

# “Performance of deposit money banks and liquidity management in Nigeria”

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# PERFORMANCE OF DEPOSIT MONEY BANKS AND LIQUIDITY MANAGEMENT IN NIGERIA

## Abstract

This study examined the performance of selected quoted deposit banks of Nigeria and liquidity management. Secondary data used was extracted from the financial statements of 15 money deposit banks out of population of 17 deposit money banks on the Nigerian Stock Exchange (NSE) for 2012–2017 (six years). The descriptive research design was used. The data collected was analyzed using ordinary least square method (OLS). Liquidity management was measured using capital ratio (CTR), current ratio (CR) and cash ratio (CSR), while performance was measured using return on assets (ROA). Based on the results of the study, liquidity management proxied by capital ratio, current ratio and cash ratio and performance of the firm proxied by return on assets are positively related. The result shows that liquidity management is an essential factor in business operations and consequently leads to business profitability. Hence proper liquidity management helps solve the agency theory problem of agency costs that arise when control of companies is separated from the ownership, whereby managers are able to employ the firm's resources for personal gains instead of maximizing the value of the firm or the shareholders' wealth. The value of the firm and the shareholders' wealth can be maximized through the firm's profitability via effective and efficient liquidity management.

## Keywords

performance, cash ratio, capital ratio, current ratio,  
return on assets, liquidity management

## JEL Classification

G21, G32

## INTRODUCTION

Liquidity management involves having enough cash balance and cash equivalent balances to meet the need of customers as and when due as well as to guarantee that money is available for day-to-day business operations (Bhattacharyya & Sahoo, 2011). The ability of a bank to meet customers' withdrawal needs and other cash flows is a result of its liquidity management, therefore liquidity management is an essential factor in business operations and consequently, business profitability (Otekunrin et al., 2018). Padachi (2006) suggested that a company is obligatory to uphold equilibrium between liquidity position and its management with its profitability, since inadequate liquidity and excess liquidity have a significant effect on firms' profit. Liquidity operations in banks cannot be overemphasized. Examples include cash reserves, government debts securities, etc. Liquidity is an essential factor to meet everyday withdrawal demands at all times (G. Basse, Tobi, I. Basse, & Ekwere, 2016). Thus, cash is a requirement for banks and the banking system to survive as it is one of the factors to consider in determining liquidity status of firms and their ability to meet due financial obligations (Umobong, 2015). Hence, banks need to hold sufficient funds to meet liquidity requirements and needs of the customers as well as other stakeholders. Liquidity management is a concept de-

scribing ways by which a company can meet financial requirements through cash flows, funding activities and required capital based. The aim of the liquidity management is to make sure firms discharge financial commitment as and when due (Ebhodaghe, 2015; Biety, 2003; Adekanye, 1986; Anyanwu, 1993). Multiple studies have been done over the years to examine the interrelationship between corporate performance and liquidity (Raheman & Nasr, 2007; Benjamin & Kamalavali, 2006; Saleem & Raheman, 2011; Bassey & Moses, 2015), albeit in the developed world.

The Nigerian banking system is overwhelmed with significant rate of bad liquidity management, which led the Nigerian Central Bank to engage in a recapitalization process from 2 billion to 25 billion naira that allowed banks to participate in any amalgamation to sustain necessary capitalization and having a reasonable liquidity in 2005 (Markjackson et al., 2017). In September 2018, for instance, the Central Bank of Nigeria (CBN) announced the liquidation of Skye Bank with Polaris Bank to takeover over the issue of failing to meet liquidity requirements. Recently, in 2019; the Central Bank of Nigeria has extended the target for the recapitalization of micro-finance banks to 2021 thereby increasing the minimum capital base for national micro-finance banks to 5 billion from 2 billion naira, while that of state was increased to 1 billion from 100 million naira. In 2019, the Central Bank of Nigeria introduced reforms to boost a robust financial system. The aim is to enhance banking system stability, sensitizing gains in governance and restoring confidence in the nation's financial system. The problem of most Nigerian money deposit banks is that they tend to focus more on profit maximization than taking liquidity measures to meet the demands of their customers and fulfilling their obligations to their clients as and when due and in that process, they are losing a large proportion of their clients. It is believed this issue can be resolved if the banks take their liquidity management as necessary as the way they focus on profitability so that they can benefit from the impact of a well-managed liquidity on profit maximization. This study empirically examined the relationship between liquidity management and firm's performance to expose the manner of a relationship that exists between the both. In line with extant studies, liquidity management was proxied by capital ratio, current ratio and cash ratio, while performance was proxied by profitability, which was measured by return on assets (Raheman & Nasr, 2007; Benjamin & Kamalavali, 2006; Saleem & Raheman, 2011; Bassey & Moses, 2015). This study focused on deposit money banks in Nigeria, of which 15 with required annual reports are being selected from total of 17 banks.

## 1. LITERATURE REVIEW

### 1.1. Liquidity management

Financial management decisions include liquidity management decisions and efficient liquidity management ensures a tradeoff between liquidity and profitability (Bhunia & Khan, 2011). Liquidity management is of great significance to the external and internal business environment because it also affects the day-to-day operations of banks (Bhunia & Khan, 2011). Olatunde (2015) concluded that improvement and maintenance of proper liquidity coverage ratio by the financial regulators and the banks' management in Nigeria can give rise to growth in business performance. The regulators are to ensure compliance, while the management complies by maintaining the minimum required liquidity and uses the available resources to profit the bank. Liquidity in banks measures

the rate at which current assets and other available resources are transformed into cash to satisfy liquidity demand preferences as well as reserve requirement (Nwaezeaku, 2006). It depicts the bank bargaining prowess and strength to maintain depositors for more savings. Deposit money banks' liquidity situation is by and large tracked and calculated based on liquidity quotient (Rychtarik, 2009).

The current ratio is one of the variables used as a proxy for liquidity management in this study. Typically, a high current ratio is considered to be a pointer to the firm's potential to rapidly discharge short-term debts (Berk, 2009). Increasing the current ratio over some time suggests enhanced business liquidity of the company, while a decrease in the current ratio is a consequence of the deteriorating liquidity position of the business or a reduced working capital cycle of the company.

The capital ratio, which is another proxy liquidity management for banks in this study, shows how effective and sound the system is and liquidity management is also used by banks to examine the availability of capital in banks. Devinaga and Tan (2010), as well as Vong (2005), opined that capital ratio serves as a determinant of banks' profitability and consequently, their performance. Capital, deposits and borrowings are the source of funding available to banks to be able to run their business operations properly to continue to be profitable. Berger (1995) asserts that the low level of capital puts the banks at risk of not being able to meet the needs of their clients as well as consequently having adverse effects on the profitability of banks. It is an assurance of the banks' long-term liquidity management. Hence, it is the primary liquidity management variable in this study. This is because effective and efficient liquidity management starts with the effective and efficient capital ratio (Molyneux & Thornton, 1992). Cash ratio is the last proxy used for liquidity management in this study. Creditors look into the cash ratio of the company to assess if the company has sufficient cash to pay up its debts as and when due and to fulfil other obligations. Cash ratio is a preferred ratio to banks and other clients, because account receivables or inventory are not used in calculating the ratio.

## 1.2. Firm performance

Firm performance in this study is proxied by profitability. The main motive of a business is to make a profit. A productive and profiting section of the economy is better prepared to resist adverse shocks and add to the economic system stability (Athanasoglou, Brissimis, & Delis, 2005). U. Uwuigbe, Eluyela, O. Uwuigbe, Obakpro, and Falola (2018) and Eluyela et al. (2018a) opined that banks with sufficient liquidity but not excess liquidity are more profitable, because the excess liquidity can be used to finance other profitable investment to earn more returns to the banks instead of being tied down in one business. The profitability of banks can be analyzed using many financial ratios, which include return on equity (ROE), return on assets (ROA) and return on investment (ROI). Kosmidou, Tanna, and Pasiouras (2008) opined that profitability and liquidity are related and that ROA and short-term financing as well as liquid assets ratio are also related. This adopts ROA as

a proxy for firms' profitability and consequently, the firm's performance in line with the previous studies.

## 1.3. Theoretical framework

### 1.3.1. Commercial loan theory

It is also regarded as a doctrine of real bills. It is seen as the ancient liquidity management theory. This theory maintains 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 business operations (Bassey & Moses, 2015; Falaye et al., 2019). The theory assumes that only self-liquidating loans should be provided by a deposit money bank. Self-liquidating loans are loans that produce and evolve products through transport, manufacturing, storage and distribution channels (Ibe, 2013). Repayment of self-liquidating loan serves as evidence of adequate liquidity (Ibe, 2013). The central bank is concerned with the safe-keeping of self-liquidating loans issued by commercial banks, and help from the central bank to commercial banks is based on the safe-keeping of productive self-liquidating loans. This concept ensures the maximum level of liquidity for each bank and provides sufficient cash for the whole economy to stabilize it. The principal merit of this theory is that it helps to provide income for the banks operating in Nigeria. This is adopted in this study.

### 1.3.2. Agency theory

An agency connection subsists between the agent and the principal, where the principal contracted the agent to act for him/her terms of taking managerial decision (Jensen & Meckling, 1976). Limited liability companies are run on the agency theory principles, where ownership of the firm is separated from the day-to-day control of the companies. The shareholders are the principal, and they are the owner of the firm, while the management is the agent contacted by shareholders to manage and control the firm affairs on behalf of the shareholders (Otekunrin et al., 2018a). The separation between ownership and control gives room to agency cost where conflict of interest arises between the principal and the agent (Eluyela et al., 2019). Conflict of interest between the princi-

pal and the agent suggests that management will usually take a decision that will maximize their benefits instead of making a decision that would maximize the profitability of the firm and consequently maximizing shareholders wealth. It is believed that efficient and effective liquidity management probably can ensure the profitability of the firm and hence maximizing shareholders' wealth, which automatically can eradicate agency costs caused by the separation between ownership and control (Otekunrin et al., 2018a). This research adopts the agency theory to clarify the connection between profitability and liquidity management of deposit money banks.

#### 1.4. Empirical framework

A Canadian research conducted by Graham and Bordeleau (2010) suggests that there is a favorable relationship between bank profitability and liquidity but there is a situation where too much liquid assets lower the rate at which banks make profit. In Nigeria, research on performance of banks and liquidity management was carried out by Ojiegbe, Nwaru, and Duruechi (2015). Time series data for the period of 1990–2014 (25 years) was obtained from CBN statistical bulletin and analyzed using EViews statistical package and the ordinary least squares. The research recommends that the CBN should observe how liquidity tools are being applied in day-to-day operations to achieve the set objectives.

Agbada and Osuji (2013) study the application of liquidity management measures in enhancing the efficiency of banks' performance. The researchers employed random sampling technique to examine the sample size, which was 300 employees that were obtained from the banks. Primary data was obtained using questionnaires, and Pearson Product-Moment Correlation Coefficient was used for the analysis. Profitability was proxied by capital employed returns and the empirical outcomes show a positive correlation linking management of adequate liquidity to banks' efficiency. The authors opined that liquidity management is essential for an organization to maximize profits and to meet customers' demand in time of need. They recommend that CBN should apply monitoring strategies on banks to measure the rate at which banks use liquidity tools, and if banks

do not make use of the liquidity tools, the CBN should apply sanctions on these banks.

G. Bassey, Tobi, I. Bassey, and Ekwere (2016) examined the connection between liquidity management and Nigerian banks performance. Test data for ten years (2000–2010) was obtained from secondary data and analyzed using simple regression analysis making use of the SPSS software. Empirical evidence indicates that the bank's deposit has a positive effect on reserve requirement, but the bank's deposit has a negative effect on the liquidity management and bank performance. The authors concluded that banks should be able to make use of liquidity tools to ensure their survival and operations, of the company, thereby satisfying the customer. Bassey and Moses (2015) researched the relationship between bank performance and liquidity management. Target population involved in this study consisted of fifteen banks. The data was obtained using secondary data with the aid of published reports, and the data was analyzed using the OLS method. Empirical findings show that there is an adverse correlation linking liquid money ratio and equity returns while there is an ideal beneficial correlation among deposit loans, asset ratio, loans and equity returns. They recommend that banks should not only focus on the primary motive, which is profit maximization but they also should employ liquidity management strategies thereby satisfying the customers.

Also in Nigeria, Daniel (2017) surveyed management of liquidity and its impact on efficiency of banks. The period was total of 25 years (1986–2011). The target population was based on 24 banks. Test data for the research was obtained from secondary data and analyzed using the SPSS package. The results of this study indicated that liquidity management positively influences the operations of deposit money banks. The researcher also explained the data using correlation analysis and found that equity returns and cash liquidity reserve ratio are positively related, while equity returns and deposit loan ratio are negatively related. He recommends that banks should adopt optimum liquidity strategies for the smooth running of the business.

Ibe (2013) studied liquidity management and bank performance using profit after tax as a proxy for performance. Test data for the study

was obtained using secondary data from the Nigeria Stock Exchange and analyzed using a regression model, a unit root test. The result shows that cash and short-term fund contributed negatively to the financial performance of two banks and contributed averagely to the performance of the remaining bank. Ibe (2013) opined that performance of banks is considerably influenced by treasury bills as well as certificates and concluded that banks should acquire more of such assets. He recommends that banks should employ qualified and trained personnel for the right decisions to be made to make a profit. Ndoka, Islami, and Shima (2017) carried out a study on whether liquidity risk management and performance are related. Test data was obtained from secondary data and analyzed using EViews package. The performance was measured using profit after tax, while liquidity ratio was measured using cash, deposits and liquidity. The results showed that there is a positive relationship between profit before tax and cash, while the relationship between deposits and profit before tax is negative.

### 1.5. Development of hypotheses

It has been observed from the above literature and empirical evidences that the study is getting mix observations about the liquidity management and performance of banks measured by different variables. For instance, it was observed that some views concluded that liquidity management and performance are positively related, while others found that liquidity management and performance are negatively related. Some other studies, however, concluded that liquidity management and performance are not related (Ibe, 2013; Ndoka, Islami, & Shima, 2017; Daniel, 2017; Bassey & Moses, 2015). Nigeria adopted International Financial Reporting Standard (IFRS) in 2012. It has also been observed that there are few types of research done on the association between performance of selected quoted Nigeria deposit banks and liquidity management after Nigeria adopted IFRS in 2012. This study was carried out to empirically provide more verification on the association between performance of selected quoted Nigeria deposit banks and liquidity management. Drawing from the literature, the hypotheses test in this study is now stated below in null forms:

- H1: *Capital ratio and return on assets are not significantly related.*
- H2: *Current ratio and return on assets are not significantly related.*
- H3: *Cash ratio and return on assets are not significantly related.*

## 2. MATERIALS AND METHODS

In examining the relationship of performance of selected quoted Nigeria deposit banks and liquidity management, the research design used was descriptive design in line with Bassey and Moses (2015) and Ramadan, Kilani, and Kaddumi (2011). The sample size of this study was 15 money deposit banks out of population of 17 money deposit banks on NSE. The time frame for the data is 2012–2017 (six years). This is because the banks chosen on the NSE annual reports were available on their websites and were obtained to enable us to carry out this study. The technique adopted for sampling in this study is a simple random sampling. This was used because every element has the chance of being selected in the survey. This minimizes bias and simplifies the analysis of results. This research used secondary data from fifteen money deposit banks out of population of seventeen money deposit banks listed on NSE. This research used the ordinary least square method to analyze whether performance of selected quoted Nigeria deposit banks and liquidity management are related or not. The statistical package used for this research project is the EViews Package.

### 2.1. Model specification

Below is the model adopted in the research to examine whether liquidity management and performance are related or not in line with Fagboyo, Adedeji, and Adeniran (2018).

$$ROA = \beta_0 + \beta_1 CTR + \beta_2 CR + \beta_3 CSR + \beta_4 FSI + \beta_5 FAG + I_j, \quad (1)$$

where  $CR$  = Current Ratio,  $CTR$  = Capital Ratio,  $CSR$  = Cash Ratio,  $ROA$  = Return on Assets,  $FSI$  = Firm Size,  $FAG$  = Firm Age,  $I_j$  = Error Term.

**Table 1.** Results of the empirical model analysis using descriptive statistics

Source: Authors compilation (2019).

|              | ROA       | CTR       | CR       | CSR      | FSI       | FAG       |
|--------------|-----------|-----------|----------|----------|-----------|-----------|
| Mean         | 0.018298  | 0.114744  | 1.107053 | 0.212484 | 0.106242  | 0.057372  |
| Median       | 0.020000  | 0.134000  | 0.960000 | 0.170000 | 0.085000  | 0.0670000 |
| Maximum      | 0.070000  | 0.241000  | 5.590000 | 1.000000 | 0.500000  | 0.1205000 |
| Minimum      | -0.090000 | -1.547000 | 0.100000 | 0.014000 | 0.007000  | 0.7735000 |
| Std. dev.    | 0.022839  | 0.178215  | 0.854579 | 0.168786 | 0.084393  | 0.0891075 |
| Skewness     | -1.500940 | -8.657999 | 3.688576 | 2.505265 | 1.252632  | 4.328999  |
| Kurtosis     | 10.43468  | 81.29333  | 17.21741 | 10.46689 | 5.233445  | 40.64666  |
| Jarque-Bera  | 254.4645  | 25450.85  | 1015.539 | 320.0705 | 160.03525 | 12725.425 |
| Probability  | 0.000000  | 0.000000  | 0.000000 | 0.000000 | 0.000000  | 0.000000  |
| Sum          | 1.738330  | 10.90068  | 105.1700 | 20.18600 | 10.09300  | 5.4503400 |
| Sum Sq. dev. | 0.049031  | 2.985483  | 68.64877 | 2.677928 | 1.338964  | 1.4927415 |
| Observations | 95        | 95        | 95       | 95       | 95        | 95        |

## 2.2. Descriptive statistics

Table 1 presents the analysis of ROA, ROE, Capital Ratio (*CTR*), Current Ratio (*CR*) and Cash Ratio (*CSR*) using descriptive statistics.

The positive kurtosis shows that the variables skewed to the left negatively. The Jarque-Bera test shows normal distribution. The Jarque-Bera figures are significant and their corresponding probabilities revealed the normal distribution of the regression variables. The skewness result of *CTR* indicates that the distribution is moderately skewed based on the fact that it is between -1 and -0.5 and it is negatively skewed as to the fact that the mean is lesser than the median. The minimum value is -1.547000, while the maximum value is 0.241000. The skewness result of *CR* indicates that the distribution is highly skewed based on the fact that it is greater than 1 and it is positively skewed as to the fact that the mean is higher than the median. The

minimum value is 0.100000, while the maximum value is 5.590000. The skewness result of *CSR* indicates that the distribution is highly skewed based on the fact that it is greater than 1 and it is positively skewed as to the fact that the mean is higher than the median. The minimum value is 0.014000, while the maximum value is 1.0000.

## 2.3. Regression analysis

The secondary data were analyzed using the ordinary least square method, as indicated in Table 2.

Based on Table 2, 75% (R-squared) dissimilarity in the dependent variable is explicated jointly by independent variables. Adjusted R-squared of 0.728802 indicates that the explaining power of the independent variables of the profitability of the selected firms is 73%. Also, a p-value less than 0.05 for the Fisher's ratio in the regression outcome indicates independent variables and

**Table 2.** Results of the empirical model analysis using a regression analysis

Source: Authors compilation (2019).

| Variables          | Coefficient | Std. error | T-statistics | Prob.  |
|--------------------|-------------|------------|--------------|--------|
| CONSTANT           | 0.011761    | 0.003489   | 3.371291     | 0.0011 |
| <i>CTR</i>         | 0.074783    | 0.010841   | 6.898038     | 0.0000 |
| <i>CR</i>          | 0.013480    | 0.003161   | 4.264473     | 0.0039 |
| <i>CSR</i>         | 0.000511    | 0.016020   | 31.35029     | 0.0005 |
| <i>FSI</i>         | 0.022351    | 0.115120   | 5.150530     | 0.0007 |
| <i>FAG</i>         | 0.024321    | 0.22232    | 9.1410715    | 0.0026 |
| R-squared          | 0.750223    |            |              |        |
| Adjusted R-squared | 0.728802    |            |              |        |
| F-statistic        | 16.34934    |            |              |        |
| Prob(F-statistic)  | 0.000000    |            |              |        |
| Durbin-Watson stat | 1.904618    |            |              |        |

the dependent variable are related linearly. Auto-serial correlation is low as shown by 1.904618 for Durbin-Watson statistics.

The regression analysis, as displayed in Table 2, indicates a significant positive relationship between capital ratio (*CTR*) (i.e. a proxy for liquidity) and return on assets (*ROA*) (i.e. a proxy for performance) of quoted banks in Nigeria. The t-statistics of 6.898038, probability of t-statistics 0.0000 and a positive regression coefficient of 0.074783 are in line with the apriori expectation of this study that *CTR* and *ROA* are positively related. Hence null *H1*, which states that capital ratio and return on assets are not significantly related, is hereby rejected. This result is in line with Alshatti (2015) whose findings show that *CTR* and Performance (*ROA*) have a favorable connection. Also, the results of the current ratio (*CR*) show a significant positive relation to return on assets (*ROA*) as demonstrated by the t-statistics value of 4.264473 and a p-value of 0.0039. Respectively, this indicates that *CR* and *ROA* are positively related. Hence null *H2*, which states current ratio and return on assets are not significantly related, is hereby rejected. This result is in line with Bassey and Moses (2015). Finally, the results of cash ratio (*CSR*) show a significant positive relation to return on assets (*ROA*) as demonstrated by the t-statistics value of 31.35029 and a p-value of 0.0005; respectively, this means that there is a relationship between *CSR* and *ROA*. Hence null

*H3*, which states cash ratio and return on assets are not significantly related, is hereby rejected.

### 3. DISCUSSION AND IMPLICATION

The capital ratio used as a proxy for liquidity management for banks in this study shows how effective and sound the system is and is also used by banks to examine the availability of capital in banks. Rasiah and Ming (2010), as well as Vong (2005), opined that capital ratio serves as a determinant of bank profitability and consequently their performance. Berger (1995) asserts that the low level of capital puts the banks at risk of not being able to meet the needs of their clients and consequently has adverse effects on their profitability. It is an assurance of the banks' long-term liquidity management. Hence, it is the primary liquidity management variable in this study. This is because effective and efficient liquidity management starts with effective and efficient capital ratio (Molyneux & Thornton, 1992). The result of this study reveals the capital ratio used as a proxy for liquidity management and return on assets used as a proxy for performance in this study. Both current ratio and cash ratio also show a significant positive relationship to return on assets. The three proxies used for measuring liquidity management reveal that liquidity management and performance proxied by return on assets are related.

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## CONCLUSION

It was concluded that liquidity management proxied by capital ratio, current ratio, as well as cash ratio and performance proxied by return on assets are related. When a bank can fulfil its obligations to its client by meeting customers' withdrawals needs and other cash flows as a result of its proper liquidity management, the performance (proxied by return on assets) will increase positively. The result shows the liquidity management is an essential factor in business operations and that consequently leads to business profitability. Hence proper liquidity management helps solve the agency theory problem of agency costs that arise when control of companies is separated from the ownership, whereby managers are able to employ the firm's resources for personal gains instead of maximizing the value of the firm or the shareholders' wealth. The value of the firm, as well as the shareholders' wealth, can be maximized through the firm's profitability via effective and efficient liquidity management.

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## CONFLICT OF INTEREST

The study is not funded through any source and has no conflict of interest.

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