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# Effect of Money Supply on the Liquidity of Nigeria Money Market

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## ABSTRACT

The importance of the money market to the growth and development of the Nigerian economy in general cannot be over-emphasized. This is because the market acts as intermediation to channel funds from the surplus side to the deficit side of the Nigerian population for short term investments mainly in trade and commerce. This paper intends to examine the effect of money supply on the liquidity of money market in Nigeria. Secondary data were used. The data were sourced from the Central Bank of Nigeria (CBN) for the period 1983 to 2018. Econometric Statistics such as Ordinary Least Square regression analysis (OLS) was adopted to analyze the study hypothesis. The direction of relationship among the study variables was also determined through Granger causality test. Findings revealed that money supply variables (Broad Money and Inflation Rate) have positive significant influence on Money Market Liquidity with exception of Deposit Interest Rate. The Granger causality test result showed that the relationship between the variables is unidirectional. It is therefore recommended that the illiquidity status of the money market should be improved by the Central Bank of Nigeria (CBN) through attractive interest rates in other to make them viable for investors to invest in.

**Keywords:** Money Supply, Money Market, Liquidity, CBN

## INTRODUCTION

Liquidity plays a central role in the functioning of financial markets. Structural changes in the financial system that have been underway for some time increase the importance of market liquidity. The allocation of capital increasingly relies on securities markets, where funds for investment in the real economy are raised through the direct issuance of securities to investors. A greater diversity of financial institutions, institutions other than banks, now play a more active role in the provision of credit and liquidity (Timothy, 2007).

According to Podilchuk (2013), financial optimisation of a company is usually performed along two basic dimensions: long-term and short-term analysis. The former is aimed at capital structure optimisation, which is the balance of debt and equity maximising the value of the firm. Short term optimisation focuses on liquidity management. Basically, current assets management is the major tool for capital structure optimisation. The key factor in identifying firms' illiquidity is their inability to meet contractual debt obligations due to poor revenue (Elloumi and Gueyie, 2001). The money market is a collection of financial institutions set up for the granting of short-

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term loans and dealing in short-term instruments that are readily convertible into cash, and whose maturity ranges between a few days to one year. The market provides ample opportunities for investors and corporate financial managers with surplus funds to lend at short term, thereby meeting the demands of borrowers who are in need of temporary finance for liquidity and can offer an acceptable claim to money (Omelomo, 2001).

The importance of the money market to the growth and development of the Nigerian economy in general cannot be over-emphasized. This is because the market acts as intermediation to channel funds from the surplus side to the deficit side of the Nigerian population for short term investments mainly in trade and commerce. Thus, the development of the money market smoothens the progress of financial intermediation and boosts lending to economy (Ikpefan and Osabuohien, 2012). Money markets play a key role in banks' liquidity management and the transmission of monetary policy, control of money supply and demand-pull inflation, determination of short-run interest rate (Ekmekcioglu, 2013). The study of Kehinde and Adejuwon (2011) showed that financial market is key to the development of the economy, therefore, the development of the money market is in stakeholders' interests: the banking system itself, the Central Bank and the economy in general.

**Statement of the Problem**

Prior to Nigerian independence, there was no organized money market in the country. Thus, the economy agent had surplus funds than they required, which was linked to London based money market via London-based stockbrokers because there was no market to invest them in Nigeria. This however, led to capital flight in the country, as these funds were only invested abroad. Thus, leaving Nigerian firms with no funds for investment and consequently hindering economic growth (Usman, 2011).

Extant literatures on liquidity include; impact of liquidity on the performance of commercial banks, a research carried out by Charmler et al (2018) in Ghana; a co-integration study of liquidity and profitability in Bangladesh (Khairul, 2018); liquidity management and commercial banks' profitability in Nigeria (Olagunju et al, 2011) among others. However, these studies focused on banks or manufacturing companies with less concentration on financial market specifically, the Nigeria money market.

In many developing countries like Nigeria, the money market has lagged behind in performing its intermediation role of providing funds to deficit investors and this has further hampered economic growth and development. Ikpefan and Osabuohien (2012) stated that unlike in advanced economies where the money market constitutes the most institution for creating liquidity for government, companies and individuals, the Nigerian money market is inadequate and constrained by the absence of sub-markets and availability of adequate credit instruments required for the smooth operations of the market.

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Moreover, Dabwor (2010) opined that money laundering and misappropriation of government funds puts "pressure on the money market as corrupt officials buys up foreign exchange for export", thus leading to capital flight. The study of Edo and Okelegbe (2014) also showed that factors like misappropriation of funds and insider trading have been problems affecting the Nigerian money market while corruption of the system was seen by them as the biggest problem facing the market that even transparency is unable to fix due to lack of quality corporate governance. They posited that if the system was working as it should, the impact on economic growth would be positive in that the economy could recover and support the nation. Much have been said and written about the Nigerian capital market but the reverse is the case for the money market in the country. In view of the issues discussed above, there is the need to examine money supply and its impact on money market liquidity in Nigeria.

Consequently, this paper examines the impact of money supply on money market liquidity in Nigeria. The objectives of the paper is thus, to determine the direction of relationship among the variables of money supply and money market liquidity, also to effect of money supply on the liquidity of Nigeria money market.

**Hypothesis of the Study**

**$H_1$:** Money supply has effect on money market liquidity in Nigeria.

**$H_0$:** Money supply has no effect on money market liquidity in Nigeria.

This study is therefore divided into five sections with introduction discussed above. Section two dwells on the literature review while section three explains the methodology. Section four analyses and discusses the findings of the study and section five ends with conclusion and recommendation.

**2. Literature Review**

Money market is a series of closely connected markets, which deals with short–term funds, highly liquid, and having its maturity less than a year. Money market provides short term financing for assets that are taking part in short term lending, borrowing, selling and buying whose maturity does not exceed one year (Ekmekcioglu, 2013).

The dominant players in money market are commercial banks and they provide the basis for operation, manipulation and execution of monetary policies, with discount houses intermediating funds between the central bank and other banks. Money market is the greatest indirect instrument used by Central Bank of Nigeria (CBN) to control commercial banks. The market provides short–term debt instruments used to finance the working capital of the firms. It also provides mechanism for government to direct the economy towards the desired national objectives

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through the operation of monetary policy. Thus, it facilitates the pool of funds from surplus sides of the economy to the deficit sides at a prevailing rate (Chordia et al, 2002).

The Nigerian money market is characterized by low-risk highly liquid short-term debts. Apart from providing the basis for the implementation of monetary policy, the market also provides avenue for government to obtain funds to bridge temporary budgetary gaps as well as assist business enterprises to realize cash for working capital purposes. Principal instruments traded in the market include; Treasury Bills (TB), Call loans, Certificate of Deposits (CD), Commercial Papers (CP) and Bankers' Acceptance (BA). The Nigerian Money Market institutions include discount houses; Deposit financial institutions e.g. commercial banks and finance houses. The Nigerian money market was established to serve the following purposes among others: the provision of short term funds to the public and private institutions, that need such financing for their working capital requirements; provision of opportunities to banks and non – bank financial institution to use their surplus funds profitably among many others (Ehigiamusoe, 2013).

The money market is often accessed alongside the capital markets. While investors are willing to take on more risk and have patience to invest in capital markets, money markets are a good place to "park" funds that are needed in a shorter time period - usually one year or less. The financial instruments used in capital markets include stocks and bonds, but the instruments used in the money markets include deposits, collateral loans, acceptances and bills of exchange. Institutions operating in money markets are central banks, commercial banks and acceptance houses, among others (Chordia et al, 2000).

Money markets provide a variety of functions for either individual, corporate or government entities. Liquidity is often the main purpose for accessing money markets. When short-term debt is issued, it is often for the purpose of covering operating expenses or working capital for a company or government and not for capital improvements or large scale projects. Companies may want to invest funds overnight and look to the money market to accomplish this, or they may need to cover payroll and look to the money market to help. The money market plays a key role in ensuring companies and governments maintain the appropriate level of liquidity on a daily basis, without falling short and needing a more expensive loan or without holding excess funds and missing the opportunity of gaining interest on funds. Investors, on the other hand, use the money markets to invest funds in a safe manner. Unlike capital markets, money markets are considered low risk; risk-adverse investors are willing to access them with the anticipation that liquidity is readily available. Older individuals living on a fixed income often use the money markets because of the safety associated with these types of investments (Ehigiamusoe, 2013).

**The Development of the Nigerian Money Market**

No money market existed in Nigeria before the establishment of the Central Bank of Nigeria. This is however not to say that a market for short-term funds did not exist before then. Before the

advent of commercials banking, there existed some elements of short-term lending and borrowing based of commercial paper. The market was an integral part of the London money market. It worked by moving funds from London to Nigeria during the season in order to finance the export of produce. At the end of the season, the funds were moved back to London, when there was all-season money-market activity. The establishment of the Nigerian money market involved, on the part of the Central Bank of Nigeria, repatriating these "roving" funds to Nigeria for the country's economic development (James, 2009).

The money market is a market for short – term funds: and as the name suggests, it is a market in which money is bought and sold, the market is used by business enterprises to raise funds for the purchase of inventories, by banks to finance temporary reserve loss, by companies to finance consumer credit and by government to bridge the gap between its receipts and expenditure.

**Money Market Instruments**

Money market instrument are those instrument used in the market to mobilize fund in the market from the surplus sector of the economy to the deficit sector with a giving interest rate. There are many instrument traded in the money market of Nigeria and they include the following:

**1. Treasury Bills (TBs):** These are money-market (short-term) securities issued by the Federal Government of Nigeria. They are sold at a discount (rather than paying coupon interest), usual tenors are 91days, 182days and 364days. They provide the government with a highly flexible and relatively cheap means of borrowing cash. Hence, they are regarded as the most liquid money market instrument. Interest on Treasury bills is payable upfront, giving higher effective yield. Other benefits of investing in Treasury bills are its high liquidity, and the associated risk of loss of value is relatively low.

Thus, TBS and IOUs, are used by the Federal Government to borrow for short periods of about three months pending the collection of its revenue. Their issue for the first time in Nigeria (in April 1960) was provided for under the Treasury Ordinance of 1959. It was issued in Nigeria in multiples of #2000 (later reduced to #100 in order to expand the coverage of holders for 91 days and at fixed discount. TBS outstanding average #34.421.8 million in 1989 with # 10,879.5 million issued between1992, and 1995, it averaged #2585.05 million (James, 2009).

**2. Bankers' Acceptances:** Are money market instruments created by banks as a means of raising money for their customers usually for the purpose of funding trade finance.

It is commonly drawn in international trade finance whereby: the agent bank of the exporter draws a bill of exchange and sends it to the agent bank of the importer for acceptance; and it becomes a 'banker acceptance when the agent bank of the importer stamps 'ACCEPTED' on its face. BA is created by banks as a treasury instruments for the purpose of beefing up short-term

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deposit base needed in funding the financing of short-term trade related risk-assets. However, some features of BA include; it is an attractive investment medium as its acceptor pledged to redeem it at maturity, investors receive interest payable on it up-front, it is usually issued at a discount of its face value, it has a tenor not exceeding 180 days, it is usually accepted by a first class bank, and the underlying transaction for its issuance is usually trade related and self-liquidating (James, 2009).

**3. Call Loans:** This refers to money lent by the banks on the understanding that it is repayable at the bank's demand or at short notice (e.g. 24 hours or over-night). Overnight loans are simply bank reserves that are loaned from banks with excess reserves to banks with insufficient reserves. One bank borrows money and pays the overnight interest rate to another bank in order and obtains the lending bank's excess reserves to hold as one-day deposits. The borrowing bank needs these one day deposits in order to acquire the legal reserves the CBN examiners require banks to maintain. They act as a cushion which absorbs the immediate shock of liquidity pressures in the market. The scheme was introduced in 1962 in Nigeria. Under the scheme, fund was created at the CBN and the participating banks had to agree to maintain a minimum balance at the CBN (James, 2009).

**4. Commercial Papers:** These are short-term promissory notes issued by the CBN and their maturities vary from 50 to 270 days, with varying denominations (sometimes #50,000 or more). They are debts that arise in the course of commerce. Commercial papers may also be sold by major companies (blue-chips-large, old, safe, well-known, national companies) to obtain a loan. Here, such notes are not backed by any collateral, rather, they rely on the high credit rating of the issuing companies. Normally, issuers of commercial papers maintain open lines of credit (i.e. unused borrowing power at banks) sufficient to pay back all of their commercial papers outstanding. Issuers operate in this form since this type of credit can be obtained more quickly and easily than can bank loans. It was introduced in 1962 to finance the export-marketing operations of the then Northern Marketing Board (James, 2009).

**5. Certificates of Deposits (CDS):** A certificate of deposit is a promissory note issued by a bank. It is a time deposit that restricts holders from withdrawing funds on demand. Although it is still possible to withdraw the money, this action will often incur a penalty.

Every investor is at liberty to decide which instrument to invest in but such choice is dependent on the available fund, security of the instrument as well as the rate of returns. However, among the money market instruments, Treasury bills are considered the safest, being Federal Government indebtedness, followed by Certificate of Deposits being direct indebtedness of the bank followed by Bankers' Acceptance because they are guaranteed by the bank. Commercial Papers come last, being the direct indebtedness of companies. Interest rates on these instruments depend on the bank, tenor and the amount involved. In most cases, the interest can be negotiated especially if the amount involved is much (James, 2009).

According to Nyawata (2012), Treasury bills is considered the best option to measure liquidity of money market due to the following reasons: (i) an integrated view of public sector finance; (ii) the public policy argument for developing money markets; and (iii) the advantages of the inherent features that enable government securities to generate positive externalities for other financial instruments and the rest of the economy in a way that cannot easily be replicated by other instruments.

## 3. Methodology

The type of data used in this research work is the secondary data. The relevant data for the study was obtained from publications from Security and Exchange Commission (SEC) and Statistical Bulletin of Central Bank of Nigeria (CBN) between 1983 and 2018.

Based on the conceptual framework of this study, the model of this research was structured to use outstanding treasury bills as proxy for money market liquidity and also the dependent variable. The independent variables are; Broad Money (M2), Interest Rate (INTR), and Inflation Rate (INFR).

The functional form on which the econometric model is based is given as;

$MML = f(OTB)$

$OTB = f(\beta_1 + \beta_2 + \beta_3 + \mu)$ ………………. (1)

$OTB = f(M2, INTR, INFR)$ ………………. (2)

The regression equation based on the functional relationship is given as;

$OTB = \beta_0 + \beta_1 M2_t + \beta_2 INTR_t + \beta_3 INFR_t + \mu$ **….………….** (3)

Where

**MML** = Money Market Liquidity

**OTB** = Outstanding treasury bills

**M2** = Broad Money

**INTR** = Interest Rate

**INFR** = Inflation Rate

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$\beta_0$ = regression constant

$\beta_1 - \beta_3$ = slope coefficients

$\mu$ = error term

### 4. Results and Discussions

As earlier stated, this research work used secondary data. Working with non-stationary time series data leads to spurious regression results. In order to overcome this problem, Unit Root Test was used to test for the stationary status of the variables. This is important as it shows the number of times the variables have to be differentiated in order to clear the unit root and make the data stationary.

The test results shown in Table 1 below indicates that all the series are integrated at first difference order of one that is, 1(1) and at 5% significance level.

Table 2 presents the granger causality test result of the study variables. The rule of thumb is to reject null hypothesis if probability value (p-value) is less than 5% (i.e. 0.05) and to accept null hypothesis if probability value (p-value) is greater than 5% (i.e. 0.05). Based on the probability value reported in Table 2, the hypothesis that DINTR does not Granger cause OTB cannot be rejected, but the hypothesis that OTB does not Granger cause DINTR can be rejected. Thus, Granger causality runs one way, that is, from OTB to DINTR but not the other way. Meaning that OTB Granger cause DINTR but DINTR does not Granger cause OTB. The p-values shown in Table 2 also revealed that the hypothesis that DINTR does not Granger cause M2 cannot be rejected. However, the hypothesis that M2 does not Granger cause DINTR can be rejected with p-value (0.01) which is less than o.05 or 5%. On the same note, the hypothesis that INFR does not Granger cause DINTR cannot be rejected with p-value of 0.08 which is greater than 0.05 or 5%. But the hypothesis that DINTR does not Granger cause INFR can be rejected with p-value 0.01. Thus, DINTR Granger cause INFR but not the other way. More so, the result in Table 2 suggests that the hypothesis that M2 does not Granger cause OTB cannot be rejected. Hence, the hypothesis that OTB does not Granger cause M2 can be rejected implying that Granger causality is unidirectional. Conversely, there is independence or 'no causation' between INFR and OTB as well as INFR and M2, going by the p-values shown in the Table 2 which is greater than 0.05 or 5% at lag difference of 5.

Table 3 below shows the effect of money supply on money market liquidity in Nigeria. 1% increase in broad money supply (M2) increases Outstanding Treasury Bills (OTB) by 5.4%. This suggests a positive relationship between broad money supply and Outstanding Treasury Bills. The relationship between Outstanding Treasury Bills (OTB) and Inflation Rate (INFR) is also positive suggesting that 1% increase in INFR will increase OTB by 24%. The result supports the

a priori expectation. Conversely, there exist an inverse relationship between Outstanding Treasury Bills (OTB) and Deposit Interest Rate (DINTR). This means that increase in DINTR will lead to decrease in OTB, thereby suggesting a negative relationship between them. The coefficient of determination gives 92.63% meaning that the regression model is approximately 93% significant. This means that the variation in the dependent variable (OTB) is 93% attributable to the independent variables (M2, DINTR and INFR). The result is also supported by the high value of the adjusted $R^2$ which is to the tune of 91.45%. The F and probability statistics also confirmed the significance of this model. This signifies that the overall regression or relationship between OTB, M2, DINTR and INFR is significant and that the model is statistically significant. Hence, the changes in the dependent variable can be attributed to the changes in the explanatory variables. Thus, the hypothesis that states that money supply has no effect on money market liquidity is hereby rejected.

**Table 1: Unit Root Test Results**

| Variables | Order of Stationarity | ADF Test Statistics | Remark |
|---|---|---|---|
| OTB | 1 | -4.151 | Stationary |
| M2 | 1 | -3.719 | Stationary |
| DINTR | 1 | -3.658 | Stationary |
| INFR | 1 | -3.331 | Stationary |

**Source:** Author's Research, 2019

**Table 2: Granger Causality Test Result**

| Null Hypothesis: | Obs | F-Statistic | Probability |
|---|---|---|---|
| OTB does not Granger Cause DINTR | 28 | 3.49796 | **0.02659** |
| DINTR does not Granger Cause OTB | | 1.38037 | 0.27815 |
| DINTR does not Granger Cause M2 | 28 | 0.17583 | 0.94809 |
| M2 does not Granger Cause DINTR | | 4.17125 | **0.01365** |
| INFR does not Granger Cause DINTR | 30 | 2.72887 | 0.08473 |
| DINTR does not Granger Cause INFR | | 6.55467 | **0.00514** |
| M2 does not Granger Cause OTB | 30 | 27.6638 | 4.6E-07 |
| OTB does not Granger Cause M2 | | 6.09949 | **0.00696** |
| INFR does not Granger Cause OTB | 27 | 0.01521 | 0.99990 |
| OTB does not Granger Cause INFR | | 0.83681 | 0.54268 |
| INFR does not Granger Cause M2 | 27 | 0.19055 | 0.96184 |
| M2 does not Granger Cause INFR | | 0.35671 | 0.87044 |

**Source:** Author's Research, 2019

**Table 3: Regression Result**

| Dependent variable | Independent variable | Coefficient | Standard Error | T | P>|t |
|---|---|---|---|---|---|
| OTB | M2 | 0.054115 | 0.015829 | 3.41 | **0.00** |
| | DINTR | -5.667877 | 13.50191 | -0.41 | 0.67 |
| | INFR | 0.235431 | 2.416427 | 0.09 | 0.92 |
| | Constant | 107.5491 | 179.6765 | 0.59 | 0.55 |
| R-Squared =0.9262 | Adjusted R-Squared = 0.9145 | Prob > F = 0.0001 | F = 78.54 | | |

**Source:** Author's Research, 2019

**5. Summary of Findings and Recommendations**

The study examined the impact of money supply on money market liquidity in Nigeria using time series data for the period of 1983 to 2018. The study used Ordinary Least Square Regression Analysis method to estimate the empirical models of the study with the aid of E-views 9. The result of the analysis however, showed that there exists a positive relationship between money supply and money market liquidity. It is therefore recommended that the illiquidity status of the money market should be improved by the Central Bank of Nigeria (CBN) through attractive interest rates in other to make them viable for investors to invest in. also, government should implement policies that will reduce inflation rate through infrastructural development and improved standard of living.

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