Effect of Credit Risk Management on Financial Performance of Listed Deposit Money Banks in Nigeria

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ABSTRACT

Deposit Money Banks (DMBs) deal with loans to customers that are anticipated to be returned following the terms of the arrangement. Customers who fail to repay their loans within the prearranged timeframe risk accruing bad and doubtful debt, which could have an adverse effect on the bank's stability and financial performance.

This study was conducted to explore the effect of credit risk management on the financial performance of listed deposit money banks in Nigeria for 2013-2022. The study adopted an ex-post facto research design and sampled ten (10) listed deposit money banks.

Using Panel Ordinary Least Square (OLS) regression as a data estimation technique, the result of the study showed that credit risk management has a significant effect on return on asset (Adj $R2= 0.301$, F-Statistics $=4.561471$, p-value$=0.000011<0.05$).

Based on the results, the study concluded that credit risk management has a significant effect on the financial performance of listed deposit money banks in Nigeria.

The study recommended that the management of deposit money banks should focus on strengthening their credit risk management practices and ensuring sufficient liquidity to mitigate the negative impact on profitability.

Keywords: Credit risk management, Financial performance, Insolvency, Return on asset, Return on equity.

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1.0   INTRODUCTION

Every nation's economic prosperity and progress depend on the stability of its financial sector. Deposit money banks (DMBs) are financial institutions that play crucial roles in developing a country's economic activity. It apportions funds available for investment towards the most profitable investment opportunity. The process of allocating these funds is called financial intermediation. As financial intermediaries, the risk associated with the banks based on these roles has increased greatly, especially in recent decades as bank's diversification of asset holdings has increased (Harb et al., 2022; Mohammed & Knapkova, 2016). For DMBs to play this vital role in progress, they need to have a mechanism by which insolvency, illiquidity, and financial failure could arise through a robust credit risk management system.

The capacities of Deposit Money Banks to support economic growth, provide credit to borrowers, and preserve the confidence of depositors and investors, as well as the reliability and safety of the financial system, are all highly dependent on their financial performance. One of the most important aspects of banking regulation and supervision to guarantee the economy's general health is tracking and evaluating DMB's financial situation. Strong financial results guarantee DMBs' ability to absorb losses, lowering the possibility of bank collapses that might topple the whole financial system.

Deposit money banks (DMBs) have operated in a changing legal and financial landscape over time. Thus, these operations encounter significant risks. Internal and external variables are frequently the cause of financial management

issues in DMBs. Failures as a result of these issues are common, usually brought on by subpar financial performance in important sectors. Among these problems are ineffective risk management, liquidity problems, insufficient capital management, ineffective cost management, and lax governance and monitoring. DMBs' stability, profitability, and reputation can all be negatively impacted by poor financial performance.

Credit risk (CR) and cash management (CM) variables can affect DMB performance if not properly managed. Improper management of credit risk by DMBs raises cash flow volatility, leaves profitability vulnerable to swings, and eventually results in insolvency (Djan et al., 2015).

Nonetheless, through capital adequacy ratio (CAR) assessments, loan-to-deposit ratio, and non-performing loan data, loans granted by management to borrowers should be evaluated to assess the effect of credit risk on listed deposit money banks. Non-performing loans are loans that are not paid at the agreed period. Under the prudential rules, non-performing credit facilities fall into one of three classifications: substandard, doubtful, or lost (CBN, 2010). Despite the Central Bank of Nigeria's (CBN) prudential standards, the velocity rate of non-performing loans increased from 4.84% to 5.3% between February 2022 and April 2022. This is above the regulatory requirement of 5% and indicates that banks are still carrying more problematic loans than is permitted (Ubah, 2021).

As such, DMBs suffer losses when borrowers fail on their loans since they do not receive the anticipated interest income or principal payments. Poor asset quality is indicated by a high percentage of non-performing loans to total loans (NPLLR), which could indicate problems with the lending practices, risk management, or operational environment.

The Central Bank of Nigeria slashed commercial banks' Loan-to-Deposit Ratio from 65 to 50 per cent as part of measures to deepen its monetary tightening policy. The development means Deposit Money Banks can now lend only 50 per cent of their deposit to customers.

Another key indicator for evaluating DMB credit risk is the Capital Adequacy Ratio (CAR). Regulatory bodies, including the Central Bank of Nigeria (CBN), mandate that DMBs maintain a specific percentage of CAR to guarantee financial stability in the event of potential future uncertainties. It explains the DMB measurement of capital adequacy as the extent to which the capital can accommodate its riskier loans, which indicates the bank's financial stability (John & Okika, 2019).

According to Bhattarai (2020), effective credit risk management prevents banks from suffering from unforeseen losses and financial hardship. On the other hand, underperforming banks are made worse by rising credit risk and ongoing bad consequences, so they may have to reschedule plans, alter strategies, adjust capital structures, or even abandon customers altogether or merge with better banks on terms that may be challenging. Thus, when DMBs experience financial difficulties that go from being temporary to permanent, they may have to liquidate or merge. This will result in significant debt losses, some of which will eventually turn into bad debt, which will cause hundreds or thousands of employees to lose their jobs and harm the economy and development. To comprehend an empirical examination of bank performance factors and their impact on risk management practices, it is imperative to grasp the relationship between DMB's financial performance and risk management.

1.1 Objectives of the Study

The study's main objective was to examine the effect of credit risk management on the financial performance of listed Deposit Money Banks in Nigeria for ten (10) years (2013 – 2022). Specifically, the objective was to determine the effect of credit risk management on return on assets of the selected Nigerian Listed Deposit Money Banks.

2.0   LITERATURE REVIEW

2.1   Conceptual Review

2.1.1   Financial Performance

A DMB's ability to use its assets to generate profit within a given time frame while adhering to the main operational objectives is measured by financial performance. By maximizing shareholder wealth, it assesses how well management uses organizational resources to create value. In terms of profit and its relationship to other factors that can directly affect profit, financial performance can be thought of as a relative phrase that is measurable. However, to evaluate DMBs' profitability, efficiency, liquidity, solvency, and general health, a variety of financial measures and indicators must be analyzed and interpreted. DMB which performs well can readily draw in investors to expand its

capital base and add to job possibilities, both of which improve the nation's economy. As a result, a company will yield large profits with few mistakes made in running the business (Hindasah et al., 2020).

According to Zhongming and Frimpong (2019), a company's creditworthiness and operational cost-effectiveness are measured as part of financial performance, which evaluates a company's profitability. Consequently, a company's financial performance serves as a reference for determining the net result of its operations to preserve its stability. Poor financial performance would therefore point to incompetent management, and potential investors would be wary of funding the company.

According to Appah et al. (2020), financial success is primarily represented in the calculation of accounting ratios that indicate the link between figures in the financial statement. It is also known as the asset return rate and is a widely used performance metric in the finance industry. Return on asset measures how successfully a profitable organization uses its resources to generate profit, especially in the banking industry. It also serves as a comparison tool for various investments in a portfolio. Therefore, to prevent the negative effects of cash holding, good credit will have an impact on DMBs' financial performance through rational and meticulous credit risk management. However, the attainment of set corporate objectives, such as maximising shareholder wealth and maximising the value of the business entity, through the engagement of organisational resources in the provision of services or products to the business environment, while taking into account pertinent risks and uncertainties, is what leads to financial performance.

2.1.2   Return on Assets

Return on assets (ROA), which measures DMB's capacity to make money from its assets, is a performance measurement component. Shareholders and other stakeholders can evaluate how well DMBs use their resources to generate profit by looking at ROA. The ratio considers both the asset cost and net profit or gains from it. DMBs utilize it extensively to assess the success of financial ventures and allocate resources in an informed manner. According to Fahmi (2015) and Okolie et al. (2023), The ability of the funds invested to generate the anticipated return on asset is evaluated by this ratio. ROA is anticipated to be positive since it represents DMBs' profit margin; if not, it represents non-profit or loss. ROA shows the profitability of DMBs to their capital. ROA is useful for organizations and investors when applied carefully and in concert with other financial measures. Return on assets is measured in ratio units using the following equation:

$$\text{Return on asset (ROA)} = \frac{\text{Earnings after tax (EAT)}}{\text{Total Assets}}$$

ROA is an important indicator for deposit money banks since it shows how well and efficiently, they use their assets. It provides information about how well a DMB converts its assets into net income, which makes it an important metric for regulators, investors, and management. DMBs may improve their ROA and, consequently, their overall financial performance and stability, by concentrating on elements like net interest margin, asset quality, and operational efficiency.

2.1.3   Credit Risk Management

Numerous researchers have different definitions of risk, different points of view on risk, and different outcomes for risk observers. The likelihood that advances or loans won't be repaid is known as credit risk. Credit risk is a long-term danger to the financial stability of the banking industry because of the inherent risk associated with its operations (Basel Committee on Banking Supervision, 2001). However, deposit money banks are required to uphold specific minimum capital standards as well as appropriate leverage ratios to prevent or lessen any credit crises.

Muskan (2021) suggested that as countries continue to internalize financial markets and other business activities to promote growth and development, credit risk management becomes increasingly important. DMB's performance is impacted by efficient credit risk management. DMBs contribute to economic stability and the efficient use of capital by managing credit risk in a way that supports the viability and profitability of their operations (Psillaki et al., 2010; Ramazan & Gulden, 2019). Effective credit risk management aims to carefully ensure that business objectives are fulfilled while reducing the risks associated with their operations. The strides made in technology within the banking industry have brought about a positive impact on managing credit risk. Faster loan decisions and lower overhead costs have led to more effective identification and assessment of risks, ultimately minimizing the harm to DMBs. As

highlighted by Choudhary (2021) and Shahid et al. (2019), credit risk remains a significant obstacle to the operational profitability of DMBs. Without a doubt, the combination of market exposures with default likelihood and recovery analysis has empowered Deposit Money Banks (DMBs) to quantify credit risk with unparalleled precision. This has resulted in a significant reduction of risk premia in diverse markets, as demonstrated by recent studies (Maverick, 2021). The primary causes of credit risk are inadequate institutional capacity, unsuitable lending practices, unstable interest rates, poor management, low capital, and liquidity levels, direct lending, extensive bank licensing, loose credit evaluation, subpar lending practices, government meddling, and insufficient central bank oversight (Ahmed et al., 2020; Kithinji, 2010).

Moreover, risk reduction rather than complete elimination is the goal of efficient credit risk management techniques. DMB's dedication to enhancing operational process efficiency is justified by the application of efficient credit risk management. Benefits of this efficiency include: (i) raising operational stability and encouraging continuous improvement; (ii) improving readiness for unforeseen events; (iii) saving resources, such as money, assets, time, investments, and staff; and (iv) avoiding or minimizing legal liabilities. Since credit risks are an inherent part of DMB's operation, how well the risks are managed will have an impact on the banks' performance and sustainability (Akande & Salawu, 2019; Ekinci & Poyraz, 2019).

2.1.4   Credit Risk Management and Financial Performance

Deposit Money Banks (DMBs) play a vital role in providing different financial products and services to a majority of people irrespective of the income bracket once there is collateral to borrow from. Thus, DMBs are crucial to the economic growth of a nation; if this industry struggles, the impact on the economy could be profound. However, loan delinquencies are the main problem facing this industry, and credit risk management is essential to these institutions' ability to make money. One of the main objectives of bank management is to increase the return to shareholders as measured by performance. Achieving the goal frequently entails increasing risk. The bank practices risk management in response to the threats that could impair its operations (Okolie et al., 2023). However, the return on asset ratio is one of the numerous ratios used to assess the profitability of DMBs' financial performance.

2.2   Theoretical Review
2.2.1   Shiftability Theory

Harold G. Moulton in 1915, propounded the Shiftability theory. The theory states that banks should invest some of their funds available for investment in securities and credit instruments that have secondary markets so that they can be converted to cash as and when a need arises to address declining liquidity. According to Alshatti (2014), shiftability theory holds that scarcity of liquidity by DMBs can be addressed if the bank marketable securities can be transferred to other banks with remarkably high liquidity.

The theory contends that highly marketable securities held by DMBs are an excellent source of liquidity and that shiftability, marketability, or transferability of a bank's assets is a basis for ensuring liquidity (Inegbidion et al., 2020) and that the marketability of bank security is liquidity in disguise. Shiftability theory states that liquidity crisis in banks is not mainly caused by loans or credit default but by their ability to possess assets that can be sold to other banks or institutions at a pleasing price (Udoka, 2012).

Husna and Manzora (2009) lend credence to the shiftability theory, highlighting its profound effect on banking practices, which can hardly be denied.

The shiftability theory stipulates that another source of liquidity by DMBs is investment in highly marketable securities and not just loans. However, as with the commercial loan theory, the shiftability theory contained a serious flaw. Though an individual bank might move its assets to obtain the necessary liquidity, this was not true for all banks put together (Kargi, 2011).

2.2.2   Signaling Theory

Michael Spence proposed this theory in 1973. This theory assumes that signals can convey information that is advantageous and cannot be obtained otherwise, signals can be used to increase the efficiency of transmitting information, and signals can be credible even if they are not directly related to payoffs or aligned interests. The theory suggests that banks demand collateral from reputable customers who request the loan facility (Olokoyo, 2011; Kajola et al., 2018). This is necessary to build customers' confidence and safeguard their deposits, thereby sending a signal to

the banks that they belong to the less risky class of customers. However, customers that are of high risk are requested to provide a huge collateral that matches the kind of loan requested, thus, banks do charge high interest rates to cover these customers in case of default. Kirmani and Rao (2000) provide a general example that helps illustrate a basic signalling model. Like most examples of signalling, the authors distinguish between two entities: high-quality firms and low-quality firms. However, Janney and Folta (2003) critiqued this issue as they describe a signaler's use of signals that grow weaker over time. Also, the extent to which signals of firm quality are more or less predictive of firm performance when CEOs have incentives to artificially influence stock prices (Westphal & Zajac, 1998).

2.3 Empirical Review

Research studies across multiple economies have contributed to the evolution of credit risk management.

2.3.1 Non-performing Loan and Return on Assets

From 2006 to 2016, Ajao and Oseyomon (2019) looked at how Deposit Money Banks in Nigeria performed in relation to credit risk management. For the investigation, the dynamic Generalized Method of Moments approach was employed. The findings demonstrated that loan loss provisions and non-performing loans significantly improve bank performance. Additionally, Afolabi et al. (2020) assessed how credit risk affected the financial performance of six Nigerian microfinance banks from 2012 to 2018. It was conducted using the panel Ordinary Least Squares (OLS) regression. The analysis's findings demonstrated that while loan-loss provisions have a small but unfavorable impact on returns on assets, non-performing loans have an immense and negative impact. The study is limited to microfinance banks in Nigeria and the result findings may not apply to DMBs in Nigeria. A pooled data regression model was used by Chhetri (2021) to analyze the impact of credit risk management on financial performance over six years in Nepal. The study found a significant adverse correlation between NPLR and ROA. Apochi and Baffa (2022) used census sampling techniques to evaluate credit risk and financial performance of DMBs in Nigeria. They observed that the ratio of NPLLR has an adverse effect on ROA. Bogale (2019) investigated the factors that influence the profitability of fourteen (14) banks in Ethiopia between 2008 and 2017. The results showed that non-performing loans and loan loss provisions are negative, and they significantly have an effect on financial performance. Additionally, Ekinci and Poyraz (2019) used a panel regression model to examine 26 commercial banks in Turkey over the course of 18 years in order to assess the impact of credit risk management on financial performance. According to the results, there is a significant and negative correlation between NPLLR and ROA. From the above empirical reviews, the study intends to reveal whether there is a positive or negative effect of non-performing loans to total loans on return on assets since there are studies that go either way.

2.3.2 Loan to Total Deposit Ratio and Return on Assets

Hossain (2022) examined Bangladeshi commercial banks to inquire into how credit risk management affected the company's financial performance. LDR and ROA were shown to have a positive correlation after the study's descriptive data analysis using SPSS 25. Using a panel regression technique, Hambolu et al. (2022) examined 11 banks between 2008 and 2018 to determine the impact of credit risk on the profitability of commercial banks in Nigeria. According to the study's findings, ROA and LDR have a negative and insignificant relationship. By employing panel research design and panel data from 2009 to 2018, Afolabi et al., (2021) assessed the impact of credit risk on the performance of Nigerian banks; they discovered that a percentage change in the loan-to-deposit ratio reduces profitability by 3%. Chukwunulu et al., (2019) investigated the impact of risk management on bank financial performance in Nigeria; they adopted a longitudinal design and the least squares method for evaluating the research data. Credit risk was found to have an insignificant negative relationship with return on assets.

From the above empirical reviews, the study intends to reveal whether there is a positive or negative effect of the loan-to-deposit ratio on return on assets since there are studies that go either way.

2.3.3 Capital Adequacy Ratio and Return on Assets

Research on South African banks was conducted by Munangi and Sibindi (2020) to elucidate the impact of credit risk management on financial performance. Using a static panel data model, the study's findings showed that CAR and ROA had a statistically significant and positive relationship. In Nepal, Chhetri (2021) adopted a pooled data regression model to analyze the effect of credit risk management on financial performance for 6years. The results displayed a negative and insignificant relationship between the capital adequacy ratio and ROA. Ahmad et al., (2020) evaluated

research on Microfinance banks to checkmate the effect of credit risk management on financial performance. The study discussed its findings using correlation and multiple regression analysis to explain the negative relationship between CAR and ROA. Ademola et al., (2022) evaluated how credit risk affects bank performance for 5 years. The study analyzed the data descriptively and inferentially and the result of the findings revealed that CAR is positively correlated with ROA. In the United Arab Emirates, Al Zaidanin and Al Zaidanin (2021) analyzed the data used to evaluate the impact of credit risk management on the financial performance of banks for the period 2013-2019 descriptively using GRETL. The findings of the study showed that CAR has no statistically significant effect on ROA. Oduro et al., (2019) have identified the factors that determine the level of bank credit risk and further estimate the effects of bank credit risk on corporate financial performance using financial data from banks on the Ghana Stock Exchange over 15 years from 2003 to 2017. Using the method of 2SLS, it was observed variables such as capital adequacy, operating efficiency, profitability, and net interest margin are inversely related to credit risk.

Inegbedion et al., (2020) examined the effect of credit risk management on financial performance of commercial banks in Nigeria for the period 2010-2017. The generalized method of moments (GMM) and vector Error Correction Model were used to analyze the data. The findings revealed that credit risk significantly and negatively influenced bank profitability.

Al-Husainy and Jadah (2021) assessed the effect of credit risk on profitability of 18 commercial banks in Iraq from 2010 to 2020. A Generalized Method of Moments (GMM) regression of Fixed-effects models was used for the study's analysis. The study's findings showed that credit risk has an adverse significant impact on bank profitability.

From the above empirical reviews, the study intends to reveal whether there is a positive or negative effect of the capital adequacy ratio on return on assets since there are studies that go either way.

3.0   Methodology
3.1   Research Design
This study adopted an *ex-post* facto design as past data in the form of secondary data were utilized.
3.2   Source of Data
The secondary source of data adopted for the study period, ranging from 2013 to 2022, is public annual reports and accounts of the banks that were sampled for the research.
3.3   Population, Sample and Sampling Techniques
The target population for the study as of 31st December 2022 is the 14 listed deposit money banks on the Nigeria Exchange Group (NXG) out of which ten (10) banks were selected as a sample through purposive sampling techniques based on the condition that they were continuously listed on Nigeria Exchange Group (NGX) between the periods 2013- 2022.

TABLE 3.1: List of Sampled Deposit Money Banks

S/N	DEPOSIT MONEY BANKS
1.	Access Bank
2.	Eco Bank
3.	Fidelity Bank
4.	First Bank of Nigeria
5.	First City Monument Bank
6.	Guaranty Trust Bank
7.	Sterling Bank
8.	Union Bank
9.	United Bank for Africa
10.	Zenith Bank

Source: *Researcher's Compilation (2024)*

3.4   Data Collection Instruments and Techniques

The data collection instrument for this study was the annual reports of each of the sampled listed Deposit Money Banks for ten (10) years. This constituted the panel data adopted for this study. 2013 – 2022 constituted the period with the latest data and therefore most relevant to the current study

3.5 Validity and Reliability of the Instrument

The study was verified and demonstrated that the data had been extracted completely and accurately following the study's design. On reliability, the DMBs complied with CAMA sections 401-404 by ensuring that they subjected their financial statements to statutory audit by the independent statutory auditors, Financial Reporting Council of Nigeria certified the audited reports, and CBN approved the data by hoisting the reports in the website and publish them in their statistical bulletin.

3.6 Method of Data Analysis

In this study, the secondary data were analyzed descriptively and inferentially using the E–view statistical software. The elements of the financial performance and credit risk measurements were explained using descriptive statistics. The degree of correlation between DMBs' credit risk and financial performance was explained using correlation analysis, and the impact of credit risk measurements on financial performance metrics was investigated using regression analysis in inferential statistics.

3.7 Model Specification

The regression equation represents the model for the study. Functionally, the model is specified as;

$Y = f(x)$…………………………………………………………………….. (3.7.1)

Econometrically,

$Y_{it} = \alpha + \beta_0 + \beta_1 it + \beta_2 it + \beta_3 it + \varepsilon_{it}$ …………………………………………………(3.7.2)

$ROA_{it} = \alpha + \beta_0 + \beta_1 NPLLR_{it} + \beta_2 LDR_{it} + \beta_3 CAR_{it} + \beta_4 FSZ_{it} + \varepsilon_{it}$ ………………………(3.7.3)

Where;

ROA_{it} = Return Asset at period t; NPLLR = Non-performing loan to total loan ratio; LDR = Loan to total deposit ratio; CAR = Capital Adequacy ratio; FSZ = Firm Size; β_0 = Fixed intercept/ Constant; β= Coefficient of the explanatory variable; ε= Stochastic error term; α= Intercept.

The a-priori expectations are $\beta_1, \beta_2, \beta_3, \beta_4 > 0$

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics of the study are displayed in Table 2. The results indicate that the mean Return on asset (ROA) is 3.5% with a minimum of – 0.4% and a maximum of 53%. This suggests that on average, the selected banks make a return of 3.5% on their assets, but this increases to a maximum of 53%.

TABLE 4.1: Descriptive statistics

	CAR	FSZE	LDR	NPLLR	ROA
Mean	0.761070	6.793250	0.394729	6.707700	0.035478
Median	0.122419	6.374556	0.096473	4.500000	0.014260
Maximum	34.75384	9.985011	2.358918	30.00000	0.530885
Minimum	0.001942	4.450251	0.003093	1.050000	-0.000481
Std. Dev.	3.552991	1.454757	0.493769	6.434494	0.067548
Skewness	8.984107	1.046006	1.762976	1.836419	4.910487
Kurtosis	85.69499	3.045214	6.597746	5.433026	32.23504
Jarque-Bera	29838.83	18.24400	105.7338	80.87231	3963.079
Probability	0.000000	0.000109	0.000000	0.000000	0.000000
Sum	76.10698	679.3250	39.47294	670.7700	3.547824
Sum Sq. Dev.	1249.751	209.5155	24.13701	4098.868	0.451713

Observations	100	100	100	100	100

Source: Researcher's Computation (2024)

The capital adequacy ratio (CAR), which ranges from 0.19% to 347%, has an average of 76.8%, which is higher than the CBN's minimum requirement of 13.8% for national banks. An average of 39.5% of the Loan-to-Deposit ratio (LDR) was extended as the loan failed. increasing as a result from 0.31% to a maximum of 236%. The average non-performing loan to total loan ratio (NPLLR) is 670% with a minimum of 100% and a maximum of 300% thereby suggesting that on average 670% of the loans granted to customers are bad, while some DMBs have as low as 100% others have bad debt as high as 300%.

4.2 Correlation

TABLE 4.2: Correlation Analysis of Observed Variables

Correlation Probability	CAR	FSZE	LDR	NPLLR	ROA
CAR	1.000000				
FSZE	-0.244182	1.000000			
LDR	-0.090507	0.033367	1.000000		
NPLLR	0.116881	-0.164479	0.155075	1.000000	
ROA	0.267514	-0.288659	0.101296	-0.033442	1.000000

Source: Researcher's Computation (2024)

The correlation result showed the level of relationship between the parameters. It was observed that CAR has a positive relationship with NPLLR and ROA and a negative relationship with FSZE and LDR. Additionally, LDR demonstrated a positive correlation with both ROA and NPLLR, whereas NPLLR shown a negative correlation with ROA.

4.3 Hausman's Specification

As a panel research study, this involves both fixed and random effect models, with the Hausman test being used to determine which model has the best fit. The following lists the Hausman test results based on the two models employed in this investigation. According to the Hausman test, a fixed effect model will be applied if the probability value is less than 5%; in all other cases, a random effect model will be applied.

TABLE 4.3: Hausman's Specification Result

Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		33.321283	3	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var (Diff.)	Prob.
NPLLR	-0.002526	-0.000990	0.000000	0.0207
LDR	-0.001915	0.018869	0.000164	0.1051
CAR	0.002277	0.005358	0.000001	0.0001

Source: Author's Computation (2024)

4.4 Regression Analysis

4.4 Test of hypothesis

Ho$_1$: Credit risk management does not have a significant effect on the return on assets of the selected Listed Deposit Banks in Nigeria;

TABLE 4.4: Regression Results

Fixed Effect Model (Credit Risk)		
Variable	**Coefficients (T- Statistic)**	**Prob. value**
NPLLR	-0.002526 (-2.244173) **	0.0274
LDR	-0.001915 (-0.109567)	0.9130
CAR	0.002277 (1.261127)	0.2106
C	0.051444 (4.262260)	0.0001
R^2	0.386190	
Adjusted R^2	0.301526	
Prob (F- statistic)	0.000011	
F- statistic	4.561471	
Durbin Watson	1.932738	

Source: Author's Computation (2024)

*Denote *, **, *** indicate level of significance at 1%, 5% and 10% significant level*

NB: t-statistics are in parentheses style ().

The result of the p-values for the model as shown in Table 4.3 is less than 5%, hence the discussion of the regression was made using the outcome of the Fixed effects model in Table 4.4. However, at a level of significance of 0.05 and a degree of freedom of 6,93, the F -Statistics is 4.561471 while the probability of the F- Statistics is 0.000011 which is less than the 0.05 level of significance adopted for this study. Therefore, the study rejected the null hypothesis which implied that Credit risk management has a significant effect on Return on Assets of Deposit Money Banks in Nigeria.

4.5   Discussion of Result

The outcome of the panel regression model (Eq. 3.7.2.1) used in achieving the specific objective of this study reveals that the explanatory and control variables (NPLLR, LDR, CAR) account for 38.6% of the variation in the dependent variable (ROA), with an adjusted R-square of 0.30152 (30%) and a coefficient of determination (R-square) of 0.38619 (38.6%) indicating that credit risk management is a good predicting when explaining a change in bank's performance over time.

In model 1 as contained in Table 4.4, the relationship between the non-performing loan to total loan ratio (NPLLR) and ROA is negative and significant at 5% level. It suggests that the profit margin of deposit money banks in Nigeria decreases with the amount of bad debts, highlighting the need of efficient credit risk management techniques in maintaining the stability and profitability of deposit money banks. This finding is in line with the extant literature of Bogale (2019), Afolabi et al (2020), Al-Husainy and Jadah (2021) and provides evidence in support of the Signalling Hypothesis. However, the result opposes the findings of Ajao and Oseyomon (2019) and Ahmad et al (2022) which showed a positive significant relationship between the two variables. Thus, there is a significant relationship between non-performing loan to total loan ratio (NPLLR) and performance (ROA)

In model 1 as contained in Table 4.4, Loan to deposit ratio (LDR) has a negative relationship with ROA though not statistically significant. This showed that even if there is an increase in LDR, it does not mean that the ROA will be affected significantly. These findings suggest that banks with higher levels of credit risk, as measured by loan to deposit ratio, are likely to experience lower profitability. This outcome is in line with the findings of Chukwunulu et

al. (2019), Bogale (2019), Afolabi et al. (2021), and Ahmad et al. (2020). Thus, there is a significant relationship between loan-to-deposit ratio (LDR) and performance (ROA).

In model 1 as contained in Table 4.4, Capital adequacy ratio (CAR) exhibits a positive relationship with ROA but is not statistically significant. This supports the theory that states banks with high capital adequacy typically have high profitability because they are resilient enough to withstand unanticipated bank runs and significant consumer loan defaults. This outcome is in line with the findings of Mafumbo (2020), and Catherine (2020).

Baes on the above discussions, the study concludes that credit risk management strategies significantly have effect on deposit money banks financial performance by aggregating their data. These results are consistent with a few earlier empirical research (Adamu, 2022; Kajola et al., 2021; Afolabi et al., 2021).

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study examined the relationship between credit risk management and the financial performance of Deposit Money Banks (DMBs) in Nigeria. The results indicated that, in the case of improper management, credit risk management has a substantial impact on the performance of DMBs, demonstrating the critical role that effective credit risk management plays in the profitability of DMBs. The study also emphasized the significance of putting in place appropriate risk management procedures and guaranteeing sufficient liquidity to support DMB operations.

5.2 Recommendations

The study's conclusion results in the following recommendations;

i.   Management of DMBs should strengthen credit assessment processes to ensure a thorough evaluation of borrower's creditworthiness, including their financial health, industry trends and macroeconomic factors. And also, implement robust credit monitoring mechanisms to detect early warning signals of potential defaults or deteriorating credit quality. However, developing effective risk mitigation strategies such as collateral requirements, risk-based pricing and loan restructuring options to minimize credit losses.

ii. Management of DMBs should intensify credit assessment and underwriting processes to ensure prudent lending decisions and minimize default risk. And enhance portfolio diversification strategies to spread credit risk across various sectors and asset classes, reducing the impact of potential defaults on overall equity returns.

5.3   Contributions to Knowledge

The results of this research significantly enhanced our understanding in several ways:

First, the study enhances the theory of financial management conceptually by examining the effect of credit risk (CR) on financial performance indicators like return on assets (ROA). Theoretical frameworks such as shiftability theory and signalling theory helped clarify the mechanisms via which credit risk management procedures impact DMB's performance and stability aided by the empirical investigation of these linkages can be integrated by DMBs into their operations. Second, by offering quantitative data on the impact of credit risk management on the financial performance of listed DMBs in Nigeria, the study adds to the corpus of empirical research already in existence. With the use of data sources, generational information translation, empirical hypothesis testing, and statistical connection analysis, this study aims to provide insights into the practical applications of credit risk management techniques in the Nigerian banking sector.

Third, policymakers, bank managers, regulators, and industry practitioners in the finance sector can all benefit from the study's practical insights. If the models' coefficients are positive, they are prescriptive and can be used as a guide to optimize credit risk management tactics that will increase DMB stability and profitability.

REFERENCES

Ademola, A. O., Oladejo, T. M., & Adenle, O. E. (2022). Credit risk management: implication for deposit money banks' performance in Nigeria. *FUOYE Journal of Finance and Contemporary Issues, 3(2),* 183-200.

Afolabi, T. S., Obamuyi, T. M., & Egbetunde, T. (2020). Credit risk and financial performance: evidence from microfinance banks in Nigeria. *IOSR Journal of Economics and Finance*, *II(I),* 08–15.

Ahmad, A. A., Benjamin, O. T., Habib A. A. (2020). Effect of credit risk management on financial performance of listed microfinance banks in Nigeria. *Research Journal of Finance and Accounting, 11(8),* 107-114.

Ajao, M. G., & Oseyomon, E. P. (2019). Credit risk management and performance of deposit money banks in Nigeria. *African Review of Economics and Finance*, *11(1),* 178–198.

Akande, F. I., & Salawu, R. O. (2019). Risk management and financial performance of listed deposit money banks in Nigeria. *The International Journal of Business & Management*, *7(11),* 151-16.

Al-Husainy, N. H. M., & Jadah, H. M. (2021). The effect of liquidity risk and credit risk on the bank performance: Empirical evidence from Iraq. *IRASD Journal of Economics, 3(1),* 58–67. https://doi.org/10.52131/joe.2021.0301.0025

Al Zaidanin, J. S., & Al Zaidanin, O. J. (2021). The impact of credit risk management on the financial performance of United Arab Emirates commercial banks. *International Journal of Research in Business and Social Science, 10(3),* 303-319.

Appah, E., Awuji, C. E., & Anugwo, K. N. (2021). Cash flow accounting and corporate financial performance of listed consumer goods companies in Nigeria. *IOSR Journal of Business and Management, 23(3),* 18-29.

Apochi, J. G., & Baffa, A. M. (2022). Credit risk and financial performance of deposit money banks in Nigeria: Moderating role of risk management committee. *European Journal of Accounting, Auditing and Finance Research, 10(10),* 98-115.

Bhattarai, B. P. (2020). Effect of credit risk management on the financial performance of commercial banks in Nepal. *Research Journal of Finance and Accounting, 7(5),* 87–103. https://doi.org/10.7176/rjfa/11-18-13

Basel Committee on Banking Supervision (2001). Risk management practices and regulatory capital: a cross-sectional comparison. Retrieved from www.bis.org.

Bogale, Y. W. (2019). Factors affecting profitability of banks : empirical evidence from Ethiopian private commercial banks.*Journal of Investment and Management, 8(1),* 8–15.

Catherine, N. (2020). Credit risk management and financial performance: A case of Bank of Africa (U) Limited. *Open Journal of Business and Management, 8,* 30-38.

Central Bank of Nigeria (2010). Prudential Guidelines for Deposit Money Banks in Nigeria.

Chhetri, G. R. (2021). Effect of credit risk management on financial performance of Nepalese commercial banks. *Journal of Balkumari College*, *10 (1),* 19-30.

Chukwunulu, J. I., Ezeabasili, V. N., & Igbodika, M. N. (2019). Impact of credit risk management on the performance of commercial banks in Nigeria (1994-2016). *International Journal of Banking and Finance Research,* 5(1), 64-71.

Choudhary, R. (2021). Types of risks in banking sector: A detailed analysis. https://bank.caknowledge.com/types-of-risks

Djan, G. O., Stephen, F., Bawuah, J., & Halidu, O. B. (2015). Credit risk management and its impact on financial performance of listed banks in Ghana. *International Journal of Financial Markets, 2(2),* 24–32.

Ekinci, R., & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, *158,* 979–987.

Global Risk Management Solutions Group, (1999). On enhancing shareholder's wealth by better managing business risk. *Basel Committee Publications*, Issued by the International Federation of Accountants.

Hambolu, V. O., Omuemu, S. O., & Abdul Majeed, A. T. (2022). The impact of credit risk on the profitability of commercial banks in Nigeria. *FUOYE Journal of Finance and Contemporary Issues, 3(2),* 21-35.

Harb, E., El Khoury, R., Mansour, N., & Daou, R. (2022). Risk management and bank performance: Evidence from the MENA region. *Journal of Financial Reporting and Accounting*. https://doi.org/10.1108/JFRA-07-2021-0189

Hindasah, L., Supriyono, E., & Julia, L. N. (2020). The effect of good corporate governance and firm size on financial performance. Advances in Engineering Research. Proceedings of the 4th International Conference on Sustainable Innovation 2020-Accounting and Management (ICoSIAMS 2020), 201(ICoSIAMS 2020), 306–309.

Hossain, M. Y. (2022). Impact of credit risk management on financial performance: A study of commercial banks in Bangladesh. *Interdisciplinary Journal of Applied and Basic Subjects, 2(1),* 14-22. https://identifier.visnav.in/1.0002/ijabs-21k-15004/

Husna, A., & Manzora, B. (2009). Credit risk management and profitability in commercial banks in Sweden, University of Gothenburg, Graduate School of Business, Economics and Law.

Inegbedion, H., Bello, D., Vincent, B. D., & Obadiaru, E. (2020). Risk management and the financial performance of banks in Nigeria. *International Journal of Financial Research*, *11(5),* 115-128.

Janney, J. J., & Folta, T. B. 2003. Signaling through private equity placements and its impact on the valuation of biotechnology firms. *Journal of Business Venturing*, *18*, 361-380.

John, E., & Okika, N. P. (2019). Credit risks and financial performance of Nigeria's banking industry. *Amity Journal of Finance*, *4(1),* 44-57.

Kajola, S., Sanyaolu, W., Alao, A., & Babatolu, A. (2021). Determinants of liquidity management: Evidence from the Nigerian banking sector. *Journal of Volgograd State University Economics*, *23(3),* 96-111.

Kargi, H.S. (2011). Credit risk and the performance of Nigerian Banks, Ahmadu Bello University, Zaria.

Kirmani, A., & Rao, A. R. (2000). No pain, no gain: A critical review of the literature on signalling unobservable product quality. *Journal of Marketing*, *64(2)*, 66-79.

Mafumbo, P. W. (2020). Credit management, credit policy and financial performance of commercial banks in Uganda. *International Journal of Business and Management Review*, *8(5),* 68-99.

Maverick, J. B. (2021). Financial Risk: The major kinds that companies face. https://www.investopedia.com/ask/answers/06 2415/what-are-major-categories-financial risk-company.asp.

Mohammed, H. K., & Knapkova, A. (2016). The impact of total risk management on company's performance. *Procedia – Social and Behavioral Sciences*, *220,* 271-277.

Munangi, E., & Sibindi, A. B. (2020). An empirical analysis of the impact of credit risk on the financial performance of South African banks. *Academy of Accounting and Financial Studies Journal, 24(3)*, 1-15.

Muskan, S. (2021). Types of risk and its management in banking. https://www.yourarticlelibrary.com/banking/ty pes-of-risk-and-its-management banking/99250.

Oduro, R., Asiedu, M. A., & Gadzo, S. G. (2019). Impact of credit risk on corporate financial performance: Evidence from listed banks on the Ghana stock exchange. *Journal of Economics and International Finance*, *11(1),* 1-14. DOI: 10.5897/JEIF2018.0940. Retrieved fromhttp://www.academicjournals.org/JEIF

Okolie, P. I. P., Agorchukwu, M. U., & Ezeamama, M. C. (2023). Effect of risk management on the financial performance of money deposit banks in Nigeria. *Annals of Management Studies*, *10(1),* 1-10. DOI: https://doi.org/10.5281/zenodo.7683218

Psillaki, M., Tsolas, I. E., & Margaritis, D. (2010). Evaluation of credit risk based on firm performance. *European Journal of Operational Research, 201(3),* 873-888.

Ramazan, E., & Gulden, P. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, *158 (1),* 979–987.

Shahid, M. S., Gul, F., & Naheed, K. (2019). Credit risk and financial performance of banks: evidence from Pakistan. *NUML International Journal of Business & Management*, *14(1),* 144–155.

Westphal, J. D., & Zajac, E. J. (1998). The symbolic management of stockholders: Corporate governance reforms and shareholder reactions. *Administrative Science Quarterly*, *43,* 127-153.

Zhongming, T., & Frimpong, S. (2019). Impact of financial risk indicators on banks financial performance in Ghana. *Business and Economic Research*, *9(4),* 23–52.