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Corporate Board Independence and Profitability of Listed Deposit Money Banks in Nigeria: A Generalized Method of Moments Approach

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Abstract
The Global Financial Crisis (GFC) of 2007-2008 was attributed to failures in governance, particularly concerning boards of directors. It exposed vulnerabilities in the financial sector, causing many banks to experience significant losses, which weakened capital bases and decreased profitability, adversely affecting broader financial stability. This study explores the impact of board independence on the profitability (proxied by Profit after Tax) of listed Deposit Money Banks (DMBs) in Nigeria for the period 2009-2023. Thirteen of the fourteen listed DMBs that met the purposive sampling criteria were included. Secondary (balanced panel) data were collected from the databases of the sampled banks. The Generalized Method of Moments (GMM) regression was employed as the main regression technique, addressing issues of serial correlation, heteroskedasticity, contemporaneous correlation, and endogeneity. The study found that board independence had a positive and statistically significant effect on the profitability of listed DMBs in Nigeria. The study recommends a board composition that balances diversity of expertise with a supermajority of independent directors to ensure impartial decision-making. Furthermore, regulatory authorities should ensure compliance with directors' independence standards by aligning board composition with regulatory and corporate governance standards. The implication of the significant and positive relationship exhibited by our results is that despite the higher costs associated with a quality board, its monitoring potentially leads to improved profitability.

Keywords: Global Financial Crisis, Deposit Money Banks, corporate board characteristics, profitability, and Generalized Method Moments

INTRODUCTION

The good performance of banks in terms of profitability generally leads to stability of funds in the money market, improved living standards, an increase in gross domestic product (GDP), employee engagement in workplaces, and survival and growth of the banking sector. Consequently, this results in the development of the entire financial system, which plays a critical role in national economic development. Declining profitability threatens the banks' survival and growth, the ability of the banks to contribute to tax revenues, employment and corporate social responsibility initiatives (Yakubu, Okwoli & Jugu, 2024).

The Global Financial Crisis (GFC) of 2007-2008, as well as the 90s Asian financial crisis, were attributed to the failures in governance, especially regarding boards of directors. They exposed vulnerabilities in the financial sector, and many banks witnessed significant losses, weakening capital bases and declining profitability, which affected broader financial stability (Yakubu et al., 2024). The Nigerian systemic banking crisis of the 1990s and 2000s has been attributed largely to a lack of good corporate governance mechanisms and poor regulatory and supervisory frameworks (Yakubu et al, 2024). Akinyomi and Olutoye (2015) posited that bad board business governance remains one of the causes of bank failures in Nigeria. Shortcomings in the governance of banks, if widely spread, would have the potential to destabilize the whole system. Following the consolidation exercise of 2005, the Nigerian Deposit Money Banks (DMBs) saw an increase in Profit Before Tax (PBT) to N62.0 billion. The banking sector saw a dramatic downturn in 2009, with losses, mainly due to non-performing loans in industries like oil and gas, amounting to N377.33 billion (Abdulraheem, 2022). Between the years 2020-2021, PBT dropped by 9.8% from N899.16 billion in December 2020 to N810.91 billion in December 2021, driven by rising costs and reduced interest income (NDIC 2021). Return on Equity (ROE) and return on assets (ROA) have similarly declined, raising concerns about Nigeria's long-term sustainability of bank profitability.

Corporate board independence is a fundamental aspect of corporate board governance that serves as a safeguard against conflicts of interest between principal and agent of a company. Board independence entails the presence of a reasonable number of non-executive directors on a company's board who do not have pecuniary relationships with the company or its management, ensuring that their independent decision-making. Their presence is considered a control mechanism because they are more objective than managers and can provide new viewpoints focused on firm performance (Pucheta-Martinez and Gallego-Alvarez, 2020). This study measures board independence as the ratio of non-executive to total directors sitting on the board.

Worldwide, reforms aimed at increasing the number of independent board directors have been widely adopted (Muravyev, Berezinets & Ilina 2014; Cladera & Fuster, 2014). An empirical study by Gordon (2006) found that from 1950 to 2005, the percentage of independent directors in large public firms rose from almost 20% to 75% in US boardrooms. The Financial Reporting Council of Nigeria issued a new NCCG 2018, which seeks to harmonize corporate governance requirements across all sectors of the economy, recommending a board dominated by non-executive directors that is independent of management and functions more effectively (NCGC, 2018).

While much attention has been given to regulatory reforms, gaps remain in understanding the effect of corporate board characteristics, such as board size, independence, director ownership, and gender diversity, among others, on bank profitability. This study, therefore, examines how board independence affects the profitability (proxied by Profit after tax) of listed Deposit Money Banks in Nigeria. In line with the objective of the research, the study provides an answer to the research question: How does board independence affect the profitability of listed Deposit Money Banks in Nigeria? Further, the study hypothesised that: Board independence has no significant effect on the profitability of listed Deposit Money Banks in Nigeria.

2 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1Profitability

The corporate organization's profitability has been one of the main concerns of management, analysts, investors and other stakeholder. Bank profitability has taken center stage in accounting and finance literature in both developed and developing economies over the past decades. This is because profitability remains the most important and reliable indicator of corporate growth as it gives a broad indicator of the ability of companies to raise their income level (Yakubu et al., 2024). Bank profitability relatively measures the ability of a given bank investment to earn a return on the investment. In place of the importance of profitability and as a financial metric used to assess a firm's ability to generate earnings over the combination of all its operating expenses (Okeke, 2023). Hassan (2020) pointed out that indices of organisational survival include profitability, innovativeness, growth, liquidity, and adaptability.

Okwoli, Jim-suleiman, and Daboer (2018), and Abubakar and Onipe (2025) identified the common and widely used measures of bank profitability to include: net interest margin, return on assets, return on equity and net profit margin. However, for this study, the profitability of banks is measured by income after tax, that is, profit after tax (PAT), which is a more robust and comprehensive means to assess the bank performance by gauging the operational efficiency as well as capturing the nuisance of bank's diversity incomes through non-interest income activities and management of their costs (PricewaterhouseCoopers, 2011; Yakubu, et al, 2024). The profit after tax is an important metric for assessing a company's financial health. Accounting for taxes provides a more accurate measure of profitability and offers valuable insights into a company's operational efficiency, tax efficiency, and sustainability (Firstcapital, 2024). This metric can be relied upon by investors and management alike to make informed decisions and gain an insightful understanding of a company's financial performance.

2.1.3 Board Independence and Profitability

The focal points of most corporate board and governance research are centred on the role played by independent directors. A large body of research argues that independent directors are better monitors of the board since they are independent in decision-making (Abdul-Gafoor, Mariappan, & Thyagarajan, 2018). It is also argued that outside directors (non-executive directors) are better monitors of managers, as they have an incentive to develop their reputation as experts in decision-making control. According to Habtoor (2022), board effectiveness in monitoring executives and limiting managerial opportunism can be achieved by having a higher proportion of independent members on a board.

Board independence refers to the absolute percentage of independent directors on the board in a given accounting year. The term is commonly used to refer to non-executive directors of a company who have neither personal nor economic association with the company and its management. To Kazan (2022), the independence of a board usually refers to the non-executive directors on the board, who are mainly formed by outsiders of the company. Their presence is considered a control mechanism because they are more objective than managers and can provide new viewpoints focused on firm performance (Pucheta-Martinez & Gallego-Alvarez, 2020). It is presumed that outside directors (independent directors) perform the monitoring function on the shareholders' behalf, thus maximizing shareholders' interests by guaranteeing that the firm's management is in place. This study measures board independence using the percentage of non-executive directors to the total directors on banks' boards.

2.1.4 Control Variables

To identify the specific effect of the studied board size and board independence on bank profitability, it is necessary to include control variables to limit potential omitted variable bias

and their potential effect on profitability. Shiau, Chau, Thatcher, Teng and Dwivedi (2024) posited that including control variables in a study will lead to clean results and the discovery of 'true' relationships. The important benefit of employing control variables is that they ensure the relationships observed are genuine and not influenced by other factors (Memon, Thurasamy, Ting, Cheah, & Chuah, 2024). This study used bank size and bank leverage as control variables and as part of bank-level attributes included in our model that are likely to have a significant influence on the study outcome to ensure that the results are solely caused by the studied independent variables. The firm size is measured by the natural logarithm of the firm's total assets (Park, Kim, Chang, Lee, & Sung, 2018; Pucheta-Martinez & Gallego-Alvarez, 2020). Firm leverage, on the other hand, is computed as the ratio of total long-term debt and total assets (Kabir & Thai, 2017; Pucheta-Martinez & Gallego-Alvarez, 2020).

2.2 Theoretical Review

For the past decades, the agency theory has remained a foundational theory of corporate boards and governance. However, in recent years, other theories, including the shareholders' theory, resource dependence theory, stewardship theory, social contract theory, legitimacy theory, and political theory, among others, have been utilized by scholars. The agency theory is important to the study of corporate board governance mechanisms and financial performance because it investigates the association between board characteristics and their impact on the financial performance of firms (Kisangi, 2021).

Modern corporate governance theory postulates that director independence is essentially a mechanism for reducing agency costs and a form of protection against managerial self-dealing (Mesnik, Gama & Carneiro, 2023). Board independence from management is essential to improve the quality of board monitoring and provide better protection of shareholder value. From the agency theorists' perspective, a higher proportion of independent members on a board of directors would enhance board effectiveness in monitoring executives and limit managerial opportunism (Yakubu et al, 2024). The presence of independent members on the board is viewed as a key indicator of good corporate governance quality, and free from business and other relationships with management, which could materially influence the independent judgment of the directors (Abraham and Cox 2007). In line with the agency theory view, the integrated perspective of resource dependence legitimacy theories about the influence of board independence on firm performance also considers the presence of independent directors as a strategic resource that links the firm to the external environment, securing critical resources, reducing environmental dependency, and aiding in establishing and supporting legitimacy (Daily, Dalton & Cannella, 2003), and thus enhance firm performance.

The agency theory is the anchored theory of this study as it addresses the issue of ownership, control, and distribution of power as the board is empowered by shareholders to exercise ultimate control over management. While the resource dependence theory is the supportive theory, all will guide our examination of how board size and independence affect bank profitability.

2.3 Empirical Reviews

2.3.1 Board Independence and Profitability

Urhoghide and Akhidime (2015) examined the effect of board attributes (board size, board independence, board financial expertise and CEO duality) on the financial performance of selected quoted companies in Nigeria using profit after tax and return on equity. Secondary data from 50 companies quoted on the Nigerian stock exchange covering the agricultural sector, conglomerates, construction and breweries from 2008 to 2013 was used. The Ordinary

Least Squares Regression was adopted as the data estimation technique. The results revealed that board size is significant for the full sample estimation and the construction sector. Board independence is significant for the full sample and for companies in the conglomerates and breweries sector.

In a study by Abdul-Gafoor, Mariappan and Thyagarajan (2018) in India, assess the impact of board size, independence, and CEO duality on bank performance proxied by ROA and PAT. The panel research method was adopted, with panel data collected from all Indian scheduled commercial banks. The board structure data is collected from individual banks' corporate governance reports. The financial information is mainly collected from the CMIE and Bloomberg databases. A regression model was developed for the study, capturing the dependent variable (performance), the independent variable or explanatory variable (board structure or characteristics) and control variables. The major findings showed a positive and significant relationship between board independence and bank performance.

Wilcox and Osho (2020) evaluated the effect of corporate governance characteristics (board size, board composition and audit committee) on financial Performance (proxied by return on asset, return on equity and profit after tax) of banks in Nigeria. Secondary data from the annual reports of five sampled banks in Nigeria and the panel data regression analysis were used. The study found that board size, board composition and audit committee had a significant influence on the return on equity and return on assets of banks, while it had no significant influence on the profit after tax of banks in Nigeria.

Saleem, Rajesh, Najib, Sanjay and Lengare, (2020) studied the association between board characteristics (represented by board size, board composition, board diligence, board executive directors and board promoters) and banks' profitability (measured by return on assets, return on capital employed, profit after tax and return on net worth) of Indian banks for the period from 2010 to 2019. The secondary data were collected from the Prowess-Q database. Fixed and random effects models are used for analysing the data. The findings revealed that board size positively and significantly impacts return on assets, return on capital employed, profit after tax and return on net worth, while the percentage of promoters negatively and insignificantly impacts return on assets, return on capital employed, profit after tax and return on net worth.

Almaqtari, Farhan, Al-Hattami and Elsheikh (2022) examined the moderation effect of board independence change on the relationship between board characteristics, related party transactions and financial performance of Indian listed banks for the period 2010 to 2019. The board characteristics were proxied by board size, independence, diligence, and remuneration; related party transactions were represented by personnel and subsidiaries' transactions. Two accounting (return on assets and profit after tax) and two market-based (earnings per share and Tobin Q) measures were used for financial performance. The results show that board size, as moderated by board independence change, has a significant negative effect at the level of 1% ($\eth < 0.01$) for PAT and TQ. It also demonstrates a significant negative impact at the level of 5% ($\eth < 0.05$) for ROA and EPS. Thus, board independence change had a moderating effect that significantly and negatively weakened board size and effectiveness, negatively influencing banks' profitability.

Mesnik, Gama and Carneiro (2023) studied the effects of the presence of outside directors on the board across family vs. non-family firms on financial performance. Data was collected from an extensive and updated database of over 370 publicly listed companies in Brazil. The study

employed panel data regressions with fixed effects on three different response variables to have a broader perspective and reduce the bias of the results. Moreover, robustness tests were performed with different measurement methods. The results established that a relationship exists between board independence and short-term financial performance for a cohort of family firms.

3 METHODOLOGY

3.1 Data Collection and Sample Selection

To test the formulated hypothesis, balanced panel data were collected from thirteen out of fourteen listed Deposit Money Banks (DMBs) that have satisfied the judgmental sampling criterion utilized in this study. Information on the board independence was obtained from the audited annual reports through banks' websites and the Nigerian Exchange Group (NGX) fact-book from 2009 to 2023. The cross-referencing of multiple data sources was used to fill gaps to ensure the accuracy and completeness of data collected, verify the integrity of the dataset, and ensure that the data aligns with standardized definitions of board characteristics and profitability metrics.

3.2 Variable definition and measurement

Key constructs relating to this research are defined and operationalized as follows:

Table 1: **Variable definition and measurement**

Variables	**Measurement**
Dependent	
Profitability	Natural Log of Profit after Tax
Independent	
Board Independence (Bindp)	Total Non-Executive Directors/Total Directors * 100
Control	
Bank Size (Bksize)	Natural Log of total assets
Bank Leverage (Bklev)	The ratio of total debt to total assets

Model Specification

The relationship between the dependent and independent variables was expressed using the model below:

$$PRit = \alpha 0 + \beta 2BINDPit + \beta 4BKSIZEit + \beta 6BKLEVit + eit$$
$$PAT = \alpha 0 + \beta 1SIZEit + \beta 2BINDPit + \beta 4BKSIZEit + \beta 6BKLEVit + eit$$

Where: PRit= Profitability of Bank i at time period t (=PAT); BINDPit= Board independence of Bank i at time period t; BKSIZEit= Bank size i at time period t; BKLEVit= Bank leverage i at time period t and *ei* = error term.

3.3 Data Analysis

The panel dataset was utilized in this study to assess the effect of board independence on profitability of listed Deposit Money Banks in Nigeria. The main assumptions of regression analysis, such as normality, multicollinearity, heteroskedasticity, and autocorrelation, were checked via diagnostic tests at the first stage.

A normality test was conducted to ascertain whether the panel data was normally distributed using a mathematical (statistical) approach. This study utilized skewness and kurtosis tests of normality and was further confirmed by the plot of normality (for brevity, not reported here, but available upon request). The result of the Skewness and Kurtosis test for the model shows

an insignificant joint p-value, which suggests that error terms are normally distributed (see Table 2). The variance inflation factor (VIF) was used to check for Multicollinearity issues and further confirmed using a Pairwise correlation matrix. The results indicated no severe multicollinearity problem, as indicated in Tables 2 and 3, respectively, since maximum values did not exceed the threshold value of correlation (0.80) and the VIF (10) (Gujarati 2003; Hair, William, Barry & Rolph, 2010).

Heteroskedasticity is another important assumption that was checked using the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity. The result was significant for the model (see Table 2), which indicates the presence of a heteroskedasticity problem. Furthermore, the Breusch-Pagan LM test of independence was used to check the cross-sectional dependence (contemporaneous correlation) problem, and the result was significant (see Table 2), implying the presence of cross-sectional dependence. The autocorrelation assumption was tested using the Wooldridge test as suggested by Wooldridge (2010), and the result depicted a significant (see Table 2), signifying the presence of serial correlations for the model of the study.

As shown in Table 2, results for heteroskedasticity, autocorrelation, and contemporaneous correlation all depicted significance at the 5% level, meaning problems, and which rendered the ordinary least squares (OLS), fixed effect (FE) and Random effect (RE) to be biased. Accordingly, this study relied on the Generalized Method Moments (GMM) as the main method of analysis due to the existence of endogenous phenomena associated with panel data, research using the instrumental variables one-step generalized method of moments (IV-GMM) to correct for cross-sectional dependence, autocorrelation, endogeneity, and heteroskedasticity (Nguyen 2020; Emudainohwo 2021; Adeleye 2023). This helps to address issues of unobserved firm heterogeneity and endogeneity factors (unobserved heterogeneity, simultaneity and dynamic endogeneity). Therefore, the OLS, FE and RE regression models were used as baseline required in any regression for comparison and robustness check purposes.

Table 2: Results of Diagnostic Tests

S/N0	Diagnostic Tests	P-value	Interpretation
1.	Skewness and Kurtosis test for normality (Joint prob.)	0.203	Insignificant
2.	Wooldridge test for autocorrelation	0.000	Significant
3.	Breusch-Pagan/Cook-Weisberg Test for heteroskedasticity	0.000	Significant
4.	Breusch-Pagan/Cook-Weisberg Test for Cross-sectional dependence	0.000	Significant
5.	Lagrange Multiplier (LM) test for random effects	0.000	Significant
6.	Hausman Specification Test	0.124	Insignificant

Table 3: Variance Inflation Factor

	VIF	1/VIF
Bindp	1.00	0.9979
Bksize	1.10	0.9086
Bklev	1.10	0.9094
Mean VIF	1.07	.

Source: STATA 15

Notes: Bindp= Board Independence; Bksize= Bank Size; Bklev= Bank Leverage.

4 PRESENTATION AND ANALYSIS OF DATA

This section presents descriptive statistics, a correlation matrix, regression results, the test of hypotheses, and a discussion of the findings.

4.1 Descriptive Statistics

The descriptive statistics are presented in Table 4, where the mean, minimum, maximum values and standard deviation of the variable used in the study are shown.

Table 4: Descriptive Statistics of Dataset

Variable	Obs	Mean	Std. Dev.	Min	Max
Pat	195	11.642	0.932	0.693	13.540
Bindp	195	62.126	12.950	11.111	92.857
Bksize	195	14.330	1.058	11.869	17.091
Bklev	195	0.906	0.199	0.395	2.547

Source: STATA 15

Notes: Bindp= Board Independence; Bksize= Bank Size; Bklev= Bank Leverage.

Profit after tax (PAT) has a mean value of 11.642 and a standard deviation of 0.932 with minimum and maximum values of 0.693 and 13.540, respectively. The board independence showed that the sample banks have a mean of 62.126 with a standard deviation of 12.950, minimum value of 11.111 and maximum of 92.857. This means that directors' independence of the DMBs has a significant influence on profitability. This issue could be attributed to the effective monitoring board of the directors. Consequently, the mean value of Bank size and Bank leverage are 14.330 and 0.906, respectively.

4.2 Pairwise Correlation Matrix

Table 5 displays the pairwise correlation value between the dependent and the independent variables as well as the relationship between the independent variables themselves.

Table 5: Pairwise Correlations Matrix of Dependent and Independent Variables

Variables	(1)	(2)	(3)	(4)
(1) pat	1.000			
(2) bindp	0.210	1.000		
(3) bksize	0.434	-0.035	1.000	
(4) bklev	-0.091	-0.019	-0.300	1.000

Source: STATA

Notes: Bindp= Board Independence; Bksize= Bank Size; Bklev= Bank Leverage.

The correlation result in Table 5 shows that there is a positive relationship between board independence and profit after tax, with a correlation coefficient of 0.210. While the control variables, board size, exhibit a positive correlation of 0.434. Bank leverage indicates a coefficient of -0.091, depicting a negative relationship with PAT.

4.3 Regression Results

As established in Table 2, the data used in this study suffers from heteroscedasticity, cross-sectional dependence (contemporaneous correlation) and autocorrelation (serial correlation) problems for the model, yet, the study presents the regression results from pooled Ordinary Least Square (OLS), Fixed Effect (FE) model, and Random Effect (RE) as baseline model and for comparison as depicted in Table 6.

Table 6: Summary of Pooled OLS, Fixed-Effects and Random Effects Models Results-

Variables	Pooled OLS	Fixed Effect	Random Effect
Constant	4.651	4.306	4.413
	(4.60)***	(3.50) ***	(3.98)***
BINDP	0.016	0.028	0.023
	(3.60)***	(5.28)***	(4.75)***
BKSIZE	0.402	0.384	0.394
	(6.90)***	(4.76)***	(5.74)***
BKLEV	0.234	0.087	0.139
	(0.76)	(0.25)	(0.43)
Observations	195	195	195
Wald chi2(70	----	----	64.53
P>chi2	----	----	0.000
R^2	0.241	0.230	0.234
Adjusted R^2	0.229	0.241	0.228
F-Statistics	20.241***	17.825	----
P>F	0.000	0.000	----

Source: STATA 15

Notes: ***, **, and * represent significant at 1%, 5%, and 10% levels respectively; t-statistics are in parentheses ( ).

Table 6 presents the results of the models represented by PAT under the pooled OLS, FE model and RE model. Under Pooled OLS, PAT has an R^2 of 0.241 (24.1%) and an adjusted R^2 of 0.230 (23.0%). The R^2 value of 0.224152 signifies that all the explanatory variables in the model explained 24.1% of variations in the dependent variable (PAT), while the adjusted R^2 of 0.230 portrays that the independent variables that affect the dependent variable accounted for 23.0% of the variation in PAT. Moreover, the model is significant ($F = 20.241$, $p < 0.000$), indicating the goodness of fit and validity of the model. Board independence (BINDP) shows the beta coefficient ($\beta=0.016$, $t=3.60$, $p <0.01$). This signifies that board independence made contribution in explaining the profitability variable represented by PAT. Likewise, bank size (BKSIZE) ($\beta= 0.409$, $t=6.80$, $p <0.01$) made a positive and significant contribution. Whereas bank leverage (BKLEV) ($\beta=0.234$, $t=0.76$, $p <0.1$) failed to make a statistically significant contribution to bank profitability measured by PAT because its p-values is greater than 0.1.

Under the Fixed Effect (FE) model, as displayed in Table 4, the dependent variable (PAT) has an R^2 of 0.230 (23.0%), implying that only 23.0% of the variability in PAT was contributed by the explanatory variables in the model. However, based on the F-test (17.825, $p<0.00$), the model is valid and well-fitted. The variables that made unique contributions in explaining the variability in the dependent variable, represented by PAT, comprised: BINDP ($\beta=0.028$, $t=5.28$, $p <0.01$) and BKSIZE ($\beta= 0.384$, $t=4.76$ $p<0.01$) respectively. The only variable that do not statistically contribute to explaining the variability in PAT is BKLEV ($\beta= 0.087$, $t= 2.55$, $p >0.1$) since it has p-values greater than 0.1.

Under the random effect (RE) model, PAT in Table 6 has an overall R^2 of 0.234, R^2 within 0.228 and R2 between 0.306 which means that the independent variable in the model explained 23.4% of the variations in PAT, while those independent variables that affect the dependent variable (PAT). The model is considered significant, well-fitted, and valid (Chi-square = 54.40, $p < 0.01$). The variables: BINDP ($\beta= 0.023$, $t=4.75$ $p<0.01$) and BKIZE ($\beta= 0.394$, $t=5.74$

p<0.01) contributed in explaining PAT under the RE with p <0.01) and were found to be positive and statistically significant. The variable that was found not to be statistically significant with PAT under the RE model is BKLEV (β= 0.139, t=0.43, p >0.1).

4.4 Test of Hypothesis

The hypothesis stated earlier was tested using SGMM regression. Table 7 shows the SGMM regression result, which examines the effect of the studied board characteristics on profitability**.** It is worth noting that the Wald Chi-squared statistics, AR (2) tests, and Sargan tests were jointly used to assess the overall fitness of the SGMM estimator as the most suitable for the analysis.

The interpretation and decision for the hypothesis is done concurrently as follows:

Table 7: One-step System GMM Results

Variables	**Coeff.**	**t-test**	**P-value**
L	0.012	0.09	0.931
Independent			
BINDP	0.039	3.49***	0.000
Control			
BKSIZE	0.486	4.32***	0.000
BKLEV	-0.282	-0.64	0.524
Constant	2.377	1.41	0.158
Observations	195	195	195
Wald chi2	----	----	56.40
P>chi2	----	----	0.000
R^2	0.241	0.230	0.234
Adjusted R^2	0.229	0.241	0.228
Sargan Test		37.86	
Sargan Prob		0.476	
AR(2)		-0.29	
AR(2) Prob		0.769	

Source: STATA 15

In Table 7, the Wald-statistics was significant at 5 percent level, which confirmed joint significance of explanatory variables. The P-values for AR (2) is 0.769, implying no second-order autocorrelation at the 5% significance level. Secondly, the result of the Sargan test 0.476 revealed that the instruments used for the analysis were valid and not over-identified. Therefore, the model has not violated the econometrics diagnostics assumptions, and therefore, the models are stable and rightly specified to conjecture inferences from the results.

The coefficient and the P-value of board independence revealed a positive association with the bank's profitability (β = 0.039; P < 0.01). Since the P < 0.05, we conclude that the board independence significantly affects the bank's profitability. Hence, providing sufficient evidence to reject the null hypothesis, and the alternative hypothesis, which states that board independence has a significant effect on profitability of listed Deposit Money Banks in Nigeria, is accepted. Finally, the study examined control variables bank size and bank leverage used in the study. It was observed that the coefficient and P-value of the bank size produce a positive and significant association of the bank's performance (β = 0.486; t=4.32; P < 0.01). Whereas,

bank leverage (β = -0.282; t=-0.64; P > 0.1), implying negatively and statistically insignificant effect on PAT.

4.5 Discussion of Findings

Board independence depicts a positive relationship with PAT. This is based on (β=0. 028, t=98.81, p=0.000). This means that when there is an additional independent director on board, the profitability of listed Deposit Money Banks in Nigeria increases and vice versa.

The finding of this study for board independence is in agreement with Urghoghide and Akhidime (2015), who found that PAT as a financial performance measure result revealed that board independence is positive and significant for the full sample listed in Nigerian Quoted Companies. Relatively, Abdul-Gafoor, Mariappan and Thyagarajan (2018) revealed that board independence has a positive and significant effect on PAT in Indian. In contrast, our result is not in agreement with Okowa, Omehe and Okolie (2023) found that board independence has a negative and significant effect on PAT. While Wilcox and Osho (2020) and Muhammad, adamu and Hussaini (2024) found a negative and insignificant relationship between board independence and financial performance in Nigerian banks.

Consistent with the agency theory, our result reveals a positive relationship supporting the agency theory concept, which suggests that board monitoring from self-interests is reduced by having independent directors (non-executive directors) on board results in improving firm performance. Therefore increasing representation by non-executives will make boards of banks more effectively perform their role of monitoring the management. The implication of the positive and significant relationship exhibited by our results for PAT is that banks comprising a reasonable number of independent directors ensure enhanced bank profitability.

CONCLUSIONS AND RECOMMENDATIONS

The study explores the effect board independence on profitability of Deposit Money Bank in Nigeria using the GMM approach. The AR (2) and Sargan test results jointly confirm the absence of second-order autocorrelation and the over-identification restriction is valid for this study. The findings show a significant positive association between board independence and bank profitability (PAT). The study outcome of positive coefficient of board independence, signifying the higher the level of independence, the stronger the effect of board characteristics on the profitability of DMBs. The study recommends compliance with independence standards: Ensure that the board composition aligns with regulatory and corporate governance standards regarding independence. This outcome is consistent with both agency theory and resource dependency theory. The findings have significant implications. For instance, it provides the necessary evidence needed to strengthen the board with competent non-executive directors to enhance the independence and effectiveness of the board to prevent opportunistic behaviours of managers espoused through agency theory.

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