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BANK LIQUIDITY AND PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

There have been divergent views on the impact of corporate liquidity on profitability of firms and this was a stimulant to this study in order to find out the reality. The main objective of the paper is to examine the impact of liquidity on profitability of listed Deposit Money Banks in Nigeria for the period 2005-2014. The study used ex-post factor and correlational research designs. The population of the study was the 17 listed Deposit Money Banks in Nigeria as at 2014 and a sample size of 9 banks was obtained using Yaro Yamane adjusted formula. Secondary data was collected from audited annual reports and accounts of the 9 banks used. The study used panel multiple linear regression and correlation as techniques of data analysis. It was found that corporate liquidity has positively, strongly, and significantly influenced the profitability

of listed Deposit Money Banks in Nigeria during the study period. The study concludes that liquidity plays a crucial role in increasing the profitability of listed Deposit Money Banks in Nigeria because it assists in the survival and growth of the banks. It is recommended that the management of listed Deposit Money Banks in Nigeria should adhere strictly to CBN directives on liquidity ratio for maintaining a prevailing percentage of their total customers' deposit as liquidity as this would assist them in achieving their short-term objectives and prevent the tied up of capital.

Keywords: *Liquidity, LATOTA, Current Ratio, Cash Ratio, Profitability and Deposit Money Banks*

1.1 Introduction

One of the major source of concern for business managers is business financing all over the world especially at the wake of the global financial crisis as bank loans are becoming too expensive as a result of tightening of both the local and the international financial markets and reluctance of the public to invest in the share of companies' sequel to the crash of the capital market. This stimulates business managers to device various strategies of managing internally generated revenue to improve their probability of making profit and meeting up with existing shareholders' expectation (Bashir, Farouk & Shehu, 2013).

Financial liquidity together with profitability are the core categories of enterprise activities which, in order to function efficiently, the company should treat as equally important. The growth of financial liquidity may negatively influence the company profitability. If the company is too liquid in the static sense, then it will affect negatively the profitability since some capital will be frozen in current assets (Ajanthan, 2013). Excessive liquidity reduces the profitability of a firm through accumulation of wealth that do not bring back any profit for the firm (Muhammad & Abubakar, 2014).Liquidity hikes tough safeguards the default risk but trussing valuable funds in an unproductive segment directly injures the profitability (Asif & Atif, 2015). The success of the company is usually as a result of its profits earned, keeping the liquidity prospects in view. In reality, it is a difficult task to trade-off between the liquidity and profitability, as the conservative policy of working capital may ensure sound liquidity but endangers the profitability (Reddy, 2015).

Loan and advances had been over decades the source of banks profitability. The banking sector plays an important role in the economic growth of a country. This

is made through matching surplus economic units with deficit economic units. However, this fundamental role of banks in the maturity transformation of short term deposits into long term loans make banks inherently vulnerable to liquidity risk, both that of an institution specific nature and that which affects markets as a whole. This is due to the fact that loans are regarded as the most profitable service yet the riskiest service provided by banks (Berger & Bouwman, 2006; and Melese & Laximi, 2015). Loan- deposit ratio is a useful instrument to determine bank liquidity, and by extension, it influences the profitability of the banks. The bank profit is based on the interest charged against the deposits; it means the profit is generated through the positive difference between interest of loans and interest on deposits (Rengasamy, 2014).

Current ratio directly affects the results of a company's business. As a consequence, it assists in reaching the primary objective of a company within the concept of value based management which implies maximization of shareholder value (Garanina & Petrova, 2015). 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 (Owolabi, Obiakor & Okwu, 2011). Liquidity management generally cut across the management of two main components such as the current assets (made up of the cash, debtors/receivables, short term loans and others) and current liabilities (made up of deposits and other payables). Each short term finance source however, has its own cost which determining the source of finance has implications on profitability. This suggests that liquidity cannot be considered separately without considering profitability (Babajide & Kingsley, 2013).

Cash ratio has over time played a vital role in the profitability of banks across countries. Cash ratio of a bank tells the ability of the bank to meet it cash needs as at when due especially cash withdrawal and this affect the profitability of the bank in the sense that, if an optimal cash ratio is kept that enables the bank to operate efficiently when it comes to cash needs and this will make bank's customers satisfied and in turn continue to patronize it businesses and this will have an effect on it profitability. Availability of cash on daily basis is one of those factors that keeps banking operations moving smoothly. Without cash on ground customers would not be able to make cash withdrawal even though there are other means in which customers can make withdrawal but here the research considers cash withdrawal and also when it comes to granting loan, without cash it won't be possible. Therefore, a bank needs adequate cash ratio at all times for it to be liquid and increase its chance of generating more profit.

There has been an argument on the relationship between corporate liquidity and profitability because of its importance to corporate existence and growth in which, the subject continue to attract the attention of both corporate financial managers, practitioners and academicians. This study is expected to make some contributions both theoretically and practically. Theoretically, the findings of this study are expected to validate trade-off theory of liquidity and anticipated income theory. In practice, banks may not operate and survive without liquidity. The banking consolidation of 2005 in Nigeria has led so many banks to merged and be acquired in order to meet up with the 25 billion capital base. Despite been merged and acquired, these banks continue to face liquidity and profitability problems which in turn continue to make them acquire one another, recently Skye bank acquired Mainstreet bank in 2015.

The Central Bank of Nigeria (CBN) on 3rd August, 2015 gave a directive for banks to publish the names of their debtors that have not paid them the principal and interest attached to the amount loaned out to them as at when due. Therefore, this study intends to examined the impact of corporate liquidity on profitability of listed Deposit Money Banks in Nigeria in order to find out whether the issue of liquidity and profitability trade-off led these banks to continue acquiring one another and also whether these debtors that have not paid back their obligations affect the banks' liquidity which in turn make them to continue failing. It is against the preceding background that the study wants to conduct this research in order to find out whether corporate liquidity has an impact on profitability and how this affects the Nigerian banking sector.

Due to the loss of confidence by the public in the banking sector as a result of distressed banks which has affected the banking sector in previous years and the competition due to emergence of modern generation banks, each deposit money bank in Nigeria has to make sure it operates on profit and also maintain sufficient liquidity in order to meet the financial needs of its customers. The issue then is how to select the optimum level at which a deposit money bank can maintain its assets in order to optimize both liquidity and profitability since liquidity has a different effect on the level of profitability. Therefore, it was against the foregoing statement that the study was stimulated to assess the effect of liquidity on profitability of firms.

The main objective of the study is to examine the relationship between corporate liquidity and profitability of listed deposit money banks (DMBs) in Nigeria. Other specific objectives of the study are:

i. To examine the impact of latota on profitability of listed deposit money banks in Nigeria.
ii. To determine how current ratio affect profitability of listed deposit money banks in Nigeria.
iii. To find out the relationship between cash ratio and profitability of listed deposit money banks in Nigeria.

In line with the objectives of the study, the following hypotheses have been formulated:

$H0_1$: There is no significant impact between latota and profitability of listed deposit money banks in Nigeria.
$H0_2$: There is no significant impact between current ratio and profitability of listed deposit money banks in Nigeria.
$H0_3$: There is no significant relationship between cash ratio and profitability of listed deposit money banks in Nigeria.

This study will assist the managers of banks and policy makers in ascertaining the level of liquidity to keep continuing surviving and increasing profitability. It would also assist investors to identify the liquidity and profitability position of banks so as to avoid loss on their investments. Finally, the research will be of great significance to academic researchers in proving the correctness or otherwise of previous researches conducted on the same area and it would give them room to conduct further research on the subject matter.

2.1 Literature Review and Theoretical Framework

Liquidity is a financial term that means the amount of capital that is available for investment. Today, most of this capital is credit, not cash. Bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations. It is the bank's ability to immediately meet cash, cheque and other withdrawal obligations and legitimate new loan demands while abiding by existing reserve requirements (Muhammad & Abubakar, 2014).

Khan and Ali (2016) studied the impact of liquidity on profitability of commercial banks in Pakistan from 2008-2014. The main objective of the study was to find

the nature of relationship and the strength of relationship that exists between the variables of the study (current ratio, quick ratio, gross profit margin and net profit margin). Secondary source of data was used where data were extracted from annual accounts and reports of Habib Bank Limited. The data were analyzed using correlation and regression analysis. It was found that there is significant positive relationship between liquidity and profitability of the banks. It was however concluded that, liquidity has positive relationship with profitability, and has considerable impact on the profitability of commercial banks in Pakistan. However, the study was not aligned with any theory and there are no robustness tests that were conducted.

Sharma (2016) madea comparative study of profitability and liquidity between Hindustan unilever limited (HUL) and dabur India. The main objective of the study was to analyze the liquidity and profitability of two leading Fast-Moving Consumer Goods (FMCG) companies in India – HUL Ltd and Dabur India. Secondary data was used which was analyzed using regression analysis. It was found that, liquidity and profitability of Dabur India Ltd. is satisfactory and is enjoying its continuous growth in the sector whereas, in HUL Ltd. profitability position is satisfactory but liquidity position is not up to the mark level. From the study it was concluded that, in Dabur India Ltd. there is significant difference in the liquidity and profitability position of the company whereas in HUL Ltd. there is no significant difference in the liquidity and profitability position of the company, the profitability was strong whereas, the liquidity position was not satisfactory. The study did not conduct validity and reliability tests.

Ahmad (2016) studied the relationship between liquidity and profitability of Standard Chartered Bank Pakistan from 2004-2013. The main objective of the study was to examine the relationship between profitability and liquidity. The study used secondary data which were extracted from the annual accounts and reports of Standard Chartered Bank of Pakistan. The data extracted were analyzed using correlation analysis. The study found that a weak positive relationship exists between liquidity and profitability. However, the researcher concluded that that there is a positive relation between profitability and liquidity. The study was not aligned with a theory and there are no robustness tests that are carried out.

Malik, Awais, and Khursheed (2016) studied the impact of liquidity on profitability of Pakistan's private banking sector from 2009-2013. The main objective of the study was to find the impact of liquidity on profitability. The study used secondary data which was extracted from annual accounts and reports of Pakistan's private banks. The data extracted was analyzed using multiple regression (ordinary least square regression). The study found that there is

statistically significant relationship between liquidity measures and return on assets. The researchers concluded that a negative relationship exists between profitability ratio and liquidity ratio and sometimes a weak positive relationship may exist between the two ratios. The researchers failed to conduct robustness tests for validity and reliability of the statistical inferences derived from the study. Vintila and Alexandra (2016) studied liquidity and profitability analysis on the Romanian listed companies from 2005 to 2014. The main objective of the study was to identify the relationship between liquidity and corporate financial performance. The study used secondary source of data and the data was analyzed using multivariate unbalanced panel regression. It was found that there is statistically significant relationship between the analyzed variables (ROA, ROE, quick ratio, current ratio, total debt/equity ratio, total assets/equity ratio, cash conversion cycle, working capital/sales growth ratio and effective tax rate) and revealed a negative correlation between liquidity and corporate financial performance. It was concluded that decrease of liquidity level is not perceived as a risk factor for the Romanian companies and a statistically significant relationship exist between liquidity and profitability.

Ahmad (2016) studied how does liquidity and solvency affect profitability of listed banks in Jordan from 2012-2014. The main objective of the study was to examine the impact of liquidity on banks profitability. The study used secondary data which was extracted from annual accounts and reports of the banks. The data was analyzed using simple regression. The study found that liquidity has a negative significant impact on profitability while solvency has an insignificant impact on profitability. It was concluded that increase in the liquidity of a bank will posed a decrease in its profitability.

Chandra, Masud, Rahman and Kumar (2015) studied liquidity management and profitability analysis of private commercial banks in Bangladesh from 2011-2013. The main objective of the study was to embody the liquidity management scenario of private commercial banks in Bangladesh along with profitability analysis. The study used both primary and secondary data where the primary data was collected through interview and the secondary data was extracted from annual accounts and reports. The data were analyzed using correlation, regression analyses and f-distribution and t-distribution. The study found that excess liquidity reduces the profitability of private commercial banks of Bangladesh. It was concluded that proper liquidity management can increase the profitability of the Banks if other factors move positively.

Asif, Atif and Azad (2015) explored liquidity-profitability nexus of 26 mudaraba companies operating in Pakistan from 2006-2012. The main objective of the study was to empirically test the relationship between liquidity and profitability. Secondary data was used which was analyzed using descriptive statistics, Pearson correlation, multiple regression. It was found that profitability of Mudaraba companies operating in Pakistan has not been significantly influenced by liquidity

indicators, only Current Assets to Current Liabilities (CATCL) has a significant control over ROA and Long Term Investment to Total Assets (LTITTA) has strong positive and significant impact on ROE. The researchers concluded that profitability of Mudaraba companies operating in Pakistan has not been significantly influenced by liquidity indicators, only CATCL has a significant control over ROA and LTITTA has strong positive and significant impact on ROE.

Melese and Laximi (2015) conducted a study on the determinants of banks liquidity on Ethiopian commercial banks from 2007-2013. The main objective of the study was to assess bank specific factors that affect liquidity of Ethiopian commercial banks. Secondary data was used where it was extracted from annual accounts and reports of the banks and the data was analyzed using multiple regression (balanced panel fixed effect regression). It was found that capital adequacy and profitability have statistically significant impacts on liquidity of Ethiopian commercial banks while bank size has positive and statistically significant impact on liquidity. Nonperforming loan and loan growth were found to be statistically insignificant/ has no any impact on liquidity of Ethiopian commercial banks for the tested period. The researchers concluded that the variables of the study (capital adequacy, nonperforming loan, bank size, profitability and loan growth) affect the liquidity of Ethiopian commercial banks.

Asian (2015) studied the assessment of the impact of liquidity and profitability ratios on growth of profits in pharmaceutical firms in Nigeria from 2011-2013. The main objective of the study was to assess the impact of liquidity and profitability ratios on growth of profits in Pharmaceutical firms in Nigeria. Eight ratios: acid test, current ratio, net working Capital. Return on assets, returns on capital employed, returns on equity, gross profit ratio and net profit ratio were regressed against the dependent variable growth of profit. Secondary data was used which was extracted from audited annual accounts and reports of the pharmaceutical companies. The data was analyzed using multiple regression. It was found that there is significant contributions of all the variables to profit growth of pharmaceutical companies in Nigeria implying that continued improvement in the variables can lead to increases in growth of profit by the Pharmaceutical firms. The study concluded that level of liquidity in pharmaceutical firms influences the extent of profitability and firms' growth.

Reddy (2015) studied the trade-off between liquidity and profitability on TATA Steel ltd from 2010-2014. The main objective of the study was to find out the relationship between liquidity and profitability. Secondary data was used which was analyzed using Spearman's Rank Correlation analysis and t-test. It was found that there is a negative relationship between liquidity and profitability. However, the study concluded that the profitability of the company would increase, if it decrease its liquidity and vice-versa. However, the researcher did not conduct robustness tests to improve the reliability of the findings in the study.

Rajitha and Babu (2015) studied liquidity and profitability position with reference to ITL Pvt. Ltd from 2010-2014. The main objective of the study was to evaluate the liquidity, the profitability position of the company using financial ratios. The study used secondary data which was extracted from annual accounts and reports of the company and the data was analyzed using Karl Pearson's coefficient of correlation. The study found that the networking capital position of the company was not satisfactory. However, it was concluded that the net working capital position of the company is not effectively utilized in the day to day financial operations.

Ajibike and Aremu (2015) studied the impact of liquidity on Nigerian bank performance from 2004-2012. The main objective of the study was to examine the impact of bank liquidity on their performance using a sample of 13 listed banks listed on the Nigerian Stock Exchange. Secondary data was used which was extracted from audited annual accounts and reports of the banks. The data was analyzed using Generalized Method of Moments. It was found that there is a positive relationship between liquidity and the banks performance. The study concluded that the banks liquidity, size of the board and debt structure are significant determinants of banks performance in Nigeria.

Khidmat and Rehman (2014) studied the impact of liquidity & solvency on profitability of chemical sector of Pakistan for the 2001-2009. The main objective of the study was to examine the liquidity and solvency in listed chemical companies of Pakistan. Secondary data was used which was analyzed using correlation and regression analysis. The study found that liquidity ratio has a positive impact on performance. It was concluded that liquidity has high positive effect over Return on Assets of sector. The study failed to conduct some robustness tests in order to improve the validity of the statistical inferences. The period they studied ends at 2009, therefore, this study will extend it to 2015.

Rasheed (2014) studied the impact of liquidity, leverage, inflation on firm profitability, an empirical analysis of food sector of Pakistan from 2006-2011. The study investigated the collision of leverage, liquidity and inflation on firm's profitability of the food industries of Pakistan. The population of the study was foodstuff sector companies in Pakistan. The researcher used secondary source of data which was extracted from published annual accounts and reports of the selected companies and correlation and regression analyses were used to analyze the data. It was found that, liquidity ratios are insignificantly related with return on asset and return on equity. Debt ratios are negatively associated with return on assets and return on sales. Profitability ratios are positively associative with return on assets and return on equity. The research concluded that there's a negative relationship between changing control leverage, liquidity, inflation and also the firm's earning (profitability). The period of the study ends at 2011, therefore, this study will extend its period to 2015.

Hossein, Hasanzadeh and Mahshid (2014) inspected the effectiveness of liquidity risk on banks profitability from 2005-2011. The main objective of the study was to provide an objective, actual, and systematic description about the characteristics of a situation or an issue, identify the relationship between liquidity and profitability and the causes of an event. Secondary data was used which was analyzed using dynamic panel data model, a four-step econometric model and Generalized Moment Model (GMM) linear forecasting model. It was found that there is an inverse and significant relation between this relative liquidity gap ratio and the ratios of ROE and ROA. However, it was concluded that there is a significant relation between non-performing loan ratios, liquidity ratios, liquidity gap ratio, capital ratio, bank size and the profitability ones (ROA and ROE).

Also, Afia and Khaled (2014) examined the relationship between liquidity and profitability (return on assets) in Bangladesh Banking Industry for the period 2006-2011. They have considered twelve banks in four different sectors (Government banks, Islamic banks, multinational banks and private commercial banks). They tried to figure out how much liquidity of a bank can explain its profitability. Secondary source of data was used and the researchers ran linear regression to find out the extent of relationship between bank's liquidity and profitability. Individually all the sectors show no significant relationship between liquidity and profitability. Even the overall banking industry shows the same result. They considered year just before recession (2006) to post-recession (2011). They showed graphically how liquidity and profitability of these sectors varied over last couple of years. Government banks showed variable liquidity, while other sectors were steady. But, there were much fluctuations in profitability in between these times in all the sectors. Finally, they concluded that based on their sample and category, there is no significant relationship between liquidity and profitability in banks of different sectors in Bangladesh. The numbers of years that the study covered is considered to be too small and it supposed to be extended to 2014. Also, the researchers were bias in joining government banks, Islamic banks, multinational and private banks in the same research because the nature of their transactions differs.

Justyna (2013) studied impact of liquidity on profitability of polish listed IT companies from 2003-2011. The main objective of the study was to recognize the liquidity impact on profitability in polish listed IT companies. Secondary source of data was used where data was extracted from published annual accounts and reports of the companies selected. Pearson correlation and regression analysis were used to analyze the data. It was found that, the empirical research over the liquidity impact on profitability in polish listed IT companies proved the existence of statistically significant relationship between liquidity and profitability. However, the researcher concluded that the influence of liquidity on profitability

was in some cases delayed. The period of the study ends at 2011 and this study intends to extend it to 2015.

In another view, Victor, Samuel and Eric (2013) studied the relationship between liquidity and profitability of listed banks in Ghana. The study aimed to find out the relationship between the liquidity and the profitability of banks listed on the Ghana Stock Exchange. Seven out of the nine listed banks were involved in the study. It adopted the longitudinal time dimension, specifically, the panel method. Document analysis was the main research procedure adopted to collect secondary data for the study. The financial reports of the seven listed banks were studied and relevant liquidity and profitability ratios were computed. The trend in liquidity and profitability were determined by the use of time series analysis. The main liquidity ratio was regressed on the profitability ratio. It was found that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana. It was concluded that both the liquidity and the profitability levels of the listed banks were decreasing within the period 2005-2010. There was a weak positive relationship between the liquidity and the profitability of the listed banks. The study has not been underpinned with any theory.

On the other hand, Bashir, Farouk and Shehu (2013) examined the impact of cash ratio on the performance of listed manufacturing firms in Nigeria for the period of 2008-2012. The population of the study was the entire listed manufacturing firms in Nigerian Stock Exchange from which five (5) represented the sample size of the study using systematic sampling techniques. The study adopted multiple regression technique and data were extracted from secondary source through the audited annual reports and accounts of the selected firms. The findings revealed that cash ratio was positively, strongly and significantly contributing to the performance of listed manufacturing firms in Nigeria. It was concluded that cash ratio has really and strongly impacted on the performance of quoted manufacturing companies in Nigeria. The sample of the study is considered to be too small out of the whole population.

The trade-off theory suggests that business organizations should maintain a sufficient level of liquidity to balance the cost and benefit of holding cash. The benefit is that companies can use the liquid assets to invest and also finance its operations and then transaction costs are saved. The cost may include tax disadvantage and lower rate of return on the assets. The variable loan and advances to total assets is based on anticipated income theory which was developed in 1945 by H. V Prochnow and presented in his book named “Term Loan and Theories of Bank Liquidity”. A theory that posits the timing of loan payment should be tied to the timing of a borrower’s expected income. This theory postulates that a bank’s liquidity can be managed through the proper arrangement and structuring of the loan commitments made by a bank to the

customers. Here, liquidity can be planned if the scheduled loan redemption by customers is based on the future of the individual borrower. The theory lays more emphases on the earning potential and the credit worthiness of a borrower as the greatest guarantee for ensuring adequate liquidity. This theory has encouraged many deposit money banks to adopt an advanced collection of investment (Odunayo, & Oluwafeyisayo, 2015). Therefore, this study is aligned to trade-off theory and anticipated income theory because trade off theory suggests that firms target an optimal level of liquidity to balance the cost and benefit of holding cash and this is anchored with current ratio and cash ratio while anticipated income theory suggests that banks can have a continuous source of liquidity by giving out loans and advances and this theory is anchored with the variable LATOTA.

3.1 Materials and Methods

This research adopts quantitative approach and it belongs to positivism research paradigm. The study adopts ex-post factor research design. The population of this study comprises of all the seventeen (17) listed deposit money banks in Nigeria as at 2014. The researcher used 9 banks as the sample of the study using Taro Yamane adjusted sample size formula and systematic sampling technique was used in selecting the banks. Secondary data is used for the purpose of the study and it was extracted from the audited annual accounts and reports of the listed deposit money banks in Nigeria selected. The data extracted was analyzed with Ordinary Least Square (OLS) regression and correlation using Stata.

Table 3.1: Variable Measurement

Variables	Measurement
Return on Assets	Profit before interest and tax divided by total assets of the banks x 100
Loan and Advances to Total Asset	Loan and advances divided by total assets of the banks
Current Ratio	Current assets divided by current liabilities
Cash Ratio	Cash and cash equivalent divided by current liabilities
Firm Size	Total assets measured by natural logarithm
Leverage	Total liabilities divided by total assets x 100

Robustness Test

A multicollinearity test was conducted. The standard is that, the variance inflation factor (VIF) should be less than 10.00 and greater than 1.00 while the tolerance values should be less than 1.00. These two (VIF and tolerance values) are good measures for testing collinearity between the regressors. The test result indicates that tolerance values were consistently less than 1.00 while VIF values were also consistently greater than 1 and less than 10 which implies that there is absence of multicollinearity in the predictor variables. A Shapiro-wilk w test for normal data

was conducted and the result signifies that all the variables were significant at 1%. Fixed and random effect regressions were conducted simultaneously and the hausman test suggests random effect regression and this led the researcher to conduct Breusch and Pagan Lagrangian multiplier test for random effects where the result suggests that OLS regression should be used. Also, the researcher conducted a test for heteroskedasticity after running the OLS regression and the result shows the absence of heteroskedasticity.

In order to examine the influence of corporate liquidity on profitability of listed deposit money banks in Nigeria, the following multiple linear regression model has been specified:

$$ROA_{it}=\alpha + \beta_1 LATOTA_{it} + \beta_2 CR_{it} + \beta_3 CSHR_{it} + \beta_4 LEV_{it} + \beta_5 FS_{it} + \varepsilon_{it}$$

Where:

ROA= Return on Asset
α= Constant
β_1-β_5= Coefficient of the Independent variables
LATOTA= Loan and Advances to Total Asset
CR= Current Ratio
CSHR= Cash Ratio
LEV= Leverage
FS= Firm Size
ε= Error term
i= Bank
t= Time

4.1 Results and Discussion

This section of the study will present the descriptive statistics and regression results of the study and the discussion of the findings follows.

Table 4.1: Descriptive Statistics

	Min.	Max.	Mean	Standard deviation	Variance	Skewness	Kurtosis
ROA	-8.74	10.64	1.6362	2.1112	4.4570	-1.0738	12.9445
LATOTA	0.13	0.80	0.4580	0.1523	0.0232	-0.5137	2.6325
CR	0.68	2.79	1.2253	0.3328	0.1107	2.4680	10.1874
CSHR	0.02	0.96	0.4037	0.2135	0.0456	0.5515	2.4323
LEV	0.31	0.98	0.7952	0.1485	0.0221	-1.8082	5.6345
FS	10.17	21.37	16.8789	3.1981	10.2276	-0.1729	1.6657

Source: Output from STATA

The descriptive statistics in table 4.1 shows the mean value of 1.6362 for Return on Assets of banks, while LATOTA has a mean value of 0.4580, Current Ratio and Cash Ratio has a mean value of 1.2253 and 0.4037 respectively within the

period of the study. The minimum value of ROA is -8.74 and its maximum value is 10.64, the minimum value for LATOTA is 0.13 and its maximum stood at 0.80, while current ratio and cash ratio have a minimum value of 0.68, 0.02 and maximum value of 2.79 and 0.96 respectively. Among the explanatory variables, current ratio has the highest standard deviation which implies that it has the smallest contribution to the explained variable. LATOTA has the lowest standard deviation and it shows that it has the highest contribution to the dependent variable. The Skewness values were all close to 0 and 1 except for CR which shows higher than normal. Also, the kurtosis values were all close to 0 and 3 except for ROA, CR which show higher than normal. The data is considered to be normally distributed and the regression result has been validated using the 2 normality test.

Table 4.2: Correlation Matrix

Variables	ROA	LATOTA	CR	CSHR	LEV	FS
ROA	1					
LATOTA	0.2378 *	1				
CR	-0.5803 **	-0.2482 *	1			
CSHR	0.2813 **	-0.1115	-0.1286	1		
LEV	-0.0859	-0.0945	-0.1114	-0.1080	1	
FS	0.2999 **	-0.2702*	-0.2514*	0.0731	0.0550	1

Source: Output from Stata 11.2

**. Correlation is significant at the 0.01 level (2-tailed),*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.2 shows the relationship between the regressand and regressors and also the association between the regressors themselves. The table shows that LATOTA is positively related to profitability (proxied with ROA) at 5% level of significance, CR is negatively associated with ROA at 1% level of significance, while CSHR is positively associated with ROA at 1% level of significance. LATOTA is negatively associated with CR at 5% significance level, also CSHR is negatively associated with LATOTA. CR is negatively associated with CSHR. The relationship between the explanatory variables is sufficient except for 2 variables that have an insignificant relationship.

Table 4.3: Summary of Regression Result

Variable	Coefficient	t-values	P-values	Tolerance	VIF	Model Summary
Constant	1.71	0.79	0.43			
LATOTA	2.78	2.20	0.03	0.79	1.27	
CR	-2.90	-5.02	0.00	0.79	1.27	

CSHR	2.14	2.60	0.01	0.94	1.06	
LEV	-1.52	-1.29	0.20	0.95	1.05	
FS	0.15	2.57	0.01	0.82	1.22	
R^2						0.4517
Adjusted R^2						0.4191
F-Statistics						13.84
F-Significant						0.0000

Source: Output from STATA

The model is therefore estimated as:
$ROA=1.7084 + 2.7772(LATOTA_{it}) – 2.8993(CR_{it}) + 2.1418(CSHR_{it}) – 1.5220(LEV_{it}) + 0.1513(FS_{it}) + 1.609$

LATOTA and Profitability
The regression result in table 4.3 shows that LATOTA is having a coefficient of 2.78 with a t-value of 2.20 and significance value of 0.03. This signifies that LATOTA is positively, strongly and significantly influencing the profitability of listed deposit money banks in Nigeria which signifies that giving out loan and advances by listed deposit money banks in Nigeria increases their profitability. The result implies that for every one naira increase to the amount give out as loan and advances, the profitability of the Nigerian deposit money banks increases by 2 naira 78kobo. The result is not surprising as it within the researcher prior expectation. However, the outcome of the result may be as a result of maximum collection of loan and advances by customers in order to run their household or business activities. The result is also in line with the reality that individuals and corporation have a variety of needs they need money to execute these needs therefore due scarcity of resources they go for loan as that will assist them in achieving their financial goals and satisfying their financial needs. Therefore, by giving out the loans since interest is attached to it, the loan attracts profit to the banks. The policy implication derivable from this finding, therefore is, the management of deposit money banks in Nigeria is to place a high emphasis and consideration on the loan and advance when coming with decisions related to liquidity since loan and advances increases their profitability. The result produced an evidence of rejecting hypothesis 1 of the study which states that 'there is no significant impact between LATOTA and the profitability of listed deposit money banks in Nigeria'. The finding is in line with the findings of Godwin and Moses (2015) and contrary to the finding of Mohamed (2015), Muhammad and Abubakar (2014), the difference might be due to the increased in the sample of this study.

Current Ratio and Profitability
From table 4.3 above, current ratio has a coefficient value of -2.90 with t-value of -5.02 and significant value of 0.00. This signifies that current ratio has statistically

negatively, strongly and significantly impacted on the profitability of listed deposit money banks in Nigeria. This signifies that for every 1% increase in current ratio the profitability of listed deposit money banks in Nigeria will decrease by 2 naira and 90 kobo. The result is not surprising as it is within the researcher's prior expectation. However, the result may be as a result of too much tied up capital as a result of too much current assets. The result is in line with trade-off theory that firm should maintain an optimal level of liquidity to balance the cost and benefit of holding cash. The result is also in line with reality that when too much current assets are purchased that will lead to tied up of capital because they won't be yielding any return at the time of their custody. The policy implication derivable from this finding is that the management of listed deposit money banks in Nigeria are to place a high emphasis and consideration on the current ratio when coming up with decisions related with liquidity. Since current ratio decreases profitability of deposit money banks in Nigeria, therefore, the banks should not put much on current ratio so as to increase profitability. The result provides an evidence of rejecting hypothesis 2 of the study which states that 'there is no significant impact between current ratio and the profitability of listed deposit money banks in Nigeria'. The finding is in line with the findings of Godwin and Moses (2015), Bashir et al (2013), Babajide and Kingsley (2013), Sandar and Janglani (2013) and contrary with the findings of Ismail (2016) and Ehiedu (2014).

Cash Ratio and Profitability

The regression result in table 4.3 shows that cash ratio has a beta coefficient of 2.14 with a t-value of 2.60 which is significant at 0.01 (1%). This signifies that cash ratio is positively, strongly and significantly affecting the profitability of listed deposit money banks in Nigeria. This implies that for every 1% increase in the cash ratio of the banks their profitability will increase by 2 naira 14 kobo approximately. The result is in line with the prior expectation of the researcher. However, the result may be as a result of the banks having enough cash to meet their customers obligations as at when due like deposit withdrawal, maturity of term deposit and others because will definitely motivate the customers to continue patronizing the banks and this will lead to an increase in their profitability because they would accumulate much fund. The policy implication derivable from this result is therefore, the management of listed deposit money banks in Nigeria are to place a high emphasis and consideration on the cash ratio when coming up with decisions related to liquidity. Since cash ratio increases the profitability of listed deposit money banks in Nigeria, therefore, the banks should maintain adequate cash ratio. The result produced an evidence of rejecting hypothesis 3 of this study which states that 'there is no significant relationship between cash ratio and profitability of listed deposit money banks in Nigeria'. The finding is in line with the finding of Bashir, Musa and Shehu (2013) and contrary to the finding of Godwin and Moses (2015).

Cumulatively, the regression table 4.3 shows that R^2 value is 0.4517 (45.17%) and the adjusted R^2 value is 0.4191 (42% approximately) which signifies that, the independent variable (proxied with LATOTA, current ratio, cash ratio) of the study have explained the total variation in profitability of listed deposit money banks in Nigeria of up to 42% and the remaining 58% is covered by other factors which proved the fitness of the model. The F statistics of 13.84 which is significant at 1% (0.000) confirms that the model is well fitted, thus, the variables of the study are well selected and properly utilized. The cumulative finding that corporate liquidity has positively, strongly and statistically affected the profitability of listed deposit money banks in Nigeria is in line with findings of Khan and Ali (2016), Ahmed (2016), Ajibike and Aremu (2015), Rasheed (2014), Khidmat and Rehman (2014), Bashir et al (2013), Adebayo, Olanrewaju and Oluwayinka (2011) and contrary to Ahmad (2016), Reddy (2015), Muhammad and Abubakar (2014), Afia and Mahmud (2014), Babajide and Kingsley (2013), Aloy (2012) where they found that negative relationship exist between liquidity and profitability.

5.1 Conclusions and Recommendations

This section presents the researchers' conclusions based on the findings of the study and recommendations based on the conclusions of the study.The study examined the relationship and impact of corporate liquidity on the profitability of listed deposit money banks and it was found that LATOTA and cash ratio have played a vital role on increasing the profitability of banks while current ratio plays a negative role on the profitability of the banks by keeping idle current assets at a particular period of time when they are not in need as it decreases the profitability of the banks. In line with the findings of the study, the researcher concludes that liquidity plays a vital role on the profitability of deposit money banks in Nigeria and contributes a lot to the profitability of deposit money banks in Nigeria, therefore, a strong relationship/association exist between corporate liquidity and its profitability.

Based on the findings and conclusions of the study, it is recommended that, the management of listed deposit money banks in Nigeria should adhere strictly to CBN directives on liquidity for maintaining a prevailing percentage of their total customers' deposit as liquidity as this would assist them in achieving their short-term objectives and prevent the tied up of capital but the percentage depends on the prevailing percentage given by the CBN at a particular period of time. They should give out a very secured loan because it improves their profitability and the management of the banks should ensure that they maintain a cash ratio that would enable them to settle their liabilities and execute their daily activities while at the same time meeting their employees and customers financial obligations, the amount of cash ratio to be maintain by the banks management depends on their cash needs, therefore, the amount to be maintain should not be less than the banks' average monthly cash need since cash ratio also increases the profitability of deposit money banks. The management of deposit money banks in Nigeria

should maintain at most 2:1 as their current ratio to enable them settle their short term liabilities because based on the findings of this study current ratio reduces the profitability of the banks, therefore, the level of current assets to be maintain should not be high. The researcher also recommends that, academic researchers should conduct a further study on the subject matter in order to make a contribution on the literatures about the subject matter in existence especially in validating the outcomes of various studies that were conducted.

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Appendices

```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
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Notes:
      1.  (/m# option or -set memory-) 50.00 MB allocated to data
      2.  (/v# option or -set maxvar-) 5000 maximum variables

. edit

. *(8 variables, 90 observations pasted into data editor)

. swilk roa latota cr cshr lev fs

                    Shapiro-Wilk W test for normal data

    Variable |   Obs        W           V          z       Prob>z
-------------+--------------------------------------------------
         roa |    90    0.78577     16.204      6.143     0.00000
      latota |    90    0.95389      3.488      2.755     0.00293
          cr |    90    0.72503     20.799      6.694     0.00000
        cshr |    90    0.94613      4.075      3.098     0.00097
         lev |    90    0.76967     17.422      6.303     0.00000
          fs |    90    0.92575      5.616      3.806     0.00007

. summarize roa latota cr cshr lev fs

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         roa |         90    1.636151    2.111169      -8.74      10.64
      latota |         90   .4580461   .1523216       .1293      .7975
          cr |         90    1.225264   .3327754       .6819     2.7893
        cshr |         90   .4036972    .213489         .02       .9643
         lev |         90   .7951824   .1484943   .3097538   .9787656
-------------+--------------------------------------------------------
          fs |         90   16.87888   3.198064   10.16578   21.36741

. summarize roa latota cr cshr lev fs, detail

                            ROA
-------------------------------------------------------------
      Percentiles      Smallest
 1%        -8.74          -8.74
 5%        -1.29          -5.85
10%         .1484         -3.203       Obs                  90
25%        1.1622          -1.95       Sum of Wgt.          90

50%        1.8602                      Mean           1.636151
                        Largest        Std. Dev.      2.111169
75%        2.4508          4.4921
90%       3.20135          4.5845      Variance       4.457033
95%        4.1019          5.2622      Skewness      -1.073839
99%         10.64           10.64      Kurtosis       12.9445

                           LATOTA
-------------------------------------------------------------
      Percentiles      Smallest
 1%         .1293          .1293
 5%          .155          .1379
10%        .21875         .14064       Obs                  90
25%         .3712         .14072       Sum of Wgt.          90

50%         .50505                     Mean           .4580461
                        Largest        Std. Dev.      .1523216
75%         .5538          .6922
90%        .628015          .706       Variance       .0232019
95%         .64173         .7135       Skewness      -.5137094
99%         .7975          .7975       Kurtosis       2.632458

                             CR
-------------------------------------------------------------
      Percentiles      Smallest
 1%         .6819          .6819
 5%         .8679          .8056
10%         .9921          .8119       Obs                  90
25%        1.0618          .8304       Sum of Wgt.          90

50%        1.15415                     Mean           1.225264
                        Largest        Std. Dev.      .3327754
75%         1.2528         2.2407
90%        1.48465         2.2694      Variance       .1107395
95%          2.118         2.3263      Skewness       2.467974
99%         2.7893         2.7893      Kurtosis       10.18742
```

CSHR

Percentiles	Smallest		
1% .02	.02		
5% .1141	.0735		
10% .1759	.0743	Obs	90
25% .2247	.0963	Sum of Wgt.	90
50% .34295		Mean	.4036972
	Largest	Std. Dev.	.213489
75% .5957	.7659		
90% .7066	.8316	Variance	.0455776
95% .7465	.9235	Skewness	.5514567
99% .9643	.9643	Kurtosis	2.432298

LEV

Percentiles	Smallest		
1% .3097538	.3097538		
5% .417004	.3137255		
10% .5552206	.3376594	Obs	90
25% .789463	.4039092	Sum of Wgt.	90
50% .8357742		Mean	.7951824
	Largest	Std. Dev.	.1484943
75% .8864241	.9431504		
90% .9136656	.944057	Variance	.0220506
95% .9305225	.9526122	Skewness	-1.80819
99% .9787656	.9787656	Kurtosis	5.634462

FS

Percentiles	Smallest		
1% 10.16578	10.16578		
5% 12.17211	10.53588		
10% 12.90926	11.12215	Obs	90
25% 14.0971	11.79125	Sum of Wgt.	90
50% 17.26045		Mean	16.87888
	Largest	Std. Dev.	3.198064
75% 19.98589	21.20589		
90% 20.7843	21.2562	Variance	10.22761
95% 21.20589	21.36741	Skewness	-.1728534
99% 21.36741	21.36741	Kurtosis	1.665677

```
. correlate roa latota cr cshr lev fs
(obs=90)
```

	roa	latota	cr	cshr	lev	fs
roa	1.0000					
latota	0.2378	1.0000				
cr	-0.5803	-0.2482	1.0000			
cshr	0.2813	-0.1115	-0.1286	1.0000		
lev	-0.0859	-0.0945	-0.1114	-0.1080	1.0000	
fs	0.2999	-0.2702	-0.2514	0.0731	0.0550	1.0000

```
. xtset bank year
       panel variable:  bank (strongly balanced)
        time variable:  year, 2005 to 2014
                delta:  1 unit
```

```
. xtreg roa latota cr cshr lev fs, fe

Fixed-effects (within) regression               Number of obs      =        90
Group variable: bank                            Number of groups   =         9

R-sq:  within  = 0.4881                         Obs per group: min =        10
       between = 0.2015                                        avg =      10.0
       overall = 0.4411                                        max =        10

                                                F(5,76)            =     14.49
corr(u_i, Xb)  = -0.1815                        Prob > F           =    0.0000

------------------------------------------------------------------------------
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      latota |    2.290925   1.361173     1.68   0.096    -.4200867    5.001936
          cr |   -2.894058   .6184522    -4.68   0.000    -4.125813   -1.662304
        cshr |    2.412914   .8781413     2.75   0.007     .6639438    4.161884
         lev |   -2.498526   1.427759    -1.75   0.084    -5.342154     .345102
          fs |    .2023731   .0993851     2.04   0.045     .0044304    .4003157
       _cons |    1.729654   2.572267     0.67   0.503     -3.39346    6.852769
-------------+----------------------------------------------------------------
     sigma_u |    .7136383
     sigma_e |   1.5488607
         rho |    .17511555   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(8, 76) =     1.83                 Prob > F = 0.0838

. est store fe
```

```
. xtreg roa latota cr cshr lev fs, re

Random-effects GLS regression                   Number of obs      =        90
Group variable: bank                            Number of groups   =         9

R-sq:  within  = 0.4870                         Obs per group: min =        10
       between = 0.2242                                        avg =      10.0
       overall = 0.4485                                        max =        10

                                                Wald chi2(5)       =     76.29
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
latota	2.497981	1.279536	1.95	0.051	-.0098643	5.005826
cr	-2.933415	.5778624	-5.08	0.000	-4.066004	-1.800825
cshr	2.35862	.8285915	2.85	0.004	.7346107	3.98263
lev	-2.112225	1.295584	-1.63	0.103	-4.651523	.427074
fs	.1724288	.0768121	2.24	0.025	.0218798	.3229778
_cons	1.903199	2.311928	0.82	0.410	-2.628097	6.434496
sigma_u	.83506183					
sigma_e	1.5488607					
rho	.22521357	(fraction of variance due to u_i)				

```
. est store re

. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
latota	2.290925	2.497981	-.2070563	.4643051
cr	-2.894058	-2.933415	.0393565	.2203592
cshr	2.412914	2.35862	.0542935	.2908061
lev	-2.498526	-2.112225	-.3863013	.5999635
fs	.2023731	.1724288	.0299443	.0630658

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =        0.77
            Prob>chi2 =      0.9789

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        roa[bank,t] = Xb + u[bank] + e[bank,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+-----------------------------
                     roa |    4.457033       2.111169
                       e |    2.398969       1.548861
                       u |    .6973283       .8350618

        Test:   Var(u) = 0
                                 chibar2(01) =     1.28
                              Prob > chibar2 =   0.1292
```

```
. reg roa latota cr cshr lev fs
```

Source	SS	df	MS	Number of obs =	90
Model	179.178554	5	35.8357108	F(5, 84) =	13.84
Residual	217.497409	84	2.58925487	Prob > F =	0.0000
				R-squared =	0.4517
Total	396.675963	89	4.45703329	Adj R-squared =	0.4191
				Root MSE =	1.6091

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
latota	2.777191	1.262812	2.20	0.031	.2659517	5.28843
cr	-2.899304	.5773959	-5.02	0.000	-4.047519	-1.751089
cshr	2.141796	.8236607	2.60	0.011	.5038559	3.779735
lev	-1.522047	1.178082	-1.29	0.200	-3.864793	.8206995
fs	.1512988	.0589518	2.57	0.012	.0340667	.2685309
_cons	1.708396	2.16278	0.79	0.432	-2.592529	6.009321

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of roa

         chi2(1)      =     2.86
         Prob > chi2  =   0.0908
```

```
. vif
```

Variable	VIF	1/VIF
latota	1.27	0.786293
cr	1.27	0.788016
fs	1.22	0.818495
cshr	1.06	0.940886
lev	1.05	0.950635
Mean VIF	1.18	