Effect of Liquidity Management on Earnings per Share of Selected Deposit Money Banks in Nigeria (2004-2017)

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Abstract: - **The paper investigated effect of liquidity management on earnings per share (EPS) of selected deposit money banks (DMBs) in Nigeria from 2004 to 2017 with sample size of eleven (11) banks. Secondary data obtained from annual published financial statement of selected deposit money banks were used for the study.**

Ordinary Least Square (OLS) regression techniques were employed to analyze the data obtained. Results of the regression analysis shows that only current ratio has positive effects on earnings per share, while debt ratio and operating cashflow have negative effects. The study therefore concluded that liquidity management has significant effect on the earnings per share (EPS) of the selected deposit money banks in Nigeria. The study recommends that there should be implementation of policies to improve on the existing liquidity risk management policies of deposit money banks in Nigeria. Added to the recommendation above is that deposit money banks must engage in a creative search for liquidity investment opportunities not only for themselves, but also for their corporate customers.

I. INTRODUCTION

B anks need to be liquid in that it has to have money when needed to satisfy the withdrawal needs of the customers at a reduced cost (Nevine, 2013). Illiquidity may be a source of banks failure, and so to avoid insolvency, holding a considerable value of liquid assets with ease of transformation into cash becomes very prudent. Financial performance and liquidity are effective indicators of the corporate health and performance of not only the deposit money banks (DMBs), but all profit-oriented ventures (Eljelly, 2004). Banking institutions provide liquidity to individual investors, and government at a cost and attendant risks. The eventual success of these institutions lies in their ability to effectively manage liquidity and the attendant risks.

Banks are usually confronted with two central issues regarding liquidity. They are confronted with managing liquidity creation and liquidity risk. Liquidity creation helps banks to stay liquid, when other forms of financing become difficult. On the other hand, banks have to confront with and manage liquidity risk in order to ensure that they continue to perform their functions (Vossenand, 2010). Banks may likely face liquidity risk if they are not liquidating their assets at a reasonable price. This may result in losses and a significant reduction in earnings. Nevine (2013) pointed out that the risk inherent in liquidity is influenced by the timing of the flow of cash into the banking Institution.

Although, liquidity is related to financial performance, a performing bank can still find itself bankrupt if it fails to meet its obligations to short-term creditors. According to Jekinson (2008), liquidity risk could be dangerous to the growth of banking institutions if not properly handled, thereby posing serious threat to their survival and thus creating worries for stakeholders, that is, liquidity risk can change the reputation and performance of a financial institution; the consequence may cause loss of trust and confidence of banks customers.

According to Ejoh, Okpa and Egbe (2014) when a bank is liquid, it simply means that such a bank has assets that can easily be converted to cash and possesses the ability to raise funds from various sources to meet its payment obligations to customers. Given the necessity of the banking institutions to always be liquid, there is need for adequate arrangement or mechanism by which their liquidity is managed. In view of Ngwu (2006), liquidity management entails storing and raising sufficient funds to meet the cash demands or needs of loans applicants and cash depositors while maintaining public confidence.

One of the topmost aim of any bank is the enhancement of its financial performance. Profitability as a measure of financial performance is most commonly measured by accounting ratios like return on investment (ROI), return on assets (ROA), and return on equity (ROE) to mention but few in the corporate world, profitability is affected by liquidity and liquidity is related to the management of current assets and current liabilities of a banking institution. Liquidity management plays a key role in defining whether a bank is able to effectively manage its short term obligations. Since liquidity plays a vital role in determining the profitability of banks, it follows that a proper liquidity management ensures that a good trade-off is made between liquidity and profitability (Raheman & Nasir, 2007).

It is based on the discussion above that this study examined the relationship between liquidity and earnings per share (EPS) of selected deposit money banks (DMBs) in Nigeria from 2004 to 2017.

II. LITERATURE REVIEW

In this section, literature review is carried out under conceptual, theoretical and empirical review on related studies on liquidity and earnings per share which represented financial performance.

2.1 Conceptual Review

2.1.1 Liquidity Risk

Liquidity risk is the risk arising from a banks' inability to meet its obligations when they are due without incurring unacceptable losses. Liquidity risk is the possibility that over a specific time period, the bank will become unable to settle obligations with immediacy. It is a risk arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses. This risk can adversely affect both banks' earnings and the capital. Therefore, it becomes the top priority of a banks' management to ensure the availability of sufficient funds to meet future demands of providers and borrowers at reasonable costs (Eriki & Osifo, 2015). Liquidity refers to the ability of the bank to fulfil its obligations, mainly to depositors. According to Daniel (2017), adequate level of liquidity is positively related with bank profitability, thus, banks that maintain adequate levels of liquidity tend to be more profitable. The survival of deposit money banks depends greatly on how liquid they are since illiquidity being a sign of imminent distress, can easily erode the confidence of the public in the banking sector and results to deposit withdrawal.

2.1.2 Concept of Earnings per Share

This is an investment ratio or investors' stock market ratio. It is used by investors in the stock exchange to enable them compare alternative investments and make their investment decisions. It is the amount of current period earnings or profit (or loss) attributable to a unit of ordinary share. Earnings per share (EPS) is defined in this study as portion of profit after tax and preference dividend allocated to number of ordinary shares issued. It measures bank financial performance.

EPS (Olowe, 2017) =

Profit after interest, tax and minority interest

Issued ordinary shares ranking for dividend

According to Csand (2013), EPS is easy to use, even those who are not educated in finance can understand it.

Secondly, though it is only a very basic tool and method of evaluating the worth of the shares of a company, it can be used to make quick decisions.

2.2 Theoretical Review

2.2.1 Commercial Loan Theory

The commercial loan or the real bills doctrine theory states that a deposit money bank should forward only short-term self-liquidating productive loans to business organizations.

The theory also states that whenever deposit money banks make short term self-liquidating productive loans, the Central Bank should lend to the banks on the security of such short-term loans. This principle assures that the appropriate degree of liquidity for each bank and appropriate money supply for the whole economy. The assumption of commercial loan (Traditional) theory is that self-liquidating loan has three (3) roles: First, it automatically liquidates itself; Second, as it matures in the short run, if it is for productive purpose, there is no risk of it running to bad debts. Lastly, such loans increase productivity and earn income for the bank. One of the disadvantages of commercial loan theory is that it disregards the fact that the liquidity of a bank relies on the stability of its liquid assets and not on real trade bills.

2.2.2 Anticipate Income Theory of Liquidity

The doctrine of anticipated income theory as formalized by Herbert Procnow in 1949. This theory holds that a bank's liquidity can be managed through the proper phasing and structuring of the loan commitments made by a bank to the customers. Here the liquidity can be planned if the scheduled loan payments by a customer are based on the future of the borrower. According to Nzotta (1997), the theory emphasizes the earning potential and the credit worthiness of a borrower as the ultimate guarantee for ensuring adequate liquidity. Nwankwo (1991) posits that the theory points to the movement towards self-liquidating commitments by banks. This theory has encouraged many deposit banks to adopt a ladder effects in investment portfolio. This theory looks at loan portfolio as a source of liquidity. The anticipated income theory encouraged bankers to treat long-term loans as potential sources of liquidity.

2.2.3 Liquidity Preference Theory

This theory focuses on the asset side of the balance sheet and argues that banks must hold large amount of liquid assets against possible demand on payment cushion of readily marketable short-term liquid assets as against unforeseen circumstance (Ngwu, 2006). Bibow (2005) describes liquidity preference theory that people valued money for both "the transaction of current business and its use as a store of wealth". Thus, they will sacrifice the ability to earn interest on money that they want to spend in the present, and that they want to have it on hand as a precaution. On the other hand, when interest rates increase, they become willing to hold less money for these purposes in order to secure a profit.

2.2.4 The shiftability Theory of Liquidity

This theory posits that banks' liquidity is maintained if it holds assets that could be shifted or bold to other lenders or investors for cash. This point of view contends that banks' liquidity could be enhanced if it always has assets to sell and provided the Central Bank or the discount market stands ready to purchase the asset offered for discount. Thus, this theory recognizes and contends that shiftability, marketability or transferability of a banks' assets is a basis for ensuring

liquidity. This theory further contends that highly marketable security held by a bank is an excellent source of liquidity.

According to Nwakwo (1991), the theory argues that since banks can buy all the funds they need, there is no need to store liquidity on the asset side (Liability asset) of the balance sheet. Liquidity theory has been subjected to critical review by various authors. The general consensus is that during the period of distress, a bank may find it difficult to obtain the desired liquidity since the confidence of the market may have been seriously affected and credit worthiness would invariably be lacking. However, for a healthy bank, the liabilities (deposits, market funds and other creditors) constitute an important source of liquidity. The shiftability theory of liquidity replaced the commercial loan theory and was supplemented by doctrine of anticipated income.

2.2.5 Liability Management Theory

This theory stresses that maintaining liquid asset, liquid investments and so on by banks are of no essence, but banks have to focus on liabilities side of the balance sheet. According to this theory, banks can satisfy liquidity needs by borrowing in the money and capital markets. The fundermental contribution of this theory was to consider both sides of a banks' balance sheet as sources of liquidity (Devinaga, 2010). The theory posits that since banks can borrow and obtain funds from depositors and other creditors, they need not hold liquid assets. That is the liquidity needs are centered for by the borrowed funds. The setback with this theory is that in times of financial distress, the banks might not obtain the desired liquidity.

2.3 Emerical Review

Moein, Nayebzadeh and Pour (2013) investigated the relationship between modern liquidity indices and stock return in companies listed on Tehran Stock Exchange. Results indicated that there was a positive and significant relationship between comprehensive liquidity index and stock returns while there was no significant relationship between the index of cash conversion cycle as well as net liquidity balance and stock returns. Arif (2012) tested liquidity risk factors and assessed their impact on twenty two (22) of Pakistani banks during the period 2004-2009. Findings of the study indicated that there is a significant impact of liquidity risk factors on the bank's financial performance. Lartey, Antwi and Boadi (2013) sought to find out the relationship between liquidity risk and the financial performance of banks listed on the Ghana Stock Exchange. It was found that for the period 2005-2010, both the liquidity and the financial performance of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the financial performance of the listed banks in Ghana.

Sunny (2013) investigated the impact of liquidity management on the financial performance of banks in Nigeria. The study was necessitated by the need to find a solution to the liquidity management problem in Nigerian banking Industry. Three banks were randomly selected to represent the entire banking industry in Nigeria. The proxies for liquidity management include cash and short term fund, bank balances and treasury bills and certificates, while profit after tax was the proxy for profitability. Elliot Rothenberg Stock (EPS) stationery test model was used to test the run association of the variables under study while regression analysis was used to test hypothesis. The result of the study showed that liquidity management is indeed a crucial problem in the Nigerian banking industry.

Adebayo, Adeyanju and Olabode (2011) examined liquidity risk and deposit money banks' financial performance in Nigeria. Findings of this study indicated that there is significant relationship between liquidity risk and banks' financial performance. That means financial performance in deposit money banks is significantly influenced by liquidity.

Ibe (2013) examined the effect of liquidity management on the financial performance of banks in Nigeria. He founded that liquidity management is indeed a critical issue in the financial performance of banking sector in Nigeria.

III. METHODOLOGY

The main objective of this study was to examine the relationship between liquidity management and earnings per share of selected deposit money banks in Nigeria from 2004 to 2017. *Ex-post facto* research design was adopted in this study.

Secondary data obtained from annual published financial statement of eleven (11) selected deposit money banks and other relevant publications of Central Bank of Nigeria (CBN) and Nigerian Deposit Insurance Corporation (NDIC) were used for this study. Data used are valid as they had been scrutinized by the regulatory authorities.

Ordinary Least Square (OLS) regression techniques were employed to analyze the data. The panel data model is normally estimated with either the fixed effect model or random effect model to know the error component model.

Model Specification

The model to assess effect of liquidity management on earnings per share of selected deposit money banks in Nigeria are stated below:

EPS = f(CUR, DER, LDR, OCR)

Where

EPS – Earnings per share

CUR – Current ratio of selected banks

DER – Debt ratio of selected banks

LDR – Loans deposit ratio of selected banks

OCR – Operating cash flow

Mathematically.

$$EPS = \beta_0 + \beta_1\,CUR + \beta_2\,DER + \beta_3\,LDR + \beta_4\,OCR + \mu$$

IV. METHOD OF DATA ANALYSIS

In this section of the study, analyzed data are presented, interpreted and discussed using both descriptive and inferential statistics.

Table One Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
EPS	1.085	1.228	-0.908	6.03
CUR	1.384	0.252	0.828	2.916
LDR	0.599	0.194	0.139	1.064
OCR	4.799	42.097	-197.125	224.69
DBR	85.703	6.145	71.41	123.29

Observations: 154

Researchers' computation, 2019

Interpretation

Table 1 above shows the summary statistics of all the variables obtained from the sampled banks for the period of the study. The mean values stood at 1.085, 1.384, 0.599, 4.799 and 85.703 for EPS, CUR, LDR, OCR, and DBR respectively.

Standard deviation values stood at 1.228, 0.252, 0.194, 42.097, and 6.145 for EPS, CUR, LDR, OCR, and DBR respectively. The standard deviation shows the dispersion or spread in the value, the higher the deviation of the series from its mean.

Empirical Analysis

Table Two Regression Analysis for The Model

Variable	Coefficient	Std Error	t-Stat.	Prob
Constant	1.128	0.44	2.54	0.01**
CUR	0.83	0.09	9.13	0.00***
DBR	-0.01	0.00	-2.34	0.02**
LDR	-0.52	0.14	-3.82	0.00***
OCR	-0.003	0.00	-6.07	0.00***
R-squared	0.04			
Adjusted R-squared	0.01			
F-Statistic	328.22			
Prob.(F-Stat)	0.00***			
Diagnostic Tests	**Statistics**			0.93
Hausman test	0.84			0.00***
Multiplier test	250.69			0.19
Heteroskedasticity test	1.73			0.00***
Wooldridge test for autocorrelation	13.14			0.00***
Pesaran's test of cross sectional independence	6.27			

Dependent Variable: EPS; Obs: 154   *,**,***significant at 10%,5%,1%

Source: Researcher's Study, 2018

Interpretation of diagnostic tests

The result of the diagnostic tests in Table 2 shows the appropriateness of the regression estimate. Specifically, probability value of the hausman test stood at 0.93 which is higher than 10% level of significance, this implies that the null hypothesis to estimate random effect was accepted; as

such the model was tested for the appropriateness of random effect using the Breusch and Pagan Lagrangian multiplier test. The significance of the Breusch and Pagan Lagrangian multiplier test at 1% shows that random effect is appropriate for this model.

In addition, the Breusch-pagan heteroscedasticity test showed a p-value of 0.19, implying that the null hypothesis of constant variance was accepted and there is absence of heteroscedasticity. As such, predictions are based on their regression estimates will be unbiased and consistent. However, the Wooldridge test for autocorrelation has a probability value of 0.00 which implies that there is presence of first-order autocorrelation. This indicates that the residuals are correlated over time. Furthermore, the Pesaran's test of cross sectional independence shows that the residuals are cross sectionally correlated at 1% level of significance. Thus, due to the presence first-order auto-correlation and cross sectional dependence this model was estimated using the random effects Generalized Least Squares (GLS) Estimator.

Model

$$EPS = 1.128 + 0.83CUR - 0.01DBR - 0.52LDR - 0.003OCR$$

Interpretation

The result of the regression analysis in Table 2 shows the effect of Liquidity Risk measured by Current Ratio (CUR), Debt Ratio (DBR), Loan to Deposit Ratio (LDR), and Operating Cash flow Ratio (OCR) on Earnings per Share (EPS) of selected deposit money banks in Nigeria. The regression estimates revealed that only CUR has positive effects on EPS, while DBR, LDR, and OCR have negative effects. This is indicated by the signs of the coefficient, that is: $\beta_1 = 0.83 > 0$, $\beta_2 = -0.01 < 0$, $\beta_3 = -0.52 < 0$, $\beta_4 = -0.003 < 0$. Also, the probability values of the t-statistics for all independent variables were lower than 5% level of significance, which shows that these effects are statistically significant. This result is however inconsistent with a *priori* expectations as it was expected that liquidity risk measures of CUR and OCR have positives effects on EPS while DBR and LDR have negative effects on EPS.

The size of the coefficients of the independent variables shows that a 1 unit increase in CUR, DBR, LDR, and OCR will cause 0.83 unit increase, 0.01 unit decrease, 0.52 unit decrease, and 0.003 unit decrease in the mean of EPS. Additionally, the adjusted R-squared showed that about 1% variations in EPS can be attributed to CUR, DBR, LDR, and OCR, while the remaining 99% variations in EPS are caused by other factors not included in this model. Hence, the coefficient of determination shows that the model has a weak explanatory power. However, the probability value of the F-statistic stood at 0.00 which shows that the regression result is statistically significant at 1%. Thus, the null hypothesis that Liquidity risk has no significant effect on the Earnings per Share (EPS) in the selected deposit money banks in Nigeria is not accepted. Therefore, liquidity risk has significant effect on the Earnings per Share (EPS) in the selected deposit money banks in Nigeria.

Discussion of the findings

The result of the regression analysis of the model shows that only CUR has positive effect on EPS, while DBR, LDR, and OCR have negative effects. This is indicated by the signs of the coefficient, that is: $\beta_1 = 0.83 > 0$, $\beta_2 = -0.01 < 0$, $\beta_3 = -0.52 < 0$, $\beta_4 = -0.003 < 0$. Also, the probability values of the t-statistics for all independent variables were lower than 5% level of significance, which shows that these effects are statistically significant. This result is however inconsistent with a *priori* expectations as it was expected that liquidity risk measures of CUR and OCR have positives effects on EPS while DBR and LDR have negative effects on the Earnings per Share (EPS) in the selected deposit money banks in Nigeria. The probability value of the F-statistics stood at 0.00 which shows that the regression result is statistically significant at 1%. This shows that the regression results is statistically insignificant. Thus, Liquidity risk has significant effect on earnings per share (EPS) in the selected deposit money banks in Nigeria.

Since EPS is one of the measures of profitability, this result is consistent with the findings of Arif (2012) that liquidity risk measures have effect on profitability. However, the sign of this effect depends on the specific liquidity risk considered. The findings of this study show that only current ratio affects EPS positively, this is in line with the findings of Sanghani (2014). While this present study found that loan to deposit ratio, debt ratio, and operating cash flow ratio have negative effects on EPS, findings of Salim and Yadav (2012) suggests otherwise. Also, the composition of more of debt than equity in the capital structure has a negative impact on the EPS, this was also the conclusion of the study of Siddik, Kabiraj and Joghee (2017).

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study investigated relationship between liquidity management and earnings per share of selected deposit money banks in Nigeria. Results of the regression analysis shows that only CUR has positive effects on EPS, while DBR and OCR have negative effects. This is indicated by the signs of the coefficient.

Also, the probability values of the t-statistics for all independent variables were lower than 5% level of significance, which shows that these effects are statistically significant. Therefore, the study concluded that liquidity management has significant effect on the earnings per share (EPS) in the selected deposit money banks in Nigeria.

5.2 Recommendations

Based on the findings and conclusion of this study, the following recommendations are made;

1) There should be implementation of policies to improve on the already existing liquidity risk management policies of deposit money banks in Nigeria.
2) Deposit money banks must properly examine their present areas of business for both strategic and

tactical decisions and put their houses in order by correcting all identified areas of lapses and irregularities.

3) Banks should reduce the composition of debt in their capital structure so as to improve overall financial performance ratio of loan to deposits should be closely monitored so as not to hamper overall financial performance of the bank.

4) DMSs must engage in a creative search for liquid investment opportunities not only for themselves but also for their corporate customers.

5) Proper credit appraisal should be done before credit is granted to safeguard against bad lending which result in loss of assets, income which invariably affects their liquidity.

6) DMBs must strengthen their security and internal control system to prevent or reduce incidence of frauds and other forms of peculation with their attendant monetary losses and frustration of profit targeting efforts

7) Discount Houses in Nigeria should play key roles in liquidity management in the financial system. Discount Houses should be in a position to effectively underwrite government securities thereby relieving the Central Bank from such activity.

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LIST OF DEPOSIT MONEY BANKS USED FOR THE STUDY

1) First Bank of Nigeria PLC
2) Zenith Bank of Nigeria PLC
3) Guaranty Trust Bank PLC
4) United Bank for Africa (UBA) PLC
5) Access Bank PLC
6) First City Monument Bank PLC
7) Diamond Bank PLC
8) Fidelity Bank PLC
9) Ecobank PLC
10) WEMA Bank PLC
11) Unity Bank PLC