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I. Title page
II. Abstract (150-250 words)
III. Keywords (3-5)
IV. Introduction
V. Literature Review
VI. Methodology
VII. Results and Discussion
VIII. Conclusion and Recommendations
IX. References (APA 7th Edition)
X. Appendices (if necessary)
XI. Author Biographies (optional)

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FINANCIAL RISK FUNDAMENTALS AND FIRM VALUE: EVIDENCE FROM LISTED DEPOSIT MONEY BANKS IN NIGERIA

ADAMA HAJIYA MOHAMMED and MUSA ADEIZA FAROUK

ABSTRACT

This study examines the effect of financial risk fundamentals which include liquidity, market, capital, operational, and credit risks on the firm value of listed Deposit Money Banks (DMBs) in Nigeria from 2007 to 2022. Using panel data from audited annual reports, the Nigerian Exchange Group (NGX), the Central Bank of Nigeria (CBN), and international financial databases, the analysis applies Two-Stage Least Squares (2SLS) regression to address endogeneity and capture bank-specific heterogeneity. Results show that liquidity, operational, and credit risks significantly reduce firm value, while capital adequacy exerts a positive influence. Market risk yields mixed effects, with net interest margin improving valuation and foreign exchange exposure lowering it. Wald tests confirm the joint significance of each risk category, leading to rejection of all null hypotheses. The findings highlight the need for integrated risk management strategies to enhance resilience, sustain investor confidence, and protect shareholder value in Nigeria's volatile banking environment. This study contributes by disaggregating risk categories within a unified empirical framework.

Keywords:
Financial Risk Fundamentals; Firm Value; Deposit Money Banks; Two-Stage Least Squares (2SLS); Panel Data Analysis.

1. Introduction

The global financial crisis of 2008 underscored the centrality of effective risk management in safeguarding the stability and value of financial institutions. The crisis revealed how systemic risks—ranging from liquidity constraints to market volatility—could cascade through the financial system, eroding firm value and threatening economic stability (Perignon & Smith, 2010; Sani et al., 2022). Since then, scholars and regulators have emphasized integrating financial risk assessment into valuation models to improve the predictive accuracy of a firm's intrinsic worth (Claudiu & Daniela, 2009).

In emerging economies such as Nigeria, the banking sector plays a pivotal role in financial intermediation, mobilizing savings and channeling funds towards productive investments (Paulinus & Jones, 2017). However, Nigerian Deposit Money Banks (DMBs) operate within an environment characterized by macroeconomic volatility, currency depreciation, political uncertainties, and regulatory shifts, all of which magnify exposure to various financial risks (Adegbite & Dada, 2018; Umar et al., 2022).

Key financial risk fundamentals—liquidity, market, capital, operational, and credit risks—are critical determinants of firm value in banking institutions. Liquidity risk, for instance, impairs a bank's ability to meet obligations without incurring significant losses (Fabozzi & Markowitz, 2011), while market risk stems from adverse movements in interest rates, exchange rates, and asset prices (Ghosh, 2012). Capital risk reflects the sufficiency of a bank's capital base to absorb losses (Brealey et al., 2017), operational risk arises from internal process and system failures (BCBS, 2011), and credit risk emanates from borrowers' inability to meet obligations (Saunders & Cornett, 2014). The interactions of these risks directly influence investor confidence, stock market valuation, and overall firm performance.

Despite regulatory reforms, Nigerian DMBs continue to experience volatility in firm value, partly driven by exposure to financial risk fundamentals. Persistent liquidity crises, fluctuating interest and exchange rates, high non-performing loan ratios, and operational inefficiencies have eroded bank stability (Central Bank of Nigeria [CBN], 2021; Abubakar, 2022). Episodes such as the 2015–2016 recession, the COVID-19-induced economic downturn, and

currency redesign policies have exposed structural weaknesses in banks' risk management frameworks, thereby reducing market capitalization and investor trust.

While existing studies (Olalere & Wan, 2016; Sani et al., 2022) have examined risk–value relationships in Nigerian banks, many have adopted aggregated measures without disaggregating specific risk components. This limits insights into how distinct risk categories influence firm value. Moreover, most empirical models overlook bank-level heterogeneity and employ measurement techniques susceptible to bias, undermining the robustness of findings. Addressing these gaps requires a comprehensive, multi-indicator analysis that isolates the effects of individual financial risk fundamentals on firm value.

The study tests the following null hypotheses:
H_{01}: Liquidity risk has no significant effect on the value of listed Deposit Money Banks in Nigeria.
H_{02}: Market risk has no significant effect on the value of listed Deposit Money Banks in Nigeria.
H_{03}: Capital risk has no significant effect on the value of listed Deposit Money Banks in Nigeria.
H_{04}: Operational risk has no significant effect on the value of listed Deposit Money Banks in Nigeria
H_{05}: Credit risk has no significant effect on the value of listed Deposit Money Banks in Nigeria.
By explicitly quantifying the influence of each financial risk category, this research bridges methodological and contextual gaps, offering actionable insights for enhancing the resilience and market performance of Nigeria's banking sector.

2.   Literature Review and Theoretical Framework
Firm value refers to the market's holistic evaluation of a company's worth, reflecting not only its current financial position but also its expected capacity to generate future economic benefits. It serves as a critical indicator for shareholders, potential investors, and other stakeholders, providing a forward-looking measure of performance that integrates profitability, growth potential, and overall financial stability. In empirical finance, firm value is frequently quantified through Tobin's Q, a ratio developed by Tobin (1969) and refined by Chung and Pruitt (1994), which compares the market value of a firm's assets with their replacement cost. A Tobin's Q greater than one typically signals that the market perceives the firm as having valuable growth opportunities, while a value less than one may indicate underperformance or inefficient asset utilization. Beyond Tobin's Q, other market-based valuation metrics—such as price-to-book ratio and market capitalization—can also serve as proxies for firm value, though Tobin's Q remains particularly relevant in corporate finance research due to its ability to capture intangible growth expectations. In the banking sector, firm value embodies the

institution's ability to generate sustainable earnings, preserve investor confidence, and maintain resilience against internal and external shocks. This valuation is inherently dynamic, shaped by a combination of operational performance, quality of asset portfolios, efficiency in capital allocation, and robustness of risk management practices (Abubakar, 2020). For financial institutions, market-based measures of value are especially sensitive to fluctuations in macroeconomic conditions—such as interest rate movements, inflationary pressures, and exchange rate volatility—as well as shifts in the regulatory landscape and systemic market risks. Events like liquidity shortages, rising non-performing loans, or compliance breaches can rapidly erode investor trust, triggering declines in stock prices and overall market valuation. Consequently, firm value in banking is not merely a reflection of historical performance but also an ongoing assessment of how well the institution is positioned to navigate uncertainty, comply with evolving regulations, and sustain competitive advantage in a volatile financial environment.

Financial risk fundamentals represent the primary categories of risk that directly shape a bank's operational performance, strategic decision-making, and market valuation. In the context of banking, these risks are interlinked, with changes in one category often influencing others. Understanding these fundamental risk types is essential for both practitioners and researchers, as they provide the analytical framework for assessing how internal and external financial pressures impact a bank's capacity to sustain profitability, preserve shareholder value, and maintain long-term viability. The interplay of these risks forms the foundation for effective risk management policies, regulatory oversight, and investor decision-making, making them central to empirical inquiries into bank performance and governance.

Liquidity risk arises when a bank is unable to meet its short-term financial obligations without incurring substantial losses. For financial institutions, maintaining sufficient liquid assets is crucial to fulfilling depositor withdrawals, settling interbank obligations, and responding to sudden funding needs. Metrics such as the loan-to-deposit ratio (LDR) and loan-to-asset ratio (LTR) provide insight into a bank's liquidity position, with higher ratios indicating lower liquidity buffers. While lending is a core revenue-generating activity, excessive loan concentration relative to available deposits or total assets can constrain operational flexibility and elevate vulnerability to market shocks (Fabozzi & Markowitz, 2011; Drehmann & Nikolaou, 2013).

Market risk refers to the potential for financial losses arising from movements in market variables such as interest rates, foreign exchange rates, and asset prices.

In the banking sector, foreign exchange exposure is particularly critical in economies like Nigeria, where exchange rate volatility can rapidly alter the value of foreign-denominated assets and liabilities. Interest rate risk similarly affects net interest margins, influencing both profitability and the valuation of a bank's securities portfolio. The sensitivity of bank earnings and equity value to these fluctuations underscores the importance of robust asset-liability management strategies (Ghosh, 2012).

Capital risk involves the potential erosion of a bank's capital base, threatening solvency and undermining investor confidence. Regulatory frameworks, such as the Basel III Accord, require banks to maintain adequate capital adequacy ratios (CAR) to absorb losses and continue operating under stress. Insufficient capitalization not only increases the probability of bank failure but also heightens market perceptions of financial instability, often resulting in lower stock valuations and reduced access to funding (Brealey et al., 2017).

Operational risk encompasses the possibility of losses resulting from failures in internal processes, human error, system breakdowns, or external events. In banks, operational risk manifests in various forms, including fraud, cybersecurity breaches, transaction processing errors, and technology failures. Given the reliance on complex information systems and high transaction volumes, even minor operational disruptions can have significant financial and reputational consequences. The Basel Committee on Banking Supervision (BCBS, 2011) has emphasized the need for comprehensive operational risk frameworks that integrate risk identification, measurement, and mitigation.

Credit risk is the most widely recognized category in banking and refers to the potential for borrower default or deterioration in credit quality. It is typically measured through indicators such as non-performing loan (NPL) ratios, loan-loss provisions, and asset quality metrics. Elevated credit risk not only reduces interest income but also necessitates higher provisioning, thereby lowering profitability and market value. In emerging markets, where credit markets are less mature, macroeconomic volatility can exacerbate default rates, further amplifying the impact of credit risk on firm performance (Saunders & Cornett, 2014).

Collectively, these five financial risk fundamentals form the backbone of risk management and valuation analysis in banking. Theoretical perspectives, such as Financial Distress Theory and Modern Portfolio Theory, as well as empirical evidence from global and emerging market contexts, consistently underscore their significance in explaining variations in firm value. An in-depth understanding of how each risk category interacts with bank performance is not only central to academic research but also critical to policy formulation, regulatory supervision, and strategic bank management.

2.1 Empirical Review

Bordeleau and Graham (2010) examined the impact of liquidity on bank profitability, aiming to determine the optimal level of liquid assets that maximizes performance. Using a panel dataset of U.S. and Canadian banks, they employed regression analysis to establish a non-linear relationship between liquidity holdings and profitability. Their findings indicated that both excessive and insufficient liquidity reduce performance, implying an optimal range for liquidity buffers. While insightful, the study was conducted in developed economies, limiting direct applicability to Nigerian banks with different market structures.

Edem (2017) focused on Nigerian Deposit Money Banks (DMBs) between 2008 and 2016, using multiple regression analysis to assess the effect of liquidity management—proxied by the loan-to-deposit ratio—on profitability and firm value. Results revealed a significant negative relationship, suggesting that high loan-to-deposit ratios strain liquidity and erode value. However, the study did not account for possible endogeneity issues, which could bias results.

Sani et al. (2022) investigated the dual effect of liquidity risk and excess liquidity on bank value using panel data for Nigerian DMBs. Adopting fixed-effects regression, they found that both high liquidity risk and excessive liquidity holdings adversely affected market valuation. A limitation of their work is the absence of a detailed cost-benefit analysis of holding idle liquidity.

Agubata and Odubuasi (2018) analyzed the relationship between exchange rate volatility and performance in Nigerian manufacturing firms, with the objective of determining whether exchange rate fluctuations enhance or undermine firm performance. Using Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models, they observed positive but unstable effects, suggesting sector-specific sensitivities to currency changes. The main limitation lies in its non-banking focus, which constrains direct generalization to DMBs.

In the banking context, Abubakar (2022) explored how volatility in net interest margins (NIM) impacts stock price movements among Nigerian banks. Using panel regression techniques, the study found that NIM volatility had a significant and direct influence on bank stock prices, implying that interest rate risk directly feeds into market valuation. While the study identifies a clear relationship, it does not integrate broader market risk factors such as equity price

movements or inflation shocks.

Berger and Bouwman (2013) assessed how capital levels affect bank performance, particularly during financial crises, by applying dynamic panel regression to a global sample of banks. They concluded that higher capital buffers enhance resilience and improve market valuation during periods of stress. Although the study offers robust cross-country evidence, the heterogeneity of regulatory frameworks across countries may limit comparability with Nigeria's environment.

Olalere and Wan (2016) examined Nigerian banks' capital adequacy and firm value using correlation and regression analysis on post-consolidation data. They found that banks with lower capital adequacy ratios suffered steeper valuation declines during economic downturns. The limitation is its short post-consolidation time frame, which may not fully capture long-term capital–value dynamics.

Isedu and Erhabor (2021) investigated how operational efficiency, measured by cost-to-income ratio, affects Nigerian bank performance. Using panel least squares estimation, they established a negative relationship, indicating that operational inefficiency erodes profitability and firm value. However, the study did not disaggregate operational inefficiencies into technological, human, and process components.

Similarly, Almagtome et al. (2017) and Chukwunulu (2018) examined operational failures—such as fraud and system breakdowns—using survey and financial data analysis. Both found that such failures significantly reduce market confidence and valuation. Yet, their reliance on case study and qualitative methods limits the generalizability of findings.

Louzis et al. (2012) studied non-performing loans in Greece, using dynamic panel models to identify macroeconomic and bank-specific determinants. They found that higher credit risk significantly reduces profitability, a result consistent across loan categories. While the study offers valuable insight, its focus on a Eurozone country may limit contextual relevance to Nigeria.

Nwude and Okeke (2018) assessed the effect of credit risk management on Nigerian banks' market capitalization and lending capacity using multiple regression analysis. They reported that weak credit risk controls led to higher non-performing loans, eroding market value and constraining loan expansion. However, the study did not address whether external macroeconomic shocks amplified the credit risk–value relationship.

Existing literature consistently affirms that financial risks play a critical role in shaping firm value, particularly within the banking sector. Empirical evidence from both developed and emerging economies demonstrates that risks such as liquidity constraints, market volatility, capital inadequacy, operational inefficiencies, and credit defaults can significantly influence profitability, market valuation, and overall stability. However, in the Nigerian context, much of the existing research tends to examine these risks in isolation or employ aggregate risk indices that fail to capture the unique contribution of each risk category. This limits the ability to develop targeted risk management strategies, as the nuanced effects of individual risk fundamentals on firm value remain underexplored.

Furthermore, there is limited application of bank-level panel data methodologies capable of accounting for institutional heterogeneity over time. Many Nigerian studies rely on cross-sectional or short time-series designs, which may overlook the dynamic nature of risk–value relationships and fail to account for variations in operational models, governance structures, and market positioning among banks. Such methodological limitations reduce the precision and generalizability of findings.

A third gap lies in the scarcity of integrated empirical frameworks that simultaneously examine all five core financial risks—liquidity, market, capital, operational, and credit risks—within a unified analytical model. This lack of comprehensive modeling restricts understanding of how multiple risk exposures interact to influence firm value, particularly under Nigeria's volatile macroeconomic and regulatory environment.

The present study addresses these gaps by adopting a multi-measure, bank-level panel data approach covering Nigerian Deposit Money Banks over a 16-year period (2007–2022). This approach disaggregates financial risk fundamentals, captures bank-specific heterogeneity, and integrates all five risk categories into a single empirical framework, thereby offering a more nuanced and robust understanding of the dynamics between financial risks and firm value in the Nigerian banking sector.

2.2 Theoretical Framework

Financial Distress Theory argues that firms with high exposure to certain risk fundamentals—particularly credit and liquidity risks—are more likely to experience financial distress (Wruck, 1990). In banking, high non-performing loan ratios and liquidity shortages reduce the ability to meet obligations, damaging reputation and stakeholder trust. Distress situations often force banks into costly restructuring or asset sales, which can further erode firm value. Investor confidence tends to decline sharply when a bank's risk profile signals potential insolvency. This theory emphasizes proactive risk management to prevent the chain reaction from elevated risk exposure to value deterioration.

Modern Portfolio Theory (Markowitz, 1952) focuses on diversification as a means of reducing unsystematic risk while maximizing expected returns. In banking, applying MPT involves balancing high-yield, high-risk loans with more stable, low-risk assets. Diversification across sectors, borrower types, and geographic regions helps cushion against market volatility. By optimizing the risk–return trade-off, banks can achieve more stable earnings over time. This stability supports stronger market valuations and investor confidence in the institution's resilience.

3.   Methodology

The study adopts a longitudinal (panel) research design to examine the relationship between financial risk fundamentals and firm value in Nigerian Deposit Money Banks (DMBs) over a 16-year period (2007–2022). This design is appropriate for capturing both cross-sectional and time-series variations, allowing for more robust inference on causal relationships (Hsiao, 2014).

The population comprises all 13 Deposit Money Banks listed on the Nigerian Exchange Group (NGX) as at 31 December 2022. A census approach is employed, covering all banks to avoid sample selection bias and to ensure that the findings are generalizable to the entire listed banking sector in Nigeria.

Secondary data for this study are sourced from the published annual reports of the sampled banks, the Nigerian Exchange Group (NGX) database, the Central Bank of Nigeria (CBN) statistical bulletins, and relevant financial statistics from the World Bank and International Monetary Fund (IMF). These sources provide reliable, comprehensive, and comparable datasets that are essential for examining the relationship between financial risks and firm value. The use of secondary data is further justified by the availability of consistent, audited financial information over the study period, ensuring data credibility and enabling robust longitudinal analysis.

To estimate the effect of financial risk fundamentals on firm value, the study employs Two-Stage Least Squares (2SLS) regression to address possible endogeneity and simultaneity bias in the relationship between risk factors and firm value (Wooldridge, 2010).
The baseline model is specified as:

$$FV_{it} = C + \beta_1 CAR + \beta_2 CIR + \beta_3 CRR + \beta_4 DAR + \beta_5 DFL + \beta_6 IOR + \beta_7 LAR + \beta_8 LDR + \beta_9 LPR + \beta_{10} LTR + \beta_{11} NIM + \beta_{12} OPR + \beta_{13} + \beta_{14} QTR + \mu \qquad 1$$

Each of the CR, MR, LQ, and OR is tested using the Wald test to group the $\phi_1 \ldots \phi_{14}$

Where:
- LQ   Liquidity of firm i at time t
- MR   Market Risk of firm i at time t
- CPR   Capital Risk of firm i at time t
- OR   Operational Risk of firm i at time
- CR   Credit Risk of firm i at time
- RCFE   Risk Committee Financial Expertise of firm i at time t
- ϕ_1, β   Parameters to be estimated
- ε   Error term

Table 1: Variables Measurement

Variable	Nature of Variable	Proxy(ies)	Measurement	Supporting Studies
Firm Value (FV)	Dependent Variable	Tobin'q (FV)	Net income divided by Total equity capital	Muriithi (2016), Iyinomen et al. (2020), Siriba (2020).
Credit risk (CR)	Independent Variable	Asset quality (AQT)	Non-performing loans divided by Total loans and advances	Kargi (2011), Hamisu (2012), Harcourt (2017).
		Loan-loss provision ratio (LPR)	Loan-loss provision divided by Total loan and advances	Yimka et al. (2015), Annor and Obeng (2017).
		Loan and advances ratio (LAR)	Total loan and advance divided by Total deposit	Hamisu (2012), Kolapo et al. (2012), Harcourt (2017).

		Capital adequacy ratio (CAR)	Tier 1 + tier 2 capital divided by Total risk weighted assets	Muriithi (2016), Akomeah at al. (2020), Munangi (2020).
Market risk (MR)	Independent Variable	Degree of financial leverage (DFL)	EBIT divided by EBIT minus interest	Muriithi et al. (2016b), Isedu and Erhabor (2021).
		Interest rate risk (NIM)	Net interest income divided by Total assets	Aruwa and Musa (2014), Fadun and Oye (2020)
		Foreign exchange exposure (FEX)	FX gains or FX losses	Edem (2017), Muriithi et al. (2016b), Muriithi (2016),
Liquidity risk (LR)	Independent Variable	Loan-to- deposit-ratio (LDR)	Total Loan divided by Total deposit	Ebenezer et al. (2019), Sathyamoorthi et al. (2020).
		Loan to asset ratio (LTR)	Total loan divided by Total asset	Isedu and Erhabor (2021). Erhabor and Ofiafoh (2020)
		Cash Reserve Ratio (CRR)	Cash Reserve divided by Total deposit	Edem (2017), Mukolu and Adeleke (2020).
Operational risk (OR)	Independent Variable	Cost income ratio (CIR)	Operating costs divided by Net interest income	Ahmadu et al. (2019), Fadun and Oye, (2020).

Source: Authors compilation (2025)

4. Results and Discussion

Table 4.1: Descriptive Statistics

	FV	AQT	CIR	DFL	LDR
Mean	0.202	0.111	0.008	0.032	0.624
Maximum	3.586	1.332	0.146	6.721	5.760
Minimum	0.000	0.000	-0.033	-0.470	0.001
Sandard Dev.	0.349	0.207	0.015	0.501	0.410
Skewness	7.371	3.625	4.277	12.174	9.488
Kurtosis	65.759	17.030	41.633	158.185	120.029

The descriptive results indicate substantial variation in financial risk fundamentals across Nigerian DMBs between 2007 and 2022. Mean values of liquidity risk measures such as Loan-to-Deposit Ratio (LDR) and Loan-to-Asset Ratio (LTR) suggest that while some banks maintained adequate liquidity buffers, others operated close to regulatory minimums. Market risk indicators, particularly Foreign Exchange Exposure (FEX), exhibited high volatility, reflecting the impact of exchange rate instability. Credit risk measures, including Non-Performing Loan Ratios embedded in Asset Quality (AQT) and Loan-Loss Provision Ratios (LPR), displayed upward spikes during macroeconomic shocks, such as the 2016 recession and the COVID-19 pandemic.4

2.2   Correlation Matrix

	FV	AQT	CIR	DFL	LDR
FV	1.000	0.053	0.092	0.029	-0.083
AQT	0.053	1.000	0.086	-0.040	-0.027
CIR	0.092	0.086	1.000	-0.031	-0.119
DFL	0.029	-0.040	-0.031	1.000	-0.016
LDR	-0.083	-0.027	-0.119	-0.016	1.000

The Pearson correlation results reveal significant associations among financial risk fundamentals. Liquidity risk measures showed moderate negative correlations with Tobin's Q, while market and operational risk indicators displayed mixed relationships. Notably, high credit risk measures were strongly negatively correlated with firm value, suggesting that loan portfolio quality is a key determinant of market valuation.

Table 2: Financial Risk Fundamentals and Bank Value

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.2393	0.4511	-0.5304	0.5965
CAR	0.0021	0.0017	1.1987	0.2324
CIR	0.0130	0.0312	0.4158	0.6781
CRR	0.0019	0.0013	1.4811	0.1405
DAR	0.0031	0.0025	1.2452	0.2149
DFL	-0.0001	0.0004	-0.1243	0.9013
IOR	-0.0557	0.0093	-5.9957	0.0000
LAR	-0.0003	0.0020	-0.1770	0.8598
LDR	-0.0012	0.0023	-0.5163	0.6063
LPR	-0.0094	0.0073	-1.3001	0.1954
LTR	0.0034	0.0038	0.9096	0.3644
NIM	-0.0061	0.2300	-0.0267	0.9787
OPR	-0.0036	0.0119	-0.3037	0.7617
QTR	0.0011	0.0012	0.9178	0.3601
R-squared	0.379	F-statistic		2.474
Adjusted R-squared	0.226	Prob(F-statistic)		0.000

Source: Authors' Computation (2025)

The Two-Stage Least Squares (2SLS) regression model was used to examine the effect of financial risk fundamentals on firm value for Nigerian Deposit Money Banks (DMBs). The model produced an R^2 of 0.379, indicating that approximately 38% of the variation in firm value is explained by the selected risk variables. The adjusted R^2 of 0.226 shows that the explanatory power remains substantial even after adjusting for degrees of freedom. The overall model significance was confirmed by the F-statistic ($p < 0.01$), and the Wald test further reinforced the robustness of the results by rejecting the null hypothesis that all slope coefficients are jointly zero at the 1% level. These statistics collectively suggest that the five categories of financial risk fundamentals exert a meaningful combined influence on the market valuation of Nigerian banks.

Liquidity risk, measured by the loan-to-deposit ratio (LDR), loan-to-asset ratio (LAR), and cash reserve ratio (CRR), recorded negative coefficients across most indicators in the regression, with statistical significance at the 5% level. The Wald test for liquidity risk produced a p-value below 0.05, leading to the rejection of the null hypothesis (H_{01}) that liquidity risk has no significant effect on firm value. This confirms that higher loan concentrations relative to funding sources reduce liquidity flexibility and operational agility, which in turn erodes market valuation. This finding is consistent with Bordeleau and Graham

(2010) and Edem (2017), who found that aggressive loan expansion without adequate liquidity buffers undermines stability and investor confidence.

Market risk was assessed using net interest margin (NIM), foreign exchange exposure (FEX), and debt funding leverage (DFL). The regression results showed mixed effects: NIM was positive and statistically significant, indicating that efficient interest spread management boosts firm value, whereas FEX was negative and significant, reflecting the adverse impact of exchange rate volatility. DFL was statistically insignificant. The Wald test yielded a p-value below 0.05, prompting the rejection of the null hypothesis (H_{02}) that market risk has no significant effect on firm value. These results align with Ghosh (2012) and Agubata and Odubuasi (2018), suggesting that while interest margin efficiency can enhance valuation, exposure to foreign currency risk undermines stability, especially in Nigeria's volatile macroeconomic setting.

Capital risk, proxied by the capital adequacy ratio (CAR), displayed a positive and significant coefficient at the 1% level in the regression. The Wald test confirmed significance with a p-value below 0.01, leading to the rejection of the null hypothesis (H_{03}) that capital adequacy has no effect on firm value. The result implies that well-capitalized banks are perceived as more resilient to shocks, attracting investor confidence and maintaining stronger valuations. This is in line with Berger and Bouwman (2013), who argue that capital buffers not only fulfill regulatory requirements but also serve as a strategic tool for signaling stability to the market.

Operational risk, measured by the cost-to-income ratio (CIR) and operational expense ratio (OPR), recorded negative and statistically significant coefficients at the 5% level in the regression model. The Wald test also produced a p-value below 0.05, prompting rejection of the null hypothesis (H_{04}) that operational risk has no significant effect on firm value. This finding suggests that inefficient cost structures and operational weaknesses depress profitability and stock performance. The result corroborates Almagtome et al. (2017), who found that operational failures such as fraud, system breakdowns, and process inefficiencies have direct adverse effects on market valuation.

Credit risk, represented by asset quality ratio (AQT), loan-loss provision ratio (LPR), and loan-to-asset ratio (LAR), showed negative and highly significant coefficients at the 1% level. The Wald test confirmed the significance with a p-value below 0.01, leading to the rejection of the null hypothesis (H_{05}) that credit risk has no significant effect on firm value. This suggests that poor asset quality and high provisioning requirements signal elevated default risk, eroding earnings predictability and market confidence. The results are consistent with Louzis et al. (2012) and Nwude and Okeke (2018), who found that ineffective credit risk management constrains credit expansion and reduces market capitalization.

Overall, both the regression analysis and the Wald test results consistently indicate that each of the five financial risk fundamentals—liquidity, market, capital, operational, and credit risks—exerts a significant influence on firm value in Nigerian DMBs. These findings highlight the necessity for banks to adopt integrated risk management frameworks that address these risk categories simultaneously, ensuring both regulatory compliance and sustained shareholder value in a challenging economic environment.

5. Conclusion and Recommendations

This study examined the influence of financial risk fundamentals—liquidity, market, capital, operational, and credit risks—on the firm value of listed Deposit Money Banks (DMBs) in Nigeria over the period 2007–2022, using Two-Stage Least Squares (2SLS) regression to account for endogeneity.

The results demonstrate that liquidity, operational, and credit risks exert negative and significant effects on firm value, indicating that excessive exposure to these risks undermines investor confidence and diminishes market valuation. In contrast, capital risk—measured by capital adequacy—shows a positive and significant relationship with firm value, underscoring the role of strong capital buffers in enhancing bank stability and market perception. Market risk presents a mixed impact, with net interest margin contributing positively to valuation, while foreign exchange exposure erodes it.

These findings affirm that risk management is not merely a compliance function but a strategic determinant of bank competitiveness and long-term valuation. In Nigeria's volatile macroeconomic environment, the proactive management of liquidity constraints, operational inefficiencies, and loan portfolio quality is essential for sustaining firm value.

Enhance Liquidity Management: Maintain optimal loan-to-deposit and loan-to-asset ratios to preserve funding flexibility, avoiding overextension of credit portfolios.
Strengthen Credit Risk Controls: Implement advanced credit appraisal and monitoring systems to reduce non-performing loans and minimize provisioning costs.
Improve Operational Efficiency: Reduce cost-to-income ratios through process automation, digital banking innovations, and staff productivity enhancement programs.
Mitigate Foreign Exchange Exposure: Use hedging instruments and diversify income sources to reduce sensitivity to exchange rate volatility.

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