

Moderating Role of Board Autonomy in the Relationship between Credit Risk and Financial Performance of Listed Deposit Money Banks in Nigeria.

Haruna Muhammed Musa

Department of Accounting, Faculty of Management Sciences, Ahmadu Bello University, Zaria - Nigeria

(hmmuhammed@abu.edu.org/harunam.muhammed@gmail.com)

ORCID: 0000-0003-0676-8638

+2349020044444, +2348036595777

Abstract

The goal of this study is to assess the moderating impact of board autonomy on the association between credit risk and banks' financial performance. The dataset include 12 listed banks in Nigeria from 2012 to 2022 utilizing non-performing loans, loan loss provision and insider lending as surrogates for credit risk exposure, while board independence and firm size were used as moderating and control variable respectively. In addition, return on Asset was used as proxy for financial performance indicator. The empirical findings indicated that non-performing loan and insider loans have a significant detrimental effect on financial performance whereas loan loss provision showed a weak reverse impact. Moreover, the moderated model revealed that board independence exerts a substantial positive influence on the relationship between all the three variables, converting it from a negative to a positive due to the moderating effect. Loan loss provision, insider lending change from negative to positive significant relationship while non-performing loans changed from negative significant to positive insignificant relationship. This findings implies a considerable moderating influence of board independence on the relationship, indicating that banks should prioritize credit risk management, particularly in control and oversight of non-performing loans, compliance with 5% policy of insider lending. In addition, regulators and management of banks should ensure that all banks independent non-executive directors are majority at all times as they prove to be playing a significant role in mitigating credit risk which in turn result to superior performance.

Key words: *Financial Performance, Credit Risk, Board Autonomy, Moderation*

1. Introduction

The banking industry fulfills a pivotal function in the financial system of every economy, serving as a critical conduit for channeling funds and facilitating economic activity. Consequently, its operational efficacy and efficiency are paramount in maintaining financial stability and fostering a sustainable growth. Deposit money banks (DMBs) as a going concern business entities engage into an essential economic endeavors to secure sustainability and profitability. The smooth allocation of funds is maintained by DMBs' lending activities on the asset side, coupled with

providing liquidity to depositors on liability side. Bank's core function of lending is evident in the high loan to assets ratios and the significant increase in credit demand from both public and private sector entities, which is a key driver of their financial performance.

Bank's earnings are essential for investors, stakeholders and the overall economy, investors are focused on generating strong yield from their investments. Banks' performance refers to a bank capacity to accomplish its goals through effective utilization of its resources. This appraisal is usually done systematically and on periodic basis in order to determine the achievements of the company's objectives (Amelia, 2012). Furthermore, overdrafts and loans are pertinent to DMBs' credit risk exposure as such, interest on loans constitutes the highest source of revenue of banks which contributes a great deal towards financial performance and this signifies that perpetual trend analysis on the subject matter remains relevant all the time.

As a consequence, lending represents a primary source of income for most Nigerian DMBs. The loan portfolio typically functions as the principal revenue generator and core asset base for DMBs, as it underpins their financial stability and earnings capacity. However, credit facilities can have negative consequences on DMBs especially if they don't perform as expected (Musa & Tahir, 2024). Credit risk is a significant type of risk borne by financial institutions due to their credit activities. As a class of risks in the financial industry, credit risk can lead to insolvency culminating to failure and negatively affect the financial performance of these firms. Credit Risk Management has therefore assumed prominence and become a strategic focus area among Nigerian DMBs.

Loan loss provision (LLP) as an income statement expenses set aside as an allowance for uncollected loans and loan payments. To mitigate credit risk in principle bank will set aside a specific amount as a cushion to absorb expected loss on bank's loan portfolio and this amount is referred to as loan loss provision (LLPs) or provision for bad debts. Banks are required to account for potential loan defaults and expenses to ensure they are presenting an accurate assessment of their overall financial health. Thus, the importance of Loan Loss Provision cannot be undermined in strengthening the financial position of banks.

Ozili (2024) argued that LLPs serve as an indicator of credit risk used to mitigate expected losses and increase

profitability and he sees LLPs as a credit risk components used by banks to mitigate expected losses on bank loans portfolios. Similarly, Suit et al. (2022) argued that, the creation of provision protects against the negative effects of economic risk associated with business activity. By financing and mitigating the negative impact of credit risk through loan loss provisions, the perceived entity's economic risk is reduced and circumstances are established for further safe and sound functioning of the bank.

Also, Insider lending as enshrined in the prudential guidelines of Central Bank of Nigeria (CBN) which asserts that, Insider lending comprise of all loans and advances to a bank's Executive Directors and Chief Executive Officers, (CBK, 2022). Leaven (2001) also defines insider lending as a loan and advances made to internal persons in an organization, these persons are associated to a bank through either its stakeholders or in the capacity to control the affairs of the banks. The high level of insider's loans abuse is one of the significant factor responsible for the series of banking failure in Nigeria (Albert, 2021). Girotti and Salvade (2022) also assert that insider loans or gross insider abuses are among the major cause of bank failure.

Therefore, it is argued that, insider loans abuses does not only affects the profitability of a bank but also it is a significant factor responsible for bank failures. For example, Chinyere, (2022) argued that insiders in general, pose a significant threat to financial services companies due to their knowledge of and access to proprietary systems, as well as their ability to circumvent security measures deliberately.

On the other hand, an autonomous board is primarily composed of directors without any significant associations with the firm or the top executives and having no connection with the company except performing the duty of a board member in an unbiased monitoring capacity. Board independence (BIND) has considerable influence on firm performance. Agyei-Mensah (2017a), Khanna (2016), Wessels et al. (2016) posited that the greater the percentage of autonomous directors the better the performance of listed financial institution.

The moderating effect of BIND means the influence and magnitude of independence of a firm's board of directors on credit risk and financial performance relationship. Alimagtari, et al. (2022) posit that if a firm has a high level of BIND, management might be expected to exercise more oversight and scrutiny over the activities of a firm and it's planning strategies. Consequently, the effect of credit risk (non-performing loans, loan loss provision and insider loans) on financial performance may be moderated or mitigated by the independent oversight provided by the board.

Despite the growing recognition of the crucial role of corporate governance in shaping firm behavior, there remains a gap in understanding how BIND moderates the credit risk and firm financial performance relationship, particularly within the context of Nigerian DMBs. While existing literature (Ozili & Ndah, 2024; Akinbode et al., 2023; Hussain et al., 2022; Khan, 2022; and Thapar et al., 2022) acknowledges the influence of credit risk on financial performance, the moderating impact of BIND on the nexus between credit risk and financial performance remains unclear. In Nigeria, where the banking sector has a decisive impact in the economy, understanding the moderating effect of BIND on the link between the explanatory and explained variable becomes imperative. This study used BIND to

moderate the relationship between credit risk and financial performance of listed DMBs in Nigeria. This variable might have a substantial bearing on the quality of credit risk decision and performance relationship and we explore their effect in this study. The obvious importance of independent boards and its large economic scope deserves further research (Adams, 2017).

The performance of the banking system determine how well a financial sector is functioning in any given country as the banking sector fulfils the intermediary role and sustains the economic growth (Hussain, 2020; Thapar et al., 2022). For the banking sector to be labelled efficient, it ought to be profitable and serve as the financial intermediary between the deficit and surplus individuals. Hence banks profitability is a key driver that is of interest to investors when analysing the performance of management (Ozili & Ndah, 2024). Investigating the performance of the bank is a duty of all interested parties such as the regulating authorities, management of the banks, and other stakeholders that are affected by the banks performance (Alzaidani, 2020).

Banks are greatly exposed to numerous numbers of systematic and unsystematic risk during their business operations (Hussain et al., 2022). Despite the CBN continuous revisions to credit policies, NPLs persist as a challenge in the Nigerian banking sector. A precise assessment of borrowers' credit worthiness should be performed, granting sufficient time for loan repayment. This lowers the risk of bank failure by minimizing credit risk. Currently, borrowers are offered unfavourable loan terms and conditions that exceed their financial capacity, leading to over-indebtedness and payment default. When borrowers default on their loans, this culminates to bank insolvency which is costly to investors, the banking public, and the economy at large (Hussain et al., 2022)).

There has been low economic growth in Nigeria, which may have direct effects on the profitability of Nigerian DMBs in an undesirable manner, and elevates credit risks.

Aiyar (2015) pinpointed that financial crises and subsequent recession have cause businesses and household in many countries with debt which they cannot repay. Therefore the NPLs as a share of total loans in both developed and developing economies have more than doubled since 2009. However, Osuka and Amako (2015) reported in Nigeria, that ineffective credit administration reduces bank profitability and leads to distress or failure. Other researchers that followed the same line thus, Kayode et al (2015), Njoku (2017), and Abu-Afafi (2020) also stated that when banks extends credits to investors, no timely payment is expected from the loan borrowed then it puts jeopardy on the profitability of the bank which could leads to banking failure.

Moreover, Aiyar et al (2015) argued that excessive NPLs create difficulties by eroding banks' capital bases, constraining credit availability, and hinder economic revival. Ozcan et al (2015) argued that sustained elevated NPLS level were a worry in multiple European nations following the 2008 – 2016 financial crises. This study therefore extends the links to moderating effect of BIND on the relationship between credit risk and financial performance of deposits money banks in Nigeria.

2. Review of Related Literature

Several studies conducted following banking crises have highlighted that a leading cause of bank failure is poor asset

quality. Ekinici and Poyraz (2019) note that numerous investigations set against the backdrop of banking crises, reveal that the primary reason for bank collapses is indeed substandard asset quality. A significant majority of studies have identified a negative relationship between credit risk and financial performance. Additionally, other research suggests that factors beyond credit risk also influence banks' financial results.

Arifaj and Baruti, (2023) report that the NPLs reached an alarming high level in the global commercial banking industry during the 1999 to 2009 period. The authors assert that the proportion of NPLs has been alarmingly elevated in the banking industry across both developing and developed nations over time. They attribute the surge in NPLs to factors such as insufficient credit collateral, ineffectual credit risk assessment, and excessive interference in the lending procedures. The escalation of these factors leads to an adverse impact on DMBs financial performance. Consequently, considering the vital role of loans in the banking sector and their substantial economic repercussions, it is imperative to examine the relationship between credit risk and FP, and the moderating effect on the connection between the predictor variables and the outcome variable. Arifaj and Baruti,(2023) find a negative relationship between credit risk and bank performance in their studies. Akomeah, et al, (2020) indicated that rise in credit risk resulting from higher debt costs and an increased credit expense significantly erodes bank profitability. Norman, et al, (2018), emphasized that lower NPL ratio is the evidence of the lower amount of loans being doubtful which in turn means a lower credit risk.

Alimagtari, et al, (2022) examine the moderating role of BIND change in the relationship between board characteristics, related party transactions and financial performance of Indian listed banks from 2010-2019. The result revealed that BIND change has a significance negative effect on financial performance. Furthermore, the results indicated that BIND change moderates positively and significantly the relationship between related party transaction and financial performance.

Emmanuel and Godwin (2022) examine the effects of board characteristics on financial performance of deposit money banks in Nigeria from 2012-2021. The focused ten (10) banks was drawn out of eighteen (18) DMB listed in the Nigeria stock exchange. The quantitative techniques of data analysis was adopted in this study, which comprises of descriptive statistics, correlation analysis and multiple regression analysis using OLS methods. The findings revealed that BIND had a significant effect on financial performance. Also, Ayodeji and Okunade (2019) investigated the link between BIND and financial performance of DMBS as well as providing a comparative view by focusing on Nigeria and Canada, from 2008 to 2017 using panel data. The study applied secondary data extracted from annual financial statements of DMBs quoted on the Nigeria stock market. The investigation uncovered that there is significant relationship between BIND and profitability of DMBs banks in Nigeria and Canada. Therefore, this study hypothesizes that:

H01: Non-performing Loans has no Significant Effect on FP of listed DMBs in Nigeria.

H02: Loan-loss provision has no significant effect of financial performance of listed DMBs in Nigeria

H03: Insider lending has no significant Effect on Financial Performance of Listed DMBs in Nigeria

H04: BIND has no significant effect on Financial Performance of Listed DMBs in Nigeria.

H05: BIND has no significant moderating effect on the relationship between Non-performing loans and Financial Performance of Listed DMBs in Nigeria.

H06: BIND has no significant moderating effect on the relationship between Loan loss provision and Financial Performance of Listed DMBs in Nigeria.

H07: BIND has no significant moderating effect on the relationship between Insider loans and Financial Performance of Listed DMBs in Nigeria.

3. Methodology

The methodology of this study was patterned along expo-factor research design which has aided in describing, analyzing and interpreting the data collected from historical records of the study population. The after-the-event approach has given the study a better insight on the previous empirical evidence on the study variables, and has also provided the historical data that was used in the data analysis aspect of the study. The population of the study consists of all 14 listed DMBs in Nigerian Stock Exchange (NSE) as at 31st December 2023. The study used a filter in arriving at the sample in which for a firm to be selected, it must have its financial data available throughout the period of the study. Out of the 14 listed DMBs, 12 were found to have satisfied this criterion. The firms that were excluded are Jaiz bank plc and Unity bank Plc. Data are extracted from the yearly financial statements of the DMBs ten (10) years from 2013-2022. Analysis were carried out with the use of STATA statistical package.

3.1 Model of the Study

The model used to evaluate and test for significance to establish the relationship between the dependent and the explanatory variables is based on the following mathematical relationship:

$$FP = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots \dots \dots (i)$$

$$ROA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 LLP_{it} + \beta_3 INSL_{it} + \beta_4 BIND_{it} + \beta_5 FSIZ_{it} + \mu_{it} \dots \dots (ii)$$

$$ROA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 LLP_{it} + \beta_3 INSL_{it} + \beta_4 BIND_{it} + \beta_5 NPL_{it} * BIND + \beta_6 LLP_{it} * BIND + \beta_7 INSL_{it} * BIND_{it} + \beta_8 FSIZ_{it} + \mu_{it} \dots \dots \dots (iii)$$

Where: β_0 = Beta (Constant); $\beta_1 - 5$ = Beta (Coefficients); i = Firms; t = Time (Measured in years); μ = Error term; ROA = Return on equity; NPL = Non-Performing Loans, LLP = Loan Loss Provision, INSL = Insider Lending, BIND = BIND, FSIZ = Firm Size.

3.2 Variables Measurement

Table 1 below presents the variable measurements of all the study variables.(Dependent, Independent, Moderating and Control variables).

Variable Type	Variable Name	Measurement	Source
Dependent	Return on Assets	Proportion of Net Income to total assets	Kargi, (2011)
Independent	Non-Performing loans	Non-performing/ Loan to Total loan	Kolapo et al. (2012)
Independent	Loan Loss Provision	Loan Loss Provision/Classified Assets	Kargi, (2011)
Independent	Insider Lending	Insider Lending/Total Loans	Chege (2016)
Moderating	BIND	Proportion of independent Non-Executive Directors to Total Directors	Musa, (2023)
Control	Firm Size	Natural Logarithm of Total Assets	Musallam, (2020)

Source: Author's Compilation from Literature, 2024

4. Results and Discussion of Findings

4.1 Descriptive Statistics

The explained variable is ROA while the independent variables are: NPL, LLP and INSL while BIND and FSIZ represents the moderating and control variables respectively. Table 2 presents the summary of statistics from the data obtained from the annual reports of the sampled banks for the period 2012 to 2022 in form of average, standard deviation, minimum and maximum values.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
ROA	120	0.1549	0.0394	0.0100	0.2900
NPL	120	0.1663	0.0364	0.1020	0.2700
LLP	120	0.1649	0.0537	0.0290	0.3580
INSL	120	0.1143	0.0425	0.0517	0.2700
BIND	120	0.5960	0.0887	0.5170	0.8800
FSIZE	120	8.9915	0.3998	8.0300	9.7200

Source: Researcher's Computation from Stata Output, (2024)

Table 2 shows that the dependent variable financial performance proxied by Return on Asset (ROA) has a mean value of 0.1549 with a standard deviation of 0.039. This means that on average ROA of listed DMBs stood at 0.1549. The result indicates a low level of deviation from the mean value (0.0394) of financial performance recorded within the period of the study. The minimum and maximum values stood at 0.01 and 0.29 respectively. This figures also implies that some of the listed DMBs reported a low level of financial performance within the period and the least of which stood at 1% and a maximum earnings of 29%. Also, table 2 shows that the average value in relation to Non-performing Loan (NPL) of the listed DMBs stood at 0.1663 with a standard deviation of 0.0364. This shows that on average, the total non-performing loan of the listed DMBs in Nigeria stood at 16.63% which means that on average 16.63% of the total loans granted by the listed DMBs in Nigeria are NPLs. The result further shows a low deviation from the mean value of NPLs recorded within the period of

the study. More so, the minimum and maximum values of NPLs stood at 0.1020 and 0.2700 respectively. This indicates that the least level of NPL in the DMBs is 10.22% while there are some banks with as high as 27% of NPLs within the period of the study.

Furthermore, Loan Loss Provision (LLP) reflects a mean value of 0.1649 with a standard deviation of 0.0537. This means that on average the LLP of the listed DMBs in Nigeria stood at 16.49%. This further suggests that 16.49% provision was made on average by the management of these banks for those loans that the banks may not be able to recover from customers. The result depicts a low deviation from the mean value of LLP recorded within the period of the study. The minimum and maximum values are 0.0290 and 0.3580 respectively. This indicates that the minimum loan loss provision by some of the listed DMBs is 2.9% whereas the maximum by other banks is 35.8% provisions against bad loans.

More so, Insider Lending (INSL) reflects a mean of 0.1143 with a standard deviation of 0.0425. This means that on average the loans drawn by related party (insiders) to the stood at 11.43% of the total loans issued by the listed DMBs in Nigeria within the period of the study. This is contrary to the provision made by CBN of maximum 5%. The result reveals a low level of dispersion from the mean value of insider loan recorded within the period of the study. Moreover, the minimum and maximum values in respect to insider loans stood at 0.0517 which is very close to the provision of maximum of 5% as pronounced by the CBN law and 0.27 respectively. This figures also implies that some of the listed DMBs reported a low percentage of loans relating to the insiders of the banks which is 5.17% within the period, while some recorded a high level of insider related loans to the tune of 27% within the period of the investigation.

Additionally, table 2 reflects a mean value in respect to BIND of the listed DMBs to be 0.5960 with a standard deviation of 0.0887. This means that on average 59.6% of the board of the listed DMBs in Nigeria are independent directors. The result shows a remarkably small quantity dispersion from the central value of BIND reported within the period of the study. The minimum and maximum values in respect to BIND stood at 0.517 and 0.88 respectively. Which further means that most of the listed DMBs in Nigeria complied with code of corporate governance provision of having majority of independent non-executive directors on the board.

4.2 Correlation Analysis

The correlation matrix below reveals the relationship between the dependent variable and each of the independent variables as well as the relationship among the independent variables themselves. The summary of the correlation coefficients of the variables of the study are shown in Table 3

Table 3 Correlation Matrix

Variable	ROA	NPL	LLP	INSL	BIND	FSIZE
ROA	1.0000					
NPL	-	1.0000				
LLP	0.4678	-	1.0000			
INSL	0.0035	0.2258	-	1.0000		
BIND	0.0394	0.2376	0.0005	-	1.0000	
FSIZE	0.1142	0.1516	0.1574	0.3170	-	1.0000

FSIZE	0.1921	-	0.0372	-	0.0944	1.0000
		0.4349		0.0738		

Sources: Researcher's Computation from Stata Output, (2024)

Table 4. Multicollinearity Test Result

Variable	VIF	1/VIF
NPL	1.07	0.93605
LLP	1.06	0.94514
INSL	1.02	0.98066
BIND	1.02	0.98461
FSIZ	1.01	0.98814
MEAN VIF	1.04	

Sources: Researcher's Computation from Stata Output, (2024)

From the table, the variables LLP, BIND and FSIZ are positively correlated to the dependent variable while, NPL and INSL associated negatively with ROA. Among the independent and control variables, both positive and negative relationships exists and there is absence of strong correlation between them. This indicates the lack of possible multicollinearity between independent variables. However, a further test of multicollinearity was undertaken and the result confirmed absence of multicollinearity among the independent with having the highest VIF value of 1.07 and mean VIF of 1.04 which settle the uncertainty of multicollinearity as showcased earlier by correlation matrix.

4.3 Test for Heteroskedasticity

Table 5 represent the results of Heteroskedasticity tests for the first two models.

Table 5: Test for Heteroskedasticity

Models	Chi ² (1)	Prob > chi ²
Model one	34.08	0.000
Model two	29.69	0.000

Source: Researchers' Computation (2024)

The heteroscedasticity results for the two regression models (With and without moderator) reveals a significant heteroscedasticity (test stats: 34.08, and 29.69, with P-values = 0.000), violating OLS assumptions. GLS/FGLS methods are recommended for robust, unbiased estimates.

4.4 Hausman Specification Test

Table 6 represent the results of hausman specification test

Table 6: Hausman Specification Test

Models	Chi ² (6)	Prob > chi ²	Model Fitted
Model one	29.61	0.0000	Fixed
Model two	20.12	0.0026	Fixed

Source: Researchers' Computation (2024)

The Hausman test results strongly justify using fixed effects models in both cases. The significant chi-square values (29.61, and 20.12) with p-values of 0.000, and 0.0026, respectively, favor the fixed effects specification over random effects.

4.4 Regression Result

The regression analysis result is presented in table 7,8 and 9

Table 7. Model 1 Regression Result (Direct Relationship)

Variable	Coefficient	T-value	P-value
NPL	-0.407	1.88	0.061
LLP	0.1181	0.014	0.29
INSL	-0.0741	-2.74	0.006
FSIZ	0.001	1.80	0.072
Constant	0.009	1.92	0.055
R-Square	0.253		
Wald-chi2	124.98		0.000
VIF	1.39		
Hetest	34.08		0.000
Hausman	29.61		

Source: Researcher's Computation (2024)

Table 8. Model 2 Regression Result (With Moderator)

Variable	Coefficient	T-value	P-value
NPL	-0.018	1.96	0.072
LLP	0.0041	0.014	0.381
INSL	-0.0043	0.46	0.645
BIND	0.031	2.59	0.01
FSIZ	0.001	1.8	0.072
Constant	0.0087	1.92	0.055
R-Square	0.2716		
Wald-chi2	119.98		0.000
VIF	1.29		
Hetest	34.08		0.000
Hausman	29.61		

Source: Researcher's Computation (2024)

Table 9. Model 3 Regression Result (Moderated)

Variable	Coefficient	T-value	P-value
NPLBIND	-0.0456	2.89	0.004
LLPBIND	-0.0064	2.03	0.042
INSLBIND	-0.0292	1.93	0.053
FSIZ	0.001	1.8	0.072
Constant	0.0075	1.92	0.055
R-Square	0.2907		
Wald-chi2	85.89		0.000

Source: Researcher's Computation (2024)

From table 7, 8, and 9 the summarized fixed effect model and estimated regression relationship for the models are:
 $ROA_{it} = 0.009 - 0.407NPL_{it} - 0.118LLP_{it} - 0.074INSL_{it} + 0.001FSIZ_{it} \dots \dots \dots (i)$

$ROA_{it} = 0.0087 - 0.018NPL_{it} - 0.118LLP_{it} - 0.0043INSL_{it} + 0.031BIND_{it} + 0.001FSIZ_{it} \dots \dots \dots (ii)$

$$ROA_{it} = 0.0075 - 0.0456NPL_{it} - 0.006LLP_{it} - 0.029INSL_{it} + 0.001FSIZ_{it} \dots\dots\dots(iii)$$

The result as portrayed in table 7,8, and 9 shows that R^2 values of the models which are the coefficient of determination for the three models are 0.253, 0.2716 and 0.2907. This signifies that only 25.3%, 27.16% and 29.1% of systematic variation among the Nigerian listed DMBs was collaboratively explained by the changes in the NPL, LLP, INSL, BIND and FSIZ. This shows that the explanatory capability of the explanatory variables stood at 25.3 percent while the remaining 66 percent was captured by other variables not captured in the first model, while the second and third models show explanatory power of 27.16% and 29.07% respectively. This signifies that as a result of introducing the moderator (BIND) in the second model, the explanatory power improve by 1.91%, while the moderation effect resulted to upward rise of the explanatory power from 25.3% and 27.16% respectively to 29.1%. The model was statistically fitted as indicated by the *waldchi²* values of 124.98, 119.98 and 85.89 which are significant at 1% level confirmed the fitness of the models. The result confirmed that the relationship between the dependent and independent variables are not mere coincidence.

Also, as shown in table 9, as a result of introducing the BIND as a moderator, the result improved in terms of both the coefficients and P-values. The result shows a negative coefficients on NPL, LLP and INSL which implies an inverse relationship between NPL, LLP, and INSL and FP of the Nigerian listed DMBs. The result shows that the NPL and INSL has significant effect on the FP among the Nigerian DMBs.

The regression result of model one shows that NPL= -0.407 and 0.061, LLP = 0.1181 and 0.29, while INSL = -0.0741 with p-value of 0.006. Also, the regression result of the second model shows that NPL= -0.018 and 0.072, LLP = 0.0041 and 0.381, INSL = -0.0043 with p-value of 0.645. The result of the relationship between NPL and FP from the first two models are found to be negative and significant which are in line with the apriori expectation and theoretical foundation, LLP for both models has positive insignificant effect on FP which contradict the theory and apriori expectation. However, the moderated regression result revealed that BIND has a significant moderating effect on the relationship between NPL, LLP, INSL and FP with coefficients and P-values of -0.0456, -0.0064, -0.0292 and 0.004, 0.042 and 0.053 respectively. The findings from this model are in line with the findings of Akomeah, et al, (2020), and Okoh, et al, (2019) who uncovered a negative significant influence of NPL on FP,

Zulfikar and Wahyuni (2019), Otitoloie, (2019) who reported a significant negative relationship between LLP and FP and also support the findings of Uzomaeze, and Ikpor (2017), and Inaya and Isiko (2016) who found a significant negative relationship between INSL and FP.

Based on the findings, this study reject hypotheses 1,3, and 4, that states Non-performing loans, insider lending and board independence have no significant effect on FP of listed DMBs in Nigeria, and failed to reject hypothesis 2 which state LLP has no significant effect on FP of listed DMBs in Nigeria.

Similarly, based on the findings of the moderation, the study also, rejects hypotheses 5, 6, and 7 which states that BIND has no significant moderating effect on the relationship between NPL, LLP, and INSL and FP This means that the higher the BIND among the listed DMBs the better the mitigating the credit risk and better FP of DMBs

Conclusion and Recommendation

The analysis confirms the theoretical expectation that higher non-performing loans (NPL) significantly harm financial performance (FP), as evidenced by the negative and significant coefficients in both models. However, the impact of loan loss provisions (LLP) was positive but statistically insignificant, which contradicts the anticipated negative relationship suggested by theory. This indicates that, in this specific context, LLP may not be acting as a reliable predictor of current financial performance or may reflect proactive provisioning that does not immediately correlate with poorer results.

The introduction of board autonomy as a moderating variable proves crucial, revealing its significant governance role by substantially altering the relationships between all three risk variables NPL, LLP, and INSL and financial performance. The negative interaction coefficients suggest that greater board autonomy amplifies the adverse impact of credit and insolvency risks on performance. This may indicate that autonomous boards enforce stricter problem recognition, leading to a more immediate and transparent reflection of risks in reported performance, rather than allowing such risks to remain obscured.

In line with these findings, the study recommends, among other measures, that management should intensify efforts to reduce non-performing loans (NPLs), as these represent the most consistent and significant direct detriment to financial performance. Strengthening credit appraisal, monitoring, and recovery processes is essential. Additionally, independent board members should be empowered to deepen their scrutiny of credit risk and provisioning policies.

References

- Afia, W. A. (2020). *Customers' perception on the adoption of Islamic green banking in Malaysia* [Master's thesis, Universiti Utara Malaysia].
- Aiyar, (2015). Revitalizing securitization for small and medium-sized enterprises in Europe. *International Monetary Fund Publishers*.
- Akinbode, F. A., Omoba, O.O., Okewale, J. A., & Adedeji, S. B. (2023). International financial reporting standards disclosure and financial performance of deposit money banks in Nigeria. *Journal of Management Science and Entrepreneurship*, 1-22.
- Akomeah, J., Agumeh, P., & Frimpong, S. (2020). Credit risk management and financial performance of listed banks in Ghana. *Research Journal of Finance and Accounting*, 11(6).
- Albert, B. C., Joel, T. K., & Robert, O. M. (2021). Nexus between insider loans, loan quality and fragility among banks in Kenya. *African Journal of Education, Science and Technology*, 6(4), 48-59.
- Alimagtari, P. & Farhan L., (2022). "Defining and measuring productivity", The Age of diminishing expectations.
- Alzaidani, K. (2020). Banks and credit risk management in Nigeria. *International Journal of Economics, Commerce and Management (IJECM; ISSN 2348-0386)*.
- Arifaj, A.H. & Baruti, B. H. (2023) The effect of credit risk on the financial performance of commercial banks in Balkan countries. *Corporate & Business Strategy Review*, 4(3), 18–25. <https://doi.org/10.22495/cbsrv4i3art2>
- Central Bank of Kenya. (2022). *Central Bank of Kenya risk based supervisory framework*. <https://www.centralbank.go.ke>
- Central Bank of Nigeria. (2022). *Financial stability report*. [https://www.cbn.gov.ng/out/2022/fprd/fsrdeceMBER202016\(20\).pdf](https://www.cbn.gov.ng/out/2022/fprd/fsrdeceMBER202016(20).pdf)
- Chege, P. (2016). Financial markets and economic growth in Greece. *Journal of International Financial Markets, Institutions and Money*, 15: 173-188
- Chinyere, P.G. (2022). Impact of insider lending on the banking sector performance in Nigeria. DOI:10.2017/IJRCS/202209016
- Ekinci, R. & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science* 158, 979–987
- Emmanuel, J., & Godwin, M. (2022). Non-farm microenterprise performance and the investment climate: Evidence from Rural Ethiopia. World Bank Policy Research Working Paper.
- Girrotti, M., & Salvade, F. (2022). Competition and agency problems with banks: Evidence from insider lending. *Management Science*, 68(5), 3791-3812.
- Hosna, A., Bakeva, O. & Juanjuan, S. (2016). Credit risk management and profitability in commercial banks in Sweden. Retrieved from <http://hdl.handle.net/2077/20857>
- Hussain, D. (2020). A historical commentary on the growth of Indian banking sector with special reference to the banking reform in India: An overview. *Business Spectrum*, 10(2), 25-50.
- Hussain, A., Kijasiwat, P., Ijaz, B. M., & Deari, F. (2022). Determinants of systematic and unsystematic liquidity risk in Islamic banks. *Journal of Islamic Monetary Economics and Finance*, 8(2), 325-340.
- Kargi, H.S. (2011). Credit risk and the performance of Nigerian banks. A study of GTB PLC (1991-2010). *Journal of Business Research Administration*, 3(2), 112-119.
- Kayode, O. F., Obamuyi, T. M., Ayodeleowoputi, J., & Ademolaadeyefa, F. (2015). Credit Risk and Bank Performance in Nigeria. *IOSR Journal of Economics and Finance*, 6, 21-28.
- Khan, S. (2022). Determinants of banks profitability: An evidence from GCC countries. *Journal of Central Banking Theory and Practice*, 11(3), 99-116.
- Kithinji, F.K. (2015) Factors Influencing Households' Access to Drinking Water: The Case of Communities in Imenti South, Kenya.
- Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, 2, 31-38.
- Leaven, C. (2001). A model of competition in banking: bank capital versus expertise. *Journal of financial intermediation* 11(1) 87 – 121.
- Musa, H.M. (2023). The moderating effect of institutional shareholders on the relationship between board attributes and auditor selection among listed financial service firms in Nigeria. *FUDMA Journal of Accounting and Finance Research (FUJAFR)*, 1, 16 – 32. <https://doi.org/10.33003/fujaf-2023.v1i2.23.16-32>
- Musa, H. M., & Tahir, M. D. (2024). Risk management committee attributes and financial performance of listed financial service firms in Nigeria. *Fuoye Journal of Finance and Contemporary Issues*, 6(1), 110-127.
- Njoku, O. (2017). The impact of credit risk management on deposit money banks performance in Nigeria. *Nigerian Journal of Management Sciences*, 6(1), 174-186
- Norman, A. B., Pervin, S., & Chowdhury, M. M. (2018). Credit risk and the performance of deposit money banks in Nigeria. *Account and Taxation review*.
- Okoh, G., Inim, E. V., & Idachaba, O. I. (2019). Effect of non-performing loans on the financial performance of commercial banks in Nigeria. *American International Journal of Business and Management Studies*, 1(2), 1-9.
- Osuka, I. & Amako, O. (2015). Credit risk management: Implications on bank performance and lending growth. *Saudi Journal of Business and Management Studies*. DOI: 10.21276/sjbms
- Otitoloiye, E. D., (2019). Examine the impact of credit management and financial performance of DMBs in Nigeria. Masters of science of (Msc) Desertation submitted in the department of accounting, School of Management Science, Babcock University, Ogun State.
- Ozili, F., K., & Ndah, H. (2024). Impact of financial development on bank profitability. *Journal of Economic and Administrative Sciences*, 40(2), 238-262.
- Thapar, N., Kaswan, S. K., & Sharma, J. (2022). New developments in banking sectors and impact: Covid-19. *Big Data: A Game Changer for Insurance Industry*, 161-172.
- Uzomeaze, C. E. & Ikpor, I. M. (2017). Evaluation of insider threat on bank performance: Evidence from Nigeria. *Funaf Journal of Accounting, Business and Finance (FUJABF)*. Vol. 1. Pp. 1-12. Maiden Edition.
- Zulfikar, R. & Wahyuni, C. (2019). Co-Integration and error-correction: Representation, estimation and testing. *Econometrica*, 55: 251-76