BOARD INDEPENDENCE AND CAMEL BASED FINANCIAL PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract
The study examined the effect of board independence on CAMELS based financial performance of listed deposit money banks in Nigeria. The research adopted an ex-post facto research design and historical data utilized from the annual report and accounts of the sampled banks. The population of the study consisted of the entire 13 listed deposit money banks as at 31st December 2024. Purposeful sampling technique was adopted to arrive at an adjusted population of 11 banks. The study adopted panel multiple regression technique for data analyses after conducting various diagnostic and post estimation tests. The findings revealed that board independence has positive significant effect on CAMEL based financial performance. The work therefore concluded that an increase in board independence will result to an improvement in financial performance of listed deposit money banks in Nigeria. Based on the findings, it was recommended that that listed deposit money banks in Nigeria should increase and sustain an adequate proportion of independent non-executive directors on their boards in line with the Central Bank of Nigeria's Corporate Governance Guidelines. Banks should ensure that independent directors are appointed based on competence, integrity, banking experience, and independence of judgment to strengthen board oversight, enhance strategic decision-making, improve risk management, and promote better financial soundness across the CAMEL dimensions.

Keywords: Board independence, CAMELS, deposit money banks, financial performance, Nigeria.

1.0 Introduction

The banking sector plays a pivotal role in economic development by mobilising savings, allocating credit, facilitating financial intermediation, and supporting investment and economic growth. As key financial intermediaries, deposit money banks (DMBs) contribute significantly to financial system stability and sustainable economic development. Consequently, maintaining sound financial performance remains a major concern for regulators, investors, depositors, and other stakeholders because weak bank performance can undermine public confidence and

threaten the stability of the financial system. Unlike non-financial firms, the performance of banks is not assessed solely by profitability but also by their ability to maintain adequate capital, high-quality assets, effective management, sustainable earnings, and sufficient liquidity to withstand financial shocks (Basel Committee on Banking Supervision [BCBS], 2021).

The increasing complexity of banking operations and the lessons from major corporate failures and the global financial crisis have reinforced the importance of corporate governance in promoting sound banking practices. Corporate governance provides the framework through which organisations are directed, controlled, and monitored to ensure accountability, transparency, prudent risk management, and the protection of stakeholders' interests. Within this framework, the board of directors is responsible for providing strategic direction, overseeing management, ensuring regulatory compliance, and safeguarding organisational resources. Among the various board characteristics, board independence has emerged as a critical governance mechanism because independent non-executive directors are expected to provide objective oversight, minimise agency conflicts, strengthen internal controls, and improve the quality of board decisions (Jensen & Meckling, 1976).

In Nigeria, corporate governance of banks is principally regulated by the Central Bank of Nigeria (CBN) through the *Code of Corporate Governance for Banks and Discount Houses and Financial Holding Companies in Nigeria*. Recognising the systemic importance of banks, the Code prescribes the inclusion of independent non-executive directors on bank boards to strengthen board objectivity, improve oversight of executive management, enhance risk governance, and promote the safety and soundness of the banking system (Central Bank of Nigeria [CBN], 2023). The emphasis on board independence reflects the expectation that directors who are free from relationships capable of impairing their judgement will exercise effective oversight over management decisions, protect depositors' funds, and contribute to sustainable financial performance. These requirements are particularly important for listed deposit money banks**,** which are subject not only to the CBN's prudential regulations but also to the Nigerian Exchange's disclosure and governance requirements.

Despite these regulatory requirements, governance related concerns continue to affect the Nigerian banking industry. Over the years, the sector has experienced cases of weak board oversight, insider-related credit exposures, deteriorating asset quality, rising non-performing loans, and regulatory interventions (CBN, 2024). For example, the Central Bank of Nigeria dissolved the boards of First Bank of Nigeria Limited and FBN Holdings Plc. in 2021 following serious corporate governance concerns, including insider related lending and deficiencies in board oversight (CBN, 2021). Similarly, in June 2024, the CBN revoked the banking licence of Heritage Bank Plc., citing persistent deterioration in the bank's financial condition despite sustained supervisory interventions, and concluded that the bank's continued operation posed a threat to the stability of the Nigerian financial system (CBN, 2024). Furthermore, the introduction of the 2024 banking sector recapitalisation programme, which required commercial banks to increase their minimum capital base by March 2026, underscores the regulator's continuing commitment to strengthening the resilience and long-term sustainability of Nigerian banks (CBN, 2024). These developments suggest that compliance with governance provisions alone may not necessarily translate into improved financial performance and financial soundness.

The relationship between board independence and financial performance has attracted considerable empirical attention. Agency Theory argues that independent directors strengthen

board monitoring, reduce managerial opportunism, and improve organisational performance by aligning management decisions with shareholders' interests (Jensen & Meckling, 1976). Consistent with this proposition, Ngo et al. (2023) found that board independence significantly improved the financial performance of listed firms in Vietnam, while Pham and Ho (2024) reported that independent directors enhanced financial performance among Taiwanese firms through improved environmental, social, and governance practices. Similarly, Aidoo et al. (2024) observed that board independence positively influenced the financial performance of listed manufacturing firms in Ghana, whereas Yunusa et al. (2024) reported a significant positive relationship between board independence and the financial performance of listed insurance firms in Nigeria. Nevertheless, other empirical studies have reported insignificant or mixed relationships, suggesting that the effectiveness of board independence may vary across institutional environments, governance structures, and performance measures. The absence of consistent empirical evidence indicates that the governance and performance relationship remain inconclusive and warrants further investigation within the Nigerian banking sector.

Another important concern relates to how financial performance is measured. Most previous studies have relied on conventional accounting and market-based indicators such as Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS), and Tobin's Q. Although these measures provide useful information on profitability and shareholder value, they do not adequately capture the multidimensional nature of banking performance. In practice, the CBN evaluates the financial condition of banks using the CAMELS supervisory framework, which assesses Capital Adequacy, Asset Quality, Management Quality, Earnings, Liquidity, and Sensitivity to Market Risk. This framework provides a more comprehensive assessment of bank soundness because it incorporates both profitability and prudential dimensions of performance that are central to banking regulation (BCBS, 2021; CBN, 2023). Consequently, reliance on profitability indicators alone may provide an incomplete assessment of the effectiveness of board independence in enhancing bank performance.

Furthermore, although several Nigerian studies have examined the relationship between board independence and financial performance, many have focused on manufacturing firms, insurance companies, or other non-financial institutions. Even studies conducted within the banking sector have largely measured performance using traditional profitability indicators rather than the CAMELS framework employed by regulators. This disconnects between regulatory performance assessment and empirical measurement limits the practical relevance of existing evidence for banking supervision and corporate governance policy. More importantly, limited empirical attention has been devoted to examining whether board independence, as prescribed by the CBN Code of Corporate Governance**,** significantly influences the CAMELS-based financial performance of listed deposit money banks in Nigeria**.**

Against this background, this study examines the effect of board independence on CAMELS-based financial performance of listed deposit money banks in Nigeria**.** By grounding board independence in the provisions of the CBN Code of Corporate Governance for Banks and Discount Houses and Financial Holding Companies in Nigeria and adopting a CAMELS-based measure of financial performance, the study aligns governance assessment with the regulatory framework governing Nigerian banks. The findings are expected to contribute to the corporate governance literature while providing useful evidence for the Central Bank of Nigeria, bank boards, investors, and policymakers on the effectiveness of board independence in strengthening the financial soundness and resilience of listed deposit money banks in Nigeria.

2.0 Literature Review

This section conducts an extensive review of relevant studies in relation to the effect of board independence on CAMEL based financial performance among listed deposit money banks in Nigeria. It consists of review of relevant concepts, theories and empirical studies.

Conceptual Review

Financial performance refers to the extent to which an organisation efficiently utilises its resources to generate sustainable returns, maintain financial stability, and achieve its strategic objectives (Alzayed et al., 2023; Jibril, 2024). It reflects managerial efficiency in resource allocation and the ability to balance profitability with risk while ensuring long-term organisational sustainability (Nawaz & Ohlrogge, 2023). Accordingly, financial performance is widely recognised as a multidimensional concept that extends beyond profitability to include liquidity, solvency, operational efficiency, and risk management (Bui & Krajcsák, 2024). In corporate governance literature, financial performance is regarded as an outcome of effective governance mechanisms. Good governance practices, particularly effective board oversight, reduce agency conflicts, enhance monitoring, improve resource utilisation, and ultimately strengthen organisational performance and resilience (Nawaz & Ohlrogge, 2023; Bui & Krajcsák, 2024).

Within the banking sector, financial performance is assessed more broadly due to the industry's regulatory nature. Beyond profitability, banks are expected to maintain adequate capital, manage credit risk, sustain liquidity, operate efficiently, and withstand market shocks. Consequently, regulators and scholars increasingly adopt the CAMELS framework, which evaluates financial performance across six dimensions: Capital Adequacy, Asset Quality, Management Efficiency, Earnings, Liquidity, and Sensitivity to Market Risk (Temba et al., 2023).

The CAMELS framework is considered more comprehensive than traditional profitability measures such as Return on Assets (ROA) and Return on Equity (ROE) because it captures both financial performance and overall bank soundness. Its multidimensional structure aligns with regulatory requirements and provides a more holistic assessment of the financial condition of banks. Given the objective of this study, the CAMELS framework provides the most appropriate measure of financial performance because it reflects the diverse channels through which corporate governance mechanisms, particularly board independence, influence the stability, efficiency, and overall performance of listed deposit money banks in Nigeria.

Board Independence

Board independence refers to the extent by which non-executive directors are free from being controlled by managers or large shareholders. This is seen as a part of good governance because independent directors are thought to give fair oversight, reduce the power of managers and protect the interests of shareholders and regulators (Jibril, 2024). The common way to measure this is by looking at the percentage of independent or non-executive directors on the board. It is believed that independence helps to reduce costs by making sure there is better monitoring to control bad behaviours, making better decisions and providing transparent reports (Temba et al. 2023; Jibril, 2024). In banking industry, these monitoring roles are expected to result in to better risks management and more careful lending activities.

Studies from Nigeria and similar places mostly agree that more independence in the board is linked to better risk management. Some research shows that independent boards pay attention to

how loans are given and how reserves are managed and are therefore linked to better capital adequacy and assets quality (Saka & Osamor 2022; Amuda et al. 2025). Studies outside Nigeria also maintain that independence can reduce risk and help to improve financial strength (Aslam, et al. 2021).

Additionally, some studies noted that the benefits of independence are conditional on complementary attributes such as director expertise, active engagement, institutional enforcement, and firm size (Saka & Osamor, 2022; Athar et al., 2023; Amuda et al., 2025). Where independence exists without substantive capacity or commitment for example, when independent seats are filled tokenistically or when regulatory enforcement is weak, the monitoring promise of independence may not materialise and measured effects on CAMELS dimensions may be weak or even negative (Temba et al., 2023; Nobakht et al., 2024).

Therefore, board independence can be regarded as a core governance mechanism that, when combined with director's expertise, active engagement, and robust institutional support, tends to strengthen oversight and improve risk related outcomes (e.g., capital adequacy and asset quality). However, independence alone is not a solution; its effectiveness depends on how independence is operationalised in practice and on the surrounding regulatory and organizational environment.

Bank size is controlled for because it can influence a bank's CAMELS-based financial performance through economies of scale, diversification, and improved access to resources. Including bank size as a control variable helps isolate the effect of board independence on the financial performance of listed deposit money banks in Nigeria.

Theoretical Review

Agency Theory advanced by Stephen Ross and Barry Mitnick in (1973) explain the connection between principals and agents. Principals are the people who own the company, like shareholders. Agents are the people who run the company like managers. The theory says that when ownership and control are separate problems can happen. Managers might act in their interest instead of the interest of the shareholders. This leads to costs known as agency costs. Because of this, companies are expected to find ways to watch over managers and make sure they make decisions to the best interest of the shareholders (Ross, 1973; Mitnick, 1973).

This theory is very important for the banking industry because banks use a lot of borrowed money. They have tasks and often have more information than others. This can create chances for managers to act in a way that's not good for the bank. When oversight is weak the bank might take much risk, manage loans in appropriately, have weak rules and not be financially strong (Athar et al. 2023; Farooq et al. 2022).

Agency Theory is the idea behind board independence, which is the main factor in this study. According to the Central Bank of Nigeria (CBN) Code of Corporate Governance for Banks and Discount Houses and Financial Holding Companies, in Nigeria independent non-executive directors are supposed to watch over the company make sure the board is working properly reduce problems between owners and managers and help in making sound decisions (CBN, 2023). Effective monitoring is expected to help banks improve their Capital Adequacy, Asset Quality, Management Quality, Earnings and Liquidity by making sure they manage risks properly, follow rules and work appropriately (Bhatt et al., 2024; Nawaz & Ohlrogge 2023; Saka & Osamor 2022).

Even though Agency Theory mainly talks about the relationship between owners and managers, it is still the most appropriate theory for this study. It shows how board independence as outlined in the CBN Code of Corporate Governance helps to improve the financial performance of listed deposit money banks in Nigeria.

Empirical Review

Fadun and Saka (2025) explored the impact of corporate governance practices on insurance companies' liquidity and capital adequacy. The study used an ex-post facto research design, employing a 20year (2004 - 2023) time series dataset extracted from the financial records of selected insurance companies in Nigeria. The Granger Causality Test and Panel Least Squares Regression were applied to test the study's hypotheses, and the Hausman test was used to determine whether the Fixed Effect or Random Effect Model was more appropriate. The findings revealed that board size has a positive significant impact on liquidity and capital adequacy; board independence does not have a positive significant impact on liquidity and capital adequacy; board compensation has a positive significant impact on these variables; and controlling interest ratio also significantly enhances liquidity and capital adequacy in insurance companies. The study examines firms regulated by NAICOM, not CBN, whose governance requirements differ substantially from banking. Moreover, the long 20-year period introduces the possibility of structural breaks not fully controlled for. This study relied exclusively on governance variables defined by the CBN governance code and applies CAMELS based approach to measure financial performance.

Aloamaka and Ononye (2025) investigated the effect of board independence on the financial performance of quoted manufacturing companies in Nigeria between 2013 and 2022 using panel regression techniques. The study found that board independence had no significant effect on earnings per share and exhibited a negative relationship with return on assets, concluding that structural compliance with board independence alone does not guarantee improved performance. However, the study focused on manufacturing firms and assessed performance using accounting-based indicators, limiting its applicability to banks. This study addresses these limitations by examining board independence under the CBN Code of Corporate Governance and evaluating its effect on CAMELSbased financial performance of listed deposit money banks in Nigeria.

Hamid (2025) examined the effect of corporate governance on the financial performance of quoted healthcare firms in Nigeria. The study's specific objectives were to determine the effect of board composition, board independence, and board committees on return on equity (ROE). Using an ex-post facto research design, the study utilized secondary data from the annual reports of seven listed healthcare companies in Nigeria covering the period 2014–2023. Corporate governance was proxied using board composition, board independence, and board committees, while financial performance was measured using ROE. The study applied descriptive statistics and OLS regression and found that all corporate governance variables examined had statistically significant positive effects on ROE. The study uses a very small sample of only seven firms, restricting generalizability and lowering statistical power. It also examines a sector whose governance expectations differ significantly from CBN regulated institutions. This study used a larger, more representative sample of CBN regulated financial institutions and operationalizes governance variables strictly in alignment with the CBN Corporate Governance Code.

Pham and Ho (2024) studied how independent board members affect firm performance in 173 Taiwanese listed firms. They used panel regression analysis from 2009 to 2021. They found that

board independence improved performance. Environmental, social and governance (ESG) practices played a part in this relationship. However, the study looked at companies, in industries not deposit money banks. It used financial measures instead of prudential indicators that apply to banks. Therefore, their results do not apply well to deposit money banks. This study adds to the research by looking at how board independence affects performance measured by CAMELS in the Nigerian banking sector.

Aidoo et al. (2024) examined the impact of board size, board independence and board expertise on the performance of listed manufacturing companies in Ghana from 2010 to 2022 with board commitment as a moderator. The research showed that board independence had a significant effect on both return on assets and return on equity. However, the research was focused on manufacturing companies. Used profitability ratios to measure performance, which limits its use for the banking industry. This study addresses that problem by looking at listed deposit money banks and using the CAMELS framework, which offers a complete way to evaluate the financial performance of banks.

Din and et al. (2024) studied how CEO duality, board independence and financial performance are connected in listed manufacturing companies in Pakistan using the Generalized Method of Moments (GMM). The study found that more board independence improved performance, especially in companies where the CEO is also the chairman. However,the study covered Pakistan's manufacturing sector, which is very different from Nigeria's banking industry that has strict rules. Also, it used traditional measures of financial performance. This study therefore gives considered listed deposit money banks in Nigeria using a CAMELS based approach to measure performance.

Yunusa et al. (2024) examined the effects of board independence, board size and gender diversity on the financial performance of listed insurance firms in Nigeria using a robust random-effects regression model. The study found that board independence had a significant positive effect on return on equity. While the study provides evidence from Nigeria, it focused on insurance firms rather than deposit money banks and measured performance using return on equity. Therefore, the findings cannot be directly generalised to the banking sector. This study addresses this sectoral and methodological gap by examining listed deposit money banks and adopting the CAMELS framework.

Oshim and Igwe (2024) investigated corporate governance and financial performance of listed consumer goods firms in Nigeria for the period 2013 - 2022. The study examined board size, board independence, and board meetings using correlation analysis. The findings show that these corporate governance mechanisms do not have strong relationships with ROA. The study recommended that firms prioritize board diversity, expertise, and quality of meetings rather than simply increasing size or count. The study uses correlation rather than causal methodology and focuses on a non-financial sector that does not reflect CBN mandated governance practices. This study therefore employed causal panel techniques and focuses exclusively on CBN regulated financial institutions, enhancing relevance and validity.

Navillia and Rahayu (2024) investigated the financial performance of banking firms in Indonesia for the period 2020–2022, using ROA as the performance measure. The independent variables included independent board of commissioners, audit committee, internal audit, audit quality, and company size. Using purposive sampling, 96 banking firms were selected. Multiple regression analysis showed that independent commissioners, internal audit, and firm size have a significant

correlation with financial performance, while audit committee and audit quality do not. The very short three-year period (2020–2022) coincides with the global COVID-19 shock, which may distort normal governance performance dynamics. The governance structures (two-tier board system) differ from Nigeria's unitary board structure. This study used a longer period, avoids COVID only bias, and applies governance constructs consistent with the CBN's unitary board system.

Ngo et al. (2023) examined how board independence affects the performance of Vietnamese listed firms. They used panel data from 2016 to 2020. Generalized Method of Moments (GMM) estimation was adopted. The study showed that independent non-executive directors led to better financial performance. The positive effect was weaker in areas with more market competition. Even though they used an estimation method, the study looked at firms in many different industries. They measured performance with Tobins Q, which does not fully show how strong a bank is. Also, the Vietnamese system is different from the Nigerian banking sector. This study tries to fix these issues by looking at board independence according to the CBN Code of Corporate Governance. It measures performance using the CAMELS framework.

3.0 Methodology

This section explains the research methodology adopted in the study. The section is made up of research design, population of the study, sample size and sampling techniques, method of data collection, method of data analyses, diagnostic and post estimation tests, variables definition and measurement, as well as model and model specification. The study adopts an ex-post facto research design because historical data collected from the annual report and accounts of the sample banks were used. This design selection is justified because data in relation to CAMELS based financial performance and board independence were collected as they are available in the annual reports and account without manipulation by the researcher. The population of the study consists of the entire 13 listed deposit money banks as at 31st December 2024. Purposeful sampling technique was adopted to select the banks that were listed on or before 1st January 2015 and remain listed as at 31st December, 2024, alsoavailability of its published annual reports and accounts throughout the study period. Based on this filter / criteria Jaiz Bank listed in 2017 and Eco bank which had incomplete information were excludedand as suchwe arrived at an adjusted sample of 11 banks. Data for the study were collected using the secondary method of data collect from the annual reports and account of the selected banks. The study adopted panel multiple regression technique for data analyses after conducting various diagnostic and post estimation tests. The diagnostic tests conducted includes the Shapiro wilk test for normality, variance inflation factor test for multicollinearity, the Breusch–Pagan/Cook–Weisberg test for heteroskedasticity, the hausman specification test for fixed effect and Breuschand Pagan Lagrangian multiplier test for random effects.

The variables of the study and their measurement are presented in Table 1.

Table 1:
Variable Measurement and Definition

Variables	Definition	Measurement	Sources
Dependent Variable:			
CAMEL	Performance measurement index	Measure using CAMELS composite score index	**Bougatef (2020)** and **Yakubu and Tanko (2021)**
Independent Variables:			
BIND	Board independence	Measured as the proportion of board members that are independent non-executive directors	Nobakht et al., (2024); Sahraoui and Alfadli (2024)
Control Variables:			
BSIZE	Bank Size	Measured as the natural logarithm of the bank total assets	Jibril, et al. (2024)

Source: Author's Compilation, 2026.

The study model was adapted from the work Yunusa et al. (2024) with little modifications. The modified model is presented below:

CAMELS = α +β1BINDit +β2BSIZEit +ε ---------- (i)

Where:
CAMELS= CAMELS based financial performance
BIND = Board Independence
BSIZE = Bank Size
α =Contant
β1-2=coefficient of independent variables
ε =error term
i=firm
t=year

The CAMELS Index is a composite measure of bank soundness obtained by averaging the six normalized CAMELS components with equal weights. Supported by regulators such as the Basel Committee and the CBN, as well as empirical studies like Bougatef (2020) and Yakubu and Tanko (2021). This provides a more comprehensive assessment of bank performance than individual financial ratios. The resulting index was used as the dependent variable in regression analysis to evaluate the determinants of bank stability and overall performance.

4.0 Data Presentation and Analyses

This section presents the result of data analyses conducted. It includes descriptive and correlation analyses, diagnostic and post estimation tests, regression analyses, test of hypotheses and discussion of findings. Table 1 presents the results of descriptive statistics.

Table 1:
Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CAMEL	110	.229	.057	.077	.389
BIND	110	.211	.099	.067	.875
BSIZE	110	11.577	1.593	8.589	13.618

Sources: Stata Output, 2026.

Table 1 presents the descriptive statistics for the variables employed in the study, namely CAMEL-based financial performance, board independence, and bank size. The statistics include the number of observations, mean, standard deviation, minimum, and maximum values, providing an overview of the characteristics and distribution of the data for the listed deposit money banks in Nigeria over the study period.The analysis is based on 110 bank-year observations, indicating that the dataset is balanced and sufficient for panel data estimation. The equal number of observations across all variables confirms the completeness of the dataset, with no missing values that could compromise the reliability of the empirical analysis.

The dependent variable, CAMEL-based financial performance, recorded a mean value of 0.229, indicating that the average composite CAMEL performance index of the sampled banks during the study period was approximately 22.9%. This suggests that, on average, the listed deposit money banks maintained a moderate level of financial soundness as measured by the combined dimensions of capital adequacy, asset quality, management efficiency, earnings, and liquidity. The standard deviation of 0.057 indicates relatively low dispersion around the mean, implying that the CAMEL performance of the sampled banks was fairly consistent throughout the study period. The minimum value of 0.077 and maximum value of 0.389 reveal noticeable differences in financial soundness across banks and years. This range suggests that while some banks experienced relatively weak CAMEL performance, others maintained substantially stronger financial conditions, reflecting differences in governance practices, managerial efficiency, risk management, and regulatory compliance. The existence of such variation is desirable because it provides sufficient variability for econometric estimation and facilitates meaningful investigation of the influence of board independence on CAMEL-based financial performance.

The independent variable, board independence, has a mean value of 0.211, indicating that independent directors constituted, on average, 21.1% of board membership among the sampled banks. This suggests that Nigerian listed deposit money banks generally maintained a reasonable proportion of independent directors, although the average remains below one-quarter of total board membership. The standard deviation of 0.099 indicates moderate variation in board independence across the sampled banks, implying that corporate governance structures differed considerably from one bank to another. The minimum value of 0.067 shows that some banks had as little as 6.7% independent representation on their boards, whereas the maximum value of 0.875 indicates that independent directors constituted as much as 87.5% of board membership in certain banks. The wide range demonstrates substantial heterogeneity in board composition across the banking sector. Such variation is beneficial for empirical analysis because it enables a more robust assessment of whether differences in board independence are associated with differences in CAMEL-based financial performance.

The control variable, bank size, measured as the natural logarithm of total assets, recorded a mean value of 11.577, indicating that the sampled banks generally operated with relatively large

asset bases during the study period. The standard deviation of 1.593 suggests moderate variation in bank size, reflecting differences in the scale of operations among the listed deposit money banks. The minimum value of 8.589 and maximum value of 13.618 further demonstrate substantial disparities in total assets across the sampled banks, indicating the presence of both relatively small and very large institutions. This variation justifies the inclusion of bank size as a control variable because institutional size can influence financial performance through economies of scale, resource availability, market power, operational efficiency, and risk diversification. Controlling for bank size therefore helps isolate the effect of board independence on CAMEL-based financial performance.

Table 2:
Pairwise Correlations

Variables	(1)	(2)	(3)
(1) CAMEL	1.000		
(2) BIND	0.291*	1.000	
	(0.002)		
(3) BSIZE	0.426*	0.265*	1.000
	(0.000)	(0.005)	

Source: Stata Output, 2026.

Table 2 presents the pairwise correlation matrix for the variables used in the study. The results indicate that board independence is positively and significantly correlated with CAMEL-based financial performance ($r = 0.291$, $p = 0.002$). The positive coefficient implies that an increase in the proportion of independent directors on the board is associated with an improvement in the CAMEL-based financial performance of listed deposit money banks in Nigeria. Although the relationship is moderate in magnitude, its statistical significance suggests that banks with more independent boards tend to exhibit stronger financial soundness, as reflected in better capital adequacy, asset quality, management efficiency, earnings, and liquidity. This finding provides preliminary support for the expectation that board independence contributes positively to the overall financial health of banks.

Similarly, bank size exerted a positive and statistically significant relationship with CAMEL-based financial performance ($r = 0.426$, $p = 0.000$). This coefficient indicates a moderate positive association, suggesting that larger banks generally record higher CAMEL performance than smaller banks. The implication is that banks with larger asset bases are more likely to benefit from economies of scale, stronger capitalization, improved risk diversification, greater operational efficiency, and enhanced access to financial resources, all of which contribute to better overall financial soundness. The relatively stronger correlation of bank size with CAMEL performance compared to board independence also suggests that institutional size may play an important role in explaining variations in bank performance, thereby justifying its inclusion as a control variable.

The correlation between board independence and bank size is also positive and statistically significant ($r = 0.265$, $p = 0.005$). This result indicates that larger banks tend to have relatively higher proportions of independent directors on their boards. This might be as a result of the fact that larger banks are subject to stricter regulatory oversight, more complex governance requirements, and greater stakeholder scrutiny, encouraging them to appoint more independent directors to strengthen board oversight and enhance transparency. However, the magnitude of the

correlation remains relatively low, indicating that although the two variables are related, they are not so highly associated as to raise concerns regarding multicollinearity. This will be confirmed by the variance inflation factor test for multicollinearity.

Table 3:
Shapiro-Wilk W Test For Normal Data

Variable	Obs	W	V	Z	Prob>z
resid	110	0.938	5.578	3.833	0.000

Source: Stata Output, 2026.

Table 3 presents the results of the Shapiro–Wilk normality test conducted on the regression residuals. The test produced a W statistic of 0.938 with a p-value of 0.000. Since the p-value is less than the 5% significance level, the null hypothesis of normality is rejected, indicating that the residuals are not normally distributed.However, the violation of the normality assumption does not invalidate the regression results because the study employs panel data with 110 observations, for which the estimators remain reliable under the Central Limit Theorem. Therefore, the regression estimates are considered valid for inference despite the non-normality of the residuals.

Table 4:
Variance Inflation Factor (VIF) Test for Multicollinearity

Variables	VIF	1/VIF
BIND	1.080	0.930
BSIZE	1.080	0.930
Mean VIF	1.080	

Source: Stata Output, 2026.

Table 4 presents the Variance Inflation Factor (VIF) results for the independent variables. The VIF values for Board Independence (BIND) and Bank Size (BSIZE) are 1.080, with a mean VIF of 1.080. Since all VIF values are well below the threshold of 10.0 (and the corresponding tolerance values are above 0.10), the results indicate the absence of multicollinearity among the explanatory variables.Therefore, the independent variables are not highly correlated, and the estimated regression coefficients are considered reliable and free from multicollinearity problems.

Table 5:
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

	Coefficient
chi2(1)	2.24
Prob > chi2	0.1346

Source: Stata Output, 2026.

Table 5 presents the results of the Breusch–Pagan/Cook–Weisberg test for heteroskedasticity. The test produced a Chi-square value of 2.24 with a p-value of 0.1346. Since the p-value is greater than the 5% significance level, the null hypothesis of constant variance is not rejected.Therefore, the model does not suffer from heteroskedasticity, indicating that the error terms have constant variance and the regression estimates are efficient and reliable.

Table 6:
Hausman (1978) Specification Test

	Coef.
Chi-square test value	1.794
P-value	.408

Source: Stata Output, 2026.

The Breusch-Pagan Lagrangian Multiplier (LM) test was conducted to determine whether the Random Effects Model is more appropriate than the Pooled Ordinary Least Squares (OLS) model. The test produced a chibar² value of 28.43 with a p-value of 0.0000. Since the p-value is less than the 5% significance level, the null hypothesis that the variance of the random effects is zero is rejected.Therefore, the Random Effects Model is preferred over the Pooled OLS model, indicating the presence of significant panel effects. Combined with the Hausman test results, the Random Effects Model is confirmed as the appropriate estimation technique for this study.

Table 8:

Regression

CAMEL	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
BIND	0.111	0.052	2.09	0.036	.007	0.215	**
BSIZE	0.013	0.002	5.51	0.000	.009	0.018	***
_cons	0.409	0.027	14.89	0.000	.355	0.462	***
R-squared		0.216					
Wald Chi2		54.98					
Prob > F		0.000					
*** p<.01, ** p<.05, * p<.1							

Source: Stata Output, 2026.

Table 8 presents the panel regression results examining the effect of board independence on the CAMEL-based financial performance of listed deposit money banks in Nigeria while controlling for bank size. The model was estimated using the appropriate panel estimation technique selected after the relevant diagnostic tests. The model produced an R-squared value of 0.216, indicating that approximately 21.6% of the variation in the CAMEL-based financial performance of the sampled listed deposit money banks is jointly explained by board independence and bank size. Although the remaining 78.4% of the variation is attributable to other factors not included in the model, an R-squared of this magnitude is generally acceptable in corporate governance and banking studies because financial performance is influenced by numerous internal and external factors, including macroeconomic conditions, regulatory changes, managerial quality, risk management practices, market competition, and operational efficiency.

The overall model is statistically significant, as evidenced by the Wald Chi-square statistic of 54.98 with a corresponding probability value of 0.000. This indicates that the explanatory variables jointly have a statistically significant effect on the CAMEL-based financial performance of listed deposit money banks in Nigeria. Consequently, the null hypothesis that the explanatory variables have no joint explanatory power is rejected, confirming that the estimated regression model is appropriate for explaining variations in CAMEL-based financial performance.

The regression results reveal that board independence has a positive and statistically significant effect on CAMEL-based financial performance, with a coefficient of 0.111, a t-value of 2.09, and a p-value of 0.036. Since the p-value is less than the conventional 5% significance level, the effect is statistically significant. The positive coefficient implies that an increase in board independence is associated with an improvement in the CAMEL-based financial performance of listed deposit money banks. Specifically, holding bank size constant, a one-unit increase in board independence is associated with an average increase of 0.111 units in the composite CAMEL performance index.

The control variable, bank size, also exhibits a positive and highly statistically significant effect on CAMEL-based financial performance. The estimated coefficient of 0.013, together with a t-value of 5.51 and a p-value of 0.000, indicates that larger banks tend to record better CAMEL-based financial performance than smaller banks. Holding board independence constant, a one-unit increase in bank size is associated with an average increase of 0.013 units in the CAMEL performance index.

The positive relationship between bank size and CAMEL-based financial performance suggests that larger banks benefit from economies of scale, greater operational efficiency, stronger capital positions, improved access to financial resources, enhanced risk diversification, and superior technological capabilities. These advantages enable larger institutions to maintain better asset quality, stronger earnings, higher liquidity, and greater resilience to financial shocks, thereby improving their overall CAMEL performance. The significance of bank size further justifies its inclusion as a control variable, as it accounts for structural differences among banks that could otherwise bias the estimated effect of board independence.

Test of Hypothesis

Null Hypothesis (H_0): Board independence has no significant effect on the CAMEL-based financial performance of listed deposit money banks in Nigeria.

The regression results show that the coefficient of board independence is 0.111 with a p-value of 0.036, which is less than the 5% level of significance. Therefore, the null hypothesis is rejected.

Discussion of Findings

The regression results show that board independence has a positive and statistically significant effect on the CAMELSbased financial performance of listed deposit money banks in Nigeria ($\beta = 0.111$, $p = 0.036$). This suggests that a higher proportion of independent directors strengthens board oversight, improves monitoring, enhances risk management, and ultimately contributes to better financial performance. The finding supports Agency Theory, which argues that independent directors reduce agency conflicts by effectively monitoring management and protecting shareholders' interests (Jensen & Meckling, 1976).

The result is consistent with the findings of Pham and Ho (2024), Aidoo et al. (2024), Din et al. (2024), Yunusa et al. (2024), Navillia and Rahayu (2024), Ngo et al. (2023), and Hamid (2025), all of whom reported that board independence enhances firm performance. It also partly aligns with Fadun and Saka (2025), who emphasized the importance of corporate governance, although they found board independence to be insignificant in Nigerian insurance companies. Conversely, the finding contradicts Aloamaka and Ononye (2025) and Oshim and Igwe (2024), who reported that board independence had no significant effect on the performance of manufacturing and consumer goods firms. These differences may reflect variations in industry characteristics,

regulatory frameworks, governance codes, and performance measures. Unlike earlier studies that relied mainly on ROA, ROE, or EPS, this study employed the CAMELS framework, which provides a more comprehensive assessment of bank performance under the CBN regulatory environment.

5.0 Conclusion and Recommendation

This study examined the effect of board independence on the CAMEL-based financial performance of listed deposit money banks in Nigeria, while controlling for bank size. Based on its findings, the study concludes that strengthening board independence contributes significantly to improving the CAMEL-based financial performance of listed deposit money banks in Nigeria. The findings provide empirical support for Agency Theory, which posits that independent directors mitigate agency conflicts through effective monitoring of management, thereby enhancing organizational performance. The study therefore concludes that increasing board independence is an effective governance strategy for promoting financial stability, improving the quality of corporate oversight, and enhancing the long-term sustainability of the Nigerian banking sector.

Based on the empirical findings of this study, it recommendations that listed deposit money banks in Nigeria should increase and sustain an adequate proportion of independent non-executive directors on their boards in line with the Central Bank of Nigeria's Corporate Governance Guideline**s.**This is because the study established that board independence has a positive and statistically significant effect on CAMEL-based financial performance. Banks should ensure that independent directors are appointed based on competence, integrity, banking experience, and independence of judgment to strengthen board oversight, enhance strategic decision-making, improve risk management, and promote better financial soundness across the CAMEL dimensions.

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