DETERMINANTS OF FINANCIAL DISTRESS AMONG LISTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract
This study examines the macroeconomic and bank specific determinants of financial distress among listed deposit money banks in Nigeria. Using a balanced panel of nine listed deposit money banks over the period 2012–2024, the study employs an ex post facto research design and measures financial distress using a composite CAMELS based index. The analysis incorporates selected macroeconomic variables, including gross domestic product growth, inflation, interest rate, unemployment, government debt and fiscal balance, alongside bank specific factors comprising firm size, board size, leverage and ownership concentration. Panel regression techniques were employed. The Breusch–Pagan Lagrange Multiplier test confirms the presence of significant bank-specific effects ($\chi^2 = 98.58$, $p < .001$), while the Hausman specification test provides support for the random-effects model ($\chi^2 = 8.21$, $p = .0843$). The random-effects estimates indicate that interest rate has a significant negative relationship with financial distress ($\beta = -0.002$, $z = -2.20$, $p = .028$), whereas fiscal balance ($\beta = 0.015$, $z = 3.71$, $p < .001$) and firm size ($\beta = 0.026$, $z = 3.36$, $p = .001$) are positively associated with financial distress. Board size ($\beta = -0.003$, $z = -2.47$, $p = .014$) and leverage ($\beta = -0.438$, $z = -2.78$, $p = .005$) exhibit significant negative relationships with financial distress. Ownership concentration is positive but only weakly significant at the 10% level ($\beta = 0.051$, $z = 1.67$, $p = .095$), while GDP growth, inflation, unemployment and government debt are statistically insignificant. The findings demonstrate that financial distress among Nigerian listed deposit money banks is associated with both macroeconomic conditions and bank specific characteristics, particularly interest rate conditions, fiscal balance, bank size, board structure and leverage. The study provides evidence relevant to bank risk management, corporate governance and regulatory strategies aimed at strengthening the financial resilience of Nigeria's banking sector.

Keywords: CAMELS, corporate governance, financial distress, listed deposit money banks, macroeconomic factors.

1.0 Introduction

The banking industry occupies a central position in the Nigerian financial system through its role in mobilization of savings, financial intermediation, facilitation of payments, provision of credits and support for economic activities. Banks are essential to the growth of every economy. Countries must prioritise the soundness of the financial sector since its failure might impede the country's overall growth (Ogundele et al. 2024). The stability of banks is important not only to depositors and shareholders but also to businesses, government, households, the broader economy and effective functioning of the whole financial system. Because banks operate with substantial financial leverage and are exposed to risks, deterioration in their financial condition can rapidly affect their ability to meet obligations, financial distress and continued normal operations. Financial distress results in a situation where banks face severe financial difficulties that threaten their continued operation and solvency, often resulting in negative consequences for the broader economy (Irem et al., 2023). The failure or collapse of a bank can trigger adverse

financial repercussions, which includes systemic risk and loss of public confidence in the banking sector (Nguyen et al., 2008).

Financial distress in banks is a pivotal issue that can threaten the stability of financial system of an economy. It occurs when banks are unable to meet their financial obligations, potentially leading to bankruptcy, insolvency or systemic crises. It is also a situation where banking institution face severe financial challenges, struggling to meet its financial obligations such as loan commitments and debt repayments (Helmold & Dathe, 2020). The issue is not only a corporate concern but also a socially and economically significant problem, as banks play a vital role in financial intermediation and economic stability. When banks experience distress, the ripple effects can extend to borrower, investors and the broader economy, which results in reduced investments, equity valuation losses and even tighter financial conditions that threaten GDP growth (Pietrzak, 2022; Mishra et al., 2024).

The Nigerian banking sector has undergone considerable institutional and regulatory changes aimed at strengthening financial stability and improving the resilience of banks. These include prudential regulations, bank recapitalization exercises, corporate governance reforms, risk management requirements among others (Osamwonyi & Abosede, 2012; Kafidipe et al.,2021). Despite these measures, bank remain exposed to several internal and external factors that may affect their financial health. Changes in macroeconomic conditions and bank specific characteristics may affect their vulnerability to financial distress by raising credit risk and systemic risk across the banking sector (Wong et al., 2010; Huang et al., 2012; Calmes, & Théoret, 2014). Both changing macroeconomic conditions and bank-specific characteristics play vital roles in shaping banks' vulnerability to financial distress, with evidence supporting the need for integrated risk management and regulatory oversight (Calmes, & Théoret, 2014).

Despite the central role banks play in economic development, financial distress remains a persistent threat to their stability and the wider financial system. The cause of distress includes but not limited to poor risk management, lax credit standards and inadequate attention to changing economic circumstance, which can deteriorate the credit standing of a bank's portfolio (Abadi et al., 2011). When banks are unable to fulfil their financial commitments, the consequences can be severe, ranging from liquidity crises and insolvency to systemic failure that affect non-financial firms and the broader economy (Carvalho et al., 2015). Furthermore, governance mechanisms and regulatory oversight may lack sufficient preventive safeguards and timely responses to bank distress, highlighting the need for improved early warning system and robust risk management practices. Addressing financial distress in banks is therefore important for regulators, policy makers and bank managers to implement effective preventive measures and ensure the resilience of the banking sector (Mishra et al., 2024).

A further problem is that financial distress may develop gradually before becoming evident through severe financial difficulties or failure. Relying only on visible signs of distress may therefore limit the ability of management and regulators to take timely corrective action. There is a need to identify measurable financial and economic factors that can serve as early indicators of deterioration in banks' financial conditions. Such as evidence can strengthen preventive risk-management practices and enable stakeholders to respond before financial difficulties become more severe. Addressing financial distress in banks is therefore crucial not only for the survival of individual institutions but also for maintaining economic stability and preventing sustained

downturns in national and global economies. Consequently, the identification and understanding of factors that contribute to financial distress among banks remain important issues for regulators, investors and other stakeholders. The study will provide insights into causes of distress and bank failure, supporting the development of effective regulatory policies and intervention to maintain sector stability and prevent crises. It will inform macroeconomic and financial sector policies aimed at strengthening the banking sector and preventing economic disruption caused by bank failures. Hence this study tends to examine factors influencing financial distress of banks in Nigerian banks with emphasis on bank specifics and macroeconomic determinants.

2.0 Literature Review

According to Fakhar et al. (2023), financial distress is a gradual process of decline of financial performance which could evolve into liquidity struggles, insolvency problems and ultimately failure in the business or bankruptcy. Although it should be noted that financial distress does not necessarily have to result to financial collapse of a business. Financial distress can also be described as the deterioration in an entity financial condition that could threaten the ability of the entity to meet its contractual obligations and continue its normal economic operations. Financial distress does not refer to insolvency or entity failure, rather it serves as an early sign of financial decline in the operating activity and returns of an entity which signifies a weakness in profitability, management ability, capital valuation, asset quality and exposure to market risks. It signifies the weakness in the ability of an entity in absorbing losses, maintaining adequate liquidity levels, generate sustainable earnings and effectively manage its assets and liability withing its business environment. Therefore, financial distress is a crucial factor for understanding signs of organisational failure.

In recent decades, the distinction between financial distress, bank failure, bankruptcy and insolvency is very important. The banking industry highlights the crucial role of financial distress because banks are expected to operate with substantial financial leverage and transform short-term deposit into long-term loans and investments (Sari & Seran, 2025). These exposes the bank to various risks such as credit risk, liquidity risk, interest rate and market risk locally and globally. Therefore, banks could experience financial distress even when their financial statements are reporting profitability. A distressed bank can affect borrows, depositors and other financial institutions. It could in a broader sense affect economic activity through reduced credit supply and impaired confidence in the financial system of country.

Uhunmwangho (2022) affirm that the multidimensional nature of financial distress imply that a single ratio is not sufficient to understand and completely assess the conditions of financial institutions. Hence, financial distress measurement has moved from simply being a bankruptcy and poor profitability prediction towards a more multidimensional early-warning framework. These includes models such as Beaver model (1966); Tamari model (1966); Altman Z-score (1968); Springate model (1978); Ohlson O-score (1980), Zmijewski model (1984), Fulmer H-score (1984), Hazard Models (Shumway, 2001), CAMELS models and more recent machine learning models such as artificial neural networks, support vector machines, random forest, gradient boosting, deep learning models.

The Central Bank of Nigeria (CBN), which is the regulatory body for the banking sector in Nigeria do employ the use of financial indicators in its oversight function in understanding financial distress. According to Kolawole et al. (2026) one of the most appropriate models of

measuring financial distress in Nigerian banking sector is the CAMELS model. The CAMELS model recommended six indices to evaluate the financial conditions of banks. The term CAMELS is an acronym for the framework which are capital adequacy, asset quality, management efficiency, earnings quality, liquidity and sensitivity to market risk. The model evolved in the 1990s and was described by the Basel Committee on Banking Supervision (2000), as s supervisory framework for assessing the financial soundness of banks. The framework affirms that sting capital, better asset quality, effective management, sustainable earnings and adequate liquidity is strong signal of financial resilience.

Oto et al. (2023) examined the importance of capital adequacy and asset quality in understanding banking stability. These is further emphasised by the recent CBN requirement for capital and liquidity adjustment by banks in Nigeria capital adequacy is measured as the ratio of total of Tier1 and Tier 2 capital to weighted assets. Similarly, Akinlosotu and Ayoola-Akinjobi (2026), Kolawole et al (2026) emphasised the importance of asset quality to the Nigerian economy and this was measured by non-performing loans to total gross loans. Also, Managerial quality is measured by the ratio of operating expenses to operating income. Earnings quality is measured with return on assets, that is, net profit after tax to total assets. Furthermore, liquidity is measure by ratio of total loans and advances to total customer deposits and sensitivity to market risk is measured by the ratio of net interest income to average earning assets. The study adopted aggregate CAMELS model to assess financial distress in line with Ashwath and Sachindra (2026).

Macroeconomic Variables

In Nigeria, the banking sector plays and integral role in the economic development of the country especially in providing substantial credit to the government. The banking sector in Nigeria however, had experienced several phases of difficulty which include regulatory reforms, consolidation and recapitalisation. Although, historically, Nigeria banking distressed could be associated with inadequate capital, poor asset quality, weak corporate governance, excessive risk taking, liquidity problems and poor regulatory oversight. The Nigerian economic environment does however provide some complexity which could affect the banking entities in the country. These includes the high inflation, exchange-rate volatility, interest rate and constant changing regulatory environment. These macroeconomic conditions imply that banking distress could not be fully understood with just the consideration of the bank-specific characteristics (Okere & Ambe, 2025). Similarly, Inekwe et al. (2018) noted that explaining financial distress should be done by examining the specific performance and quality of an entity alongside the macroeconomic variables. The study examined macroeconomic variables such as gross domestic product, inflation, interest rate, unemployment rate, government debt and fiscal balance.

According to Okere and Ambe (2025) Gross domestic product (GDP) growth represents the rate at which the real output of an economy expands or contracts overtime. It is a crucial macroeconomic factor that could affect the banking environment of a country. Akani and Uzah (2021). This is particularly relevant to Nigerian deposit money banks because banks are central to financial connection and provision of credit to households and businesses as well as to the government of the nation. Weak economic growth could therefore affect banks through deterioration in the asset quality and credit demand in the economy. Also, Inflation refers to the sustained increase in general price level of goods and services which can affect banks both directly and indirectly. Persistent inflation can result in increase in operating cost of a bank, as well as reduce the real income of individuals and entity in an economy. This could result to

reduction in the ability of entities and individuals to borrow, inability to pay back loans and consequently increase in non-performing loans and financial risks of banks (Ramalan et al., 2025). Similarly, interest rate could increase debt servicing cost for borrowers. Erhijakpor and Ofogba (2024) posited that higher interest rate is expected to increase credit risk of financial institutions.

Furthermore, unemployment rate represents the proportion of the labour force without employment and can influence banks' financial condition through household income and consumption. Ozili (2025) affirm that a rising unemployment could reduce the income of borrowers. Thereby affecting the capacity of borrowers to repay loans and potentially leading to defaults and non-performing loans in bank. Edeh et al. (2026) opined that public debt can destabilised the Nigerian banking sector over the long run. The higher the government debt, the higher the exposure of deposit money banks to financial risk. Although, this is very much subjected to the exposure of banks to government securities. The recent rise in the borrowing of government from banks in Nigeria highlight the relevance of government debt to its banking system. The International Monetary Fund (2026) press release affirm that the Nigerian banks hold approximately 23% of government securities and therefore is exposed to pressure from the government if fiscal strength of the government persist to weakens. Government may result into excessive borrowing which could result in increase in cost of borrowing by the private sector of the nation. It is therefore expected that the stronger the fiscal balance of Nigeria, the lower the distress pressure on domestic banks in the country.

Firm Characteristics

Firm characteristics refer to internal attributes that shape an institution's financial capacity, risk exposure and resilience, including, firm size, board size, leverage and ownership concentration. According to Okere and Ambe (2025) these characteristics can influence the likelihood and severity of financial distress because they determine firms' ability to absorb shocks and meet financial obligations. Larger banks may benefit from economies of scale, diversified operations and greater access to funding, thereby reducing distress risk. Firm size refers to the scale of a bank's operations, commonly measured by the natural logarithm of total assets. Ukoh et al. (2024) argued that larger entities may be less vulnerable to financial distress because they benefit from economies of scale, greater diversification, stronger revenue-generating capacity and easier access to funding. These advantages can enhance their ability to absorb financial shocks and maintain stability. Also, board size refers to the number of directors serving on a bank's board and represents an important corporate-governance mechanism for monitoring management and overseeing risk. Larger boards may provide greater expertise, knowledge and external resources, potentially improve monitoring and reduce financial distress through stronger decision-making (Bhatia & Gulati, 2021). John and Obokoh (2018) posited that excessively large boards may create coordination problems, slower decision-making and weaker monitoring effectiveness.

Leverage refers to the extent to which a bank finances its assets through debt and other liabilities relative to equity. High leverage can increase financial distress because greater debt obligations expose banks to higher repayment and refinancing pressures and reduce their capacity to absorb losses. Excessive leverage can increase financial obligations and vulnerability to losses (Ukoh et al., 2024). In addition, Nwude et al. (2023) identified ownership concentration as an important governance characteristic of Nigerian Deposit money banks. Concentrated ownership can influence financial distress through monitoring and agency mechanisms. Large shareholders

have stronger incentives to monitor management, potentially reducing managerial opportunism and bank risk.

Theoretical Framework

The study is primarily anchored on the Financial Instability Hypothesis (FIH) developed by Hyman Minsky (1986). The hypothesis explains how periods of financial stability can gradually generate conditions that increase financial fragility. According to Minsky, favourable economic conditions encourage financial institutions and economic agents to increase borrowing and assume greater levels of risk. As leverage rises, financial structures become increasingly vulnerable to adverse shocks. A reversal in economic conditions, therefore, can impair cash flows, increase debt-servicing difficulties and reduce the capacity of financial institutions to absorb losses, ultimately resulting in financial distress.

The Financial Instability Hypothesis is particularly appropriate for examining financial distress among Nigerian deposit money banks because banks are simultaneously affected by firm-specific financial conditions and the broader macroeconomic environment. Bank-specific characteristics such as leverage, size, age and ownership structure influence the institution's capacity and incentives to undertake risk and absorb financial shocks. At the same time, macroeconomic conditions such as economic growth, inflation, interest rates, exchange-rate movements, unemployment, government debt and fiscal conditions can alter borrowers' repayment capacity, funding costs, asset values and bank profitability. The interaction between these internal and external factors is consistent with Minsky's proposition that financial fragility develops within an evolving financial and economic environment. The relevance of this theoretical position is supported by recent evidence from Nigeria. Okere and Ambe (2025).

3.0 Methodology

The study adopts an ex-post factor and longitudinal research design as it will be examining the determinants of financial distress by focusing on the macroeconomic and bank-specific variables. The design is appropriate because the study relies on economic, financial and non-financial data over a period spanning from 2012 to 2024 for nine listed deposit money banks in Nigeria. The study employed a quantitative panel-data approach to examine both the cross-sectional differences among DMBs and variations over time. The study relied on secondary data. Bank-specific data were obtained from the annual reports and audited financial statements of the sampled DMBs, while the macroeconomic data were obtained from World Bank World Development Indicator.

Population, Sampling Technique and Sample Size

The population of the study comprised on thirteen listed DMBs in Nigeria. A purposive sampling technique was employed to select banks that satisfied the study’s inclusion criteria, especially banks with continuous listing and sufficient financial information covering the study period. The sample size is made up of nine listed DMBs observed annually from 2012 to 2024, producing a balanced panel of 117 bank-year observations.

Measurement of Variables

The dependent variable is financial distress, while the explanatory variables consist of the selected macroeconomic and bank-specific variables. Financial distress is measured using a composite index based on the CAMELS framework. The index incorporates key dimensions of

bank financial condition, which includes capital adequacy, asset quality, management efficiency, earnings, liquidity and sensitivity to market risk. The component indicators are combined to obtain a composite financial-distress measure for each bank-year observation. The study incorporates macroeconomic variables such as Gross Domestic Product growth (GDP), unemployment (UEM), inflation (INF), interest rate (INR), government debt (GVD) and fiscal balance (FIB) as determinants of financial distress. GDP growth captures changes in overall economic activity; interest rate captures the prevailing monetary-policy and borrowing-cost environment, inflation reflects changes in the general price level; unemployment represents labour-market conditions; fiscal balance captures the government's fiscal position and government debt reflects the government's debt position. The bank-specific explanatory variables comprise firm size (FSZ), leverage (LEV) board size (BSZ) and ownership concentration (OWC). Firm size proxied by natural logarithm of total assets, board size represents the number of directors on the bank's board, leverage capture the bank's reliance on liabilities relative to its asset base and ownership reflects the proportion of ownership held by major shareholders.

Model Specification and Data Analysis Technique

In examining the determinants of financial distress among listed DMBs in Nigeria, the study specifies a panel regression model in which financial distress is expressed as a function of the selected macroeconomic and bank-specific variables. The functional relationship is specified as:

Financial Distress = f (macroeconomic, bank-specific variables) …….3.1

$$FIS_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 INR_{it} + \beta_4 UEM_{it} + \beta_5 GDV_{it} + \beta_6 FIB_{it} + \beta_7 FSZ_{it} + \beta_8 BSZ_{it} + \beta_9 LEV_{it} + \beta_{10} OWC_{it} + \in_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.2$$

In achieving the objective, the study employed descriptive and inferential statistical techniques to analyse the data. Techniques such as descriptive statistics, pairwise correlation analysis and Variance Inflation Factor. For the inferential analysis, panel regression techniques were employed.

4.0 Analysis, Interpretation and Discussion

Table 1 presents the descriptive statistics of variables. Financial distress has a mean of -0.141 and a standard deviation of 0.043, with values ranging from -0.23 to -0.02, indicating relatively limited variation in financial distress across the sampled banks. Since higher values of financial represent greater distress, the predominantly negative values suggest generally lower levels of financial distress in the sample. Among the macroeconomic variables, GDP growth averages 2.19% but ranges from -6.40% to 6.30%, reflecting considerable differences in economic performance across the observation period. Inflation averages 15.42%, while the interest rate averages 16.35%, both exhibiting substantial dispersion. The unemployment rate is comparatively stable, averaging 4.32%. Government debt has a mean of 0.613, while the fiscal balance averages −2.82%, indicating that fiscal deficits were prevalent during the study period. Regarding bank-specific characteristics, firm size averages 7.80, board size averages approximately 12.53 members, and leverage averages 87.8%, reflecting the relatively high leverage typical of banking institutions. Ownership concentration averages 22.6%, but ranges from 1% to 70%, indicating substantial variation in ownership structures. The skewness and kurtosis statistics indicate that several variables depart from normality, particularly government debt, interest rate, inflation, and GDP. Nevertheless, the descriptive statistics provide useful

evidence of meaningful variation in both macroeconomic conditions and bank-specific characteristics.

Table 1:
Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99	Skew	Kurt.
FID	117	-0.141	0.043	-0.23	-0.02	-0.23	-0.04	-0.12	2.825
GDP	117	2.185	3.21	-6.4	6.3	-6.4	6.3	-1.32	4.494
INF	117	15.415	6.838	8.1	33.2	8.1	33.2	1.301	4.116
INR	117	16.352	3.743	11.48	27.5	11.48	27.5	1.744	6.521
UEM	117	4.32	0.84	3.04	5.71	3.04	5.71	0.074	1.821
GVD	117	0.613	1.39	0.13	5.4	0.13	5.4	3.156	11.009
FIB	117	-2.816	1.147	-4.03	-0.09	-4.03	-0.09	0.926	3.027
FSZ	117	7.8	0.952	6.05	10.32	6.2	10	0.408	2.667
BSZ	117	12.53	2.863	6	17	6	17	-0.136	2.253
LEV	117	0.878	0.029	0.82	0.93	0.82	0.93	-0.167	2.044
OWC	117	0.226	0.207	0.01	0.7	0.01	0.7	1.122	2.97

Notes: Obs. = observations; Std. Dev. = standard deviation; P1 and P99 denote the 1st and 99th percentiles, respectively.
Source: Author's Computation, 2026.

Correlation Matrix

Table 2 reports the pairwise correlation coefficients among financial distress, macroeconomic factors, and bank-specific characteristics. Financial distress is positively and significantly correlated with firm size ($r = 0.273$, $p < 0.01$) and ownership concentration ($r = 0.323$, $p < 0.01$), while it is negatively associated with leverage ($r = -0.201$, $p < 0.05$). Its correlations with GDP, inflation, interest rate, unemployment, government debt, and fiscal balance are weak and statistically insignificant, suggesting limited bivariate associations between financial distress and these macroeconomic indicators. The strongest correlations among the explanatory variables are between GDP and unemployment ($r = -0.707$), inflation and firm size ($r = 0.637$), and GDP and fiscal balance ($r = 0.583$). These relationships warrant attention when assessing multicollinearity in the regression models. However, the remaining correlations are generally moderate or low. Overall, the correlation matrix provides preliminary evidence of associations among the variables without indicating pervasive pairwise multicollinearity; formal diagnostics such as the VIF should therefore be considered alongside these results.

Table 2:
Pairwise Correlations Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) FID	1.000										
(2) GDP	0.049	1.000									
	(0.599)										
(3) INF	0.085	0.015	1.000								
	(0.360)	(0.869)									
(4) INR	0.007	0.247*	0.473*	1.000							
	(0.944)	(0.007)	(0.000)								
(5) UEM	-0.083	-0.71*	-0.44*	-0.46*	1.000						
	(0.373)	(0.000)	(0.000)	(0.000)							
(6) GVD	0.036	0.181	0.195*	-0.29*	-0.181	1.000					
	(0.699)	(0.051)	(0.035)	(0.001)	(0.050)						
(7) FIB	0.105	0.583*	-0.061	0.523*	-0.59*	-0.31*	1.000				
	(0.259)	(0.000)	(0.511)	(0.000)	(0.000)	(0.001)					
(8) FSZ	0.273*	-0.053	0.637*	0.155	-0.172	0.215*	-0.22*	1.000			
	(0.003)	(0.573)	(0.000)	(0.095)	(0.063)	(0.020)	(0.015)				
(9) BCZ	-0.142	-0.134	-0.129	-0.015	0.155	-0.116	-0.062	-0.099	1.000		
	(0.127)	(0.150)	(0.165)	(0.871)	(0.095)	(0.213)	(0.508)	(0.288)			
(10) LEV	-0.20*	-0.010	0.296*	-0.117	-0.074	0.268*	-0.19*	0.233*	0.240*	1.000	
	(0.030)	(0.914)	(0.001)	(0.210)	(0.428)	(0.003)	(0.032)	(0.011)	(0.009)		
(11) OWC	0.323*	0.030	-0.017	-0.007	-0.032	-0.020	0.001	-0.108	-0.20*	0.016	1.000
	(0.000)	(0.747)	(0.852)	(0.940)	(0.729)	(0.835)	(0.993)	(0.248)	(0.026)	(0.866)	

Note: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively

Source: Author's Computation, 2026.

Pre-Diagnostic Tests

Table 3 presents the Variance Inflation Factor (VIF) results for the explanatory variables. The VIF values range from 1.09 to 4.36, with a mean VIF of 2.46. The highest VIF is observed for the unemployment rate (4.36), followed by inflation (3.95) and fiscal balance (3.54). These values remain below the commonly applied threshold of 5, indicating that multicollinearity is not a serious concern among the explanatory variables. The relatively low VIFs for the bank-specific variables, particularly ownership concentration (1.09), board size (1.27), and leverage (1.41), further support this conclusion. Overall, the results suggest that the explanatory variables can be included simultaneously in the regression models without substantial distortion arising from multicollinearity.

Table 3:
Variance Inflation Factor

Variable	VIF	1/VIF
GDP	2.79	0.358210
INF	3.95	0.253069
INR	2.61	0.382852
UEM	4.36	0.229565
GVD	1.74	0.574190
FIB	3.54	0.282810
FSZ	1.85	0.540164
BSZ	1.27	0.790187
LEV	1.41	0.711081
OWC	1.09	0.919410
Mean VIF	2.46	

Source: Author's Computation, 2026.

Table 4 showed the Breusch-Pagan Lagrange Multiplier test produced a chibar² statistic of 98.58 with a p-value of less than 0.001. The null hypothesis that the panel-level variance is zero was therefore rejected. This indicates the presence of significant unobserved panel-specific effects and suggests that pooled OLS is inappropriate. Accordingly, a panel-effects model is warranted, with the choice between fixed-effects and random-effects estimation determined by subsequent specification testing.

Table 4 :
Breusch–Pagan Lagrange Multiplier (LM) test

Test statistic	**Result**
chibar²(01)	98.58
p-value	< .001

Source: Author's Computation, 2026.

Table 5 reports the Mudlak test, and it shows $\chi^2 = 8.21$, $p = 0.0843$. At the 5% significance level, the null hypothesis that the differences between the fixed-effects and random-effects coefficients are not systematic cannot be rejected. Thus, the result provides statistical support for the random-effects model over the fixed-effects model.

Table 5:
Mudlak Specification Test

Test	χ^2	df	p-value	Decision
Hausman test (sigmamore)	8.21	10	0.0843	Do not reject H_0

Source: Author's Computation, 2026.

Regression Analysis

Table 6 reports the random-effects regression estimates of the determinants of financial distress among listed deposit money banks in Nigeria. The results indicate that interest rate, fiscal balance, firm size, board size, and leverage are statistically significant determinants of financial distress, while GDP, inflation, unemployment, government debt, and ownership concentration are statistically insignificant. Interest rates reflect a negative and significant effect on financial distress ($\beta = -0.0024$, $p = 0.028$), suggesting that higher interest rates are associated with lower financial distress, holding other factors constant. These is in line with the findings of Erhijakpor and Ofogba (2024); Akani & Uzah (2018); and Kolawole et al (2026). Higher interest rates can

increase banks' interest income and net interest margins when banks are able to reprice loans faster than their funding costs. In addition, periods of tighter monetary policy may be accompanied by more conservative lending standards and greater credit screening, potentially limiting the accumulation of poor-quality loans.

Also, fiscal balance exhibits a positive and significant relationship with financial distress ($\beta = 0.0154$, $p < 0.001$). This is in line with the findings of Silva (2021). It reflects the structure of the Nigerian banking system and the interaction between government fiscal conditions and bank performance. Nigerian banks have substantial exposure to government securities and government related assets, hence, changes in fiscal policy can influence banks through portfolio allocation, liquidity conditions, interest income, and credit market conditions. A tighter fiscal position could therefore potentially weaken economic activity and affect the repayment capacity of borrowers. Similarly, firm size is also positively associated with financial distress ($\beta = 0.0259$, $p = 0.001$), indicating higher distress among larger banks within the model. These is in line with the findings of Ukoh et al (2024). Larger banks are more complex and have greater exposure to diverse credit, market, and operational risks. Their larger asset values can also encourage greater risk taking because of the expectation that they may have access to stronger financial and regulatory support during periods of financial stress.

However, board size has a negative and significant coefficient ($\beta = -0.0029$, $p = 0.014$), suggesting that larger boards are associated with lower financial distress. These is in line with the findings of Bhatia & Gulati (2021). A larger board may provide access to a broader range of expertise, experience, professional networks, and industry knowledge, potentially improving oversight of management and risk-taking. In the banking sector, where decisions concerning credit risk, liquidity, capital adequacy, and regulatory compliance are particularly important, a wider pool of directors may strengthen monitoring and strategic decision-making. The result is therefore consistent with the view that board capacity and diversity of expertise can contribute to stronger governance and risk oversight. Likewise, leverage has a negative and significant relationship with financial distress ($\beta = -0.4380$, $p = 0.005$). Banks operate predominantly with deposits and other interest-bearing liabilities as sources of funding, making a relatively high liability to asset ratio a normal standard for banks' operation. Higher leverage may therefore reflect greater access to stable deposit funding and the ability to mobilise resources for profitable lending and investment activities rather than financial weakness. Ownership concentration is positive but only weakly significant at the 10% level ($\beta = 0.0508$, $p = 0.095$). These is in line with the findings of Nwude et al (2023). Concentrated ownership can create opportunities for controlling shareholders to exert substantial influence over managerial and strategic decisions.

Conversely, GDP ($p = 0.412$), inflation ($p = 0.701$), unemployment ($p = 0.338$), and government debt ($p = 0.253$) do not exhibit statistically significant effects. These are in line with the findings of Ozili (2025) and Okere and Ambe (2025). However, it is contrary to the findings of Inekwe et al (2018) and de Comères (2025). Nigerian banks may be affected more directly by monetary, fiscal, exchange-rate, credit-quality, and bank-specific conditions than by aggregate GDP growth alone. Moreover, GDP growth is a broad measure of economic activity and may not adequately capture sector specific issues. Furthermore, government debt reflected the possibility that government securities provide banks with liquid and comparatively low credit risk assets, thereby offsetting some of the risks associated with national market exposure. The estimated rho (ρ) of 0.449 indicates that approximately 44.9% of the unexplained variance is attributable to bank-

specific time-invariant effects. This suggests meaningful heterogeneity across the nine listed banks and provides empirical justification for accounting for unobserved bank-level differences within the panel framework. Nevertheless, the magnitude of rho should be interpreted as an estimate of the variance component rather than as evidence that bank-specific characteristics are the sole or dominant determinants of financial distress.

Table 6:
Panel Regression Estimation Results

	Random Effects			**Fixed Effects**			**Pooled OLS**		
Variable	**Coef.**	**z-Stat**	**Prob.**	**Coef.**	**t-Stat**	**Prob.**	**Coef.**	**t-Stat**	**Prob.**
GDP	−0.001	−0.820	.412	−0.001	−0.900	.370	−0.001	−0.330	.745
INF	0.000	−0.380	.701	−0.001	−0.740	.461	0.001	0.570	.570
INR	−0.002*	−2.200	.028	−0.002*	−2.230	.028	−0.003*	−2.110	.037
UEM	0.006	0.960	.338	0.005	0.750	.455	0.008	0.920	.358
GVD	0.003	1.140	.253	0.002	1.050	.298	0.004	1.150	.251
FIB	0.015***	3.710	.000	0.015***	3.640	.000	0.017**	3.070	.003
FSZ	0.026***	3.360	.001	0.030**	3.100	.003	0.022***	4.610	.000
BSZ	−0.003*	−2.470	.014	−0.003**	−2.800	.006	0.001	1.020	.311
LEV	−0.438**	−2.780	.005	−0.504**	−2.850	.005	−0.500***	−3.600	.000
OWC	0.051†	1.670	.095	0.019	0.440	.658	0.084***	5.020	.000
R-squared	0.288			0.303			0.361		
F-stat / Wald χ^2	43.82***			4.26***			5.98***		
Observations	117			117			117		
Number of banks	9			9			9		

Note. Dependent Variable: Financial Inclusion and Development (FID). Statistical significance is denoted based on exact *p*-values. $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Source: Author's Computation, 2026.

5.0 Conclusion and Recommendations

The study examined the determinants of financial distress among nine listed DMBs in Nigeria over the period from 2012 to 2024 using a balanced panel of 117 bank year observations and a composite CAMELS based measure of financial distress. The random effect-effects results indicate the financial distress among the sampled banks is significantly affected by interest rate, firm size, fiscal balance, board size and leverage. Interest rate and fiscal balance exhibit significant negative and positive relationships with financial distress, respectively, whereas firm size is positively associated with financial distress of selected DMBs, which suggests that larger banks may face greater complexity and exposure to diverse risks. Conversely, board size and leverage have significant negative relationships with financial distress. Overall, the findings

demonstrate that financial distress in Nigerian listed DMBs reflects the combined influence of fiscal and monetary conditions as well as banks specific characteristics. These highlights the need for sound corporate governance and continuous regulatory monitoring. Based on the conclusions and findings, the study make the following recommendations; bank management should strengthen risk management systems in larger banks by paying particular attention to their greater operational complexity and exposure to risks; the management of the banks should maintain adequate board capacity and ensure that directors possess diverse expertise; bank board should adopt prudent leverage and funding strategies that preserve adequate assess to stable funding while ensuring that liability growth remains consistent with the bank's capacity to manage relevant risks; and finally the regulatory authority should maintain continuous surveillance of macroeconomic and bank specific conditions because the study indicates that financial distress is driven by a combination of internal bank characteristics and external economic conditions.

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