



MONEY MARKET INSTRUMENTS AND COMMERCIAL BANKS' DEPOSITS IN NIGERIA

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Abstract

The money market plays important role in the economy through the creation of short term investible securities and intermediation of funds to promote growth and investment. However, there is much expectation that money market would provide expected liquidity cushions needed by banks through the opportunities to mobilize adequate funds which has eluded empirical investigation in Nigeria. Thus, this study explored the linkage between money market deposits mobilization capacity of commercial banks in Nigeria based on time series data from 1986 to 2017 extracted from Central Bank of Nigeria Statistical Bulletin. Augmented Dickey – Fuller (ADF), Johansen Co-integration and Error Correction Model techniques were employed to evaluate the effect of commercial papers, certificate of deposits, bankers' acceptance and total deposits of deposits money banks in Nigeria. After the pre-test analysis which showed long run relationship among the variables, it was revealed base on the error correction model that commercial papers had positive and significant effect on total deposits while certificate of deposits and bankers acceptance had negative. This study found commercial seldomly explore the investment opportunities in the money market resulting from the under-develop nature of Nigerian money market and concluded that money market instruments partly influence commercial banks deposits.

Keywords: Financial Intermediation, Financial Market Error Correction Model, Money Market Instruments



INTRODUCTION

The financial system of an economy provides a means through which funds are move from surplus unit to the deficit or productive sector. The financial system provides a mechanism for the facilitation of investments and intermediation of funds among different economic agents of the economy for the purpose of promoting growth and development. Money market which is one of the important markets in the financial system is the market for short term funds.

According to Eze and Mansi (2017), money market which is an important segment of financial system provides short-term investment with a maturity period of a year or less. It is the market for the exchange of short-term financial assets for money. Ndugbu, Duruechi and Ojiegbe (2016) opined that the money market provides short-term instruments through treasury bills, treasury certificates, bankers acceptance, commercial papers, eligible development funds and certificates of deposits in the economy.

The money market plays significant role in the economy through the creation of short term investible securities and intermediation of funds which promotes economic growth. Isibor, Ikpefan and Okafor (2016) stated that money market channel financial resources from the surplus side to the deficit side for short term investments mainly in productive activities. Hence, a well developed money market serves precursor for enhancing financial intermediation and boosts lending to economy thereby promoting growth and development (Ikpefan & Osabuohien, 2012).

The Central Bank influences the economy through money market instruments via the adoption of monetary policy. The involvement of commercial banks' in the money market debt-instruments provide additional sources of investment for profit maximization and due to the market instruments liquidity, less risky nature and short term maturity which provide adequate liquidity position for banks (Ndugbu *et al.*, 2016). Stressing the important role of money market on commercial banks, Atanda and Ajayi (2012) stated that money market provides alternative source of cash and profit for banks when Central Bank actions and regulations restrict the activities and operations of profit making of financial institutions such as banks. Akinde, Kayode and Akinbobola (2016) opined that the Nigerian money market provide mechanism for the absorption of shock during the period of cash crisis and the involvement of commercial banks in the money market could enhance banks performance while also serving as effective liquidity management technique.

It is expected that the money market will provides expected liquidity cushions needed by banks. However the market has not performed the expected developmental role in the economy. Ndugbu *et al.*, (2016) stated that most banks are unwilling to invest in money market instruments because they offer low rate of return on financial assets.

In Nigeria, money market has failed to perform its role of intermediating funds between surplus and productive sector of the economy which has retard growth and development. Commenting on the problem of the Nigeria money markets, Ikpefan and Osabuohien (2012) stated that, money market lacks sub-markets and adequate financial instruments required for easy operations in the market. This was corroborated by Isedu (2005) who asserted that the market has not been able to attract enough financial assets from companies and institutions while the available securities lack depth in terms of availability of securities. According to Pavtar (2016), money market remains undeveloped and shallow when compared to advanced and emerging countries because the market is characterize by undiversified instruments, improper coordination in the issuance of debt instruments and deficient information flow among others.

Quite numbers of studies have been conducted on the Nigerian money market. However majority of these studies focused on the effect of money market on economic growth in Nigeria (Ikpefan & Osabuohien, 2012; Ikechukwu 2013; Agbada & Odejimi 2015; Iwedi & Igbanibo 2015; Etale & Ayuku 2017; Eze & Masin 2017). Very few empirical studies were been conducted on the effect of money market on commercial banks in Nigeria (Isibor *et al.*, 2016; Ndugbu, *et al.*, 2016). However, the study of Isibor *et al.*, (2016) Ndugbu, *et al.*, (2016) focused their attention on the effect of money market instruments on banks loans and advance in Nigeria while Akinde *et al.*, (2016) adopted return on assets as a proxy for bank performance. Study on the relationship between monetary market instruments and deposit mobilization performance of banks has received little attention. Though the study of Etale and Ayuku (2017); Eze and Masin (2017) examined the direction of causality between money market and economic growth in Nigeria, the direction of causality between money market instruments and deposits performance of commercial banks has not been established in empirical studies. Thus, this study seeks to fill the aforementioned gap by examining the effect of money market instruments on deposits mobilization activities of commercial banks in Nigeria

LITERATURE REVIEW

The role of money market and commercial banks on economic growth and development can be overemphasized. Money market and commercial banks serve as conduit through which funds are efficiently allocated among economic agents. Through the money markets, commercial banks are able to investment in short term instruments which enable them to keep adequate liquidity while serving as alternative source of profit.

Money market plays an important role on the activities of deposit money banks in Nigeria through the provision of short term liquidity instruments. According to Ekmekcioglu (2013) money market promotes liquidity management of banks and serves monetary policy mechanism

through the manipulation of money supply. Kehinde and Adejuwon (2011) argued that money is the key to development of the economy and its development is of great significant to the banking system, the Central Bank and the economy in general. Ebhodaghe (2015) asserted money market instruments enable banks to meet demand deposits and loans requirement through liquidity management and creation of cash buffer for banks during liquidity crisis.

Javaid, Anwar, Zaman and Ghafoor (2011) found that assets, loans, equity and deposits have no positive effect on profitability through the adoption pooled ordinary least square to examined the determinants of banks performance in Pakistan. Through the adoption of Error Correction Model, Ikpefan and Osabuohien, (2012), investigated the relationship between discount houses, money market instruments and economic growth in Nigeria and it was indicated that discount houses and money market had long run relationship with economic growth. Also, Ikechukwu (2013) conducted a study on the impact of money market on the Nigerian economic development by employing Ordinary Least Square (OLS) method and it was suggested that stock exchange had insignificant effect on small and medium scale enterprises.

Ani, Ugwunta, Azeudu and Ugwuanyi (2012) assessed the determinants of bank profitability in Nigeria and the result of panel regression indicated that financial market structure influenced bank profitability. Ehigiamusoe (2013) examined the connection between money market and economic growth in Nigeria employing data from 1980 to 2013 which were analyzed using Ordinary Least Square (OLS) method, Johansen Co-integration test and Vector Error Correction Model and it was found that while long-run relationship exists between money market and economic growth, money market had and significant effect on economic growth. The study of Iwedi and Igbanibo (2015) suggested that there is positive and significant short-run and long-run relationship connection between money market operations and economic growth in Nigeria through the adoption of Vector Auto Regression (VAR), Johansen Co-integration and Granger causality to investigate the relationship between money market operations on economic growth in Nigeria from 1980 to 2013.

Agbada and Odejimi (2015) investigated the effect of money market development on economic growth in Nigeria and the result of the regression technique revealed strong linear relationship money market and economic growth. In India, Raja and Mahalakshmi (2015) assessed the link between money market economic development and it was indicated that financial stability is crucial for sustained economic growth and that money market plays significant role in the India economy. Pavtar (2016) found that treasury bills, treasury certificates, commercial papers had no effect on gross domestic product while investigating the linkage between money market and economic growth in Nigeria through the adoption of multiple regression technique.

Akinde *et al.*, (2016) examined the impact of money market on bank performance in Nigeria from 1985 to 2015 by adopting ordinary least square and it was revealed that treasury bill and bankers` acceptance had positive and insignificant impact on bank performance while commercial papers and federal government of Nigeria bonds had negative and insignificant impact on bank performance. Akinde and Kayode (2016) investigated the determinants of bank profitability in Nigeria, from 1998 to 2014. In their empirical analysis, bank profitability was proxy by return on asset, return on equity and the net interest margin. The results of their random effect model suggest the existence of positive and significant effect of capital adequacy, bank size, productivity growth and deposits on profitability. Credit risk and liquidity ratio have a negative and significant effect on bank profits.

Ndugbu, *et al.*, (2016) explored the relationship between money market instruments and bank performance in Nigeria using Ordinary Least Square. The result of the analysis revealed that treasury bills, commercial papers and federal government bond had positive effect on bank performance in Nigeria while bankers acceptance had a negative and significant effect on bank performance. Finally, the result of Pairwise tests indicated and bi-directional relationship between Performing Loans and Advances and Money Market Instruments.

On the relationship between money market instruments and the liquidity position of banks, Isibor *et al.*, (2016) examined ten quoted banks from 2005 to 2014 through the adoption of multiple regression and it was found that there is a significant relationship between working capital, profitability and money market instrument in Nigeria. Etale and Ayunku (2017) adopted ADF, Unit Root Test, OLS, multiple regression and Granger Causality Test to examine the relationships that exist between money market and economic growth in Nigeria using secondary data from Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistics for the period 1989-2014. The study revealed that Treasury Bills, and Commercial Papers had positive and significant influence on gross domestic product, while Bankers Acceptances had positive but insignificant influence on GDP in Nigeria.

METHODOLOGY

The Data

This study employed annual time series data set from 1986 to 2017 to examine the effect of money market instruments on commercial banks deposits in Nigeria. Data were extracted from Central Bank of Nigeria Statistical Bulletin 2017. This period was selected to capture series of regulation reforms in the money market and banking sector with the aim of enhancing performance.

Estimation Techniques

The econometric tools used in evaluating the relationship between the independent variables (commercial papers, certificates of deposits and bankers' acceptance) and the dependent variable (total deposits) are Augmented Dickey-Fuller, Johansen Co-integration and Error Correction Model techniques. Augmented Dickey-Fuller test was conducted on data to ascertain the order of integration of the variables and avoid the problem of non stationary data which could render the analysis useless. Also, Johansen Co-integration technique was adopted to establish the long run movement of the variables while Error Correction Model method was used to examine the effect of commercial papers, certificates of deposits and bankers' acceptance on total deposits. Finally, the study also employed Pairwise Granger Causality Test to ascertain the direction of causality between money market instruments and commercial banks deposits.

Model Design

This study adapted the model of Eze and Mansi (2017) who modeled gross domestic product as a function of money market instruments like treasury certificates, treasury bills, certificates of deposits and bankers acceptances. However, in this study, total deposits was modeled as a function of commercial papers, certificates of deposits and bankers acceptances. This is because the study mainly focused on how money market instruments influence deposits mobilization capacity of deposit money banks in Nigeria. In this regard, the function model of this research is given as:

$$TD = f(CP, CD, BA)$$

$$TD = \beta_0 + \beta_1 CP_t + \beta_2 CD_t + \beta_3 BA_t + e$$

Where,

TD = Total Deposits

CP = Commercial Papers

CD = Certificates of Deposits

BA = Bankers' Acceptance

B_0 = Constant Term

B_1 - B_3 = Coefficient of Parameters

e = Stochastic Error Term

t = Time subscript

RESULTS AND DISCUSSION

Table 1 Correlation Coefficients

	TD	CP	CD	BA
TD	1.000000			
CP	0.235924	1.000000		
CD	0.694045	-0.027104	1.000000	
BA	0.438829	0.734515	0.056148	1.000000

Table 1 reports the correlation matrix for the macroeconomic variables employed in this study. A correlation above 0.7 or 70 percent indicates evidence of multi co-linearity. It is thus revealed that absence of multi co-linearity in all the explanatory variables since the correlation values are less 70%. The table indicates that all the explanatory variables (measured as commercial papers, certificate of deposits and bankers acceptance) have positive correlation with total deposits of commercial banks in Nigeria with certificate of deposits having strong and positive correlation with total deposits.

Unit Root Test

This study employed Augmented-Dickey Fuller Test to ascertain the stationarity of the data which is presented in table 2.

Table 2: Analysis of Unit Root at Level

Variables	Level	Prob.	S/NS	First Difference	S/NS	S/NS
TD	1.864246	0.9996	NS	-4.087060	0.0036	S
CP	-2.049451	0.2654	NS	-4.990120	0.0003	S
CD	3.696455	1.0000	NS	-6.784815	0.0000	S
BA	-1.933302	0.3134	NS	-6.431108	0.0000	S

Note: NS = Non Stationary. S = Stationary.

The result of the unit root test given in table 2 indicates that total deposits, commercial papers, certificate of deposits and bankers acceptance are not stationary at level since their respective probability values are statistically insignificant at 5% significance level, hence the hypothesis of unit root is accepted for all the variables. Thus, the study proceeds to first differencing.

However, the first difference of total deposits, commercial papers, certificate of deposits and bankers acceptance are stationary since their respective t-statistics are greater than the critical value at 5% level of significance in absolute term as shown in the table. Hence, the null hypothesis of unit root was therefore rejected for the entire variables. Thus, it is concluded that all the variables are integrated at the same order, i.e. 1(I) which results in the need for co-integration testing

Co-Integration Result

In this study, Johansen Co-integration technique was employed to ascertain the long run relationship among the variables which is reported in table 3.

Table 3: Johansen Co-integration Test (Trace & Max-Eigen Statistic)

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	93.71714	47.85613	0.0000**	59.63227	27.58434	0.0000**
At most 1 *	34.08486	29.79707	0.0151**	25.22136	21.13162	0.0125**
At most 2	8.863505	15.49471	0.3781	8.393491	14.26460	0.3401
At most 3	0.470014	3.841466	0.4930	0.470014	3.841466	0.4930

The result of the Trace and Max-Eigen Statistic are presented in table 3. The results shows that there are two co-integrating equation among the variables. Thus, it is concluded that there is long run equilibrium association-ship among total deposits, commercial papers, certificate of deposits and bankers acceptance.

Model Result

The table below shows the results of the error correction model

Table 4: Error Correction Model

Dependent Variable: Log(TA)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(TD(-1))	0.376347	0.159876	1.728506	0.0993
DLOG(CP)	0.042238	0.021011	2.010235	0.0081
DLOG(CP(-1))	0.041536	0.019563	2.123213	0.0464
D(CD)	-0.004164	0.001120	-3.719303	0.0014

D(CD(-1))	-0.001288	0.001030	-1.251022	0.2254
DLOG(BA)	-0.002237	0.021837	-0.102433	0.9194
DLOG(BA(-1))	-0.084616	0.035563	-2.379323	0.0274
ECM(-1)	-0.113735	0.001479	2.524758	0.0201
C	0.191726	0.050524	3.794763	0.0011
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R-squared	0.744670			
Adjusted R-squared	0.662537			
F-statistic	2.990518			
Prob(F-statistic)	0.022337			
Durbin-Watson stat	1.852178			

Table 4...

The result of the Error Correction Model indicates that the first period lag of total deposits has positive and insignificant effect on total deposits which implies that 1% increase in total deposits in the previous year will lead to 37.6% increase in total deposits in the current year. Furthermore, commercial paper has positive and significant effect on total deposits both in the previous year and current year. It is indicated that coefficient of the first period lag and second period lag are 0.042238 and 0.041536 respectively which implies that 1% increase in commercial paper will lead to about 4.2% and 4.1% increase in total deposits of commercial banks.

However, certificate of deposits is indicated to have negative and significant effect on total deposits with a coefficient of -0.004164 which implies that an increase in certificate of deposits will lead to fall in total deposits. Also, at lag one, the result shows that certificate of deposits still exert negative but insignificant effect on total deposits with a coefficient of -0.001288 which implies that 1% increase in certificate of deposits will lead to 0.1% fall in total deposits.

Similarly, bankers acceptance is found to have negative and insignificant effect on total deposits of commercial banks in Nigeria with a coefficient of -0.002237 meaning that an increase in bankers acceptance will lead to a fall in total deposits of commercial banks. Likewise at first period lag, bankers acceptance has negative but significant effect on total deposits of commercial banks in Nigeria.

Finally, the ECM has the expected sign with a negative coefficient of -0.113735 and probability value of 0.0201 which implies that the model has a self adjustment mechanism. The coefficient of -0.113735 implies that any disequilibrium in the model will be corrected at 11.3% in the long run.

Table 6: Diagnostics

Diagnostics test	Observed value	P-value (Chi-square)
Normality Test	1.23512	0.5399
Breusch-Godfrey LM Serial Correlation Test	0.758373	0.6844
Heteroskedasticity Test: Breusch-Pagan-Godfrey	3.698044	0.8833
Ramsey Reset Test	1.075978	0.3126

Table 6 presents the results of residuals diagnostics test for the model. The Jacque-Bera normality test revealed that the residual of the model is normally distributed given a probability value of 0.5399 which is insignificant at 5%. Also, Breusch-Godfrey Lagrange Multiplier test (LM) revealed that the regression model is not serially correlated since the p-value of 0.6844 is greater than 5% conventional level which leads to the acceptance of null hypothesis of no serial correlation. The result of Breusch-Pagan test reveals that there is no Heteroskedasticity in the regression model given a probability value of 0.8833 which is greater than 0.05. Finally, the Ramsey Reset test indicates that there is no misspecification in the regression model

Table 7: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.	Result
CP does not Granger Cause TD	30	3.01243	0.0673	No Causality
TD does not Granger Cause CP		1.08079	0.3547	
CD does not Granger Cause TD	30	0.17852	0.8376	One Way
TD does not Granger Cause CD		8.56771	0.0015	Causality
BA does not Granger Cause TD	30	10.7414	0.0004	One Way
TD does not Granger Cause BA		1.63874	0.2144	Causality

Table 7 reports the result of Pairwise granger causality test in order to establish the direction of causality among the variables. It indicates that there is independent relationship between commercial papers and total deposits which implies that there is no causality between commercial papers and total deposits. However, unidirectional relationship is established between certificates of deposits and total deposits without causality running from certificates of deposits to total deposits. Thus, it is concluded that certificates of deposits does not granger cause total deposits. Finally, unidirectional relationship is established between bankers acceptance and total deposits with causality running from bankers acceptance to total deposits without causality running from total deposits to bankers acceptance which indicates that bankers acceptance granger cause total deposits.

CONCLUSION

Money market plays significant role in the development of nation by providing short term financial instruments for obtaining short term funds. Also, the money market plays a complementary role to the capital market and provides a source of short term funds for business and other financial institutions like commercial banks. Commercial banks sometimes explore the opportunity in the money market in order to maintain liquidity position. Thus, this study examined the effect of money market instruments on the deposits mobilization of commercial banks Nigeria.

The study found that only commercial papers had positive effect on deposits money banks performance while certificates of deposits and bankers' acceptance had negative effect on deposits money banks performance in Nigeria. The implication of these findings is that commercial seldomly explore the investment opportunities in the money market due to the under-develop nature of Nigerian money market. Thus, the study concluded that money market instruments partly influence commercial banks deposits in Nigeria. As such, policies that will develop and strengthen Nigerian money market should be formulated and implemented by regulatory authorities through the reform of the central bank discount window operations. Flexible instruments that would suite the demand of commercial banks and other investors should be introduce in market.

REFERENCES

- Agbada, A.O. & Odejimi, D.O. (2015). Developments in money market operations and economic growth viability in Nigeria: An empirical analysis, *European Journal of Business and Management*, 7(18), 42-52
- Akinde, J.A., Kayode, O.F. & Akinbobola, A. (2016). Impact of money market on bank performance in Nigeria. *Nigerian Journal of Banking, Finance and Entrepreneurship Management*, 2, 66-80.
- Akinde, J.A., Kayode, O.F. (2016). Determinants of bank profitability in Nigeria. *International Journal of Business, Science and Technology*, 4(1).
- Ani, W.U., Ugwunta, D.O., Ezeudu, I. & Ugwuanyi, G.O. (2012). An empirical assessment of the determinants of bank profitability in Nigeria: Bank characteristic, Panel evidence. *Journal of Accounting and Taxation*, 4(3), 38-43.
- Atanda, A.A. & Ajayi, F.O. (2012). Monetary policy and bank performance in Nigeria: A two-step cointegration approach. *African Journal of Scientific Research*, 9(1), 462-476.
- Dabwor, T.D. (2010). The Nigerian banking system and the challenges of financial intermediation in the twenty first century, *Journal of Economics*, 4(1), 93-108.
- Ebhodaghe, J.U. (2015) Liquidity management in Nigerian banking. *The Nigerian Observer*.
- Edo, S. & Okelegbe, A. (2014). The Nigerian economy reforms, emerging trends and prospects, Centre for Population and Environmental Development (CPED) Monograph Series, 8, 1-94.
- Ekmekcioglu, E. (2013). Role of financial markets in a global economy and the concept of uncertainty. *International Journal of Academic Research in Economics and Management Sciences*, 2(4), 199-206.
- Ekmekcioglu, E. (2013). Role of financial markets in a global economy and the concept of uncertainty. *International Journal of Academic Research in Economics and*
- Etale, L.M. & Ayunku, P.E. (2017). The relationship between interest rate and economic growth in Nigeria: An error correction model (ECM) approach. *International Journal of Economics and Financial Research*, 2(6), 127-131

- Eze, G.P. & Mansi, N. (2017). Money market and economic growth in Nigeria: A causality analysis. *Online Journal of Arts, Management and Social Sciences*, 2(1), 140 – 163.
- Ikechukwu, I.O. (2013). Money market on the Nigerian economic development. *Journal of Economics and Sustainable Development*, 4(5), 5 – 11.
- Ikpefan, O.A. & Osabuohien, E. (2012). Discount houses, money market, and economic growth in Nigeria (1992 – 1997). *Economic Insights – Trends and Challenges*, 1(3), 19 – 30.
- Isedu, M. (2005). *Treasury management in banking*. Benin City: Best Printers.
- Isibor, A.A. Ikpefan, O.A. & Okafor, T.C. (2016). Impact of money market on the liquidity of some selected quoted banks in Nigeria.
- Iwedi, M. & Igbaniho, D.S. (2015). The nexus between money market operations and economic growth in Nigeria: An empirical investigation. *International Journal of Banking and Finance Research*, 1(2), 1-17
- Javaid, S., Anwar, J., Zaman, K. & Ghafoor, A. (2011). Determinants of bank profitability in Pakistan: Internal factor analysis. *Journal of Yasar University*, 23(6) 3794 – 3804.
- Kehinde, J.S. & Adejuwon, K.D. (2011). Financial institution as a catalyst to economic development: The Nigerian experience. *European Journal of Humanities and Social Sciences*, 8(1), 322-324.
- Mohammad, A.H. (2014). *Money market instrument in Bangladesh*. Published in Education.
- Ndugbu, M.O., Duruechi, A.H. & Ojiegbe, J.N. (2016). Money market instruments and bank performance in Nigeria. *Journal of Economics and Sustainable Development*, 7(10), 95-104.
- Pavtar, A. (2016). The nexus between money market instruments and Nigeria's economic growth: A time series analysis, *Journal of Accounting and Finance Management*, 2(3), 22-39.
- Pavtar, A. (2016). The nexus between money market instruments and Nigeria's economic growth: A time series analysis, *Journal of Accounting and Finance Management*, 2(3), 22-39.
- Raja, P. & Mahalakshmi, M. (2015) Impact of money market in Indian economic development. *International Journal of Advanced Scientific Research Development*, 2(01), 108-117.