

Liquidity and Profitability of Listed Deposit Money Banks in Nigeria

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Abstract

Given the present global economic challenges, deposit money bank plays a vital role in economic development. This study examined the relationship between liquidity on profitability of listed deposit money banks in Nigeria, with a target population of 13 quoted deposit money banks in Nigeria as at 31st December 2022. judgmental sample has been used to arrive at 9 sample size. The study covered a period of 10 years from 2013 to 2022. the study applied Stata V14.2 and the estimation techniques are OLS ordinary least square and diagnostic test (multi-collinearity and heteroscedasticity test), the data obtained were analysed using descriptive statistics, multiple regression and correlation co-efficient. The study adopts return on asset, return on equity as dependent variable for profitability and current asset, cash ratio and free cash flow as the independent variables for liquidity with leverage and company size as the control variables. The study concludes that, there is significant relationship between liquidity on profitability of listed deposit money banks in Nigeria, the study recommends management of DMBs to employs appropriate policy and measure that will make DMBs to be self-liquidate and solely not depend on maximization of profit but also management of effective liquidity level.

Keywords: Liquidity, Profitability, Listed Deposit Money Banks, Nigeria.

1.0 Introduction

Over the years there has been numerous concerns about the value of a business that fueled research effort to investigate factors which affect profitability and liquidity of corporate organization. Liquidity is the ability of an asset to be converted into cash quickly and at low cost. It measures the ability of bank and its readiness to find cash and other means of fund that may need to meet demand of depositors/creditors. Profitability is the ability of an organisation to generate earnings, the rate or level of the earnings is determined by the liquidity. The soundness of a Country's financial system depends on a robust set of financial institutions and efficient financial markets to be financially sustainable. Financial sustainability is regarded as one of the cardinal challenges facing financial institutions (Musa, Hauwa, & Tanimu, 2023). However, a sound and profitable banking sector is said to be in a better position to when they contribute to the stability of the financial system which in turn leads to the stability of the economy. As such, institutions with robust and sound financial structures and stable incomes are the ones that can fulfill their missions (Okeke, Ezejiofor, & Okoye, 2021).

Profitability is critical to the growth and development of any economy and Nigeria is not an exception. Hence, good firm profitability results into achieving good standard of living, GDP, generating employment and among other things. Managers have the responsibility of making optimum investment decisions on behalf of the firm and ensuring the maximization of shareholders' wealth (Fatima & Sadiq, 2023). Therefore, a company debt consists of short-term long-term obligations that can only be settled with the availability of liquid assets. In addition, the concern of both investors and creditors is the ability of the business to generate profit and to satisfy both long- and short-term obligation when due. The ideal amount of liquidity that a firm must maintain in order to attain a specific level of profitability varies

across businesses for lack of sets rules that determines the optimal level of liquidity that a business must maintain (Alhassan & Islam 2021). The meaning of maintaining liquidity assets within the firm is the opportunity cost of earning profitability (Niresh, 2012). In order to maintain relative macro-economic stability, reliance is placed on liquidity management to even out the swings in liquidity growth in the banking system. The banks should ensure that it does not suffer from lack of or excess liquidity to meet its short-term compulsions. Liquidity problem may adversely affect the financial performance of a bank as well as its solvency. However, the problems of weak corporate governance, poor capital base, illiquidity and insolvency, poor asset quality and low earnings are some of the constraints faced by the banking sector in Nigeria. This study examines the position liquidity play in relation to the profitability of deposit money banks in Nigeria.

2.0 Literature Review and Hypotheses Development

This section reviews the empirical literature on the previous studies on the variable under investigation. Humaira et al. (2022) examines the effect of liquidity management on the profitability of Bangladesh banks. Secondary source of data from annual reports. Current ratio was found to have a positive impact on profitability of banks whereas capital adequacy ratio, interest rates was also found to be significantly for influencing bank performance. Mokuolu et al. (2021) examines the effect of liquidity management on profitability of deposit money banks in an emerging economy. Pooled least square (PLS) method and regression analysis. The study showed that there is an insignificant positive relationship. The study conclude that liquidity management variables are good determinants of the profitability of the sampled banks. Nyaga and Ehiedv (2014) examines the effect of liquidity on the profitability of the Ukrainian companies. Data from 2001-2010 by employing regression analysis, simple correlation test and probability sampling. Indicates that rapid and current ratios have positive significant result on profitability. The result show that there is a significant positive relation between current ratio and profitability and there is no major relationship between acid test ratio and profitability. Alalade, et al., (2020) used 11 food and beverage firms, results of the study showed a significant and positive effect of liquidity towards profitability, it also concluded that liquidity is the most significant factor of profitability and financial performance. Studies of Malik, et al., (2016). This is in line with Charmlet, et al., (2018) who concluded that liquidity ratios have positive and significant impact on profitability of banking industry. Their results indicate that liquidity is positively associated with return on assets using both measures of bank liquidity, and about return on equity, there is a weak positive relationship between the ratios of liquid assets to total assets.

Eze and Agu (2020). Examined the liquidity management & performance on deposit money banks in Nigeria, the descriptive statistics, regression analysis were adopted using the E-view 10.0 as instrument analysis. Current ratio showed statistical insignificant negative relationship with return on equity. Mesut Dogan (2013). Investigate how firm size affect the firm profitability, ROA has been used as indicator of firm profitability and total assets, total sales and number of employees have been used as indicators for size. Multiple regression and correlation methods was used in empirical analyses. The result of analysis indicates a positive relation between size indicators and profitability of firms.

Theoretical Framework

Several theories have been put forward which seeks to provide insight into the underlying relationship between liquidity and profitability of deposit money banks some of which are:

Anticipated income theory: The anticipated income theory was developed by Prochanow (1944), according to this theory regardless of the nature and character of a borrower's business, the bank

plans the liquidation of the term loan from the anticipated income of the borrower. A term loan is for period exceeding one year and extending to less than 5 years. Alasthi (2014) state that firms can deal with liquidity problem by giving advances through appropriate Techniques and then collecting these advances in time when they become due as well as Decreases, the reimbursement postponement at the due time. The theory is superior to shift ability and real bills doctrine because it fulfils the three objectives of liquidity, safety and profitability.

Liabilities management theory: The theory was developed in 1960s according to this theory, there is no need for banks to Grant self-liquidating loans and keep liquid asset because they can borrow reserve money in the money market in case of need. A bank can acquire reserves by creating additional liabilities against itself from different sources. These sources include the issuing of time certificate of deposit, borrowing from other commercial banks, borrowing from the central banks, raising of capital funds by issuing shares and by ploughing back of profit. Koch and Scott (2008) profound that liability management theory presents that banks Can satisfy their liquidity needs by borrowing in the money and capital market. what the Theory simply means is that banks can meet there liquidity requirement by bidding in Market for additional funds to meet loans demand and deposit withdrawal and they can Also borrow from each other banks through the interbank market.

This study adopt the shift ability theory based on the ancient liquidity management theory as it best explains the research work and focuses on the relationship between liquidity and profitability. The theory insisted that if the commercial banks (DMB) continue holding a substantial amount of asset that can be moved to other banks for cash without any loss of material It maintain that liquidity of a deposit money bank is guaranteed so far, the assets are held in short- term loans and will be liquidated in the ordinary operations (Basse & Moses, 2015; Falaye et al., 2019). This theory state that for An asset to be perfectly shift able, it must be directly transferable without any loss of Capital loss when there is need for liquidity.

3.0 Methodology

This study employs the ex-post factor research design, because of the fact that the study utilizes the annual report and accounts of sampled firms. The population of this study is made up of 13 deposit money banks quoted on the Nigerian Exchange Group as at 31 December 2022. A sample size of (9) banks were selected using a non-probability sampling technique from a population of 13 deposit money banks on the availability of data and listed within the period of the study as the basic criteria for selecting sample. The data was sourced through secondary method. And analysed with descriptive statistics, correlation and multiple linear regression. A robustness tests, multicollinearity and Heteroskedasticity test was conducted in order to improve the validity of all statistical inferences of the data through the use of STATA 14.2.

Variables of the Study

The variables of this study are; independent variable, dependent variable and control variables

Table 3.3: Variables and their Measurement

VARIABLES	PROXIES	MEASUREMENT	SOURCES
Dependent	Return on asset	Profit after tax divided by total asset	Zephaniah & joel (2020) Henry (2015) Mustapha (2017)
Independent	Cash ratio	Cash + cash equivalent divided current liabilities	Ross et al. (2013) Wachira, Gregory and Fred (2017)
Independent	Current ratio	Current asset divided by current liabilities	Robinson et al. (2015) Afolabi (2020)
Dependent	Return on equity	Profit before tax divided by shareholder equity multiply by 100	Raimi (2020) Maina & Kondongo (2013)
Independent	Free cash flow	Operating cash flow - cash flow from investing activities (capital expenditure	Poulsen (2013) Saheed (2018) Deborah (2020)
Control	Leverage	Total debts divided by total equity	Penman (2013) Olha, Viktoria & Roksolam (2018)
Control	Company size	Natural logarithm of total asset	Musah et al (2018) Hamid & Abubakar (2019)

Source: Literature review 2022.

Model Specification

The specified model is adopted from Ibe (2013), Heydari et al (2014) and Newbold (2013).

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + E_{it} \dots\dots\dots (1)$$

$$\text{And regression study is } p = f(\text{CR, FCF, LEV, CSHR, S}) \dots\dots\dots (2)$$

The above equation 2 will be substituted in equation 1

$$ROA_{it} = a + b_1CR_{it} + b_2FCF_{it} + b_3LEV_{it} + b_4CSHR_{it} + b_5CS_{it} + E_{it} \dots\dots\dots (3)$$

$$ROE_{it} = a + b_1CR_{it} + b_2FCF_{it} + b_3LEV_{it} + b_4CSHR_{it} + b_5CS_{it} + E_{it} \dots\dots\dots (4)$$

Where y =measure of financial performance

F=functional or dependency relationship

A=constant

T=time period

ROA_{it}= return on asset for the company I in period t

ROE_{it}= return on equity for the company I in period t

CR_{it}= current asset/current liabilities for the company I in period t

FCF_{it}=free cash flow for the company I in period t

LEV_{it}=total debt /total equity for the company I in period t

CSHR_{it}=cash +cash equivalents/current liabilities for the company I in period t

CS_{it}=logarithm of total assets for the company I in period t

I_t=firm year observation

E= error term.

4.0 Results and Discussion

This section presents the results of the analysis conducted on the data collected from the annual report and account of the listed DMB in Nigeria.

Descriptive Statistics

Table 4.1 shows the summary of the descriptive statistics of the study variables. The descriptive statistics include measures of central tendency such as the mean, standard deviation, minimum and maximum observations are the statistics presented in the table.

Table 4.1 Descriptive Result

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
ROA	90	1.111	3.538	-091	14.588
Return on equity	90	-.084	.459	-3.944	.941
Company size	90	7.590	1.489	5.427	9.958
Leverage	90	.6578	.706	-1.119	4.623
Free cash flow	90	2.87	1.67	-2.85	1.14
Cash ratio	90	.256	.303	-.164706	2.071
Current ratio	90	.828	.548	-.767	3.049

Source: Generated by the researcher using Stata 14.2.

From table 4.1 a total of 90 observation were recorded, the result shows that return on asset has an average mean value of 1.11% with a minimum and maximum values of -0.91 and 14.92 respectively. This signifies that there is no much variation in the profitability of sampled banks as portrayed by the standard deviation of 3.53, which simply means the sampled deposit money banks are within the same range in terms of profitability (return on asset). Return on equity has an average decrease of -0.83% and a standard deviation of 0.46 with a negative return of -3.94% and a maximum value of 0.94%. This simply means that some of the deposit money banks have faced losses during the years, while some recorded profits, definitely some shareholders of the few sampled firms had a gradual reduction in their return of equity investment.

Furthermore, company size as a control variable measured as the natural logarithm of total asset has an average value of 7.59%, a standard value of 1.49 and a minimum return of 5.43% and a maximum value 9.96%. This indicate that the deposit money banks is efficiently managed as it reap better economies of scale. Free cash flow has a mean value 2.86% and a standard deviation of 1.66 with a minimum negative return of -2.86% and maximum value of 1.13%. This denotes that heavy investment of few firms is incomparable to other firms as its F.C.F varied from negative to positive. Also, leverage as a control variable measured as debt-to-equity ratio has average value 0.66% and a standard deviation of 0.71 with a minimum negative return of -1.12 and a maximum value of 4.62%. This signifies that few of the sampled deposit money banks are been financed on debt than equity.

Finally, cash ratio has 25% mean value, standard deviation of 30% and a minimum decrease in return of -0.16% and maximum value of 2.07%, this implies that the sample firms were unable to settle their short term obligation as at when due using their cash balance. And current ratio has a mean value of 83% and a .55 standard deviations with a decreases in return of -77% and a value of 3.05%. this signifies that the

sampled firms have 55% return on their asset but has decrease return of -77 that is few of the banks could not manage their asset and unable to settle their short term debt as at when due.

Correlation Co-efficient of the Variable

Table 4.2 will provide insight into how the independent variables of current ratio, cash ratio, and free cash flow including leverage and company size are related to dependent variable of return of asset and return on equity.

Table 4.2: Correlation Result

	ROA	ROE	C.SIZE	LEV	FCF	C.R	CSH.R
ROA	1.0000						
ROE	0.0099	1.0000					
C.SIZE	-0.2822	0.0010	1.0000				
LEV	0.1636	0.0890	0.1439	1.0000			
FCF	-0.0533	0.0692	0.2597	0.0557	1.0000		
C.R	-0.1439	0.2642	-0.1912	-0.0571	0.0181	1.0000	
CSR	0.0050	-0.1463	-0.4750	-0.1622	-0.0574	0.3083	1.0000

Source: Generated by the researcher using Stata 14.2.

Using Pearson moment correlation statistics. The correlation result shows that return on asset (ROA) has a significant negative relationship (-0.02822, -0.0533 and -0.1439) with company size, free cash flow and current ratio. While return on asset was found to have a positive relationship (0.0099, 0.1636 and 0.0050) with return on equity, leverage and cash ratio. This is in line with Ehiedu (2014) and Gambo and Muslimat (2022) but contradict Mohammed, Najib (2019). It also shows that return on equity (ROE) has a negative relationship (-0.1463) with cash ratio but has positive relationship with (0.0010, 0.0890, 0.0692 and 0.2642) with company size, leverage, free cash flow and current ratio. This in line with the work of Mohammed, Humaira and Samiul (2022) but contradict Nobanee and Jaya (2017) and contradicts the findings of Kenneth, Ibrahim & Vincent, (2023)

Table 4.3 indicates no evidence of multi-collinearity among independent variable of the study because none of them have VIF greater than 10. The result of the VIF shows the maximum VIF value of 1.49 and a minimum value of 1.04, while the maximum tolerance co-efficient of 0.961400 and a minimum tolerance value of 0.671042. Hence, the data collated has no multi collinearity problem.

Multiple Regression

Table 4.4: ROA linear regression result

ROA	Co-eff	Std.err	T	P>/t/	95%conf.	interval
CSR	-1.121	1.388	-0.811	0.418	-3.862	1.620
C.R	-1.164	-677	-1.721	0.089	-2.510	.182
FCF	7.99e-10	2.21e-09	0.36	0.718	-359e-09	5.19e-09
LEV	.949	-507	1.911	0.060	-.040	1.976
C.SIZE	-.949	.279	-3.391	0.01	-1.506	-.393
CONS	8.910	2.398	3.711	0.00	4.140	13.680

Source: Generated by the researcher using Stata 14.2.

Observation=90, F (5,84)=3.39, Prob> f=0.0077, R-squared=0.1679. Adjusted R-squared=0.1184, Root mse=3.3199

Table 4.4 shows that the R^2 value is 0.17 signifies that 17% of the total variations on the performance of the quoted deposit money banks in Nigeria over the period of study is caused by explanatory variables, while the 83% of the variations is explained by other factors not covered by the study. also given the F-statistics of 3.39 and a prob>f of 0.077 it indicates 95% level of confidence and a 5% level of significance that is, the model is fit and has a good predictive power as shown in the table above. In respect to the measure of liquidity, cash ratio and current ratio and has a weak negative effect on profitability of return on asset. As cash ratio has a p-value of 0.418 which is below the critical value 0.05 and a t value of -0.81 co efficient of -1.120638, that is cash ratio has a significant negative effect on return on asset and current ratio has a negative significant effect on return on asset with a p-value of 0.089. So therefore the null hypothesis that states that cash ratio, current ratio and company size has no significant effect on ROA is accepted. This is in line with the study of Durrah, Abdulrahman, Jamil and Ghafeer (2016).

Furthermore, free cash flow has a beta value of 7.99 and a p value of 0.718 which is less than the critical threshold of 0.05 with t value of 0.36 this signifies that is positively, strong and significant has relationship on profitability on deposit money banks (Return on asset) in Nigeria. This also implies that for every one naira increase in investment of FCF there is increases in return of asset of DMBs at 8 naira. This provides the evidence of rejecting null hypothesis of one of the study, which state that FCF has no significant relationship on firm profitability in DMBs this is in line with the work of Rajapaksha and Weerawickrama (2020).

Finally, leverage has a beta value of 0.967 at a t-value of 1.91 and a p value of 0.060 .it indicates a significant positive influence on the profitability of return on asset, therefore the null hypothesis that state leverage has no significant influence on profitability is rejected. This is in line with Moses & John2014 but contradicts Alhassan, Yakubu and Bashiru (2021). The result translated to the formulated models as: $ROA: 8.910266 - 1.120638 \text{ CASH.R} - 1.164293 \text{ CR} + 7.99e-10 \text{ FCF} + .9679162 \text{ LEV} - .9495562 \text{ CSIZE}$.

Table 4.5: ROE OLS regression result

ROE	Co-eff	Std err	T	P>/t/	95% conf	interval
CSH.R	-.424	.181	-2.331	0.022	-.785	-.0628038
C.R	.280	.089	3.140	0.002	.102	.458
FCF	1.88e-10	2.91e-10	0.65	0.521	-3.92e-10	7.68e-10
LEV	.047	0.668	0.710	0.481	-.085	.7803392
CSIZE	-.029	0.369	-0.800	0.426	-.102	.0438955
CONS	.147	.316	0.460	0.643	-.482	.776

Source: Generated by researcher using Stata 14.2

Observation= 90, $F(5,84) = 2.74$, $\text{Prob}>F = 0.0240$, $R\text{-squared} = 0.1404$, $\text{Adj r-squared} = 0.0893$, $\text{Root mse} = .43796$

Table 4.5 result shows that R^2 is 0.14 and adjusted R is 0.089 shows that the variable combined determines about 14% and adjusted R is 09% of return on equity, the f-statistics and its probability shows that the regression equation is well formulated explaining the relationship between liquidity on profitability of listed deposit money banks in Nigeria.

Cash ratio, company size has a negative significantly effect on profitability of return on equity with the co-efficient of -.4243 and -.02952 and t value of -2.33 and -0.80 and a p value of 0.022 and 0.426 respectively as their probability value is less than 0.05. This indicates that for every one percent increase in cash ratio

and company size it might have inverse negative effect on return on equity. This contradicts the findings of Eze and Agu (2020) and in line with Humaira, Rashid, Mohammed and Uddin (2022).

Free cash flow has a beta value of 1.88 with a p-value of 0.521 and a t-value 0.65 it means free cash flow has a significantly positive relationship with return on equity. And leverage has a positive significant influence on return on equity having a beta value of 0.047 and a p-value of 0.48 and t-value 0.71. Lastly current ratio coefficient of 0.28 has a t-value of 3.14 with a p-value of 0.002 it has a significant positive effect on return on equity. This implies that increases in cash ratio, free cash flow and leverage will affect the return on the equity holders of the deposit money banks.

The Breusch-Pagan / Cook-Weisberg test for heteroscedasticity for ROE and ROA $\chi^2(1)$ is 307.72 and 63.98 respectively, and p-value for both profitability ratio is 0.0000. Therefore, the null hypothesis is rejected as the p-value is below the threshold of 0.01, 0.05 and 0.10. Since the value is less than 0.05, we reject the null hypothesis and conclude that heteroscedasticity is present in the data which indicates no constant variance.

5.0 Conclusion and Recommendations

Leverage has a significant positive relationship with return on asset, which indicates that the management of deposit money banks were able to control their borrowings and debt and properly capitalize on their resultant opportunities. It also has a significant positive relationship with return on equity. It signifies that the equity holders of the deposit money banks had a higher return as their capital rate is higher than the debt. Cash ratio and company size has a significant negative effect on return on asset, this implies that an increase or decrease will not influence cash ratio and company size. It also has a significant negative influence on return on equity this entails that increase or decrease may have an inverse influence on the return on equity investment. Current ratio has significant negative effect on return on asset as this implies that few deposit money banks could not meet up with their short term obligation. The free cash flow has a significant positive relationship on return on asset and return on equity. This signifies that the sampled deposit money banks had an increase in liquid asset and also return dividend to its shareholders.

Based on the conclusion, the study recommends that: Management of deposit money banks should put in place appropriate policy and compliance measure to put liquidity requirement in check as management of liquidity would enhance increase in profitability. Central bank of Nigeria should put in place a general framework such as the commercial loan theory as measure for liquidity as this will make deposit money banks to be self-liquidate and control their borrowing as well as provision of unexpected withdrawals demands of the customers. Since deposit money banks survival depends on liquidity and profitability, they should not depend only on maximization of profits but also ensure there is effective liquidity level. However, company size has a negative influence on banks profitability. Cash ratio and current ratio has a negative effect on banks profitability, the study recommends management should unnecessarily holding up of surplus cash as this will impact negatively on the profitability. Lastly, management of DMBs should be extra careful when it comes to extra free cash flow and investment decision, by managing free cash flow and having a proper investment analysis in order to avoid unnecessary taking of risk and unprofitable investment.

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