An Evaluation of Liquidity Management and Banks Performance in Nigeria: A Correlation Matrix Approach

Peter Ego Ayunku*

*Niger Delta University, Department of Finance and Accountancy, Faculty of Management Sciences, Wilberforce Island, Yenagoa, Bayelsa State, Nigeria

Abstract: This study evaluates the relationship between liquidity management and banks performance for the period 2005 – 2014, using some econometric tools to analyze the variables of interest. The study performs the Augmented Dickey Fuller (ADF) unit root test and found out that all the variables were stationary at first and second differencing. The estimation regression result indicates that Total Deposit of Banks (TOD) and Loans-Total Deposit Ratio (LDR) were statistically significant while Return on Assets (ROA) have a positive but statistically insignificant relationship with Liquidity Ratio (LR). The study therefore recommended amongst others that monetary authorities should adopt appropriate liquidity ratio so as to enhance the liquidity profile of banks.

Keywords: Evaluation, Global Financial Crises, Prudent Management, Portfolio Management, Profitability.

1. Introduction

The issue of liquidity management in banks are well documented in the body literature. Liquidity is needed for profitable operations, especially to sustain the confidence of the depositors. It helps in the meeting the short run obligation of the banks and also avoid a run on a bank (Nzotta, 2004).

MacDonald and Koch (2006) pointed out that bank liquidity more generally refers to a banks capacity to acquire immediately available funds at a reasonable price and stresses that liquidity planning is an important facet of asset and liability management in banks. Thus, liquidity is a prime concern in a banking environment as a shortage of liquidity has often been a cause for most banks failures.

Larry (2015) observed that the recent financial crises that erupted in Europe and other countries were marked by liquidity problem. It is therefore clear that, the role of liquidity in banks portfolio management cannot be over emphasized as liquidity essential means the ability to meet its financial obligations as the fall due. Portfolio management on the other hand refers to the product management of banks assets, so as to meet its set objectives. Liquidity management is an important aspect of monetary policy implementation. Liquidity Ratio (LR) which is one of the complementary liquidity measures was reduced from 40% in 2007 to 30% in 2008 at the global financial crisis so as to enhance the liquidity profile if banks (NDIC, 2008).

Aleksandras and Jelena (2006) opined that liquidity or the ability for fund increases in assets and to meet obligations as they come due are fundamental to the ongoing validity of any banking organization and they stressed that managing liquidity is among the most important activities in banks. They argued that the importance of liquidity transcends the individual banks, since a liquidity shortfall at a single institution can have a system-wide repercussion adding that, the analysis of liquidity requires bank management not only to measure the liquidity position of the bank in an going basis, but also to examine how funding requirement are likely to involve. Similarly, Cabello (2013) noted that bank liquidity management has become a major issue during the financial crisis as liquidity shortages have intensified and have put pressure on banks to diversified and impose their liquidity sources. He opined that a significant strand of the literature concentrates on whole sale liquidity generation and on the alternative to deposit funding and that the management of inventory of cash holdings within the banks are also relevant issues and that any significant improvement in cash management at the bank distribution channels may have positive effect in reducing liquidity tension in banks.
It has been asserted that most underlying liquidity problem in banks is largely due to mismatching of asset and liability and by extending loans or credit to high-risk borrowers. Thus, a well-managed bank should be able to monitor its cash position or need carefully and try as much as possible to maintain a low liquidity risk (Cabello, 2013; Larry, 2015).

NDIC (2014) reported that the banking industry liquidity risk has been moderated during the period under review, and that the industry average liquidity ratio rose from 50.63 percent in 2013 to 53.65 percent in 2014 and this was well above the prudential minimum threshold of 30 percent. According to the report individually, all Deposit Money Banks (DMBs) in their industry had liquidity ratio in excess of the minimum prudential requirement of 30 percent as at 31st December 2014, indicating that all Deposit Money Banks (DMBs) were sufficiently liquid.

In the light of the above, the broad objective of this study is to investigate the relationship between liquidity and banks performance. Thus, the paper is structured as follows; Section two provides the empirical review, section three deals on the methodology, while section four discusses the findings and section five concludes the paper and recommendations offered.

2. Review of Relevant Literature
2.1. Conceptual Framework
2.1.1. Liquidity Management Concept and its Clarification

Nzotta (2004) observed that liquidity is the basic for efficient operations of a bank and that no bank can survive on the short run without adequate liquidity.

Liquidity management has been a major phenomenon in bank management since the global financial crisis which erupted in the United States of America in 2007. As noted by Ngwu (2006) liquidity management is the act of storing enough funds and raising funds quickly from the market to satisfy depositors, loan customers and other parties with a view to maintain public confidence. Thus, the importance of liquidity management as it affects corporate profitability in today’s business cannot be over emphasized. The crucial part in managing working capital is required maintenance of its liquidity in the day to day operations so as to ensure its smooth running and meets its obligations (Eljelle, 2004).

It has been asserted that most underlying liquidity problem in banks is largely due to mismatching of assets and liabilities and by also extending loans and credit to high-risk borrowers, as most borrowers often than not failed to meet their loan repayment obligations.

2.1.2. Empirical Review

This section presents previous empirical studies on the above with varying results. Bassey and Moses (2015) examine the liquidity-profitability trade off of deposit money banks in Nigeria using a panel data of 2010-2012. They employed Ordinary Least Squares (OLS) techniques to estimate the variables and the results revealed that there is statistically significant relationship between bank liquidity measures of current ratio, liquid ratio cast ratio, loan to deposit ratio, loans to asset ratio and return on equity, and observed that when return on asset was used as proxy for profitability, the relationship was statically insignificant. Thus, they recommend that banks should evaluate and redesign their liquidity management strategy so that it will not only optimize returns to shareholders equity but also to optimize assets of the bank.

Agbada and Osuji (2013) investigate the efficacy of liquidity management and banking profitability performance in Nigeria. They used profitability and return on capital employed (ROCE) as proxy variables and the result indicates that there exist statistically significant relationship between efficient liquidity management and bank performance and conclude that efficiency liquidity management enhances banks soundness.

Also a study by Kehinde (2013) who examines the relationship between credit management, liquidity position and profitability of selected banks in Nigeria for the period 2006 to 2010 using Ordinary Least Squares (OLS) method and the results indicate that liquidity has a significant positive effect on return on assets.

In a similar vein, Kurawa and Abubakar (2014) examines the impact of liquidity on Nigeria banks profitability for the period 2003 to 2012 using linear regression model in their analysis. The results showed that there is a positive relationship between Return on Assets (ROA) and Cash and Bank Balances to Total Liabilities (CBTOTL) so also with Return On Equity (ROE) and CBTOTL, but has a negative relationship between Return On Equity (ROE) and Loan And Advances To Total Assets (LATOTA). The findings further suggest that there was no significant impact between liquidity and profitability among the listed banking firms in Nigeria.
Ibe (2013) examines the impact of liquidity management on the profitability of banks in Nigeria during the period of 1995 to 2010. And the results suggest that liquidity management indeed a crucial problem in the banking industry and concludes that a competence and qualified personnel be employed to ensure an optimum level of liquidity so as to maximize profit.

Also, Ajibike and Aremu (2015) studied the impact of liquidity on Nigerian bank performance to the period 2004-2012 using a Generalized Method of Moments (GMM) estimation technique for a panel of 13 banks and found that there exist a positive relationship between liquidity and bank performance. They concludes that bank liquidity, board size and debt structures are significant determinants of banks performance in Nigeria and that banks should increase their liquidity base to achieve higher performance.

Alzorqan (2014) studied the relationship between bank liquidity risk and performance in Jordan. Using a panel data instrumental variables regression to estimate the impact of liquidity risk on banks performance and the result shows that there is a significant relationship between loan-deposit-ratio, current ratio and banks performance.

Uremadu (2012) examine the relationship between capital structure and the profitability and liquidity, using descriptive statistics and Auto Regressive Distribution Lag (ARDL) model. The data of banks for 27 years spanning from 1980-2008 were used and the results showed a positive significant relationship between cash reserve ratio, liquidity ratio and corporate income tax on domestic economy while there was a negative significant relationship between saving deposit rate, gross national savings, balance with central banks, inflation rate and foreign private investment and banks profitability. Ali (2015) investigates the effect liquidity management on profitability in the Jordanian commercial banks during the period of 2005-2012. The result shows that an increase in the quick ratio and investment ratio of the available funds leads to an increase in the profitability, while an increase in capital ratio and liquid assets ratio leads to decrease in the profitability of Jordanian commercial banks. The paper concludes that there is need for an optimum utilization of the available liquidity in various aspect of investment in order to increase the bank’s profitability and that bank would adopt a general framework of liquidity management to ensure sufficient liquidity for executing their operations more efficiently.

Naceur (2003) asserted that high net interest margin and profitability are likely to associate with banks with high amount of capital and large over-heads. He stated that other determinants such as loans has positive and bank size has a negative impact on profitability.

The study by Adeyinka (2013) who critically examine the effect of capital adequacy on the profitability of deposit taking banks in Nigeria for the period 2006-2010. The study use primary data collected through questionnaires involved a sample of five hundred and eighteen (518) distributed to staff of banks. The result suggests a non-significant relationship while the secondary data analysis revealed a positive and significant relationship between liquidity adequacy and profitability of banks. Meaning that liquidity adequacy plays a significant role in the determination of banks profitability.

Olagunju et al. (2011) examined liquidity management and commercial banks profitability in Nigeria using primary and secondary sources of data which was analyzed through collection, sorting and grouping of data in tables of percentages and frequency distribution methods. The finding indicates a significant relationship between liquidity and profitability, and that the means profitability in commercial banks is significantly influenced by liquidity and vice-versa.

Bordereau and Graham (2010) determine the impact of liquid assets holding an bank profitability for a panel of Canadian and U.S banks over the period of 13 years, spanning from 1997-2009, using some econometric models. The result suggested that profitability is improved for banks that hold some liquid assets, however, there is a point at which holding further liquid assets diminishes a bank’s profitability or else equal, more over empirical evidence further suggest that this relationship varies depending on a bank’s business model and the state of the economy and concludes that firms should maintain a balance between liquidity and profitability in its day to day operations, they opined.

3. Methodology
3.1. Research Design

This study adopted *ex-post facto* research design as a set of regression estimation techniques were applied to analyze the variables of interest. This study seeks to examine the relationships between liquidity management and banks performance using secondary sources of data for the period 2005-2014. The data were sourced from Central Bank of Nigeria (CBN), Nigerian Deposit Insurance Corporation (NDIC), Annual report and statement of accounts, National Bureau of Statistics (NBS) and from reputable journals.
3.2. Econometric Model

To measure the relationship between liquidity management and banks performance, the study adopts the following econometric model as specified functionally and explicitly below:

\[
LR = f(TOD, LDR, ROA)
\]  
(1)

\[
LR_t = \beta_0 + \beta_1 LTOD + \beta_2 LDR_t + \beta_3 ROA_t + \mu_t
\]  
(2)

Where;

\( LR_t \) = Liquidity Ratio at time t

\( LTOD_t \) = Total Deposit of Banks at time t

\( LDR_t \) = Loans – Deposit Ratio at time t

\( ROA_t \) = Return on Asset at time t

\( \beta_1 - \beta_3 \) = are the parameters to the estimated

\( \mu_t \) = is the stochastic error term

\( \beta_0 \) = constant or intercept.

L = natural logarithm

3.3. Data Analysis

The procedure adopted for our data analysis was purely some econometric procedures using OLS multiple regression analysis to analyze the variables of interest, whether there exist any relationship between liquidity management and banks performance.

Table 1. Augmented Dickey Fuller (ADF) Unit Root Test Results

<table>
<thead>
<tr>
<th>Series</th>
<th>Test statistic</th>
<th>5% critical value</th>
<th>p. value</th>
<th>Order of</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR</td>
<td>-2.458746</td>
<td>-2.006292</td>
<td>0.0226</td>
<td>1 (1)</td>
<td>1st diff</td>
</tr>
<tr>
<td>Log (TOD)</td>
<td>-2.352747</td>
<td>-2.006292</td>
<td>0.0272</td>
<td>1(2)</td>
<td>2nd diff</td>
</tr>
<tr>
<td>LDR</td>
<td>-2.208631</td>
<td>-2.006292</td>
<td>0.0352</td>
<td>1(2)</td>
<td>2nd diff</td>
</tr>
<tr>
<td>ROA</td>
<td>-4.952254</td>
<td>-1.995865</td>
<td>0.0004</td>
<td>1(1)</td>
<td>1st diff</td>
</tr>
</tbody>
</table>

Source: Eview output

The study employed ADF unit roots test to ascertain the level of stationary of the variables. From table 1 above the result of the stationary test indicates that the variables were stationary at first difference and second differences respectively. These results indicates that the variable are integrated of order one and two respectively.

3.3.1. Estimation Regression Result (Table 2)

From table 3, the estimation regression result indicates that the logged variable of total deposit of banks and loans to deposit ratio have a negative influences on Liquidity Ratio (LR) but was statistically significant while Return on Asset (ROA) have positive influence on Liquidity Ratio (LR) but was statistically insignificant.

Table 2. Estimation Regression Result.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std error</th>
<th>T-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>151.9283</td>
<td>29.95856</td>
<td>5.071281</td>
<td>0.0023</td>
</tr>
<tr>
<td>Log (TOD)</td>
<td>-9.748619</td>
<td>2.833035</td>
<td>-3.411052</td>
<td>0.0138</td>
</tr>
<tr>
<td>LDR</td>
<td>-0.326528</td>
<td>0.115802</td>
<td>-2.819715</td>
<td>0.0304</td>
</tr>
<tr>
<td>ROA</td>
<td>0.465459</td>
<td>0.403052</td>
<td>1.081200</td>
<td>0.3211</td>
</tr>
</tbody>
</table>

Source: Eview output

R- Squared 0.760031; Adj. R- Squared 0.640047; Prob (F-Stat) 0.027362; Durbin- Watson Stat. 1.7947356

3.3.2. Correlation Analysis (Table 3)

From the table below the correlation analysis show that there exists a negative correlation among the variables. The result indicates that some variables had negative correlation. While there a exist a positive correlation between liquidity ratio (LR) and Return on Assets (ROA) of about 45 percent. However, the correlation between these variables are quite low.
4. Discussion of Findings

This study evaluates the relationship between liquidity management and banks performance, using Ordinary Least Square (OLS) econometric method in analyzing the variables of interest. The study commenced with Augmented Dickey Fuller (ADF) unit root test and found that all the variables were stationary at first and second differences. This test was carried out to ensure that we are not estimating a spurious regression result. The estimation regression result indicates that Total Deposit of Banks (TOD) and Loans to Deposit Ratio (LDR) were statistically significant while Return on Assets (ROA) have a positive but statistically insignificant relationship with Liquidity Ratio (LR). These our findings to an extend conforms to studies by Kehinde (2013); Ajibike and Aremu (2015).

Furthermore, the above result indicate that the R² value of 0.760031, shows that the model explains about 76.0 percent of the total variation in Liquidity Ratio (LR) which are explained by the explanatory variables during the period under review. The durbin watson statistics value of 1.79 suggests that there exist no auto-correlation among the variables, and again the prob (F_STATISTIC) value of 0.027362 shows that model is adequate and overall statistically significant, meaning that the Liquidity Ratio (LR) is well explained by the explanatory variables such as TOD, LDR and ROA respectively.

5. Conclusion

In the light of the above, the study concludes that prudent liquidity management by banks will no doubts enhance banks performance and would further meet their daily obligations as they fall due. This is because return on asset had a positive influence on liquidity ratio.

6. Recommendations

From the findings above, the following policy recommendations are offered

- That monetary authorities should ensure that banks are liquid at all time so as to meet its daily obligations.
- That enough funds be made available to provide loans and advances to customers so as to further boast public confidence by banks.
- That the monetary authorities should adopt appropriate Liquidity Ratio (LR) so as to enhance the liquidity profile of banks.

References


