that bankers' acceptances have significantly (meaningfully) influenced economic growth in Nigeria during the period of study. Surprisingly, the coefficients of treasury bills and commercial papers are not statistically

significant. Thus, it was concluded that treasury bills and commercial papers do not have significant relationship between economic growth in Nigeria during the period of study. This result also suggests that though treasury bills and commercial papers have contributed to economic growth in Nigeria from 1980 to 2020, but their contribution is very low to trigger increase in economic growth. At the same time, the coefficient of Money Policy Rate (MPR) has negative and insignificant relationship with economic growth in Nigeria during the period considered in this study. The study therefore concluded that money market instruments - treasury bills, commercial papers and bankers' acceptances have impacted on economic growth in Nigeria. Therefore, recommended that government should put in place policies that will increase the operations of money market in Nigeria in order to make short-term securities and loans available for investment. Deposit money banks and other operators in the money market should be encouraged to possess sufficient approved securities for trading in the money market. Government should ensure easy and effective communication between the operators in the money market. At the same time, there should be a downward review of the cost of raising funds in the Nigerian money market so as to enhance competitiveness and improve the attractiveness of the market as one of the major sources of raising funds for investment which in turn will increase economic growth in Nigeria.

Conflict of Interest Statement

The author declares no conflicts of interest.

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