Liquidity Management and the Performance of Commercial Banks in Nigeria

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A B S T R A C T

The study focused on liquidity management and its effect on the performance of commercial banks in Nigeria. The study adopted correlational research design. The scope of the study was between 2008 to 2018, a period of 10 years. The study data were collected from the annual report of CBN and NDIC. The data were analysed with the aid of OLS. The study used Non-performing loan ratio, cash reserve requirement, Loan to deposit ratio and liquidity ratio as the components of liquidity management while financial performance was measured as return on equity of Nigerian commercial banks. The study revealed that cash reserve requirement, loan to deposit ratio and liquidity positively and significantly impact the financial performance in Nigerian commercial banks while non-performing loan ratio exhibits a negative but significant relationship with the performance of strategies to reduce non-performing loans. In addition, the managers should revise the loan approval process of their banks so as to reduce the level of nonperforming loans in their banks. Also, that Central Bank of Nigeria which is the nation's apex bank should supervise and formulate policies that will encourage banks to improve on their international functions.

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1. Introduction

The fundamental role played by commercial banks in the society does not only affect the spending by individual consumers but also the general growth of the industry. No doubt, commercial banks

contribute significantly to the effectiveness of the entire economic system. They do this by providing an efficient mechanism for the mobilization of resources and efficiently channeling them for productive investment (Willner, 2000). However, efficient financial intermediation by the commercial banks is a function of purposeful attention of the bank's management to the conflicting goals of liquidity and financial performance (profitability). According to Olagunji, Adeyanju and Olabode (2011), both goals run opposite directions in the sense that an attempt by a bank to achieve higher profitability will certainly take a toll on the liquidity level and solvency position and vice versa.

The contradictory nature of liquidity and profitability can be explained by the intuitive reasoning that a bank operating with high liquidity (and in the process tying down investable funds) may have a low insolvency risk, but with a trade-off of low profitability. Conversely, a bank operating at a low liquidity level (and thus freeing investible funds) may face high insolvency risk, but with a trade-off of higher profitability Banks are always aiming at maximizing profitability while at the same time trying to ensure sufficient liquidity. In order to achieve these contradictory objective, it is essential that banks have to monitor, maintain and manage their assets and liabilities portfolios in a systematic manner taking into account the various risk involved in these areas like the interest rate risk, operation risk and gap analysis. The risk of illiquidity may increase if principal and interest cash flows related to assets, liabilities and off-balance sheet items are mismatched. Managing liquidity is a fundamental component in the safe and sound management of all financial institutions.

Sound liquidity management involves prudentially managing assets and liabilities, minding both the cash flow and concentration in order to ensure that cash inflows have an appropriate relationship to cash outflows. This needs to be supported by a process of liquidity planning which assesses potential future liquidity needs, taking into account changes in economic, regulatory or other operating conditions. In Nigeria, in the light of the intensive competition in the banking industry resulting from the increasing number of local banks, as well as the re-entrant of foreign banks, the operating environment is so competitive and tense that any commercial bank that hopes to survive must ensure an astute management of its profitability vis-a-viz is liquidity level as both variables can make or mar its future. The challenges of inefficient liquidity management of banks in Nigeria were brought to the fore during the liquidation and distress era of the late 1980s and early 1990s. (Okaro and Nwakoby, 2016).

From the extant literature (Moore 2010, Alzorqan 2014, Ali 2015, Mucheru, Shukla and Kibachia 2017) researchers have applied several surrogates as metric measures of financial performance of banks. Such metric include a combination of financial ratio analysis, benchmarking and measuring of performance against budget. Others include Return on Asset (ROA), Return of Equity (ROE), Net Interest Margin (NIM) and a host of others. However, the European Central Bank (ECB 2010) cautioned that a good performance measurement framework should compass more aspect of the performance than just profitability embedded in pure market-oriented indicators and should be less prone to the manipulation from the market. Taken this caveat, this study will employ Return Equity on (ROE) as a metric of financial performance (dependent Variable) because it determines the extent of efficiency of the bank management in using shareholders investment. (Hassan and Bashir 2003).

Furthermore, corporate performance depends upon various factors such as efficient utilization of fixed assets, proper management of liquidity and judicious handling of investment opportunities etc. (Samuel 2011). Among these, efficient management of liquidity is of paramount importance in enhancing the overall corporate performance and profitability. It is therefore clear that, the role of liquidity in banks portfolio management cannot be over emphasized as liquidity essentially means the ability of banks to meet its financial obligation as they fall due (BIS 2008). The study therefore, will employ the following

liquidity measures: Cash Reserve Ratio (CRR), Liquidity Ratio (LR), Loan to Deposit Ratio (LDR) and Non-Performing Loan Ratio (NPL) as proxies of liquidity management (independent variables).

Liquidity ratio is the ratio of total specified liquid asset to total current asset. Liquidity ratios are ratio that reveals whether a bank is able to honour its short-term obligations. The current global trend where liquidity has become a constant source of anxiety to the financial sector has attracted the attention of many researchers. (Fadare 2011, Ajibike and Aremu 2015, Idowu Essien and Adegboyega 2017) found positive relationship between liquidity ratio and bank performance, while others like Kurawa and Abubakar (2014), Okaro and Nwakoby (2016) found a negative relationship between liquidity ratio and financial performance of commercial banks.

The issue of non-performing loan (NPL) is becoming a serious problem that impend the sustainability of the various commercial banks. The main reason for the challenge are diverse which is not constant across diverse literature, this assertion is supported by Mombo (2013), who also opined that, the deterioration of non-performing loan has been at the pivotal point of affairs causing bank's distress as well as economic crises in both developing and advanced economics.

1.1 Statement of the Problem

Globally, the banking industry occupies an important place in the financial system, through the financial intermediation role. The commercial banks reactivate the idle funds borrowed from the lenders by investigating such funds in different classes of portfolios. Such business activity of the banks for profit maximization can be recalled or demanded when the latter is not in position to meet their financial obligations. The need for a trade-off (that is, operating on profit and at the same time meeting the financial demands of its depositors by maintaining adequate liquidity) becomes important. (Mucheru, Shukla and Kiabachia, 2017).

Banks' performance in Nigeria as noted by Obamuyi, (2013) over the last decade remained unimpressive. The profit before tax (PBT) of the banks fluctuated, especially between 2002 and 2005, and has declined progressively since 2008. For instance, the profit before tax which was 80.8% in 2000 fell dramatically and recorded a loss of 13.95%. Although PBT peaked at 287.62% in 2007, it nose-dived to 49.14% in 2008 (Obamuyi, 2012); opportunities for banks in Nigeria to make profits are gradually reducing. The NDIC report 2016 indicated on a negative note that the commercial banks profitability indices declined in 2016. The commercial banks unaudited profit fell by 30.16% from ₦0.63% trillion as at 31st December, 2015 to ₦0.44% as at 31st December, 2016. Also, Non-interest income decreased by 32.60% to ₦0.17 trillion as at 31t December, 2016 from ₦0.28 trillion as at 31st December, 2016 from ₦1.44 trillion in 2015.

The commercial banks Return on assets (ROA) decreased from 2.34% in 2015 to 1.48% in 2016 while Return on Equity (ROE) fell from 19.78% in 2015 to 12.65% in 2016. Yield on Earning Assets also depreciated from 13.40% in 2015 to 3.51% in 2016. The declining profit trend necessitated this study.

The issues of non-performing loans have been one of the major concerns in Nigeria banking industry, which according to Soludo (2014) is one of the problems of unsound commercial banks in Nigeria. The main reasons of the challenge are diverse which is not constant across literatures, this assertion is supported by Mombo (2013) who also opined that the deterioration of non-performing loans has been at the pivotal point of affairs of causing bank's distress as well as economic crises in both developing and advanced economies. Example can be said of the 2008 global economic crisis. This study filled the gap by using non-performing loan as one of the liquidity measures in the Nigerian context owing to the difference in institutional settings and economy.

1.2 Objectives of the Study

The broad objective of this study is to determine the impact of bank liquidity management on the performance of commercial banks in Nigeria. The following specific objectives were designed:

(i)   To assess the impact of Loan to Deposit Ratio on the financial performance of Commercial Banks in Nigeria

(ii) To assess the impact of Cash Reserve Ratio on the financial performance on Commercial Banks in Nigeria

(iii) To identify the impact of Loan to Deposit Ratio on the financial performance of Commercial Banks in Nigeria

(iv) To assess the impact of liquidity ratio on the financial performance of commercial Banks in Nigeria

1.3 Research Hypotheses

The following null hypotheses are considered for the study:

$H0_1$: Non Performing Loans to Total Loans has no significant impact on the financial Performance of Commercial Banks in Nigeria

$H0_2$: Cash Reserve ratio has no significant impact on the financial performance of commercial banks in Nigeria

$H0_3$: Loan to Deposit Ratio has no significant impact on the performance of commercial banks in Nigeria

$H0_4$: Liquidity Ratio has no significant impact on the financial performance of commercial banks in Nigeria.

2. Review of Related Literature

2.1 Conceptual Review

Financial performance as a part of financial management is very crucial so it cannot be overemphasized. Financial performance is scientific evaluation of profitability and financial strength of any business concern. According to Allen and Rai (1996), financial performance can be defined as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. The performance measurement concept indicates that employees can increase the value of the firm by; increasing the size of a firm's future cash flows, by accelerating the receipt of those cash flows, or by making them more certain or less risky.

The researcher adopts or employs the definition of financial performance as given by the European Central Bank. According to the European Central Bank, bank's financial performance is the capacity to generate sustainable profitability which is essential for banks to maintain ongoing activity and for its investors to obtain fair returns; and crucial for supervisors, as it guarantees more resilient solvency ratios, even in the context of a riskier business environment (European Central Bank 2010).

Return on Equity (ROE) measures the efficiency of a firm at generating profits from each unit of shareholder equity, also known as net assets or assets minus liabilities. ROE shows how well a

company uses investments to generate earnings growth (Edem, 2017). Return on Equity is calculated as profit before tax/common stock. The emphasis is that shareholders are more concerned about how much the bank is earning on their equity investment.

Net income gives an idea of how well a bank is doing, but it suffers from one major drawback: it does not adjust for the bank's size, thereby making it difficult to compare how well one bank is doing relative to another. It is calculated by divining net income of the bank by the value of its assets. That is, profit before tax/total assets. ROA is a useful measure of how well a bank manager is doing on the job because it indicates how well a bank's assets are being used to generate profits. Brealey, Myers and Marcus, (2004) affirmed that manager often measure the performance of a firm by the ratio of net income to total assets, otherwise referred to as Return on Assets. Although ROA provides useful information about bank profitability, it is not the most important to equity holder.

Liquidity may be viewed as a measure of the relative amount of asset in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities, while liquid assets are composed of cash and bank balances, debtors and marketable securities; liquidity is the ability of a firm to meet all obligations without endangering its financial conditions (Olagunju, Adeyanju & Olabode, 2011). According to Agbada and Osuji (2013), bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing (short term) obligations. It is the bank's ability to immediately meet cash, cheques, other withdrawals obligations and legitimate new loan demand while abiding by existing reserve requirements.

Bhattacharyya and Sahoo (2011) argued that Liquidity management by central banks typically refers to the framework, set of instruments and the rules that the monetary authority follows in managing systemic liquidity, consistent with the ultimate goals of monetary policy. In this regard, central banks modulate liquidity conditions by varying both the level of short-term liquidity management is a key factor that helps sustain bank profits and concurrently keeps the banking institution and the financial system generally from illiquidity and perhaps, insolvency.

2.2 Liquidity Management and Commercial Banks Performance in Nigeria

In attempt to strike a balance between the quantum of liquidity and returns, professionals and scholars have made various efforts to provided a solution to the problem regarding the level of liquidity of hold. An optimal liquidity hypothesis holds that market responses to liquidity-changing events are conditioned by the observed changing levels of the firm's liquidity. There are many liquidity enhancing event or situations that impact on the firm's value: debt/equity issues, sales of assets and loans from interbank markets. The choice of any of these variables affects the level of liquidity. Therefore, the dilemma in liquidity management is to achieve desired tradeoff between liquidity and profitability. Profitability and liquidity are two important issues that management of each commercial unit should notice and, ace them into account as their most important duties. Liquidity status is very important for investors and managers as it helps to evaluate a firm's future, estimate investment risk and return and stock price. Some thinkers believe that liquidity is more important because firms with low profitability or even without profitability can serve economy more than companies without liquidity

3. Methodology

For the purpose of this study, the correlational research design was adopted to address the research problem. Correlational research design was considered as the most appropriate for this study because it allows for testing of relationships between or among variables and making of predictions regarding these relationships. The population of this study consisted of the eleven Commercial Banks in Nigeria

banking sector as at 31st December, 2018 (NSE, 2018) which included Zenith Bank, UBA, Guarantee Trust Bank, First Bank, Eco Bank, Union Bank, Stabic IBTC Bankm Heritage Bank, Access Bank, Standard Chartered and FCMB Bank. In order to achieve the research objectives, the study focused on selected Commercial Banks that enjoy first-tier listing on the Nigerian Stock Exchange (NSE). The sample size of this study comprises of 11 banks. Taro Yamene's formula was used for arriving at the figure. The study made use of purposive sampling technique. The data for this study were collected through secondary sources. All the dependent and independent factors were obtained from the CBN statistical bulletin and NDCI annual reports for the periods 2008 to 2018. The study analysed data using descriptive Statistics and regression model. The study adopted the model used in the work of Podilchuk (2014) as shown below in equation (i)

$$Y_{it} = \beta_o + \beta_l LI_{it} + \varepsilon_{it} \text{ -- (i)}$$

Where;

Y = Refers to Returns on Equity as proxy for financial performance of commercial banks;

β_o = is the intercept;

LI = is Represents explanatory variable (Liquidity indicators);

β = is coefficient and;

ε = represent the Error term.

The model was modified as shown below in equation (ii) to suit the best purpose of this study.

$$ROE_{it} = (NPLR, CRR, LDR, LR) \text{ --- (ii)}$$

Transforming Equation (ii) into an econometric model

$$ROE_{it} = \alpha + \beta_1 NPLR_{it} + \beta_2 CRR_{it} + \beta_3 LDR_{it} + \beta_4 LR_{it} + \varepsilon_{it} \text{ ------------------------------------ (iii)}$$

Where;

α = constant represent value of ROE when all others explanatory variables are held constant

B_1-β_4 = Coefficient of the explanatory variables

ε_{it} = error term of bank i at time t

ROE= Return on Equity as our dependent variable

NPL/TLR$_{it}$= Nonperforming Loan to Total loan ratio of bank i at time t, as our independent variable 1

CRR$_{it}$ = Cash Reserve Ratio of Bank i at time t, as our independent variable 2

LDR$_{it}$= Loan to Deposit Ratio of bank i at time t, as our independent variable 3

LR$_{it}$ = Liquidity Ratio at time t as our independent variable 4

4. Data Analysis and Results

This section presented the data obtained from the CBN statistics bulletin and NDIC annual report of various issues from 2008 to 2018.

Table 2. Data obtained from the CBN Statistics Bulletin and NDIC Annual Report

YEAR	ROE (%)	NPLR	CRR	LDR	LR
2008			22.5	80.9	44.3
2009	-64.72	32.8	22.5	85.7	30.7
2010	162.98	15.04	22.5	74.2	30.4
2011	150.4	18.9	8	74.2	42.0
2012	156.7	17.54	12	42.3	49.7
2013	161.6	16.53	12	38.0	63.2
2014	170.5	17.33	20	64.2	30.0
2015	171.4	11.98	20	69.6	30.0
2016	153.2	14.92	22.5	79.95	30.00
2017	100.5	14.84	22.5	45.56	30.00
2018	115.7	11.70	22.5	61.75	30.00

Source: CBN Statistical bulletin and NDIC Annual Report of various issues

Table 3. Summary of Descriptive Statistics

	ROE	NPLR	CRR	LDR	LR
Mean	0.0446622	0.722387	0.560455	0.2991845	0.815288
Median	0.0466495	0.733612	0.5897965	0.3205335	0.820923
Maximum	0.5376	0.746704	0.624417	0.443017	0.8302
Minimum	0.399025	0.67051	0.454817	0.36922	0.773772
Std. Dev	0.0048645	0.0219625	0.057404	0.122404	0.014064
Skewness	0.0240925	0.4976945	0.4976945	0.32057	0.907424
Kurtosis	0.837889	1.448717	4.056363	1.939947	2.931167
Jarque-Bera	1.776285	4.024841	4.106517	1.953899	21.800005
Probability	0.171555	0.017866	0.016465	0.141720	0.000000

Source: Researcher's Computation from E-views 9.5 output

Table 3 is showing the mean, median, standard deviation, maximum/minimum values, skewness and kurtosis. Then, the Jarque Bera values and their respective probabilities of the various variables were also displayed. Most of interest is the positive values of their skewness, which means that all the predictor variables are positively skewed. This is a prelude to what is expected of their impact on the dependent variable. From the jarque Bera results it is shown that three of the explanatory variables have a significant probability values, meaning that, at their individual level we fail to accept the null hypothesis of no normal distribution. Also, jointly, the probability value of the normality test is (0.000000) signifying that they are all normally distributed.

Table 4. Summary of Muticollinearity Test

Variable	VIF	1/VIF
NPLR	3.40	0.85183
CCR	3.90	0.256687
LDR	2.72	0.367465
LR	1.63	0.612067
Mean VIF	2.94	

Source: Researcher's computation from Eviews 9.5 version

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The issue of multicollinearity may arise if two or more variables were to be highly correlated, and it was tested by examination the Variance Inflation Factor (VIF). The result of VIF presented in the table 4.4 indicates that there is no existence of multicollinearity between the research explanatory variables given value of VIF for all the variables less than 5. Also the overall mean value of the variables obtained is between 1><5 and it can therefore be concluded that there is no problem of multicollinearity between the variables.

Table 5. Summary of Breush-Pagan-Godfrey result

Heteroskedasticity Test: Breusch-Pagan-Godfrey				Remarks
F-stat	0.45	P(F-stat)	0.9367	NSig*
Obs* R-squared	6.43	$P(X^2)$	0.6976	Nsig*

Source: Researcher's computation from Eviews 9.5 version

The summary result in Table 5 shows the F-statistics probability value of 0.9367 with a corresponding observed R-square probability value of 0.6976, both greater than the 5% level of significance. Hence, the study fails to reject the hypothesis of no heteroskedasticity. The results simply indicate that the data for analysis are all homoskedastic.

Table 6. Regression Result

Variables	Coefficient	Std. Error	t-statistics	Prob.
NPLR	-0.342881	0.1130242	-6.033218	0.0057
CRR	0.21749	0.084511	3.170500	0.0040
LDR	0.43520	0.01242	2.573511	0.0001
LR	0.164511	0.02332	7.054502	0.0153
C	0.11096	0.183877	0.063446	0.3401
$R^2 = 0.844609$	ADJ. R^2 = 0.815761	DW=2.004960	F-Stat = 11.255195	Prob. F-Stat = 0.00000

Source: Researcher's Computation from E-views 9.5 output

Table 6 summarizes the ordinary least square estimate of the regression. It shows the variables, their coefficients, standard errors, t-statistics and probability values. The table indicates that the current values of non-performing loans, cash reserve requirement, loan-to deposit ratio and liquidity ratio are significant with probability values of less than 5%. It also indicated that the model has an R^2 value of 84% with adjusted R^2 values of 82%, indicating that 82% of change in return on equity (predictor variable) can jointly be influenced by these explanatory variables. The F-statistics values of 11.25 with a corresponding probability value of 0.000000 shows that the model is fit. It shows that the aggregate effect of the explanatory variables on the explanatory variables on the explained or predictor variable is statistically significant. Also with a Durbin Watson (DW) value of 2.004969, it shows that the estimated model does not suffer any auto co-relational problem.

5. Discussion of Findings

Considering the broad objective of this study to examine the impact of bank liquidity management on the performance of Nigerian commercial banks, diagnostic and model fit tests were conducted at various times. The results of these various tests were accordingly presented earlier in this section. This subsection therefore discusses the general findings obtained from the Ordinary Least Square approach model with an OLS estimate method of analysis as shown in the Table 6 with respect to predictor variables and their estimated impact.

The coefficient of Non-performing Loans Ratio (NPLR) is -0.342881. This shows that non-performing loan ratio has negative impact on the financial performance in Nigerian commercial banks measured by return on equity. The result further reveal that a unit percent increase in non-performing loan ratio will bring about 34.3 percent decrease in return on equity holding all other factors constant. This finding is not in line with studies such as Tesfaye (2012). However, it is in connection with the work of Mwangi (2014) and Tafirei (2014) who asserted that non-performing loan ratio has negative relationship with financial performance of banks.

The coefficient of cash reserve ratio is 0.21749. This shows that cash reserve ratio has positive impact on the financial performance measured by return on equity. The result further reveals that a unit percent increase in cash reserve ratio will bring about 21.7 percent increases in return on equity.

Also, the coefficient of loan-to-deposit ratio is 0.43520. This shows that loan-to-deposit ratio has positive impact on the financial performance measured by return on equity. The result further reveals that a unit percent increase in loan-to-deposit ratio will bring about 43.5 percent increase in ROE. This finding is in connection with studies such as Fadare (2011), Alzorqan (2014) Bassey & Moses (2015) and Ayunku (2017).

Lastly, the coefficient of Liquidity ratio is 0.164511. This shows that Liquidity ratio has positive impact on the financial performance measured by ROE in Nigerian commercial banks. This result further reveals that a unit percent increase in Liquidity ratio will bring about 16.5 percent increase in the ROE of Nigerian commercial banks. This finding is in connection with the work of Fadare (2011).

6. Conclusion

From the study findings, empirical evidence of impact of bank liquidity management on the performance of commercial banks in Nigeria between 2008 to 2018 has been provided that non-performing loan ratio, cash reserve requirement, loan-to-deposit ratio and liquidity ratio positively impact financial performance of commercial banks in Nigeria

7. Recommendations

Based on the findings, the study recommends that:

1. Commercial banks should come up with strategies to reduce non-performing loans. These strategies should focus on collection of the already existing non-performing loans and strategies to reduce possible defaults in the future. In addition, the managers should revise the loan approval process of their banks so as to reduce the level of nonperforming loans in their banks.

2. Central bank of Nigeria which is the nation's apex bank should supervise and formulate policies that will encourage banks to improve on their intermediation functions. This can be achieve effectively when the cash reserve requirement is not too high so that financial institutions will have enough cash on their vault to reach the unbanked areas

3. Also, Bank managers should identify and monitor key business drivers (e.g. Loan and deposit margins) within the framework of analysis

4. Liquidity ratio positively influenced financial performance of commercial banks in Nigeria. the study recommended that commercial banks needed to increase their liquidity profile so that the issue of bank-run will not happen and this will thereby improve their stability over time.

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