



EFFECT OF LIQUIDITY MANAGEMENT ON BANK PERFORMANCE

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Abstract

Liquidity management and profitability are very important issues in the growth and survival of businesses including financial institutions and the ability to handle trade-off between the two is a source of concern for financial managers. Hence, this research examines the relationship between liquidity management and bank performance using secondary data from the published annual reports of five (5) sampled Deposit Money Banks in Nigeria for a period of ten years (2009-2018). The proxies for liquidity management include loan to deposit ratio, loan to assets ratio, liquid ratio, while return on assets was the proxy for profitability. Data was analyzed using Auto Regressive Distributed Lag (ARDL) and results from the study showed that there is a negative and significant relationship between loan to deposit ratio with p-value 0.0021 and return on assets (ROA), a positive and significant relationship between loan to asset ratio with p-value 0.0005 and return on assets (ROA) and a positive and insignificant relationship between liquid ratio with p-value 0.1808 and return on assets (ROA). The study concludes that, there is a significant and positive relationship between liquidity management and profitability of banks in Nigeria. It is recommended that banks should always endeavour to administer their credits effectively by adhering strictly to rules on granting of credit.

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Key words:

Liquidity,
Profitability, Banks,
Nigeria, Autoregressive
Distributed Lag

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1. Introduction

Liquidity management is an essential ingredient for the success and survival of business concerns. At the macroeconomic level, liquidity is critical for the conduct of monetary policy, financial sector soundness and economic growth. Consequently, efficient and effective management of liquidity is at the heart of the conduct of monetary policy (CBN 2011). From the monetary authorities' point of view, liquidity management is critical in delivering on the mandate of monetary and price stability. Adequate liquidity promotes sound banking and financial system which provides a virile platform for sustainable economic growth and development. According to Anyanwu (1993), liquidity management means the ease with which assets can easily be convertible to cash without loss and hence the bank's ability to pay its depositors on demand. It is judged by the ease with which an asset can be exchanged for money. Liquidity management involves controlling the level of money supply in an economy in order to maintain monetary stability. Liquidity management in banks has posed several challenges during the distress era of 1980s and 1990s in Nigeria and persisted to the recapitalization phase of 2004 when banks were mandated to increase their capital base from ₦2 billion to ₦25 billion (Agbada and Osuji, 2013).

The Central Bank of Nigeria (CBN) mandate for recapitalization was considered to be the salvation for the banking and indeed financial system in Nigeria, however, just five years later, precisely in 2009, the Central Bank's intervention was sought to stabilize and redeem eight banks that were deeply enmeshed in illiquidity. Consequently, ₦620 billion was injected into the eight affected banks to stimulate stability, and confidence and subsequently heralded the establishment of Asset Management Corporation of Nigeria (AMCON) for the acquisition of the affected banks. For instance, in 2004, there were 89 deposit money banks in Nigeria, 62 were assessed as being sound/satisfactory, 14 as marginal and 11 as unsound while two of the banks did not render any returns during the period (Ajayi 2009). According to Soludo (2004), the problem with the unsound deposit money banks included persistent illiquidity, poor asset quality, weak corporate governance and gross insider abuses. Most of the banks had weak capital base thus constraining them to overdrawn their accounts with the Central Bank of Nigeria and high incidence of non-performing loans. Liquidity is a precondition to ensure that firms are able to meet their short-term obligations. Liquidity refers to an enterprise's ability to meet its current liabilities and it is closely related to the size and composition of the enterprise's working capital position (Kontus and Muhanovic 2019).

Liquidity position in a company is measured based on the 'current ratio' and 'quick ratio'. The quick ratio is a reasonable measure of a business's short-term liquidity. The higher quick ratio is, the better the position of the business. The current ratio establishes

the relationship between current assets and current liabilities. Normally, a high current ratio is considered to be an indicator of the firm's ability to promptly meet its short-term liabilities (Beck and Hesse 2009). The quick ratio establishes a relationship between quick or liquid assets and current liabilities. Banks indeed require liquidity since such a large proportion of their liabilities are payable on demand (deposits) but typically, the more liquid an asset is, the less it yields (Dzapasi 2020). The level of liquidity maintained by banks must meet minimum regulatory requirements and other routine financial obligations. Liquidity position not properly managed can result in crisis for banks hence management of liquidity should be commensurate with banking operations, safety of deposits amongst others. This underscores the reasons why monetary authorities do not compromise on banks liquidity position, as illiquidity will not only amount to a doom but total collapse of the system in particular and the economy at large. Liquidity is basic for efficient operations of a bank. A bank is said to be liquid when there is enough liquid assets and cash coupled with the ability to raise funds quickly from other sources, to meet its financial obligations on daily basis (Nzotta 2004).

Banks, as financial institutions, perform intermediation roles generally through the mobilization of resources from the surplus units and channeling of same to the deficit units for productive activities within an economy designed to ensure a more efficient resource allocation and utilization. Banks also makes investment so as to be able to make profit.

Ashraf, Nabeel and Hussain (2016) opined that for banks to achieve maximum benefits, they should find out the highest level of funds to fulfill the short-term requirement from which they can make profit. In essence, therefore, banks effectively manage liquidity so as to increase their profitability.

Liquidity management therefore involves the strategic supply or withdrawal from the market or circulation the amount of liquidity consistent with a desired level of short-term reserve money without distorting the profit-making ability and operations of the bank. It relies on the daily assessment of the liquidity conditions in the banking system, so as to determine its liquidity needs and thus the volume of liquidity to allot or withdraw from the market.

The liquidity needs of the banking system are usually defined by the sum of reserve requirements imposed on banks by a monetary authority (CBN 2012). Liquidity management aims at obscuring optimum interest income, determining the total amount of cash and marketable securities that banks would need at any point in time. Undoubtedly banks have as their prime objective the desire to survive to make profit and to grow and also improve their profitability. In order to achieve these objectives, a bank has to manage its liquidity well so as to make profit. Based on the forgoing analysis, this research study examines the effect of liquidity management on

the performance of banks in Nigeria. The research intends to contribute to the existing literature as a result of the mixed results from various researchers who had earlier embarked on research works on liquidity management and bank performance.

The remainder of this paper is as follows. Section 2 examines the literature that is relevant to this study. Section 3 discusses data and methodology for the study. Section 4 deals with research findings and discussion while part 5 which is the final part deals with summary and conclusion.

2. Literature Review

Agbada and Osuji (2013) investigated the efficacy of liquidity management and banking performance in Nigeria. The researchers used profitability and return on capital employed (ROCE) as proxy variables. Findings from their study indicates that there exists statistically significant relationship between efficient liquidity management and bank performance. They therefore concluded that efficient liquidity management enhances banks soundness.

Kasekende and Ating-Ego (2003) in a study conducted on the Ghanaian banking sector found no positive relationship between liquidity trend and profitability and concluded that there is a negative relationship between liquidity and profitability in the Ghanaian banking sector. This result is not in consonance with the empirical works of Agbada and Osuji on Nigeria examined above.

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. Findings from the study revealed that there is statistically significant relationship between bank liquidity measures of current ratio, liquid ratio cash 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. They therefore 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.

Salim and Bilal (2016) examined the impact of liquidity management on financial performance in Omani banking sector. The study found a significant relationship between loans to total assets, loans to short term liabilities and deposits, bank loans, customer deposits to total assets and return on assets and no significant relationship between liquidity position and net margin of banks in Oman.

Ali (2015) investigated 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 lead to an increase in profitability of Jordanian commercial banks, while an increase in capital ratio and liquid assets ratio leads to a decrease in the profitability of Jordanian commercial banks. The paper concludes that there is a need for an optimum utilization of the available liquidity in various aspects of investment in order to increase bank's profitability and that banks should adopt a general framework of liquidity management to ensure sufficient liquidity for executing their operations more efficiently.

Kurawa and Abubakar (2014) examined the impact of liquidity on banks' profitability in Nigeria. Systematic random sampling method was adopted to select five banks over the period 2003 –2012. Linear regression analysis was employed. Results from the study shows the absence of a significant impact between liquidity and profitability among banks in Nigeria.

Bassy, et. al. (2016) explored the relationship between liquidity management and banks performance in Nigeria. The study concluded that efficient and effective management of liquidity is necessary for survival and successful operations of banks.

Macaulay (2008), investigated the effectiveness of liquidity risk management on financial institutions in the United States of America. He reported that over 70% of the financial institutions have adopted the best practices in the country. Macaulay opined that there has been an increased concern regarding effective credit risk management due to the fact that inadequate credit risk policies are the main source of vital problems in most of the financial institutions. He concluded that an effective credit risk management policy must therefore aim at maximizing an institution's rate of return.

Bourke (1989) in his study on performance of banks in twelve countries in Europe, North America and Australia found evidence that there is a positive relationship between liquid assets and bank profitability. These results seem counterintuitive, as it is expected that illiquid assets have a higher liquidity premium and hence higher return.

Athanassoglou, Delis and Staikouras (2008) examined the determinants of performance of Greek banks during the period of European Union (EU) financial integration (1990-2002) using an unbalanced pooled time series data set of 23 banks and found that less liquid banks have lower rate of return on assets. This is consistent with the findings of Bourke (1989) who found out that there is a positive relationship between liquidity risk and bank profitability.

Kontus (2018) investigated whether there was a relationship between liquidity level expressed in terms of net working capital as well as cash to current liabilities ratio and profitability of small and medium sized enterprises and large companies in the Republic of Croatia in 2014. The study, however, does not in any way provided empirical evidence that liquidity is negatively related to profitability.

A critical examination of the literature above revealed that there have been mixed

results among the various empirical research that have been carried out by various researchers in both developed and developing countries.

For instance, in the review above concerning the Nigerian context, the works of Agbada and Osuji (2013) and that of Bassy et. al (2016) revealed that there is a significant relationship between liquidity and profitability which is in tandem with the works of Macaulay (2008) for United States of America, Bourke (1989) for Europe, North America and Australia which also found a positive relationship between liquidity and profitability. The empirical works of Kurawa and Abubakar (2014) on Nigeria found a negative relationship between liquidity and profitability which is in line with the works of Kasekende and Ating-Ego (2003) on Ghanaian banking system. Findings from the empirical research of Bassey and Moses (2015) on effect of liquidity and profitability in Nigeria was a mixed result which concurs with the works of Salim and Bilal (2016) for Omani banking system and Ali (2015) for Jordanian banks. The mixed results from the above empirical review form the gap which this study intends to investigate.

3. Research Methods and Procedure

Sources of Data

Data for the study were collected mainly from secondary sources as they were obtained. from five (5) sampled Deposit Money Banks' financial reports and Central Bank of Nigeria (CBN) Statistical Bulletin for a period of ten years (2009-2018). The sampled banks are Fidelity Bank, Guaranty Trust Bank, United Bank for Africa, Unity Bank as well as Diamond Bank. The choice of the banks was done in such a way so as to make it representative of the whole banks in Nigeria hence banks were drawn from the old banks as well as the new banks. The five banks financial statements were obtained from their databases for the ten-year period (2009-2018).

Methodology

The model for this study is adapted from the works of Saleem and Rehman (2011) with modifications. The model captured bank performance which is represented by return on assets as well as the variables for liquidity which are loan to total assets ratio, loan to liquidity ratio and loan to deposit ratio respectively.

The formulated model is stated below:

$$ROA = f(LTA, LTD, LR) \tag{1}$$

Where:

ROA = Return on Assets

LTA = Loan to Total Assets Ratio

LR = Liquidity Ratio

LDR = Loan to Deposit Ratio

The model above is converted to econometric form by the introduction of the constant term (β_0) and error term (μ) as follows:

$$ROA_{it} = \beta_0 + \beta_1 LTA_{it} + \beta_2 LR_{it} + \beta_3 LTD_{it} + \mu \quad (2)$$

Where:

ROA= Return on Asset

β_0 = Intercept / constant

LTA = Loan to Total Assets Ratio

LR= Liquidity ratio

LTD=Loan to Deposit Ratio

$\beta_1, \beta_2, \beta_3$ = Coefficient of independent variables

μ = Error term

Table 1

Apriori Expectation

Variables	Definition	Expected sign
β_1	Loan to total assets	Positive
β_2	Liquidity ratio	Positive
β_3	Loan to deposit ratio	Positive

Source: Authors Compilation (2020).

Table 2

Description, Measurement of Variables and Source of Data

Variables	Description	Measurement	Data Source
ROA	Return on Assets	Profit after Tax/Net income divided by average total assets	Annual Reports and Statements of Accounts of selected banks.
LTA	Loan to Total Assets Ratio	Total Loan and Advances divided by Total Assets	Annual Reports and Statements of Accounts of selected banks.
LR	Liquidity Ratio	Using one of the divisions of liquidity ratio which is current ratio (Current assets divided by current liabilities)	Annual Reports and Statements of Accounts of selected banks.

LTD	Loan to Deposit Ratio	Total Loan divided by Total Deposit	Annual Reports and Statements of Accounts of selected banks.
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Source: Authors Compilation (2020)

4. Research Findings and Discussion

Table 3

Descriptive Statistics

VARIABLES	ROA	LTD	LTA	LR
Mean	0.002409	0.616130	0.422044	1.303565
Median	0.012397	0.633309	0.423320	1.086174
Maximum	0.061537	1.063525	0.592183	13.68899
Minimum	-0.551452	0.035504	0.057238	0.001013
Std. Dev.	0.084066	0.214117	0.111586	1.800583
Skewness	-5.903663	-0.308572	-1.245764	6.694443
Kurtosis	39.30252	3.523881	5.254857	46.62842
Jarque-Bera	3036.013	1.365246	23.52518	4338.961
Probability	0.000000	0.505290	0.000008	0.000000
Sum	0.120427	30.80650	21.10219	65.17823
Sum Sq. Dev.	0.346286	2.246460	0.610124	158.8629
Observations	50	50	50	50

Source: Computer Analysis using E-views (2020).

Table 3 above shows the descriptive statistics of the study. It is observed that bank performance represented by ROA has an average value of 2.41% with a standard deviation of 8.41%. The minimum value for ROA -55.14% and a maximum of 6.15%. Loan to deposit ratio from the Table also has a mean value of 61.6% with a standard deviation of 21.4% as well as a minimum of 3.6% and maximum of 106.35%. The loan to assets ratio has a mean value of 42.2% with a standard deviation of 11.15% as well as a minimum 5.72% and maximum of 59.2%.

Liquidity ratio also shown in the Table has an average of 130.35%, standard deviation of 180.05%, minimum of 0.1013% and maximum of 1368.89%. The standard deviation values showed the extent at which the observations are dispersed around

their respective means. Also, considering the Skewness statistic whose threshold value appear to all (ROA, LTD, LTA) have a value less than zero thereby making them to be negatively skewed while LR shows otherwise.

On the other hand, the Kurtosis value whose threshold is three (3) indicates that only LTD is mesokurtic (normally peaked), that is, having a value which is approximately three (3), while others (ROA, LR, LTA) are leptokurtic (highly peaked), that is, having a value greater than three (>3). Neither Skewness nor Kurtosis can singularly confirm the normality of a series. Since the Jarque-Bera statistic combines Skewness and Kurtosis properties, hence, it provides more comprehensive information. Using this Jarque – Bera statistic, it can be observed that only LTD is normally distributed as its probability value is more than 5% while others, that is ROA, LTA and LR probabilities are less than 5% hence they are not normally distributed.

Graphical Analysis

Graphical Analysis illustration shows the movements, trends, fluctuation and structural breaks in the series. The figures below show the graphical expression of relevant variables used in the model. The trends of the selected variables were shown in Figures 1 and 2 with the analysis of the graphs of each variable.

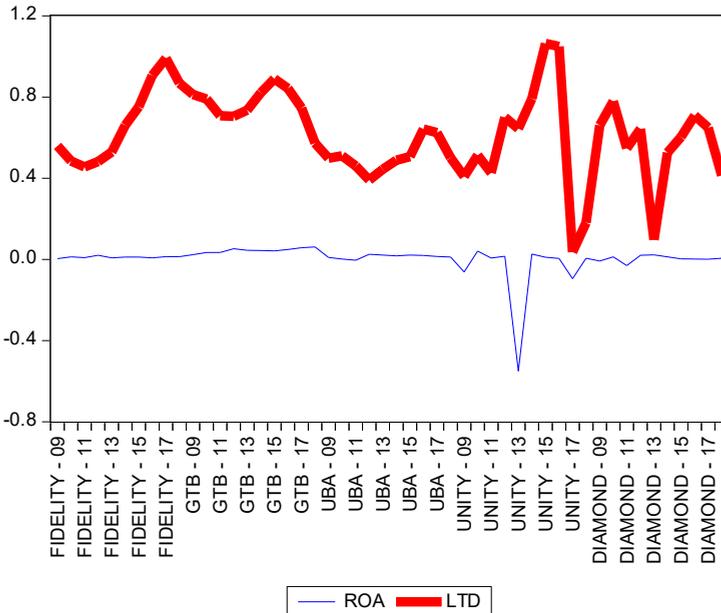


Figure 1: Trend of Return on Assets (ROA) and Loan to Deposit ratio (LTD)

Source: Computer Analysis using E-views (2020).

The figure above shows the relationship between ROA (Return on assets) and LTD (loan to deposit ratio) for the selected banks from 2009-2018. It can be observed that both Fidelity bank and Guaranty Trust Bank have a constant and steady increase in ROA while United Bank for Africa and Diamond bank has an unstable ROA for the period, 2009-2018. Unity bank has a negative ROA which indicates a decrease in the graph above. On the other hand, it can be observed that LTD ratio for all the banks are not equal. There is a decrease in the LTD ratio for Fidelity bank between the periods of 2009-2011 while the LTD ratio for that bank (Fidelity) increased from the period of 2012-2018. It is also observed that Guaranty Trust Bank and United Bank for Africa LTD ratio fell between the periods of 2009-2018. For Unity and Diamond banks, there has been a serious reduction in their LTD ratio respectively as shown in the graph above. This indicates that the sampled banks have not been granting sufficient loans due to low deposits from their customers which latter results in a serious decrease in ROA.

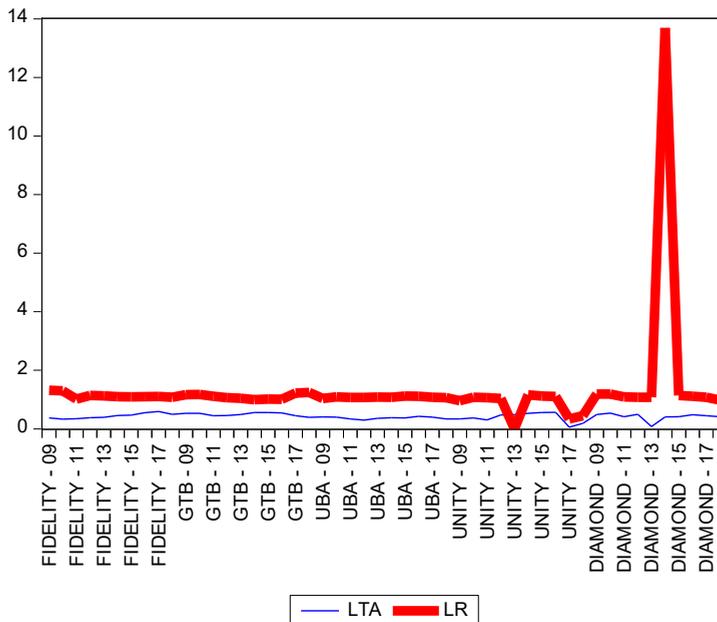


Figure 2: Trend of Loan to Assets ratio and Liquidity Ratio

Source: Computer Analysis using E-views (2020).

The graph above shows the trend of Loan to Assets ratio and Liquidity Ratio of the sampled banks from 2009 to 2018. The graph indicates that Fidelity bank, United Bank

for Africa, and Guaranty Trust Bank have been on a constant ratio as regards their LTA and LR respectively. The LR represents the liquidity ratio which indicates that bank customers can easily get loans while the bank itself can meet its financial obligations to its customers as regards withdrawal of deposited funds by customers. Unity bank on the other hand, operates on a constant ratio as regards its LTA and LR between the periods of 2009-2011 while it experienced a fall in LR and a rise in LTA in years 2012-2013. Also, Unity bank experience decrease in both LTA and LR in year 2017 and 2018. Liquidity ratio (LR) for Unity bank has a negative ROA which is expected to be positive because of the relationship between Liquidity and profitability.

Diamond bank has a constant and positive relationship between LTA and LR, that is, they both increase at the same rate between the periods of 2009-2012. However, in year 2013 and 2014, LTA increased geometrically while LR ratio fell for the same periods which bring about a negative relationship between the two variables (LTA and LR).

Table 4

Correlation Analysis

	ROA	LTD	LR	LAT
ROA	1			
LTD	0.112604	1		
LR	0.1108	-0.02044	1	
LAT	0.056852	0.946229	0.017991	1

Source: Computer Analysis using E-views (2020).

From Table 4 above, the correlation coefficient between the variables shows that there exists a positive correlation among the variables. The result indicates that some variables had negative correlation. While a negative correlation exists between liquidity ratio (LR) and loan-deposit ratio (LTD) of about 2 percent. However, the correlations between these variables are quite low.

Formal Pre-test

This section includes the test for stationarity of the variables at different levels of order of integration using the Augmented Dickey-Fuller (ADF) unit root test and as well as checking for the long-run relationship that exists between the dependent and independent variables.

Unit Root Test

Unit root test shows the results for the test of stationarity of the series used for model estimation. Following the assumptions of the Ordinary Least Square (OLS) technique, it is required that series must exhibit a constant mean, variance and covariance over time, that is, whether the series are time invariant in their unconditional moments. In other words, when series are not stationary, it is said to exhibit a unit root process. If non stationary, series are adopted in a regression analysis, the resulting model is termed as spurious, unstable, and misleading and thereby, cannot be used for forecast.

Table 5

Augmented Dickey - Fuller (ADF) Unit root Test

Variables							I (d)
	Level			First difference			
	Model I	Model II	Model III	Model I	Model II	Model III	
ROA	11.4642	4.87206	12.9892	17.6077	24.0287	37.7040	I(1)
LTA	12.7655	6.71337	7.80952	9.47499	2.64085	25.3670	I(1)
LR	30.7016	21.2198	11.2760	—	—	—	I(0)
LTD	17.8177	7.16827	9.00802	—	—	—	I(0)

Source: Computer Analysis using E-views (2020).

Models 1, 2 and 3 are panel unit root with intercept, intercept and trend and without intercept and trend respectively. The results reported in Table 5 above reveals that not all the series of the examined variables are stationary at level. The Table shows that the series of LR and LTD are stationary at levels while ROA and LTA are stationary at first difference. These results imply that running a regression analysis on these variables in their levels using Ordinary Least Square technique can generate spurious results as some of the traditional least square assumptions have been violated. We will therefore proceed to Panel ARDL estimation which is the most appropriate model to be adopted when variables have different order of integration.

Co-integration Tests

Co-integration tests are usually used to determine whether or not there is a long run equilibrium relationship between the variables under consideration. Thus, given the unit root test results above, the most appropriate co-integration test is the Kao Co-integration test since the test shows the overall significance of the model.

Table 6

Kao Residual Co-integration Test Result

	t-Statistic	Prob
ADF	0.220644	0.4127
Residual variance	0.014125	_____
HAC variance	0.002324	_____

Source: Computer Analysis using E-views (2020).

The Kao Co-integration test result shows that the computed probability value from the Augmented Dickey - Fuller (ADF) equation is greater than the chosen level of significance ($0.4127 > 0.05$) which signifies that we accept the null hypothesis and conclude that there is no presence of co-integrating relationship between the panel data variables.

Table 7

Lag length structure for the Explanatory variables (ROA, LTD, LTA, and LR)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	21.74669	NA	4.26e-06	-1.014096	-0.836342*	-0.952736
1	39.27010	30.04014	3.94e-06	-1.101149	-0.212378	-0.794345
2	63.95930	36.68110*	2.49e-06*	-1.597674*	0.002112	-1.045428*
3	72.22280	10.38840	4.30e-06	-1.155589	1.155214	-0.357900

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5%level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Computer Analysis using E-views (2020).

According to LR, FPE, AIC and HQ above, the optimum lag length for the explanatory variables (ROA, LTD, LTA, & LR) is 2 while SC confirms the optimal lag period to be 0. This implies that in the proposed Panel ARDL equation, the optimal lag length for (ROA, LTD, LTA, & LR) in the equation is 2.

Model Estimation Result

Following the results of the unit root and co-integration tests reported and discussed above the regression analysis result of the estimation using the ARDL short-run (dynamic) model technique is presented below.

Table 8

ARDL Pool Mean Group Estimation Result

Variables	Coefficient	Std. Error	t-Statistics	Prob
LTD	-0.13031	0.037378	-3.48625	0.0021
LTA	0.201868	0.049518	4.076633	0.0005
LR	0.144847	0.104798	1.382155	0.1808
ECM (-1)	-0.95601	0.363692	-2.62861	0.0153

Source: Computer Analysis using E-views (2020).

From Table 8 above, the coefficients of the variables, standard error, t-statistics and probability were shown. It can be deduced from the Table, that the coefficient of loan to deposit ratio (LTD) is negative (-0.1303), loan to total assets ratio (LTA) has a positive value of 0.2018 and liquidity ratio (LR) has a value of 0.1448. Consequently, to adjust for variations from the equilibrium long-run relationship due to short-run systemic shocks, the Error Correction Model (ECM) is considered. The ECM estimation results in Table 8 above reveals that the independent variables jointly account for approximately 95.60% change on Return on assets. Therefore, a 95.60 % adjustment is required to attain the equilibrium long-run relationship.

Further analysis is indicated below on discussion of findings.

Table 9

Post Estimation Tests Results

Test	F-Statistic	Probability
Jarque-Bera	65.72	0.0000

Source: Computer Analysis using E-views (2020)

Table 9 presents the results of the post estimation tests as a further evidence of the reliability of the estimates of the model. The error series generated from the estimated model satisfies the normality assumption since the Jarque-Bera test reveals that the null hypothesis of the series being normally distributed cannot be accepted at 5% level of significance.

Discussion of Findings

Following the result of the regression analysis in Table 8 above, it is evidenced that the coefficient of Loan-to-Deposit ratio (LTD) shows a negative relationship of

13.03%, implying that where other predictor variables are held constant, a 1% change in the LTD will precipitate in a 13.03% decrease in bank performance. The effect of this relationship could be traced to the fact that most of the total loans disbursed by the banks to the borrowers resulted to non-performing loans which tend to reduce the profitability level of the banks as shown in the result above.

On the other hand, Loan to Assets Ratio (LTA) and Liquidity Ratio (LR) show a direct effect as they possess coefficients of 0.2018 and 0.1448 respectively; indicating that where other variables are held at zero, a 1% increase in LTA will boost bank performance by 20.19% while 1% increase in LR will culminate in 14.48% expansion of bank performance where other variables are held constant. From these results above, and considering the signs of the individual coefficients, one could safely conclude that while the liquid ratio and loans to asset ratio seem to meet the apriori expectation, higher liquid ratios should exert negative effect on banks profitability just as they constrained the ability of banks to have more investable funds (loans and otherwise).

A consideration of the strength of relationships using the t-statistic shows that only Liquidity Ratio whose t-statistics is 1.3821 relates insignificantly or weakly with bank performance in the short run given its 0.1808 probability which is above the 0.0500 significant margins. Results obtained above are in tandem with the works of Ayunku (2017) for Nigeria, Kurotamunobaraomi, Giami and Obari (2017) for Nigeria, Ashraf, Nabeel and Hussain (2016) for Pakistan among others. The other explanatory variables show statistically significant short run relationships with the predictor variable – bank performance.

5. Conclusion

This study examines the effect of liquidity management on bank performance in Nigeria using five Nigerian deposit money banks, namely; Fidelity bank, Diamond bank, United bank for Africa, Guaranty Trust bank, and Unity bank as case study. The data used covered the period of 2009 to 2018 which was sourced from published annual reports of each selected bank as well as the Central Bank of Nigeria Statistical Bulletin. The methodology employed include Augmented Dickey Fuller unit root test, Panel co-integration test using Kao-cointegration test and Panel Autoregressive Distributed Lagged Model (ARDL) using the Pooled Mean Group Model. Specifically, a single model is estimated which describes how some liquidity ratios such as loan to assets (LTA), loans to deposit (LTD), and liquid ratio (LR) affect the performance of the sampled banks.

However, before the models were estimated, the statistical properties and trend of each of these variables were highlighted using descriptive statistics and graphical

analysis. The stability of the series of variables examined were tested using Panel Augmented Dickey Fuller unit root test, the result indicates that some of the variables were stationary at level and others after first differencing. The Panel Autoregressive Distributed Lag Model is adopted owing to the fact that the variables are I (0) and I (1). The Pooled Mean Group result for the explanatory variables shows that loan to deposit (LTD) and loan to assets (LTA) are only the significant variables that affect Return on assets in the short run since there is no long run relationship. In addition to the short run, this study found out that rise in loan to assets ratio and liquid ratio are positively related to return on assets while loan to deposit ratio revealed an inverse relationship with the value of return on assets.

Therefore, for banks to succeed in their operations, they should maintain optimal liquidity level in order to satisfy their financial obligations to customers and maximize profit for their shareholders. The optimal liquidity level could be attained if banks religiously maintain the minimum liquidity requirement as stated by the Central Bank of Nigeria. This will assist banks to reduce cases of bank distress. Excess liquidity and illiquidity are “financial diseases” that can easily erode the profit base of a bank as they affect bank’s attempt to attain high profitability level.

Conclusively, any bank that aims to maximize its profit level must adopt effective liquidity management. Findings from this research show that there is an inverse relationship between liquidity management and profitability. This means that as liquidity increases, profitability decreases and vice versa. Hence the findings of this work are in tandem with the works of Ayunku (2017), Kurotamunobaraomi, Giami and Obari (2017), Ashraf, Nabeel and Hussain (2016) among others.

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