

## Money Market Instruments and Bank Performance in Nigeria

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### Abstract

The paper examines the relationship between money market instruments and bank performance in Nigeria. The data for the study were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin. This was analyzed with the e-view 7.1 statistical package in line with Ordinary Least Square (OLS) estimations. Results obtained showed that stationarity of the data were established with the Augmented Dickey Fuller (ADF) Unit Root test, the Johansen Co-integration test indicated the existence of long-run relationship between the variables. Granger Causality as revealed by the Pairwise tests runs uni-directionally and bi-directionally from Performing Loans and Advances to Money Market Instruments. The Variance Inflation Factor test for multicollinearity shows that multi-collinearity is not severe and therefore can be tolerated. The ordinary least square model estimation revealed specifically that money market instruments (treasury bills, commercial papers, and federal government bond) have positive relationships and significant effects on bank performance in Nigeria. Notably, treasury bills, commercial papers and federal government bonds were the main contributors to bank performance while bankers acceptance has a negative relationship and significantly impacted adversely on bank performance. The study recommended that, policy makers and stakeholders in the industry should intensify efforts towards improving policies and reforms that encourage investment in money market instruments by banks for greater performance and sustainable growth.

**Keywords:** Bank Performance, Treasury bills, Commercial papers, Federal government bonds, Bankers acceptance.

### Introduction.

The quest to balance the financial disequilibrium that exist within an economy remains the basis for the existence of financial markets. 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 market is classified into money markets and capital markets.

This paper focuses on the instruments of money market which are essentially short term in nature. These short-term instruments are made possible through the use of credit instruments of high quality such as treasury bills, treasury certificates, Bankers acceptance, commercial papers, eligible development funds, certificates of deposits etc. Kanu (2011) noted that money markets in Nigeria like money markets in other countries of the world are made up of various markets in financial instruments. Dealings in these financial instruments constitute the money market. The different markets in a money market are identified by type of financial instrument each deals on. The instruments have maturities ranging from one day to one year and are extremely liquid and less risky.

As part of fund and liquidity management programmes or strategies, these instruments enable banks to meet deposit and loan demands (Ebhodaghe, 2015). Examples of such strategies include holding of short-term financial assets which are highly marketable, maintaining avenues for short-term accommodation from the Central Bank or other banks and bidding for a greater volume of deposits. A portfolio of short-term money market securities held by a bank can be easily sold or rediscounted for cash. This approach and inter-bank borrowing constitute the major sources of liquidity for Nigerian banks.

When Central Bank action and regulations restrict the activities and operations of profit making financial institutions such as banks, they search for alternative ways of making profit (Atanda and Ajayi, 2012). The effects of monetary policy instruments are not noticed directly, rather they become more obvious through their effects on money market instruments.

Like all businesses, banks make profit by earning more money than what they pay in expense. The major portion of a bank's profit comes from the fees that are charged for its services and the interest that it earns on its assets. The major assets of a bank are its loans and advances and short-term financial instruments that it holds, while its major liabilities are its deposits and the money that it borrows, either from other banks or by selling commercial papers in the money market. Loans and other credit facilities are bank's assets and are used to provide most of a bank's income.

Money market instruments serve as a buffer which banks rely on in time of cash crunch. Banks' involvement in the manipulation of short-term market debt-instruments as an intermediary, yields returns which adds to profit maximization. The money market instruments due to their liquidity, less risky nature and short-term maturity are added in the determination of bank liquidity ratio. It is expected that this path would provide a sustainable path for Nigerian banks towards greater performance, but in spite of all these, most banks are

reluctant to invest in money market instruments. At times, they only invest the statutory amount required by Central Bank of Nigeria and prefer to trade with other large chunk of mobilized Funds say in direct loans and advances where high interest rates are negotiated and there are prospects for higher returns. Mohammad (2014) noted that money market instruments are awfully traded in high denominations and offer significantly lower return than most other securities.

Banks see money market instruments as highly regulated with their rates fixed by regulatory agencies or not definite and low returns. The instruments with high returns for banks witness low patronage. Banks do not have the powers to negotiate their interest rates unlike the rate of loans that are determined before advances or disbursements are made. Also, for some of these securities to be converted into cash in times of urgent need of funds, they are discounted, thus causing the banks to lose part of their invested principal. Ndugbu (2013) noted that most money market instruments such as Treasury Bills do not carry an explicit rate of interest but are sold on a discount basis, with the difference between the buying price and maturity value functioning as an implicit yield to the lender. If a bank pays N9,500 today for a treasury bill that will be worth N10,000 one year from now, than at the end of the year you will have earned N500 or 5.263% on the investment.

However, Iyiegbuniwe (2005) observed that money market instruments have experienced significant growth both in breath and volume of trading since the liberalization of the financial system in 1986. It still needs to be deepened further to achieve required vibrancy that is expected. Edo and Ikelegbe (2014) noted that money market was more active in granting instruments of short-term loans and overdrafts as well as trading in foreign exchange with marginal effects on the real sector of the economy. Ochei and Osabuohien (2012) opined that Nigerian money market is constrained by absence of adequate instruments required for smooth operations of the market. That is to say in other words that banks within the economy are equally constrained to operate within the ambits of available instruments.

Vagaries in policies and economic downturn affect money market instruments and banks are statutorily required by regulatory agencies to invest in them in a bid to achieving some monetary policy and fiscal objectives of the government towards national growth. Since the rates of some of these market instruments are not explicit, changes in macro-economic policies typically impact on their returns and performances. These situations and trends have caused a lot of concern and raised doubt as to the impact of money market instruments on bank performance. Hence, the need for this paper arises

In the light of the above problems, this paper therefore generally examines the impact of money market instruments on bank performances. Specifically, it further:

- identifies and examines the types of money market instruments in Nigeria
- examines the impact of treasury bills on bank performance
- shows the relationship between bankers' acceptances and bank performance in Nigeria
- ascertains if federal government bonds contributes significantly to bank performance; and
- examines the effect of commercial papers on bank performance.

This study covers the impact of money market instruments on Bank Performance in Nigeria between the periods of 1990 to 2014. The period was chosen based on the availability of data that would enable us investigate the said impact. Money market instruments selected were treasury bills, bankers acceptance, federal government bond and commercial papers.

### **Synopsis of Conceptual and Empirical Literature**

Money market is a market for short term-funds. It is a market in which money is bought and sold. Unlike the organized Securities and Commodities Exchanges, the money market has no specific location. Trade can be carried out online and executed via what is generally referred to as money market instruments. The major participants in the money market are Deposit Money Banks, government, Corporations, enterprises, money market mutual funds, CBN etc.

Money market instruments are documents of short term maturities evidencing claims and obligations among economic units, which are used to mobilize funds from the surplus units of the economy to the deficit unit. They are used by intermediary agents especially banks to bridge financial gaps or disequilibrium in an economy. Essentially, they are short-term debt instruments with maturities of one year or less (Ezirim, 2005). The instruments are used by businesses to raise, funds for economic activities, especially banks to finance temporary reserve loss or invest excess liquid cash. Government through its agencies like CBN play dominant role in the use of money market instruments to bridge the gap between its receipts and expenditure or attain certain monetary policy objectives.

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.

Much has not be done to empirically examine money market instruments and Banks performance in Nigeria. Ola (2015) in a study money market instruments in Conventional and Islamic Banks in Egypt observed that money market instruments affect the efficiency of liquidity management. Money make instruments are important for banks to remain solvent. Banks challenged by the need to have enough liquidity to meet any mismatch of the term structure (maturity dates) of assets and liabilities. He also noted that most of the liquidity instruments are illiquid and non-trable instruments.

Rig and Zibell (2009) observed that money market through its instruments, play a key role in banks liquidity management. Money market instruments are among the most liquid instruments in the assets of Deposit Money Banks or financial sector(s). Money market provides appropriate instrument and partners for liquidity trading, allows the refinancing of short and medium terms positions which facilitates the mitigation of liquidity banks risk.

In a related study, Punita (2006) used an OLS regression analysis to examine monetary policy instruments on bank profitability. The variables studied include open market operations, lending rates, statutory ratios etc. He observed that the instruments are, at present quite satisfactory and in line with the policy expectations.

Kayshyap & Stein (2000) and Amidu and Wolfe (2008) studies provide an empirical evidence to explain the effect of monetary instruments on loan supply of less liquid banks; deposit base and induce banks ability to perform their expected roles within the financial system.

In an empirical study of the determinants of bank profitability in Nigeria: Bank Character's Panel evidence, Ani et al (2012), noted that it has been argued that financial market structure (represented by regulator conditions as well as instruments) is one of the external influences that affects bank profitability.

Javaid et al (2011) used the pooled ordinary least square (POLS) method to investigate the impact of assets, loans, equity and deposits on one of the major profitability indicator of banks which is Return on Asset (ROA). The empirical results found strong evidence that these variables have a strong influence on profitability. However, the results revealed that higher total assets may not necessarily lead to higher profits due to diseconomies of scale. Also, higher loans contribute towards profitability but their impact is not significant. Equity and deposits were found to have significant impact on profitability.

A similar study conducted by Gull et al (2011) examined the relationship between bank-specific and macro-economic characteristics over bank profitability by using data of top fifteen Pakistani banks covering 2005 – 2009. The methodology employed was the pooled ordinary least square (POLS) to ascertain the impact of assets, loans, deposits, market capitalization, inflation, and economic growth on major profitability indicators, that is, return on Asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) separately. The outcome of the research showed that the variables have strong influence on bank profits.

## Materials and Methods

This study focuses on money market instruments and bank performance in Nigeria. The instruments considered in this regard include treasury bills, commercial papers, bankers acceptance and federal government of Nigeria bonds. These were regressed against performing loans and advances (PLA) of deposit money banks' as proxy for performance. The data on the selected variables were sourced from the Central Bank of Nigeria Statistical Bulletin (2014) covering a period of 25 years (1990 – 2014) based on available data. The period covered was based on the fact that the longer the period, the better the result.

The empirical analysis centred on the e-view Ordinary Least Square (OLS) regression analysis. The choice of the technique is based not only on its computational accuracy and simplicity, but also as a result of its optimal properties – best linear unbiased estimator, which also include minimum variance, zero mean value of the random terms (Koutsoyiannis 2003 and Gujarati, 2004). The OLS estimation was employed alongside other econometric tests such as the Augmented Dickey Fuller (ADF) test, Johansen Co-integration/trace tests, Pairwise Granger Causality test and the Error Correction (ECM) model test. The OLS was used to examine the nature of relationship and impact between the available whether they are significant or not.

The ADF is used to test for the stationary of time series data so as to be sure that we are not dealing with spurious or inconsistent data. Co-integration test was used to check the existence of long-run relationship among the data set or ascertain if they wander away from each other. Granger Causality helps to determine the extent to which the past values of the dependent variable (Y) explains the current value of the said Y, then to see whether adding logged values of x can improve the explanation. Error Correction Mechanism specifies the speed

at which short-run disequilibrium can be corrected in the long-run. In other words, it states the short-run adjustments dynamics and will be employed to correct any deviations from the long-run equilibrium relationship between the dependent variable and the explanatory variables.

**Model Specifications**

In a bid to achieve the objectives of this paper, the study used the Ordinary Least Square (OLS) multiple regression analysis.

The functional representation of the model is as follows.

$$PLA = F(TBS, CPS, BAS, FGB) \dots\dots\dots (1)$$

Statistically given as

$$PLA = a_0 + a_1TBS_t + a_2CPS_t + a_3BAS_t + a_4FGB_t + U_t \dots\dots\dots (2)$$

The estimated equation will be

$$\hat{PLA} = \hat{a}_0 + \hat{a}_1TBS_t + \hat{a}_2CPS_t + \hat{a}_3BAS_t + \hat{a}_4FGB_t + U_t \dots\dots\dots (3)$$

Where

PLA = Performing Loans and Advances of Deposit Money Bank

TBS = Treasury Bills

CPS = Commercial Papers

BAS = Bankers Acceptance

FGB = Federal Government Bond

a<sub>0</sub> = Constant or Intercept

a<sub>1</sub> – a<sub>4</sub> = coefficient of the independent variables or slope

t = time (1990 – 2014).

**A priori Expectations**

A priori expectation is determined by economic theory guiding economic relationship or expectations. From the given model above, we expect a positive relationship between the variables. This can be statistically expressed as: a<sub>1</sub>, a<sub>2</sub>, a<sub>3</sub>, a<sub>4</sub> < 0

**Autocorrelation:** This examines the existence of autocorrelation or serial correlation in the data. It is tested using Durban – Watson test statistic. If DW is closer 2 – weak or no auto correlation, 0 or near to 0 – perfect positive autocorrelation, 4 or closer to 4 – perfect negative autocorrelation.

**Estimations and Analysis of Results**

**Stationarity tests:**

The test was carried out using the Augmented Dickey Fuller Unit Root test to determine whether the time series data is stationary and the order of integration.

**Table 1: ADF Unit Root Test**

Variables	ADF t- statistic	Critical Values	Order of Integration
PLA	4.417261	1% = -3.831511 5% = -3.029970 10% = -2.655194	Stationary at first difference 1(1)
TBS	-3.845233	1% = -3.752946 5% = -2.998064 10% = -2.638752	Stationary at first difference 1(1)
CPS	-4.238771	1% = -3.752946 5% = -2.998064 10% = -2.638752	Stationary at first difference 1(1)
BAS	-4.775734	1% = 3.752946 5% = -2.998064 10% = -2.638752	Stationary at first difference 1(1)
FGB	-3.943263	1% = -3.808546 5% = -30.20686 10% = -2.650413	Stationary at first difference 1(1)

**Source:** E-view 7.1 Author’s Computation 2016

From the above table, performing loans and advances (PLA), Treasury Bills (TBS), Commercial Papers (CPS), Bankers Acceptance and Federal Government Bonds (FGB) were all stationary at 1(1). This means that the data set were stationary or consistent overtime and are suitable for estimation.

**Table 2: Multicollinearity Test**

Variance Inflation Factors

Date: 09/09/15 Time: 11:53

Sample: 1990 2014

Included observations: 25

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	52706.82	3.708682	NA
TBS	0.191606	15.01223	7.623405
CPS	1.031781	3.588350	2.653367
BAS	53.62289	5.539755	2.453391
FGB	0.049194	11.09731	7.780952

**Source:** E-view 7.1 Author's Computation 2016

The multicollinearity test was carried out using the Variance Inflation Factors (VIF). According to Egbulonu (2005), if a regression equation has many explanatory variables, the rule of thumb should be modified to  $VIF(b_{\mu}) > 10$ . Given the above table, centred VIF is  $< 10$ , hence multicollinearity is not severe and should be tolerated as it will not reduce the ratios enough to make them insignificant or change the parameters significantly to make them differ from expectation.

**Table 3: Johansen Co-integration test**

Date: 09/09/15 Time: 11:32

Sample (adjusted): 1992 2014

Included observations: 23 after adjustments

Trend assumption: Linear deterministic trend

Series: PLA TBS CPS BAS FGB

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.975919	205.5100	69.81889	0.0000
At most 1 *	0.886003	119.8041	47.85613	0.0000
At most 2 *	0.858574	69.85768	29.79707	0.0000
At most 3*	0.641666	24.87025	15.49471	0.0015
At most 4*	0.053538	1.265557	3.841466	0.2606

Trace test indicates 4 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)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.975919	85.70592	33.87687	0.0000
At most 1 *	0.886003	49.94641	27.58434	0.0000
At most 2 *	0.858574	44.98743	21.13162	0.0000
At most 3*	0.641666	23.60469	14.26460	0.0013
At most 4*	0.053538	1.265557	3.841466	0.2606

Max-eigenvalue test indicates 4 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:** E-view 7.1 Author's Computation 2016

Given that all the variables in the model are integrated of order 1(1), the Johansen approach of testing for cointegration among variables were employed. The result which is presented above indicates the existence of 4 cointegrating equations between the dependent and independent variables at 5% (0.05) level of significance. This suggests the existence of long-run relationship between banks performance and money market instruments.

**Table 4: Causality Test**

Pairwise Granger Causality Tests

Date: 09/09/15 Time: 11:47

Sample: 1990 2014

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
TBS does not Granger Cause PLA PLA does not Granger Cause TBS	23	17.3600 12.0361	6.E-05 0.0005
CPS does not Granger Cause PLA PLA does not Granger Cause CPS	23	13.9561 0.27892	0.0002 0.7598
BAS does not Granger Cause PLA PLA does not Granger Cause BAS	23	0.35717 1.20465	0.7045 0.7491
FGB does not Granger Cause PLA PLA does not Granger Cause FGB	23	8.50607 20.3162	0.0025 2.E-05
CPS does not Granger Cause TBS TBS does not Granger Cause CPS	23	8.33033 4.89315	0.0027 0.0201
BAS does not Granger Cause TBS TBS does not Granger Cause BAS	23	8.25610 1.67003	0.0029 0.2161
FGB does not Granger Cause TBS TBS does not Granger Cause FGB	23	5.46345 0.48557	0.0140 0.6232
BAS does not Granger Cause CPS CPS does not Granger Cause BAS	23	5.69796 2.74853	0.0121 0.0909
FGB does not Granger Cause CPS CPS does not Granger Cause FGB	23	6.55194 14.9627	0.0073 0.0001
FGB does not Granger Cause BAS BAS does not Granger Cause FGB	23	3.77032 0.84632	0.0429 0.4454

**Source:** E-view 7.1 Author's Computation 2016

The pair wise granger causality tests above with a maximum lag of 2 shows that causality runs bi-directionally between TBS and PLA, FGB and PLA, CPS and TBS, and between FGB and CPS. Causality was also observed to run uni-directionally from CPS to PLA, BAS to TBS, FGB to TBS, BAS to CPS and finally from FGB to BAS. Summarily, the empirical result revealed that granger runs uni-directionally from bank performance to money market instruments and vice-versa.

**Table 5: Error Correction Model (ECM) Estimates**  
**Dependent Variable: PLA**

Variable	Coefficient	Standard Error	t-statistic
ECM	-0.261556	0.04092	-6.39218
D(PLA (-1))	0.830957	0.16276	5.10545
D(TBS (-1))	-0.364229	0.73169	-0.49779
D(CPS (-1))	6.781018	0.88979	7.62091
D(BAS (-1))	-11.71568	6.18942	-1.89286
D (FGB (-1))	3.362809	0.51909	6.47824

R-Squared	0.866272	Log. Likelihood	-163.9216
Adj R-squared	0.816123	Akaike A/C	14.86274
Sum Square Resids	2087894	Schwarz Sc.	15.20833
S.E equation	361.2387	Mean dependent	475.9717
F-Statistic	17.27424	S.D. dependent	842.4245

**Source:** E-view 7.1 Author's Computation 2016

The vector error correction estimates indicates a good fit with F-ratio statistic of 17.27424, R<sup>2</sup> of 86.6% or ≈ 87% and Adjusted R<sup>2</sup> of 81.6% or ≈ 82% meaning that the explanatory variables explains approximately 82% variations in PLA (Bank Performance).

The Error Correction term (ECM) lagged one period is low but appropriately signed at 5% level. This shows that short-run disequilibrium or shock in the PLA – Bank performance is corrected at a speed of approximately 26% per-annum. The ECM is -0.261556

**Autocorrelation test**

Table 6.

Dependent Variable: PLA

Method: Least Squares

Date: 09/09/15 Time: 11:14

Sample: 1990 2014

Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45.61265	299.5797	0.198679	0.8445
TBS	1.046899	0.437729	2.391662	0.0267
CPS	6.001181	1.015766	5.908034	0.0000
BAS	-10.58023	7.322765	-1.444840	0.1640
FGB	1.587341	0.221797	7.156738	0.0000
R-squared	0.975623	Mean dependent var		2752.772
Adjusted R-squared	0.970748	S.D. dependent var		3485.108
S.E. of regression	596.0650	Akaike info criterion		15.79543
Sum squared resid	7105869	Schwarz criterion		16.03921
Log likelihood	-192.4429	Hannan-Quinn criter.		15.86305
F-statistic	200.1145	Durbin-Watson stat		1.915840
Prob(F-statistic)	0.000000			

**Source:** E-view 7.1 Author's Computation 2016

Durbin – Watson stat is 1.915840 as seen above. This is closer to 2 than 0. Therefore, we conclude that there is no significant auto-correlation in the model. In other words, autocorrelation is weak.

**Test of Model Significance**

In order to confirm the specification status of our model, we employ the analysis of variance or ANOVA (F-test) for short.

$$PLA = 45.61265 + 1.046899TB_t + 6.001CPS_t - 10.580BAS_t + 1.58734IFGB_t$$

Considering the OLS results on table 6, we have the followings.

$$F\text{-calculated, } 0.05 = 200.1145$$

$$F\text{table value: } k-1, n-r, 0.05$$

$$5 - 1, 25-5, 0.05:$$

$$4, 20, 0.05: = 2.87$$

$$4, 20, 0.01 = 4.43$$

**Decision:** Employing the e-view result, the F-ratio calculated (200.1145) > F-ratio critical (4.43; 2.87), at both 1% and 5% levels of significance respectively. Therefore,  $H_0$  (null hypothesis) is rejected and the conclusion is that money market instruments exerts significant impact on bank performance in Nigeria.

### Test for the Contribution/Significance of Individual Explanatory Variables to Bank Performance in Nigeria.

**Table 7:** Money market Instruments Effect on Bank Performance

Variable/test-statistic	TBS <sub>t</sub>	CPS <sub>t</sub>	BAS <sub>t</sub>	FGB <sub>t</sub>
Coefficient of the variable	1.046899	6.001181	-10.58023	1.587341
Standard Error	0.437729	1.015766	7.322765	0.221797
t-statistic or calculated	2.391662	5.908034	-1.444840	7.156738
t-statistic tabulated 5%	2.086	2.086	2.086	2.086
Significance	0.027	0.000	0.164	0.000

t-ratio DF (20 – 5 = 20), 5% 0.05/2 = 0.025 = 2.086

**Source:** E-view 7.1 Author's Computation 2016

In testing for the contribution/Significance of the Individual explanatory variables to bank performance, the student t-test was used as shown above. Only Bankers Acceptance turned out to have negative significant contribution to bank performances since the t-calculated (-1.444840) < t-tabulated (-2.086) at 5% level of significance.

### Discussion of Results:

The econometric estimation for stationarity using ADF Unit Root test revealed that the data set used for the study were all stationary at order 1(1), thus, making the time series reliable.

The estimated model equation is specified as  $PLA = 45.61265 + 1.046899TB_t + 6.001CPS_t - 10.580BAS_t + 1.587FGB_t$ . The said estimated model equation shows the existence of positive significant relationship between money market instruments (Treasury Bills, Commercial Papers and Federal Government Bond) and Bank Performance (Proxied Performing Loans and Advances). Except Bankers Acceptance which revealed a negative relationship with Banks Performance. The positive relationships between treasury bills, commercial papers and Federal Government bond indicate that a unit or 1 increase(s) in each of these market instruments, will yield a corresponding 1.047, 6.00 and 1.59 units or naira increases in Bank performance. Whereas, such unit increase in Bankers Acceptance, will cause a 10.58 Unit or naira decrease in bank performance.

Similarly, the above stance was further confirmed and validated by the individual test (t-test) of significance. At 5% level of significance, except bankers acceptance, all other variables/money market instruments components (treasury bills, commercial papers and federal government bond) appeared to meet the a priori expectations as positive and significant contributor to bank performances in Nigeria. In other words, the instruments with positive relationship impact significantly on banks performance.

The negative relationship and impact by bankers acceptance could not be unconnected with the fact that there is dearth of market for the instrument, lack of investors and consumer sophistication as noted in Ndugbu (2013).

The level series of the OLS multiple regression shows a high  $R^2$  of 97.56%, an adjusted  $R^2$  of 97.07% and a Durbin – Watson statistic of 1.91 that tends to 2 than 0.

However, having ascertained the stationarity of the data, the Johansen co-integration test conducted revealed the existence of 4 co-integrating equations in the model thus confirming the existence of long-run relationship among the variables.

The vector error correction model depicted on table 5 shows that at 5% level, the one-period lag of the market instruments are significantly associated with changes in bank performance. Short-run disequilibrium in the model can be corrected annually at the speed of approximately 26%. The ECM is low but appropriately signed.

On causality between money market instruments and bank performance, the pairwise granger causality on table 4 (using treasury bills, commercial papers, bankers acceptance and federal government bond as market instruments on one hand and Performing Loans and Advances as proxy for bank performance on the other hand) shows that causality runs uni-directionally from bank performance to market instruments. Causality was also observed to run bi-directionally among money market instruments.

### Conclusion

This study examined money market instruments and bank performance in Nigeria. However, an important factor



in this regard, is the concern as to the relationship and impact of money market instruments and bank performance in Nigeria. Thus, from the result estimations, the study concludes that there exist long run relationship between money market instruments and bank performance in Nigeria. Also, these instruments have significant positive impact on bank performance.

### Policy Implications of the Study

In view of the findings and given the significant relationship and impact money markets instruments have on bank performance (as established in the study), the policy implication for this study include:

- Policy makers and stakeholders in the industry should intensify efforts towards improving on policies/reforms that encourage the use of money market instruments by banks for sustained growth and greater performance.
- Reforms or policies as regards money market instruments by regulatory authorities should be appropriately incorporated as these instruments have proved to impact significantly on bank performance.
- There is need for the creation of an enabling (investment friendly) environment by concerned authorities (Government & Regulatory agencies). This will further deepen the popularity of the instruments and subsequently create market for those instrument(s) (such as bankers acceptance) that relate negatively to the performance of banks.

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APPENDIX

	YEAR	PLA (₦'b)	TBS (₦'b)	CPS (₦'b)	BAS (₦'b)	FGB (₦'b)
1	1990	25.8	34.2	0.8	0.1	0
2	1991	31.3	34.2	0.8	0.2	0
3	1992	42	35.2	1.6	0.1	0
4	1993	44.6	103.3	3.4	1.9	0
5	1994	37.3	103.3	5.3	4.7	0
6	1995	126	103.3	10	8.1	0
7	1996	157.7	103.3	8	12.2	0
8	1997	217.9	221.8	13.4	11.7	0
9	1998	246.4	221.8	7.3	17.5	0
10	1999	314.5	361.8	20.5	12	0
11	2000	437.8	465.5	19	31.8	0
12	2001	747	584.5	35.3	30.8	0
13	2002	829.6	733.8	37	32.2,	0
14	2003	1040.3	825.1	47.6	33.9	72.6
15	2004	1307.6	871.6	80.1	24	72.6
16	2005	1656.9	854.8	194.6	41.1	250.8
17	2006	2197.8	701.4	193.5	45.7	643.9
18	2007	4013.2	574.9	363.4	81.8	1186.2
19	2008	6331.9	471.9	822.7	66.4	1445.6
20	2009	8039	797.5	509.1	62.2	1974.9
21	2010	6929.8	1277.1	189.2	79.2	2901.6
22	2011	6642.7	1727.9	203	73.4	3541.2
23	2012	7702.9	2071.9	50.03	19.78	3834.78
24	2013	8720.65	2471.6	11.35	17.78	4072.63
25	2014	10978.65	2755.75	10.1	6.45	4473.48

**Source:** Central Bank of Nigeria, 2014