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Moderating Effect of Capital Adequacy Ratio on the Relationship between Liquidity Management and Value of Listed Deposit Money Banks in Nigeria

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Abstract **Review Article**

The worth of companies especially in the bank industry is critical in indicating financial prowess, investor trust and economic expansion. In this work, the authors investigate how liquidity management and capital adequacy affect the value of the firm of the Nigerian Deposit Money Banks (DMBs). The main aim is to determine the relationship between measures of liquidity (i.e., the current ratio (CR), the deposit-asset ratio (DAR), the loan-deposit ratio (LDR)) and the capital adequacy ratio (CAR) in terms of their relationship with the firm value. The study uses a panel data regression model, where the sample consists of 11 listed DMBs in the period of 2015 to 2024. Its methodology is based on fixed effects models and Driscoll-Kraay standard errors to explain cross-sectional dependence and heterogeneity at the firm level. The major conclusions have shown that although liquidity indicators such as CR have such a strong negative effect on the firm value, which is the sign of inefficiency in managing liquidity, LDR has a positive correlation with the firm value, which highlights the significance of an effective credit intermediation. The research also concludes that CAR mediates the correlation between liquidity ratios and firm value at least in the case of DAR and LDR, indicating that a high level of capital base positively affects the performance of liquidity management. Nevertheless, CAR is not a direct influence on the value of the firm. The research offers to the banks to implement more wholesome liquidity management policies, better credit risk management, and dynamic capital adequacy policies. These should be encouraged by policymakers by having regulatory control and risk-sensitive capital adequacy tests. The research findings can be used in the literature on the topic of bank valuation and also provide valuable information on how to enhance the banking performance in the emerging markets.

Keywords: Firm value, liquidity management, capital adequacy ratio, Deposit Money Banks, Nigeria, panel data regression, economic stability.

1. Introduction

Value of the firm in the banking industry and more so in the Deposit Money Banks (DMBs) is one of the most important measures of financial strength, investor confidence, and economic growth in the long run. It is an indication of financial capacity of a

bank to produce sustainable returns, handle risks and retain confidence of the market and liquidity management and capital adequacy are important factors that determine this value. Liquidity management measured by such ratios as the current ratio (CR), the deposit to asset ratio (DAR), loans to deposit ratio (LDR), shows whether the bank can fulfill its short term liabilities. The capital adequacy in the form of capital adequacy ratio (CAR) is the ability of the bank to absorb the risks and safeguard depositors.

History has demonstrated that the value of liquidity and capital adequacy is very critical in the maintenance of firm value. The Global Financial Crisis of 2008 demonstrated that the insufficient liquidity and over leverage may cause value elimination and systemic risk (Allen and Carletti, 2010). Regulatory changes such as the Basel III framework were in turn made to enhance CAR and the liquidity standards (BIS, 2011). Large banks engaged in business like JPMorgan Chase and the Bank of America enhanced their capital structure and liquidity positions increasing their valuation and weight (Eichengreen and Gupta 2016). The COVID-19 crisis also highlighted the relevance of well-established liquidity and capital frameworks, and banks such as HSBC and Deutsche Bank could contribute to the process of economic recovery by ensuring sufficient levels of liquidity and capital reserves (IMF, 2021).

The debt crisis (2010-2012) in Eurozone demonstrated that there are severe liquidity challenges in nations such as Greece, Spain, and Italy. Weak liquidity control banks, i.e. high DARs, had difficulties in staying afloat and firm value went down (De Grauwe, 2011). The European Central Bank (ECB) implemented reforms that contributed to stabilizing the sector and other banks such as Barclays and Santander took advantage of such reforms to improve their liquidity frameworks (ECB, 2015). On the same note, the Northern Rock crisis in the UK of 2007 also underlined the dangers of excessive reliance on wholesale funding and poor liquidity planning (Cornett et al., 2011; Olokoyo, 2011).

Another scandal that revealed the risks of inadequate capital buffer and aggressive lending is the 1997 Asian Financial Crisis, which took place in Thailand, Indonesia, and South Korea. Subsequent post-crisis reforms have made banks such as ICBC and DBS Bank more resilient in their liquidity and capital positions, such as regulatory oversight reforms (Corsetti et al., 1999; ADB, 2020). Liquidity and capital adequacy is a continued problem in Africa. As an example, such Kenyan banks as Equity Bank were experiencing liquidity limitations during the COVID-19 crisis, yet such innovations as mobile banking allowed sustaining liquidity and value of the firms (World Bank, 2021). In the same way, the banking crisis in Nigeria in 2009 reflected the problems of liquidity and capital management and caused changes in the system, including capital injection and the establishment of AMCON (Haruna, et al, 2021, Ejura, et al, 2023, Moses, et al, 2018, Musa, et al, 2025, John, et al, 2024, Karimu et al, 2022, Haruna, et al, 2021, Badaru & Moses, et al, 2025, Abdul, et al, 2025, Chamba, et al. 2024)

The role of liquidity management and capital adequacy is further highlighted when in early 2024, the CBN disbanded the boards and management of various banks in Nigeria because of their inability to govern their banks and commit regulatory offenses (CBN, 2024). To lend to stimulate lending, the CBN also had a minimum LDR of 50% with banks such as Access Bank and Zenith bank lending to the main sectors despite the increase in non-performing loans.

Digital banking is a strategy that has been embraced by many Nigerian banks to enhance their operational efficiency and ratios of liquidity as experienced in the digital transformation of First Bank of Nigeria (NBS, 2022). Nevertheless, smaller banks such as Unity Bank are faced with capital adequacy which is worsened by macroeconomic instability. The belief that compliance with liquidity and capital adequacy standards is positively related to the value of the firm is supported by empirical evidence (Chen et al., 2019), although this is not always true since it also depends on the region, with emerging economies such as Nigeria experiencing greater races due to financial volatility (Eichengreen and Gupta, 2016).

Liquidity and capital adequacy in maintaining firm value: This role is particularly critical in the unique financial environment in Nigeria. Nigerian DMBs play an important role in financial intermediation, yet the presence of such issues as high non-performing loans and unstable macro-economic conditions makes them unable to achieve their liquidity and profitability targets (Owolabi and Obida, 2012; Oladeji et al., 2020). To control the liquidity positions, liquidity measures such as CR, DAR, and LDR are used, and CAR is at the heart of regulatory controls and risk absorption (Al-Hassan et al., 2020; Chioma et al., 2021).

The purpose of the research is to examine the effect of liquidity management on firm value of Nigerian DMBs and also to determine whether CAR moderates the relationship. The research is vital to the bank management and policymakers considering the peculiarities of the national financial processes to modify the regulatory frameworks and to increase the level of financial stability. The issue of liquidity and capital adequacy in the banking sector in Nigeria has not been well examined, especially as it relates to how they jointly work to enable the determination of firm value (CBN, 2023). Regardless of the international regulatory frameworks such as Basel III, the Nigerian banks are quite frequently unable to align the liquidity and regulatory capital because of the structural inefficiencies and regulatory loopholes (Okoye et al., 2021).

Hypotheses such as the pecking order theory and the signaling theory present valuable information about the liquidity preferences, yet are unable to explain the regulation capacity of capital buffers in banking (Adeoye et al., 2021). The empirical results are inconsistent, as some of the studies have positive results: liquidity is associated with bank performance (Adeoye et al., 2021) whereas others have negative results (Kim et al., 2020). These studies reveal a major research gap because of the inadequacy of capital to moderate the process. Secondly, in most cases, the current research has employed the simple regression techniques, which fail to describe the intricate relationships between liquidity management and capital adequacy over the period. Therefore, there should be panel data techniques that can be used to see the interaction between these factors to determine the impact that they have on firm value in the Nigerian DMBs.

The main objective of the study will be to examine the moderating effect of capital adequacy ratio on the relationship between liquidity management and value of listed deposit money banks in Nigeria: The specific objectives of this study will be to:

i. Examine the effect of current ratios on value of Listed Deposit Money Banks in Nigeria.
ii. Determine the effect of deposit-to-assets ratios on value of Listed Deposit Money Banks in Nigeria.
iii. Analyze the effect of loan-to-deposit ratios on value of Listed Deposit Money Banks in Nigeria.
iv. Assess the effect of capital adequacy ratio on value of Listed Deposit Money Banks in Nigeria.
v. Examine the moderating effect of capital adequacy ratio on the relationship between liquidity management and value of Listed Deposit Money Banks in Nigeria. Ensuring terminological coherence throughout the study

2. 1 Conceptual Review

Firm Value

Firm value is a very complex term in corporate finance that shows the general value of a business as it is considered by the investors, the stakeholders, and the market. To depositors of listed Deposit Money Banks (DMBs) in Nigeria, firm value is an important index of the efficiency of financial strategies, governance structures, and performance of their operations. It is often measured with the help of such measures as the Q of Tobin, the price-to-equity ratio (ROE), the price-to-market ratio, and the price-to-capital-employed ratio (ROCE) (Ajiboye, 2024). The Q created by Tobin is especially the combination of both tangible and intangible resources that creates a complete picture of the market value of a given firm.

Ajiboye (2024) highlighted that the firm value is determined by the efficiency with which a firm deploys and uses its resources to achieve returns. According to Sudrajat and Setiyawati (2021), the

firm value is the sum of market capitalization of the company, in terms of equity and net debt. This is a cumulative amount, which affects the prosperity of shareholders because increase in the firm value will be associated with increment in the share price and shareholder wealth. In the same vein, Ayuba et al. (2019) state that the maximization of firm value results in the generation of wealth among the shareholders, and higher stock price indicates more shareholder wealth (Setia-atmaja, 2021).

Liquidity Management

Liquidity management of any organisation is the capacity of the organisation to transform current business assets into cash. The cash is often regarded as highly significant in any organisation since it keeps the business parts afloat (Patjoshi, 2016). Conversely, banking liquidity is the status where a bank can accrue funds which could be utilized to fund commitments as they gradually become due (Onyekwelu et al, 2018).

The liquidity management concept has been researched by a number of authors. Li et al. (2020), Adegbie and Adesanmi (2020), and Ajose and Solape (2020) noted that liquidity ratio, cash conversion cycle, receivables collection period, capital adequacy ratio, loan-to-deposit ratio, cash reserve ratio, and deposit rate are some of the proxies that have causal relations with actualising the change in the financial performance of an organisation. Nonetheless, the current ratio, the deposit to asset ratio, and the loan to deposits ratio will be used in this study due to their relevancy as liquidity management proxies that have a critical effect on the liquidity positioning of capital-intensive companies like the banking industry.

Current Ratio

The effectiveness of the ratio is the simplicity of the ratio, though it has drawbacks. Although an increase in the ratio denotes high liquidity, it can be too high and therefore implies ineffective use of assets or high levels of cash that can be reinvested to produce returns (Moyer et al., 2021). The current ratio has also been criticized by the detractors to fail to measure the quality of current assets. As an example, an inventory which is a part of current assets is not always easily convertible into cash (Sinha, 2022). The current ratio is one of the most important instruments of financial analysis and strategic decision-making. Its capacity of assessing short-term solvency give important insights to the stakeholders; management through to the investors. Nevertheless, its shortcoming highlights why contextual and holistic approach should be employed and unite industry-specific benchmarks and complementary financial measures. Since the environment around financial management changes, the current ratio will continue to be part of the liquidity management systems.

Deposit-to-Assets Ratios

Deposit-to-assets ratio is an important metraic of banking and finance as it indicates the connection between the numbers of deposits that a bank has to offer with the number of assets that it can produce. Researchers have offered different points of view concerning definition and use of this ratio focusing on its importance in financial management, efficiency in its operations and sustainability.

According to Danmulki et al. (2022), the deposit-to-assets ratio is the ratio between the total deposits and the use to develop assets. This definition brings out the interrelation between the liabilities of a bank and its assets giving the ratio as a measure of how well a financial institution is able to turn its deposit base into productive assets. This conceptualisation is based on the fact that the bank achieves balance between funding and operation strategies by concentrating on the process of converting liabilities into income generating or functioning assets. Risk exposure is also represented by the ratio with increased use of deposits to create assets being able to increase profitability or subject the institution to liquidity difficulties.

Adenuga et al (2021) have two possible meanings of the deposit-to-assets ratio. To begin with, it is the ratio of loans made to the total value of deposits mobilised. In this perspective, the concept of resource maximisation is included in which a bank uses its deposit base to maximise the creation of credit. The second explanation is broad since it incorporates funding sources that are not deposits, and this acknowledges the changing nature of the

financial institution funding environment. This broad definition emphasizes the importance of the alternative funding strategies, including borrowing and equity financing, to complement the deposits to develop assets.

The deposit-assets ratio is a complex measure that gives information on the funding structure of a bank, liquidity and efficiency of operation. Although it finds application in traditional banking, regulatory compliance and emerging markets, it is essential to appreciate its limitations so that it can be interpreted well. This discussion has incorporated the different academic views that explain the applicability of the ratio in tackling both modern and traditional issues in the bank and finance industry.

Loan to Deposit Ratio (LDR)

The Loan-to-Deposit Ratio (LDR) has been described and analyzed in different perspectives in literature that can give a comprehensive insight of the significance of this ratio in banking and financial management. The authors give their own interpretations of their conceptualisation, application and implications.

According to Adenuga et al (2021) the LDR is the ratio of the loans offered by a bank to the deposits received and it is therefore important in ensuring bank liquidity. The authors insist that a perfect LDR is a compromise between efficient use of deposits to create credit, and the requirement to have a reasonable liquidity level to operate. They warn that it is not advisable to surpass the mark of 70, because the excess of LDR can cause liquidity tension and pressure resulting in inflation. This view is indicative of the two-sided quality of the LDR as an economic development instrument by credit creation and a possible risk consideration when the liquidity is stretched too thin.

Capital Adequacy Ratio

Capital adequacy ratio is a basic terminology in banking and financial management, which denotes the ability of the bank to absorb losses, to be stable and protect the depositor funds. The Capital Adequacy Ratio (CAR) is a universal measure of this concept and shows the ratio of a bank capital to risk-weighted assets of the bank. The concept of capital adequacy has been defined by different authors in different ways with a focus on the advantages of this concept in increasing financial stability, reducing risks, and promoting economic growth.

According to Chioma et al. (2021), the capital adequacy is the capacity of a bank to have adequate capital to address risks and maintain its operations. Their research also shows the relevance of CAR in the management of liquidity risks and the value improvement of deposit money banks in Nigeria. They contend that an increase in the CAR enhances the financial performance by cushioning against any bad shocks and this is in tandem to the Risk Management Theory which underscores the importance of the capital adequacy in ensuring economic stability.

In contrast, Jagirani et al (2023) view capital adequacy as a regulation tool that is aimed at increasing the value of firms by alleviating the negative impact of financial risks. They refer to CAR as an essential instrument of mitigating the susceptibility of banking institutions to risks like non-performing loans. Their results point out a moderating effect of CAR in corporate governance, which states that a strong CAR can increase the effectiveness of the board-related attributes, including independent directors in adding firm value.

Also, Ansary and Elkosry (2015) define capital adequacy as a regulatory risk that is necessary to ensure the financial institutions remain resilient. Their empirical research in the area of Egyptian banks points to the fact that liquidity, profitability, and the quality of assets in banks are considered to be the most important predeterminants of CAR as an important device of depositor protection and stability. Their view is consistent with the Basel Accord Framework that puts CAR as a cushion against financial crises.

Capital adequacy has been generally understood as one of the most important provisions to financial stability and risk reduction. Its successful application is achieved by a sensitive insight into its dualistic nature as a regulatory mechanism and an operation strategy. Being at the optimum levels of CAR, banks are able to protect their financial health and ensure

depositor funds as wellas be a part of the overall economic stability.

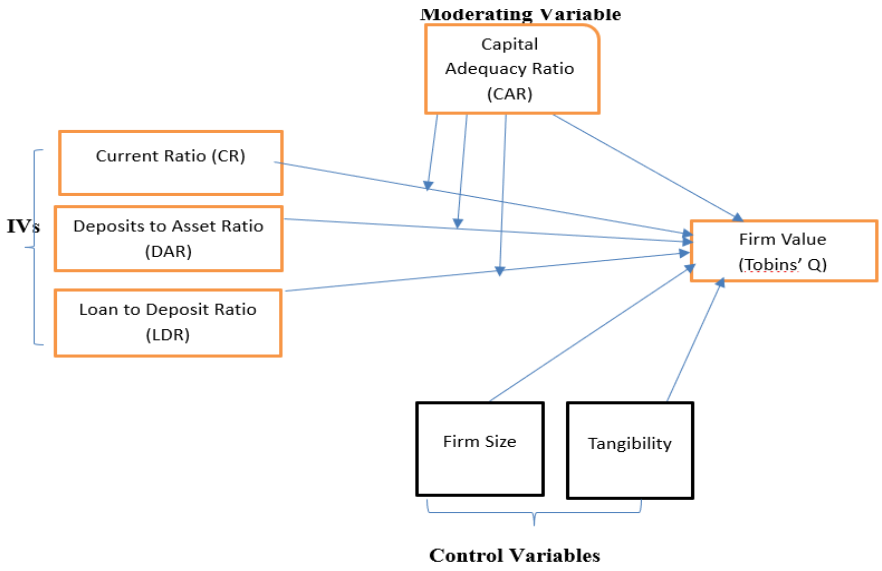

Figure 1: Conceptual Framework

Empirical Review

The sub-section will be used to review related literature on the independent variables: Liquidity Management (Current Ratio, Deposit to Assets Ratio, Loan to Deposit Ratio) and dependent variable (firm Value) and moderating variable (Capital Adequacy Ratio).

Karani (2014) has investigated how liquidity management influences the profitability with reference to commercial banks in Kenya in the period 2009 to 2013. In this work descriptive and regression analysis were used in order to examine the effect of liquidity management on profitability. The major findings were that a balance of liquid and long-term assets in the balance sheet had a positive impact on profitability. The current study fits well into the aim of the present research objectives since it is in the banking industry and analysis of the balance between liquid and long-term assets, the application of liquidity ratios and cash equivalent is quite pertinent, but the omission of the current ratio as a solitary proxy is a gap. Since Kenyan and Nigerian banks have similar regulatory systems, the research offers a viable comparative insight into the present analysis. The present research paper, however, seeks to build upon this comparison by directly examining how the current ratio can be used to determine the value of the firm in listed deposit money banks in Nigeria.

Mwangi et al. (2015) examined correlation between deposit to assets ratios and financial sustainability in nine (9) Kenyan microfinance institutions. The analysis used cross-sectional information and the explanatory research design, and established that deposit-to-asset ratios had a significant impact on financial sustainability. Nevertheless, its target of microfinance institutions and cross-sectional data constrain its application to the deposit money banks of Nigeria. The present paper takes this analysis to the deposit money banks and making use of longitudinal data to capture dynamic trends of the relationship between deposit-to-assets ratios and firm value.

Hapsari (2018) examined the effect of loan-to-deposit ratio and non-performing loans on banking financial performance in Indonesia by moderating the effect of size. On moderated regression analysis of 65 data points of 13 banks, it was found that LDR has a positive effect on ROA, and size does not moderately effect ROA. The paper has found that bigger banks are in a better position to absorb

liquidity shocks. This study highlights the need to adjust LDR thresholds to the specifics of banks, i.e. their size and capital base. But it does not take into account the regulatory pressures role or the overall influence on the value of the firm which the present study expands to fill by examining how bank size mediates the relationship between loan-to-deposit ratio and firm value of listed deposit money banks in Nigeria.

In their article Determinants of Capital Adequacy Ratio: An Empirical Study on Egyptian Banks Ansary and Elkosry (2015) studied 36 banks between 2004 and 2013 through econometric modelling. The analysis showed that the capital adequacy ratio (CAR) is an important determinant of liquidity, profitability, and asset quality, which places CAR as a very significant regulatory instrument in improving the stability of banks. The findings are anchored on the Basel Accord Framework as they underscore the importance of CAR in ensuring the banking industry is stable.

2.3 Theoretical Framework

To gain a better insight into the connection between Liquidity management and the value of listed deposit money banks, it is essential to take a critical approach to a number of theoretical models. The theories that will give a basis to this understanding is the theory of buffer of capital adequacy and shiftability theory.

Calem and Robin came up with buffer theory in 1996. According to the theory, each time the capital of a bank exceeds the minimum ratio defined by the regulations, the bank will have to raise the capital ratio to reduce the risk and the cost of the regulations in case of the violation of the capital requirement. This theory states that banks with surplus capital have sufficient cushions against bankruptcy and insolvency. The banks would be able to explore further into investment and loan advances that will in turn add value.

Kigen (2014) believes that capital adequacy enables banks to diversify their portfolio to reduce risks and remain stable. Between a low and a high level of capital, a bank is more likely to fail whereas a capital sufficiency enhances better financing activities, and thus this has a positive effect on the value of the bank. Moreover, Annor and Obeng (2017) affirm that the more capital adequate the bank is, the more it is ready to engage in risky yet high-yield investments hence the higher the value. This theory presupposes that the capital is one of the factors which predetermine the amount of financial risks which can be held in the day-to-day functioning of banks. Equally, banks that have appropriate capital buffers are in a better position to maintain the liquidity level and regulatory requirements in times of economic crisis (Jokipii & Milne, 2008).

Marcus (2004) on the other hand argued that capital buffers play a crucial role in cushioning banks during economic stresses and hence ensuring that the banks are solvent and that they also meet their obligations without compromising on depositor funds. This theory is also consistent with the regulatory frameworks, including the Basel Accords, which focuses on the capital adequacy in ensuring financial stability.

The Buffer Theory has not been without criticism in as much as it has benefits. Heid (2007) maintains that keeping capital buffers high may lead to a decrease in the profitability of banks since the money that would otherwise be invested in income generating activities is held in reserves. Once again, Allen and Gale (2004) argue that excessive focus on capital adequacy can destabilize the supply of funds to productive lending and hence economic growth can be impaired. Also, too much use of capital buffers can cause more risky behaviour among banks because it gives them a false sense of security (Jokipii & Milne, 2008).

Empirical evidence indicates that Ansary and Elkosry (2015) and Chioma et al (2021) studies have been based on the use of the buffer theory in order to investigate the correlation between capital adequacy and the value of the firm. The research affirms that better capitalised banks are more resilient and as such, their liquidity and credit supply remain during the low periods. The theoretical perspective is applicable in the Moderating Effect of Capital Adequacy Ratio on the relationship between Liquidity Management and Value of listed Deposit

Money Banks in Nigeria, because it offers a background knowledge on the relationship between liquidity management and value of deposit money banks in Nigeria, which has a well-established capital adequacy requirements as enforced by the Central Bank of Nigeria.

The capital adequacy ratio (CAR) moderating effect can be directly used in the study of the moderating effect of the capital adequacy ratio on the relationship between liquidity management and the value of the listed deposit money banks in Nigeria. The CAR is a regulation tool to make sure that banks have enough capital to absorb risks. In that regard, the theory will offer an insight on how CAR will be relevant in moderating the relationship between liquidity management and bank value. A strong CAR can assist in stabilising the value of a bank even in times of financial distress by reducing liquidity shocks. Besides, according to the theory, increased capital buffers lessen the necessity of banks to sell assets in the event of liquidity constraints, and thus it conserves operational and market value. This is in line with the purpose of the study which was to investigate the moderating effects of CAR on the liquidity management and value of the deposit money banks in Nigeria.

The applicability of the Buffer Theory in the banking industry of Nigeria is highlighted by exposure to liquidity risks and macroeconomic instability that face the industry. The regulatory authorities, including Central Bank of Nigeria (CBN), have highlighted the necessity of having enough capital buffers to keep the operations stable in order to safeguard depositors. This is in line with the claim of Marcus (1984) that capital buffers are a buffer against external shocks, which is an important factor in the operations of the deposit money banks in a vibrant economic environment.

METHODOLOGY

This paper will take the ex post facto research design to examine the moderating effect of the capital adequacy ratio (CAR) on the relationship between the liquidity management and the value of the listed deposit money banks (DMBs) in Nigeria. The sample of the current paper includes all the Deposit Money Banks (DMBs) that were listed on the Nigerian Exchange Group (NGX) as at 31 st December 2023. This population is made up of fourteen (14) banks which are licensed and regulated by the Central Bank of Nigeria (CBN) and are governed by the regulatory and prudential provisions of financial disclosure and regulation. They are listed on the NGX and have access to public financial information, hence could be an appropriate subject of empirical study.

Nevertheless, the final sample was chosen using a purposive sampling method to pick a final sample of eleven (11) banks. The criteria were: (i) presence in the NGX between 2015 and 2024, (ii) inability to report financial results in foreign currency, i.e. not in the Nigerian Naira (NGN), and (iii) the presence of full and uninterrupted annual financial statements during the study period, which would allow the panel estimations to be consistent in monetary terms and eliminate distortions of exchange rate models. It was on this ground that Ecobank Transnational Incorporated (ETI) was not included as its structure of reporting is different, and it falls under international reporting jurisdiction. In particular, ETI is a part of Lomé, Togo and is a pan-African financial conglomerate, where group-level consolidated financial statements are reported in the United States Dollars (USD). The company includes in its financial reporting operations in over thirty countries in Africa and its banking operations in Nigeria have not been listed as separate listed entities. Nigeria using ETI in a study on Nigerian DMBs alone would lead to currency heterogeneity, regulatory asymmetry and multi-jurisdictional effects that may affect firm-level indicators and diminish internal validity.

Hence it had to be excluded to ensure that there is homogeneity in regulatory oversight, financial currency and the jurisdictional comparability. The strategy aligns with the available body of literature that does not include cross-border banks whose major financial statements are compiled at a global scale (Mwega, 2014; Sanusi, 2012). The research will utilize only secondary data as of 2012 to 2023. The annual reports and audited financial statements of the sampled deposit money banks were located on the official websites of the banks, the Nigerian

Exchange Group (NGX) Factbooks, and on books by the Central Bank of Nigeria (CBN) and used to extract the data.

The paper uses panel data regression models based on Fixed Effects (FE) models, the Driscoll-Kraay standard errors to test the modulating role of capital adequacy ratio (CAR) in determining the relationship between liquidity management and value of listed deposit money banks in Nigeria. This methodological decision is informed by the result of the Hausman test according to which it was revealed that the fixed effects model is more adequate to study the unobserved heterogeneity as compared to the random effects model.

In order to test the moderating role of capital adequacy, the research specifies three panel regression models, which were estimated by Fixed Effects estimator with the standard errors:

$$FV_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 DAR_{it} + \beta_3 LDR_{it} + \beta_4 CAR_{it} + \beta_5 (CR_{it} * CAR_{it}) + \beta_6 (DAR_{it} * CAR_{it}) + \beta_7 (LDR_{it} * CAR_{it}) + \beta_8 Fsizeit + \beta_9 TANG_{it} + \acute{\varepsilon}_{it} \quad (3)$$

Where:

FV_{it} = Firm Value

CR_{it} = Current Ratio

DAR_{it} = Deposit to Asset Ratio

LDR_{it}= Loan to Deposit Ratio

CAR_{it}=Capital Adequacy Ratio

$FSIZE_{it}$= Firm size

$TANG_{it}$ = Tangibility

β_0 = Beta

$\mathcal{E}_{it}$= Error term

4. Result and Discussion

This part gives out the summary statistics, the mean, standard deviation, minimum, and the maximum of the key variables that have been used in the analysis. The findings are well explained in Table .1 below:

Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
FV	132	0.8179	0.1103	0.6322	1.3304
CR	132	19.6888	1.1644	14.6254	22.5265
DAR	132	65.6803	10.8759	31.1260	90.2836
LDR	132	27.6243	9.1015	10.9666	50.8500
CAR	132	19.2341	4.1754	10.6600	32.6000
TANG	132	2.5198	0.9405	1.0398	5.0867
FSIZE	132	21.6062	0.9455	19.3144	23.9988

Note: Processed data via Stata 19.5 by author (2025)

The financial statements of the Deposit Money Banks in Nigeria have taken a few interesting trends. The mean of Firm Value (FV) is 0.8179, and it can be inferred that the majority of the banks are underpriced, in comparison to their replacement cost or book value. Nonetheless, there exists a great diversity in terms of how various banks are viewed by the market.

The liquidity level (the Current Ratio (CR)) stands at 19.69 on average indicating that the liquidity levels among the banks are high. This may also be an

indication that some of the banks are keeping too much cash on their hands, and this may indicate inefficiency in the utilization of resources.

Looking at the Deposit to Asset Ratio (DAR), we find that it is an average of 65.68 percent, that is, deposits are the main source of finances to these banks. Nonetheless, the degree of variation is rather high, as there are banks that use deposits to a larger extent than others do.

The Loan-to-Deposit Ratio (LDR) is at 27.62 as compared to the 65 recommended by Central Bank of Nigeria. This may indicate conservative lending, or this may indicate a time frame when the change in regulation had not been imposed.

The Banks also have good Capital Adequacy Ratios (CAR) of 19.23 on average; much more than the regulatory minimum standard of 10–15. This implies that the majority of the banks have an adequate buffer of capital to absorb the risks, but their risk and capital management strategies might differ.

With Tangibility (TANG) that measures the physical assets, it is 2.52 on average. This is because the physical assets of most banks are relatively modest when compared to their total asset base, however, some banks are better off than others with regard to the extent to which they depend on physical assets as opposed to intangible or financial assets.

The Firm Size (FSIZE) has an average of 21.61, which gives the sample both smaller and larger national banks, as well as those that are internationally active.

Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) FV	1.000						
(2) CR	-0.302**	1.000					
(3) DAR	0.071	-0.040	1.000				
(4) LDR	0.020	0.118	-0.102	1.000			
(5) CAR	0.078	0.436**	0.104	0.208**	1.000		
(6) TANG	0.084	-0.437**	-0.014	-0.011	0.137	1.000	
(7) FSIZE	-0.151	0.897**	-0.072	0.078	0.386**	-0.466**	1.000

*** p<0.05, * p<0.1*

The results of the analysis present both significant and insignificant correlations between the firm value (FV) and other financial indicators. There is a negative correlation between the Firm Value (FV) and the Current Ratio (CR) ($r = -0.302$, $p < 0.05$) i.e. banks with more liquidity were more likely to be undervalued in the market. This may be indicative of inefficiencies in the dealing of idle resources by the banks. Nonetheless, Firm Size (FSIZE) is quite weakly correlated with FV ($r = -0.151$), however, it does not indicate statistically significant value as the bigger the bank, the higher the market valuation.

The positive links of FV to capital adequacy ratio (car) ($r = 0.078$), tangibility (tang) ($r = 0.084$) and

deposit to asset ratio (dar) (r = 0.071) are weak and not significant. Loan to Deposit Ratio (LDR) has very low correlation with FV (r = 0.020), which means that the lending intensity does not seem to be that influential on the market value of any bank.

Examining the correlation among explanatory variables, there are some interesting correlations. CR and FSIZE are very strongly correlated (r = 0.897, p < 0.05), thus could be an indication of a multicollinearity problem. CR is also negatively related with TANG (r = -0.437, p < 0.05) implying that the more the liquidity the less the physical assets of a bank. CAR has significant positive relations with both CR (r = 0.436, p < 0.05) and FSIZE (r = 0.386, p < 0.05), whereas FSIZE has negative relations with TANG (r = -0.466, p < 0.05), which implies that the larger the bank, the fewer tangible assets it has.

Even though the close relationship of CR with FSIZE reads as a strong correlation and the variability of the variables may indicate that multicollinearity exists, additional tests based on Variance Inflation Factors (VIF) indicated that none of the variables surpass the key parameter of 10 and hence multicollinearity is not a critical problem to be considered compromising the analysis.

Diagnostic Tests

Critical assumptions of the econometric models were put into test before delving into the regression analysis to make the findings reliable. The VIF was used to test for multicollinearity and none of the variables reported worrying values (e.g., CR = 5.52, FSIZE = 5.42), with average VIF = 2.71. The values are less than the cut-off point of 10 hence multicollinearity is not a concern. The Breusch-Pagan/Cook-Weisberg test was used to determine whether the hypothesis was heteroskedastic; this test gave a significant value (chi-square = 20.31, p-value = 0.0000). This implies that there exists heteroskedasticity of the data therefore we used the robust estimation methods (such as clustered and Driscoll-Kraay standard errors) to remove this heteroskedasticity.

Pesaran test of cross-sectional dependence was also tested, and the result showed that there was a strong evidence of cross-sectional dependence (test = 2.940, p = 0.0033). This implies that the errors among the banks are correlated and thus they were adjusted using models such as Driscoll-Kraay and Panel-Corrected Standard Errors (PCSE). The test showed a Serial Correlation (Jochmans Portmanteau) was not statistically significant (chi-square = 11.000, p-value = 1.0000) and this means that there is no autocorrelation issue in this data. Lastly, Hausman Test to determine which one, Fixed Effects (FE) or Random Effects (RE) to select, gave significant value (chi-square = 30.36, p-value = 0.0004). It implies that Fixed Effects model is more suitable because it gives consistent estimates as opposed to the Random Effects model.

Fixed Effects Regression Results

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval
CR	-0.1040	0.0404	-2.58	0.026	-0.1929 to -0.0151
DAR	-0.0057	0.0031	-1.86	0.090	-0.0125 to 0.0010
LDR	0.0059	0.0014	4.40	0.001	0.0030 to 0.0089
CAR	-0.0324	0.0350	-0.93	0.375	-0.1095 to 0.0446
CR*CAR	0.0005	0.0013	0.35	0.731	-0.0025 to 0.0034

DAR*CAR	0.0005	0.0002	2.85	0.016	0.0001 to 0.0008
LDR*CAR	-0.0003	0.0001	-2.78	0.018	-0.0005 to -0.0001
TANG	-0.0369	0.0100	-3.68	0.004	-0.0590 to -0.0148
FSIZE	0.0532	0.0145	3.67	0.004	0.0213 to 0.0851
Constant	2.0282	0.8182	2.48	0.031	0.2274 to 3.8291

Note: Processed data via Stata 19.5 by author
Model Diagnostics:
R-squared (Within): 0.3441
F-statistic (9, 11): 612.00, Prob > F = 0.0000
Number of Banks (Groups): 11
Observations: 132

To achieve a subtle insight into the role of the capital adequacy in moderating the association of liquidity proxies and firm value, it is possible to include terms of interaction. H01 is that there is no significant impact on current ratios on firm value. This is not accepted because the CR variable is negative and significant in the 5 per cent level ($p = 0.026$). This implies that high current ratios, which could be an indication of idle liquid assets, lower firm value among listed Deposit Money Banks in Nigeria. H02: Deposit to assets ratios do not significantly impact on the firm value. The DAR coefficient is negative and marginally significant ($p = 0.090$), which indicates that there is weak support of the null hypothesis being rejected. This inversion of earlier models indicates that there is a conditional aspect of the role of debt when subject to regulatory inquiry.

H03 will be based on the assumption that there is no significant impact on loan-to-deposit ratios on firm value. This is a null hypothesis that is rejected. The coefficient of LDR is positive and significant ($p = 0.001$), which indicates that banks having more loan utilisation in comparison with the deposits are likely to be enjoying superior firm value. H04 is the belief that there is no significant impact of capital adequacy ratio on the firm value. Since CAR is not statistically significant ($p = 0.375$), one cannot reject the null hypothesis. Capital adequacy, therefore, does not have a direct effect on valuation of firms in the model.

H05 states that the capital adequacy ratio does not play a significant moderating role on the relationship between the liquidity indicators and the firm value. This is partially rejected. The terms of interaction DAR_CAR and LDR_CAR are statistically significant (5 per cent level) showing that the meaning of capital adequacy moderates the influences of DAR and LDR on the value of a firm. Conversely, CR-FV relationship does not have any moderating evidence ($p = 0.731$). Overall, the results indicate that the capital adequacy does not necessarily have a direct impact on firm value, but it is a significant contingent variable that enhances or suppresses the effects of specific liquidity ratios on the value of listed Nigerian Deposit Money Banks.

Discussion of Findings

This research aimed at evaluating the relationship between liquidity management indicators and capital adequacy and their impact on the value of firms in the listed deposit money banks in Nigeria. Based on the Buffer Theory of Capital Adequacy and the Shiftability Theory, the results indicate a subtle relationship between measures of liquidity, capital buffers, and bank valuation. The insights created through the theoretical and empirical approaches show the strategic significance of regulatory capital and liquidity application in determining the firm-level performance outcomes in an emerging market situation.

The evidence demonstrates that the current ratio has a negative and statistically significant correlation with firm value in all the estimated models. The result confirms the null hypothesis (H01) and supports the theoretical explanation of the Shiftability Theory according to which liquidity can only be useful when assets can be quickly deployed into lucrative activities. This long-term negative correlation is noted to imply that too much liquidity can indicate inefficiencies in asset utilisation particularly in the maintenance of cash and cash-equivalent assets at the cost of interest-generative or asset-generating activities. This finding is supported by the previous empirical literature like by Oladele and Orinya who cautioned against liquidity hoarding of Nigerian banks at the expense of the productivity of assets. On the same note, post-consolidation liquidity surpluses were reported by Musa and others that could not be converted to ability to increase market value, which highlights the wider trend that liquidity accumulation without strategic placement has the potential to depress firm value.

A more context-dependent effect was obtained through the analysis of the deposit-to-asset ratio (DAR). Although it had generally positive correlation with firm value in the baseline models, which indicate that banks mobilising deposits to build up their asset base, particularly perform better, the effect lost strength in the fully moderated model. Nevertheless, the interaction effect between DAR and CAR (DAR CAR) was rather supportive, which means that the efficiency of mobilising deposits in increasing the value of the firm is contingent on the strength of the capital base of the bank. This finding confirms the second hypothesis (H02) and concurs with the principles of the Buffer Theory across which the capital adequacy is seen as the stimulus allowing banks to take on the leverage more freely and to utilize the funds more confidently about the compliance with the regulations and the stability of the market. This observation is in line with research by Okere and Ogunleye (2021) who noted that well-capitalised banks in Nigeria were able to maximize the depositor funds to spur lucrative business. The CAR moderating role, in this case, confirms that capital buffers are not only limiting but also facilitating value-activities, under specific liquidity measure and strategic orientation of the bank.

Loan to deposits ratio (LDR) was found to be a stable and statistically significant predictor of firm value, especially in the full moderated model, which proved the third hypothesis (H03). This outcome confirms the importance of credit intermediation in bank valuation, and implies that banks that are effective in converting deposits into performing loans have a higher chance of realising high market valuation. This result is consistent with other researchers such as Okafor and Iheanacho (2020) who noted that the effectiveness of lending was a significant predictor of performance of the Nigerian financial institutions. However, the relationship between LDR and CAR (LDRCAR) generated a strong negative coefficient, which indicated a controlling limit due to the increase in the capital adequacy levels. This interaction term implies that lending increases firm value, the capital structures are stipulated in a manner that the beneficial effect is wiped out by strict capital requirements that restrict the degree of expansion of bank loan books without violating prudential levels. This noticeable conflict reaffirms the duality inherent in the Buffer Theory where capital acts as a safeguard mechanism as well as a possible constraint of the risk-taking behaviour. This suggests that though regulatory capital helps in avoiding overexposure, it may also limit the capacity of the bank to maximise lending opportunities that are likely to be profitable.

Interestingly, capital adequacy (CAR) as such did not show a statistically significant direct impact on firm value in none of the models. This result causes the fourth hypothesis (H04) to be retained and agrees with the previous results of Oduware (2023) who also found that CAR had minimal explanatory power to firm value when projected independently. Nevertheless, the variable plays a central role in their interaction with DAR and LDR, which indicates its position as a conditional facilitator or inhibitor and not a driver. This is the summary of the two-fold nature of CAR that, at the same time, conveys the message of stability to the market, as well as, puts structural prudential constraints on the freedom of operation. The fact that the fifth hypothesis (H05) is partially rejected on the basis of these significant

interactions is connected with the complexity of regulatory capital in the establishment of the liquidity-value nexus.

Regarding the control variables, the firm size presented a positive and significant relationship with the value of the firm consistently. This proves the fact that bigger banks in Nigeria are prone to valuation premiums owing to reputational benefits, greater access to more varied funding sources and scale-related efficiencies. This observation is consistent with the research by Uwalomwa and Bassey, who pointed out the advantages of scale in the Nigerian banking environment. Conversely, the asset tangibility had a negative correlation with the firm value. This finding indicates that banks that have comparatively invested more in fixed assets might have a limitation in switching their capital to income-generating projects hence minimizing their value potential. The consequence can be echoed by the stance that was presented by Egbunike and Okerekeoti who reported the same findings in the financial institutions of Nigeria.

In general, the results of this research indicate that a dynamic perspective of liquidity metrics and capital strength association in the strategic structure of bank valuation is required. The insights point out that even though both liquidity and capital are essential to financial health, their functions are not necessarily linear and unidimensional. The results warn against naive interpretations of regulatory indicators and emphasize the necessity of banks and regulators to maintain a very awkward balance between prudence and performance. By doing this, the study will add strong empirical and theoretical insight to the current debate on bank valuation, capital regulation, and liquidity strategy in such emerging market settings as Nigeria.

5. Conclusion and Recommendations

The paper has investigated the effects of liquidity management practices on firm value among listed Deposit Money Banks (DMBs) in Nigeria in addition to investigating the moderating effect of capital adequacy within the 10 years between 2015 and 2024. The study used a panel dataset, 132 firm-years observations, and powerful econometric models (fixed effects, Driscoll-Kraay and PCSE regressions) to decompose the complex relationships between the short-term liquidity, deposit mobilisation, credit extension, regulatory capital, and market valuation.

It is also shown in the analysis that current ratio (CR) has a negative and statistically significant effect on the firm value. This observation confirms that the surplus liquidity particularly through idle or low yield assets devalue the value creation and send negative messages to the capital market. This adverse impact existing despite the fact that the capital adequacy and the firm characteristics have been controlled helps in rejection of H 0 1 and proves the claim of the Shiftability Theory that liquidity is only beneficial when it is used efficiently to generate income.

In the case of the deposit-to-asset ratio (DAR), the research revealed that at the baseline models, a positive relationship with the firm value initially exists and this indicates that the more deposit-funded banks possess the advantages of cost-efficient leverage, as well as investor confidence. This, however, turns out to be a weakened relationship with some margin to the negative on the introduction of interaction with capital adequacy.

The high and positive relationship between DAR and CAR means that capital buffers positively contribute to efficient utilization of depositor funds thereby contributing to value generation where regulation is in place. These inconsistent findings necessitate a subtle reading of H 0 2: it has been rejected in the direct model, but has been retained in the interaction, where the effect is hugely moderated by CAR levels.

Loan to deposit ratio (LDR) is a strong and positively meaningful predictor of firm value particularly when the capital adequacy is factored as a moderator. This finding contributes to the dismissal of H 0 and the significance of effective credit intermediation in market valuation. The market rewards DMBs that actively turn deposits liabilities into productive loans, which is an indication that they are capable of making earnings. The large negative LDR × CAR interaction is however, indicative that capital adequacy high in effect may reduce the marginal benefit of lending, presumably because risk-weighted asset levels are higher or credit growth is conservative to ensure compliance with regulations.

The capital adequacy ratio (CAR) alone fails to indicate a statistically significant value in firm value in all the models, and hence retention of H 0 4. This means that investors might not have a direct preference in capital buffers as long as they are not operationalised using certain banking operations. However, the moderating effect of CAR is of critical importance in determining the association of the liquidity proxy to value. It amplifies the desirable effect of the deposit leverage (DAR) and moderates the advantages of the aggressive lending (LDR). This two-sidedness is representative of the theoretical position of the Buffer Theory, which is that capital is not just a buffer against insolvency but also a moderator of bank risk-taking behaviour. As such, the research excludes H 0 5, which proves that capital adequacy plays an important moderating role between liquidity management strategies and firm value.

Overall, this article has an empirical contribution to the current discussion of capital regulation and market-driven pricing of the bank strategy in the emerging market. It sheds light on the non-linearity and contingency of the liquidity-value relationships and strengthens the role of capital adequacy as a strategic moderator over and above independent determiner of firm value in the Nigerian banking sector.

This section presents evidence-based recommendations derived from the study's key findings. These proposals are directed at bank executives, policymakers, regulators, investors, and scholars interested in improving liquidity management practices, capital adequacy planning, and market valuation outcomes within the Nigerian banking sector.

i. Banks should adopt more effective treasury and risk management policies to avoid idle liquidity and enhance profitability. The CBN should intensify its supervisory role to ensure compliance with liquidity thresholds without encouraging excessive cash holdings.

ii. Since LDR positively impacts firm value, banks should leverage this by strengthening their credit risk assessment frameworks and increasing lending to productive sectors. Policymakers should support this through credit guarantees and macro-prudential incentives.

iii. While CAR alone does not impact value significantly, its interaction with liquidity metrics is crucial. Therefore, the CBN should adopt a risk-sensitive capital adequacy assessment system, reinforcing Basel III compliance to ensure resilience and value protection.

iv. Banks must avoid overcapitalisation at the expense of profitability and growth. The capital structure should be dynamically managed, incorporating liquidity stress testing, especially in volatile economic environments like Nigeria.

v. Banks should explore digital liquidity instruments and flexible savings products to manage deposits efficiently. Investment in technology-enabled lending platforms can also increase intermediation efficiency.

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