

Effect of Board Governance Mechanisms on Firm Performance: A Comparative Analysis of Listed Industrial and Consumer Goods Companies in Nigeria

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ABSTRACT

Research on corporate governance and firm performance in Nigerian industrial and consumer goods companies remains sector-specific, leaving the influence of board governance mechanisms unclear. This study examined how board governance mechanisms affect firm performance by conducting a comparative analysis of listed industrial and consumer goods companies in Nigeria. It examined the influence of board size (BOS), number of board meetings (NBM), audit committee effectiveness (ADC), CEO duality (POD), and firm size (LOGTA) on performance measured by Return on Equity (ROE) and Tobin's Q. Secondary data were utilized and sourced from the annual financial reports of the thirteen sampled consumer and industrial goods companies for a fourteen-year period from 2012 to 2025. Descriptive statistics, panel unit root tests, correlation analysis, and fixed-effects and random-effects regression techniques were used for analysis. Correlation analysis showed board size was positively and significantly related to ROE ($r = 0.5631$) and Tobin's Q ($r = 0.4542$) among consumer goods companies. For industrial goods companies, ROE and Tobin's Q were strongly correlated ($r = 0.7134$). Regression results indicated ADC positively affected ROE ($\beta = 1.55919$, $p < 0.05$) for consumer goods companies, while BOS positively influenced ROE ($\beta = 11.94660$, $p < 0.05$) for industrial goods companies. BOS also positively affected Tobin's Q in both sectors. Board governance mechanisms significantly influence firm performance in Nigeria, but the effects vary by sector. The study recommends optimal board size, stronger audit committee independence, reduced CEO duality, and industry-specific governance policies to enhance performance and investor confidence.

Keyword: Board governance, Audit committee independence, industrial sector, Consumer sector, Return on Equity and Tobin's Q and Board size.

Introduction

Board governance has emerged as a critical mechanism for enhancing organizational accountability, transparency, and sustainable business performance worldwide. The modern concept gained prominence following the development of Agency Theory by Jensen and Meckling (1976), which emphasized the need to align the interests of shareholders and managers (Neeti et al., 2020). The concept was further strengthened through the corporate governance principles introduced by the Organisation for Economic Co-operation and Development in 1999. Increasing incidents of corporate scandals, financial mismanagement, and business failures across the globe have intensified the demand for effective governance structures capable of safeguarding shareholders' interests and improving organizational performance (Kuen-Chang et al., 2019). Corporate governance has gained renewed attention due to global financial scandals and corporate failures that exposed flaws in board oversight and internal control systems. The focus has shifted towards strengthening accountability, transparency and firm performance (Huynh et al., 2022; Dhone, 2026). Globally, board governance mechanisms such as board size, board independence, Number of board meetings, board composition, and audit committee effectiveness have attracted significant attention due to their role in influencing firm performance. These mechanisms serve as important tools for monitoring management activities, reducing agency conflicts, and facilitating effective strategic decision-making. Studies have shown that companies with strong governance structures often experience improved profitability, enhanced market valuation, greater investor confidence, and better operational efficiency. Therefore, regulators, investors, and other stakeholders increasingly regard corporate governance as a strategic instrument for achieving long-term corporate success and sustainability (Neeti et al., 2020).

In Nigeria, the importance of board governance mechanisms has become more pronounced following cases of corporate failures, financial irregularities, and weak managerial oversight across various sectors. Regulatory agencies such as the Securities and Exchange Commission and the Financial Reporting Council of Nigeria have introduced governance codes aimed at strengthening transparency, accountability, and board effectiveness. However, concerns remain regarding the extent to which board governance structures influence firm performance, particularly among listed industrial and consumer goods companies. Given the

differences in operational characteristics, competitive environments, and governance practices across these sectors, a comparative examination of the effect of board governance mechanisms on firm performance is necessary to provide empirical evidence that can support governance reforms, improve organizational outcomes, and enhance shareholder value creation (Usman & Yahaya, 2023).

In addition, the recurring cases of financial mismanagement and low investors' confidence among listed companies have intensified the need for stronger governance structures and regulatory reforms especially in the industrial and consumer goods sectors that drive manufacturing and employment (Akinsola & Taofeek, 2025). As a result, sectoral differences in operational structures mean the impact of governance mechanisms on firm performance remains inconclusive and require further empirical investigations

Hypotheses of the Study

H₀₁: There is no significant difference in the relationship between board governance mechanisms and firm performance among listed industrial and consumer goods companies in Nigeria.

H₀₂: Board governance mechanisms do not significantly influence firm performance differently between listed industrial and consumer goods companies in Nigeria.

2. Conceptual Review

2.1 Board Governance Mechanisms

Board governance mechanisms refer to the structures, procedures, and practices put in place to guide, oversee, and regulate organizational operations in order to safeguard shareholders' interests and business performance. Accountability, openness, equity, and efficient decision-making are all guaranteed by corporate governance. Effective resource use, fewer agency conflicts, and long-term organisational growth is facilitated by a strong governance structure (Cadbury, 1992). Since the board of directors is the highest decision-making body in charge of strategy supervision and performance monitoring, effective board governance mechanisms are especially crucial. Board size, independence, diversity, diligence, audit committee performance, and CEO duality are some of the essential frameworks of board governance

processes. These systems have an impact on how well the board oversees management, develops business plans, and defends the interests of shareholders. Effective governance frameworks increase corporate value, decrease management opportunism, and improve transparency (Khan et al., 2013; Muttakin & Ullah, 2012).

Board Size

Board size, referring to the total number of directors, is a vital governance mechanism influencing strategic guidance and oversight. The Corporate Governance Code emphasizes structuring board size for effective decision-making and representation of expertise. Emerging studies further highlight the mixed views on the impact of board size on firm performance; while larger boards may offer diverse skills and access to resources. According to Resource Dependence Theory excessively large boards may hinder coordination and decision-making efficiency (Staikouras et al., 2007; Liang et al., 2013; Pathan & Faff, 2013)

Board Independence

Saidat et al. (2019) posited board independence involves non-executive directors free from managerial influence, tasked with unbiased oversight and protecting minority shareholders. This independence enhances corporate governance, allowing effective management monitoring and accountability. Previous studies show mixed results on board independence and firm performance. Some suggest positive impacts on profitability and market value, while others highlight that effectiveness varies based on directors' competence and actual independence from controlling shareholders (Muttakin & Ullah, 2012).

Number of board meetings

Eluyela et al. (2018) emphasized that Number of board meetings represent the frequency with which directors meet to deliberate on strategic, operational, and governance matters affecting the organization. Board Number of board meetings is commonly used as a measure of board diligence because it reflects the board's commitment to monitoring management and addressing organizational challenges. Frequent Number of board meetings provide opportunities for directors to review performance, assess risks, and formulate strategic responses to emerging issues. Previous literature has reported a positive relationship between

board Number of board meetings and firm performance because active boards are better positioned to make timely and informed decisions (Liang et al., 2013).

Firm Performance

Nwobu and Nwosu (2020) reported that firm performance refers to the extent to which an organization effectively utilizes its financial, human, and material resources to achieve strategic objectives, maximize shareholder wealth, and sustain long-term competitiveness. It serves as an important indicator of organizational success because it reflects the effectiveness of management and governance structures in creating value for shareholders and other stakeholders. Firm performance is generally classified into financial and non-financial performance. Financial performance focuses on profitability, value creation, and financial stability, while non-financial performance emphasizes operational efficiency, innovation, customer satisfaction, market share, and corporate reputation (Nwobu & Nwosu, 2020). Although both dimensions are important, financial performance is more widely adopted in empirical studies due to its objectivity, measurability, and relevance to stakeholders; hence, this study focuses primarily on financial performance (Amahalu et al., 2023; Ujunwa & Uwazie, 2021).

Financial performance can be measured using both accounting-based and market-based indicators. Accounting-based measures such as Return on Assets (ROA) and Return on Equity (ROE) assess a firm's profitability and efficiency in utilizing resources, whereas market-based measures such as Tobin's Q and stock returns reflect investors' perceptions of future growth prospects and long-term value creation. The use of these measures provides a comprehensive assessment of firm performance by capturing both internal operational outcomes and external market evaluations of organizational value.

Board governance mechanisms play a vital role in enhancing firm performance through effective monitoring, transparency, accountability, and strategic decision-making. The essential governance variables such as board size, board independence, board Number of board meetings, audit committee effectiveness, CEO duality, and board diversity help align managerial actions with shareholders' interests, thereby reducing agency conflicts and improving organizational efficiency (Arsh et al., 2025; Kolev et al., 2029). The relationship

between board governance and firm performance is supported by Agency Theory and Stewardship Theory, all of which emphasize the importance of effective governance structures in improving profitability, maximizing shareholder wealth, achieving competitive advantage, and ensuring the long-term sustainability of listed industrial and consumer goods companies in Nigeria.

CEO Duality and Firm Performance

Molla et al. (2021) posited that CEO duality involves one individual serving as both Chief Executive Officer and Chairperson of the Board, generating debate in corporate governance. Proponents claim it fosters leadership unity and decision-making efficiency, while critics argue it undermines board independence and oversight. Research, including by Qadorah (2018b), presents inconclusive findings noted a significant negative correlation between CEO duality and Return on Assets, indicating potential managerial opportunism and reduced accountability, which may harm profitability (Pham, 2020). (Molla et al., 2021; Pham, 2020).

Theoretical Review

Theories reviewed in this study include Agency Theory (AT) by Ross and Mitnick (1973), Stakeholder Theory (ST) by Freeman (1984), and Stewardship Theory (STT) by Davis, Schoorman, and Donaldson (1997).

Agency Theory

Agency Theory, developed by Ross, Mitnick, Jensen, and Meckling (1976) examines the relationship between shareholders (principals) and managers (agents) and highlights potential conflicts of interest due to information asymmetry and ownership separation. These conflicts can lead to agency problems, necessitating effective corporate governance to ensure alignment with shareholder goals. In the study, Agency Theory underpinned the analysis of how board governance mechanisms affect firm performance in Nigeria's industrial and consumer goods sectors. The most governance variables include board size, independence, Number of board meetings, and audit committee effectiveness, which help mitigate agency conflicts and enhance managerial accountability. Strong governance structure is linked to improved financial performance, as evidenced by metrics like Return on Equity (ROE) and

Tobin's Q, underscoring the theory's relevance in understanding governance and performance in emerging economies (Fukuda, 2020).

Stakeholder Theory

Stakeholder Theory, introduced by R. Edward Freeman in 1984, posits that organizations should prioritize not only shareholder wealth but also the interests of various stakeholders, including employees, customers, and communities. It emphasizes that successful organizational management relies on balancing these interests while ensuring accountability and ethical decision-making. The theory is significant for corporate board governance, as diverse and independent boards enhance transparency and stakeholder confidence, leading to better organizational reputation and performance. In Nigeria's industrial sector, effective governance fosters trust among stakeholders, driving sustainability and competitive advantage, although some critics warn that such balancing may complicate governance and distract from profitability (Alliu and Oyewale, 2023). As a result, Stakeholder Theory highlights the broader impacts of governance on corporate success beyond financial metrics.

Stewardship Theory

Stewardship Theory, introduced by Lex Donaldson and James H. Davis in 1991, posits that managers are inherently trustworthy stewards whose interests align with those of stakeholders, contrasting with Agency Theory's focus on monitoring. It emphasizes that managers are driven by organizational success and professional fulfillment, reducing the need for close oversight. Effective board governance should not only oversee management but also provide strategic guidance and empowerment. Factors such as optimal board size and experienced directors foster an environment conducive to achieving organizational objectives. The theory suggests that strong cooperative relationships between the board and management lead to better performance outcomes, particularly for listed companies in Nigeria, underscoring the significance of trust and collaboration in governance (Jamaluddin et al., 2023). Thus, it complements Agency Theory by emphasizing leadership effectiveness and the value of shared goals in enhancing firm performance.

This study focuses on Agency Theory, which explains how board governance mechanisms such as board size, independence, and audit committee effectiveness monitor and control agency conflicts between shareholders and management. These mechanisms aim to enhance oversight and accountability, ensuring managerial decisions align with shareholder interests. Although Stakeholder Theory and Stewardship Theory provide additional insights by highlighting stakeholder welfare and trustworthiness, Agency Theory remains the most suitable framework for analyzing board governance effects on firm performance in Nigeria's listed industrial and consumer goods sectors.

2.3 Empirical Review

Previous studies on the effect of board governance mechanisms on firm performance present diverse and sometimes conflicting results, reflecting the complexity of corporate governance practices across companies and industries. While there is broad consensus that board governance influences organizational outcomes, the magnitude, direction, and significance of individual governance mechanisms differ considerably due to variations in research design, governance indicators, sectors studied, performance measures, and periods of analysis. One major area of agreement among the reviewed studies is that effective board governance contributes to improved organizational performance. For instance, Osemene and Fagbemi (2019) established that board size, board independence, and institutional ownership significantly enhance environmental reporting among listed consumer goods companies. Although their study focused on environmental reporting rather than financial performance, it reinforces the proposition that sound governance structures promote greater accountability and organizational effectiveness. Similarly, Anusi and Egungwu (2022) found that board size and directors' remuneration exert significant positive effects on the financial performance of listed consumer goods companies, suggesting that appropriately constituted boards provide effective monitoring, strategic guidance, and improved decision-making capable of enhancing corporate performance. Dankaka et al. (2022) further supported the importance of governance by concluding that several governance characteristics significantly influence companies' financial performance, although the effects differ across governance variables.

Despite this general consensus, significant contradictions emerge regarding the specific influence of individual board governance mechanisms. The most notable inconsistency relates to board size. Anusi and Egungwu (2022) reported that larger boards positively influence firm performance by providing broader expertise and stronger oversight. Conversely, Ilo, Uwaleke, and Achema (2025) argued that excessively large boards negatively affect performance because of coordination problems, slower decision-making, and communication inefficiencies. Oshim and Igwe (2024), however, found only weak relationships between board size and return on assets, implying that board size may not independently determine organizational performance. These contradictory findings suggest that the effectiveness of board size may depend on contextual factors such as industry characteristics, organizational complexity, and board composition rather than board size alone.

Another area of contradiction concerns board independence. Osemene and Fagbemi (2019) identified board independence as a significant governance mechanism that improves corporate reporting quality, while Ilo et al. (2025) found that independent directors significantly enhance companies' financial performance. In contrast, Oshim and Igwe (2024) observed only weak relationships between board independence and financial performance, indicating that merely increasing the proportion of independent directors may not automatically translate into improved profitability. These inconsistencies suggest that the quality, competence, and active participation of independent directors may be more important than their numerical representation on the board.

The findings regarding other governance variables also remain inconclusive. Anusi and Egungwu (2022) reported that board duality and gender diversity have insignificant effects on firm performance, whereas Dankaka et al. (2022) found that audit committee independence and external auditor independence negatively affect financial performance. These results contrast with corporate governance theory, which generally advocates stronger board independence and independent audit committees as mechanisms for enhancing transparency and organizational performance. Such contradictions indicate that governance mechanisms may produce different outcomes depending on firm-specific governance practices, institutional environments, regulatory compliance, and managerial effectiveness.

Beyond the contradictory empirical evidence, several important research gaps are evident in the existing literature. First, most previous studies concentrated exclusively on listed consumer goods companies in Nigeria, thereby limiting the generalizability of their findings across other sectors of the economy. The industrial goods sector, which differs substantially from the consumer goods sector in terms of operational structure, capital intensity, production processes, and governance challenges, has received relatively little empirical attention. As a result, little is known about whether board governance mechanisms exert similar or different effects across these strategically important sectors.

Second, previous studies largely relied on a single measure of firm performance, predominantly accounting-based indicators such as Return on Assets (ROA) or Return on Equity (ROE). Although these indicators measure historical financial performance, they fail to capture investors' expectations and market valuation. Very few studies integrate both accounting-based and market-based measures of performance, thereby providing only a partial assessment of corporate performance.

Third, earlier empirical studies examined individual governance mechanisms independently or focused on a limited number of governance variables without providing a comprehensive comparative assessment across sectors. Hence, existing evidence offers limited insight into whether governance mechanisms perform differently across industries with distinct operational characteristics. The present study addresses these identified gaps in several important ways. First, unlike previous studies that focused primarily on listed consumer goods companies, this study adopts a comparative approach by examining both listed industrial goods and consumer goods companies in Nigeria. This sectoral comparison provides richer empirical evidence on whether board governance mechanisms influence firm performance differently across industries and improves the external validity of the findings. Second, this study extends the measurement of firm performance by simultaneously employing both an accounting-based indicator (Return on Equity) and a market-based indicator (Tobin's Q). The combined use of these measures provides a more comprehensive assessment of organizational performance by capturing both internal profitability and external market valuation, thereby overcoming the limitations associated with relying on a single performance metric.

Furthermore, the study contributes to resolving the conflicting empirical evidence surrounding board governance mechanisms by examining the effects of multiple governance variables within a unified analytical framework and comparing their influence across two major sectors of the Nigerian economy. This comprehensive approach provides clearer insights into the relative effectiveness of different governance mechanisms and offers evidence that can better inform corporate governance policies, regulatory reforms, and board composition decisions among listed companies in Nigeria.

Hence, while previous studies generally acknowledge the importance of board governance in enhancing firm performance, inconsistencies regarding the effects of specific governance mechanisms and limitations in sectoral coverage and performance measurement remain unresolved. By adopting a comparative sectoral perspective and integrating both accounting and market-based performance indicators, the present study makes a significant contribution to the corporate governance literature and provides more robust evidence on the relationship between board governance mechanisms and firm performance among listed industrial and consumer goods companies in Nigeria.

CONCEPTUAL FRAMEWORK

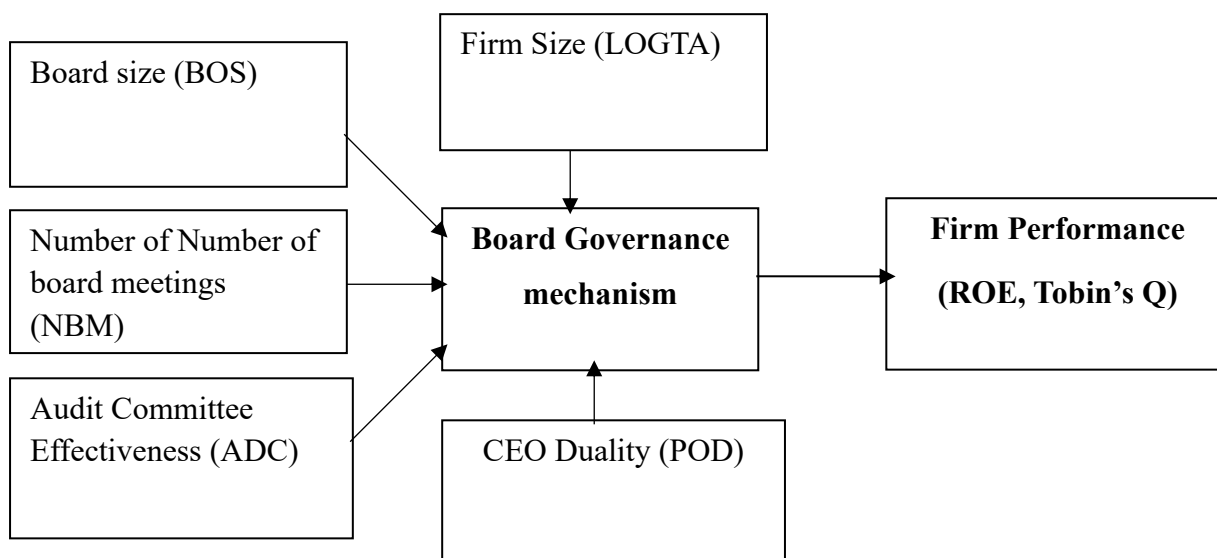


Figure 1: Board Governance and firm performance

Source: Compiled by the author (2026)

Methodology

This study adopted an ex post facto research design because it relied on historical financial data obtained from the annual reports of selected listed industrial and consumer goods companies in Nigeria. The design was considered appropriate as it enabled the study to assess how board governance mechanisms influence firm performance using already established data. The population of the study comprised all listed industrial and consumer goods companies quoted on the Nigerian Exchange Group (NGX) during the study period. A purposive sampling technique was employed in selecting thirteen listed industrial and consumer goods companies based on data availability, consistency in financial reporting, and continuous listing status throughout the study period. The study utilized secondary data sourced from the audited annual reports and accounts of the sampled companies covering the period fourteen years from 2012 to 2025. Firm performance, the dependent variable, was measured using Return on Equity (ROE) and Tobin's Q, while the independent variables representing board governance mechanisms included Board Size (BOS), Number of Number of board meetings (NBM), Audit Committee Effectiveness (ADC), and CEO Duality (POD). Firm Size (LOGTA) was incorporated as a control variable. The functional relationship of the study was specified as $FP = f(BOS, NBM, ADC, POD, LOGTA)$, where FP represents firm performance measured by ROE and Tobin's Q.

The econometric models were expressed as:

Model 1:

$$ROE_{it} = \beta_0 + \beta_1 BOS_{it} + \beta_2 NBM_{it} + \beta_3 ADC_{it} + \beta_4 POD_{it} + \beta_5 LOGTA_{it} + u_{it} \quad \dots \text{eqn 1}$$

Model 2:

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 BOS_{it} + \beta_2 NBM_{it} + \beta_3 ADC_{it} + \beta_4 POD_{it} + \beta_5 LOGTA_{it} + u_{it} \quad \dots \text{eqn 2}$$

where β_0 represents the constant term, β_1 – β_5 are the regression coefficients, μ is the error term, i denotes the firm, and t represents the time period. Data collected were analyzed using

both descriptive and inferential statistical techniques. Descriptive statistics such as mean, standard deviation, minimum and maximum values were used to summarize the characteristics of the variables, while inferential analyses included Pearson Correlation Analysis to determine the relationship among variables, Panel Unit Root Tests to ascertain stationarity, Fixed Effect and Random Effect Regression Models to examine the effect of board governance mechanisms on firm performance, and the Hausman Specification Test to determine the most appropriate panel estimation model. All statistical analyses were conducted using STATA 12 at a 5 percent level of significance.

4.1 Unit Root Test

The panel unit root test in Table 1 utilized the Im, Pesaran and Shin (IPS), Augmented Dickey-Fuller Fisher Test (ADF), and Levin, Lin and Chu (LLC) to assess the stationarity of selected variables. Non-stationary variables were excluded from co-integration analysis. The Levin, Lin and Chu test criteria indicated that variables with a probability value greater than 5% are non-stationary. Results indicated that Return on Equity (ROE), Board Size (BOS), and CEO Duality (POD) were stationary after first differencing (I(1)), while Tobin's Q, Number of Number of board meetings (NBM), Audit Committee (ADC), and Firm Size (LOGTA) were stationary at level (I(0)). This mixture of I(0) and I(1) variables concompanies that no series is integrated beyond the first order, allowing for further panel data estimation.

	IPS I (0)	IPS I (1)	ADF I (0)	ADF I (1)	LLC I (0)	LLC I (1)	Order of Integration
ROE	-2.20	-2.67	-2.67	-4.70	3.15	4.69	I (1)
Tobin's Q	-4.38	-5.34	-9.11	-4.17	4.65	5.74	I (0)
BOS	3.87	-4.96	0.51	-4.57	5.29	5.35	I (1)
NBM	-3.61	-5.78	-4.88	-3.04	-4.35	-4.91	I (0)
ADC	-4.01	-4.43	-3.57	-4.86	-5.31	-3.09	I (0)
POD	3.00	-4.28	0.72	-5.07	6.94	2.48	I (1)
LOGTA	-3.26	-4.48	-3.82	-5.47	7.40	2.17	I (0)

Table 1: Unit Root Test for Consumer Goods Companies

Critical values: 1% (-1.04) (-1.51) 5% (-2.45) (-1.89) 10 % (-1.45) (-2.58)

Source: Computed by researcher using data extracted from annual reports of consumer goods companies (2026)

Unit Root Test for Industrial Goods Companies

The unit root analysis for industrial goods companies indicated that ROE, Tobin's Q, NBM, POD, and LOGTA were non-stationary at level but became stationary after first differencing, classifying them as I(1). In contrast, BOS and ADC were stationary at level, classified as I(0).

This mixed order of integration among the variables supports their suitability for panel regression analysis, as none is integrated beyond the first order.

Variables	IPS I (0)	IPS I (1)	ADF I (0)	ADF I (1)	LLC I (0)	LLC I (1)	Order of Integration
ROE	-1.03	-1.08	11.92	21.89	-11.13	-16.52	I (1)
Tobin's Q	-1.45	-3.94	23.18	52.2	-7.24	-13.81	I (1)
BOS	-5.94	-6.09	4.36	12.89	-5.24	-7.95	I (0)
NBM	2.32	-7.96	15.45	35.83	-6.21	-14.36	I (1)
ADC	-3.27	-4.79	73.87	173.23	-11.00	-15.20	I (0)
POD	2.38	-3.67	64.40	66.63	-8.95	-16.24	I (1)
LOGTA	-1.22	-1.54	32.72	43.07	-6.14	-13.57	I (1)

Table 2: Unit Root Test for Industrial Goods Companies

Critical values: 1% (-0.04) (-1.23) 5% (-1.22)(-1.89)10 % (-2.45) (-1.67)

Source: Computed by researcher using data extracted from annual reports of Industrial goods companies (2026)

Descriptive Analysis

The descriptive statistics in Table 3 indicated notable differences between consumer goods and industrial goods companies. Consumer goods companies had a higher average ROE of 10.27% versus 10.18% for industrial goods companies. However, industrial goods companies had a superior Tobin's Q of 4.28 compared to 2.46 for consumer goods, indicating better market valuation. Board sizes were similar, averaging 12-13 directors, as were the number of Number of board meetings, suggesting consistent governance. Consumer goods companies had larger audit committees. In contrast, industrial goods companies had a significantly larger firm size, with an average logarithmic asset value of 22.32 compared to 3.38 for consumer goods. These statistics demonstrate sufficient variability among variables to support regression analysis.

Table 3: Descriptive Statistics of Consumer and Industrial Goods Companies

		Consumer Goods				Industrial Goods			
VARIABLES	N	Mean	Standard Deviation	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum
ROE	182	10.2695	1.2299	7.7941	15.8981	10.1788	1.2174	7.7444	14.737
Tobin's Q	182	2.4619	1.70596	0.4461	11.1930	4.2792	1.4816	1.1899	8.2257
BOS	182	13.0000	6.8476	12.0000	15.0000	12.000	0.9087	2.0001	16.000
NBM	182	2.3230	1.35935	0.0700	4.0000	2.2538	1.0877	1.0002	5.0000
ADC	182	7.0000	17.7660	6.0000	33.0000	4.0000	0.8697	2.0000	5.0000
POD	182	1.0000	0.81755	0.7000	1.0000	1.6385	0.8353	0.1000	1.0000
LOGTA	182	3.3769	0.6502	2.0000	5.0000	22.32	1.0373	21.0000	36.0000

Source: Researcher's computation using data extracted from annual reports of consumer goods companies (2026)

Determination of the Strength and Direction of relationship between board governance and Companies' Financial Performance

The correlation analysis in Table 4 for consumer goods companies revealed that larger board sizes positively impact both ROE ($r = 0.5631$) and Tobin's Q ($r = 0.4542$), indicating improved firm performance. Audit committee effectiveness also correlates positively with ROE ($r = 0.2674$) and board size ($r = 0.3996$), highlighting the role of effective oversight in financial performance. Conversely, CEO duality negatively affects ROE ($r = -0.3519$), suggesting detrimental effects on profitability when the roles of CEO and Board Chairperson are combined. Additionally, firm size negatively correlates with ROE ($r = -0.3547$) but positively with audit committee effectiveness ($r = 0.4909$). Notably, all correlation coefficients remain below 0.80, indicating minimal risk of multicollinearity issues.

Table 4: Pearson Correlation Matrix for Consumer Goods

	ROE	Tobin's Q	BOS	NBM	ADC	POD	LOGTA
ROE	1.0000						
Tobin's Q	0.0782	1.0000					
BOS	0.5631	0.4542	1.0000				
NBM	0.0553	-0.1425*	0.0329	1.0000			
ADC	0.2674*	0.0709	0.3996*	0.0049	1.0000		
POD	-0.3519	0.4567	0.0418	0.0669	-0.2635	1.0000	
LOGTA	-0.3547	0.0119	0.1536	0.0419	0.4909*	0.1668	1.0000

Note: * $p < 0.05$

Source: *Author's Computation (2026)*

Pearson Correlation Matrix for Industrial Goods

The results in Table 5 indicated a positive relationship between ROE and both Tobin's Q ($r = 0.7134$) and NBM ($r = 0.2537$), suggesting that enhanced market performance and board activity boost profitability. Conversely, board size negatively impacts ROE ($r = -0.4725$), implying that larger boards may decrease decision-making efficiency. Further, CEO duality negatively affects both ROE and Tobin's Q, indicating that concentrated leadership duties may impair performance. Firm size positively correlates with Tobin's Q ($r = 0.3320$), indicating that larger companies benefit from better market valuation. The low correlations among the explanatory variables suggest that multicollinearity is not a significant issue.

Table 5: Pearson Correlation Matrix for Industrial Goods

	ROE	Tobin's Q	BOS	NBM	ADC	POD	LOGTA
ROE	1.0000						
Tobin's Q	0.7134	1.0000					
BOS	-0.4725*	0.3302	1.0000				
NBM	0.2537*	0.3327	0.2810	1.0000			

ADC	-0.1090	-0.0593	0.1861	-0.1118	1.0000		
POD	-0.4209	-0.3124	-0.2325	-0.1915	0.4587	1.0000	
LOGTA	-0.0546	0.3320*	-0.4462	-0.4522	0.5543	-0.1053	1.0000

Note: * $p < 0.05$

Source: *Author's Computation (2026)*

Fixed and Random Effect Estimation (Consumer goods companies ROE)

The regression analysis indicates that the effectiveness of the audit committee positively and significantly influences Return on Equity (ROE), with a coefficient of $\beta = 1.55919$ and $p = 0.0007$, suggesting that enhancing audit committee functions can lead to increased profitability. Other factors such as board size, Number of board meetings, CEO duality, and firm size do not significantly affect ROE. The model explained 66.3% of ROE variations ($R^2 = 0.6630$), and the significant F-statistic affirms the reliability of the model.

Table 6: Fixed and Random Effect Estimation (Consumer goods companies ROE)

Series: *ROE BOS NBM ADC POD LOGTA*

	Fixed Effects				Random Effects			
	Consumer Goods (ROE)				Consumer Goods (ROE)			
Variable	Coefficient	Standard Error	T-Test Values	P-value	Coefficient	Standard Error	T-Test Values	P-value
C	0.03412	0.05663	0.60251	0.5470	1.11491	1.54313	0.72249	0.471
BOS	-0.00380	0.05609	-0.0678	0.9460	0.22056	0.27827	0.79261	0.429
NBM	0.00251	0.07813	0.03213	0.9740	6.95301	14.25084	0.48790	0.626
ADC	1.55919	0.45372	3.43646	0.0007	0.23039	1.14382	0.20142	0.841
POD	0.04586	0.07713	0.59458	0.5520	0.12272	0.25218	0.48664	0.627
LOGTA	-0.01602	0.01546	-1.03622	0.3010	-0.12826	0.16457	-0.77936	0.437
R-square= 0.6630, Adjusted R-square=0.5132, F-statistics=48.790 Prob(F-stat)= 0.002				R-square= 0.5230, Adjusted R-square=0.3332, F-statistics=27.190 Prob(F-stat)= 0.001				
Hausman Test chi2(7) =77.33, Prob>chi2 = 0.002								

Source: *Author's Computation (2026)*

Fixed and Random Effect Estimation (Industrial goods companies ROE)

Board size positively impacts ROE ($\beta = 11.94660$, $p = 0.0038$), while the number of meetings negatively affects it ($\beta = -15.37350$, $p < 0.05$), indicating potential governance issues. Factors like audit committee effectiveness, CEO duality, and firm size show no significant impact on profitability, and the model accounts for about 49.2% of ROE variations.

Table 7: Fixed and Random Effect Estimation (Industrial goods companies ROE)

Series: ROE BOS NBM ADC POD LOGTA

	Fixed Effects				Random Effects			
	Industrial Goods (ROE)				Industrial Goods (ROE)			
Variable	Coefficient	Standard Error	T-Test Values	P-value	Coefficient	Standard Error	T-Test Values	P-value
C	-10.37078	87.06930	0.9050	0.2360	3.36994	42.63672	0.07904	0.937
BOS	11.94660	4.13128	2.8917	0.0038	-0.40822	2.02303	-0.20179	0.840
NBM	-15.37350	7.66441	-2.0058	0.0045	-8.88963	3.75316	-2.36857	0.019
ADC	2.95638	12.96870	0.2280	0.8197	-89.43894	78.65084	-1.13716	0.257
POD	-57.86920	160.61450	0.3603	0.7186	-59.44394	58.62184	-1.01402	0.312
LOGTA	5.19638	8.28681	0.6271	0.5306	8.57664	4.05794	2.11355	0.937
R-square= 0.4920, Adjusted R-square=0.3332, F-statistics=61.290 Prob(F-stat)= 0.002					R-square= 0.5630, Adjusted R-square=0.5532, F-statistics=31.95 Prob(F-stat)= 0.0316			
Hausman Test chi2(7) =66.43, Prob>chi2 = 0.00023								

Source: Author's Computation (2026)

Fixed and Random Effect Estimation (Consumer goods companies- Tobin's Q)

The Random Effect Model is suitable, according to the Hausman test probability of 0.065. The findings show that market performance is positively impacted by both board size and Number of board meetings, but only Number of board meetings are still highly significant in

the favored model. Firm size, CEO duality, and the effectiveness of the audit committee have little bearing on Tobin's Q. Approximately 76.5% of the changes in market value may be explained by governance variables, according to the R² value of 0.7645.

Table 8: Fixed and Random Effect Estimation (Consumer goods companies- Tobin's Q)

	Fixed Effects Model				Random Effects Model			
	Consumer goods companies (Tobin's Q)				Consumer goods companies (Tobin's Q)			
Variable	Coefficient	Standard Error	T-Test Values	P-value	Coefficient	Standard Error	T-Test Values	P-value
C	2.45765	0.76543	3.21081	0.0016	0.32412	0.32161	1.00780	0.315
BOS	0.35567	0.12353	2.87922	0.0045	0.20133	0.23461	0.85815	0.392
NBM	2.86534	0.45348	6.31856	< 0.0001	2.54324	0.34519	7.36765	< 0.0001
ADC	-0.55430	0.34250	-1.61839	0.107	0.04585	0.56281	0.08147	0.935
POD	6.02164	0.43521	13.83617	< 0.0001	0.60223	0.76542	0.78679	0.432
LOGTA	-3.11450	0.34535	-9.01839	0.0016	0.11204	0.45617	0.24561	0.8060
	<i>R-square= 0.5436, Adjusted R-square=0.4442, F-statistics= 29.540, Prob(F-stat)=0.0003</i> <i>Hausman Test chi2(7) =45.39, Prob>chi2 = 0.065</i>				<i>R-square= 0.7645, Adjusted R-square=0.755, F-statistics= 80.5, Prob(F-stat)=0.001</i>			

Source: Author's Computation (2026)

Fixed Effect and Random Effect Using Tobin's Q (Industrial Goods)

Board size, number of Number of board meetings, and audit committee effectiveness have positive and significant effects on Tobin's Q. This indicated that stronger governance structures enhance market valuation. CEO duality and firm size are statistically insignificant. The model is significant, although the explanatory power is relatively low (R² = 0.2333).

Table 9 Fixed Effect and Random Effect Using Tobin's Q (Industrial Goods)

	Fixed Effects Model				Random Effects Model			
	Industrial Goods (Tobin's Q)				Industrial Goods (Tobin's Q)			
Variable	Coefficient	Standard Error	T-Test Values	P-value	Coefficient	Standard Error	T-Test Values	P-value
C	2.43533	1.33424	1.8250	0.0700	1.34333	1.55466	0.389	0.471
BOS	1.34222	0.54336	2.4700	0.0150	0.44543	0.67878	0.513	0.030
NBM	0.43252	0.43201	1.0010	0.3190	0.56412	0.66654	0.399	0.004
ADC	5.10469	54.5444	0.0940	0.9250	4.54634	11.56231	0.695	0.026
POD	-0.04915	1.15433	-0.0430	0.9660	-0.23037	1.45382	0.875	0.841
LOGTA	-1.09823	0.33795	-3.2500	0.0700	-0.56772	0.25596	0.028	0.627
	<i>R-square= 0.4404, Adjusted R-square=0.418, F-statistics= 19.520, Prob(F-stat)=0.00016 Hausman Test: chi2(7)= 23.5 Prob>chi2 = 0.675</i>				<i>R-square= 0.2333, Adjusted R-square0.202, F-statistics= 7.55 Prob(F-stat)=0.003</i>			

Source: Author's Computation (2026)

Hausman Test

The Hausman specification test was conducted to determine the most appropriate panel estimation technique between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The results revealed that for Return on Equity (ROE), both consumer goods and industrial goods companies recorded probability values below the 5% significance level ($p = 0.002$ and $p = 0.00023$ respectively). Accordingly, the Fixed Effect Model was selected as the preferred estimation technique for both sectors, indicating that firm-specific characteristics significantly influence profitability and are correlated with the explanatory variables. In contrast, when Tobin's Q was used as the measure of firm performance, the probability values for consumer goods ($p = 0.065$) and industrial goods companies ($p = 0.675$) exceeded the 5% significance threshold. Therefore, the Random Effect Model was adopted for both sectors, suggesting that individual firm effects are random and uncorrelated with the explanatory

variables. Hence, the findings indicate that profitability measured by ROE is better explained using the Fixed Effect Model, while market-based performance measured by Tobin's Q is more appropriately estimated using the Random Effect Model, thereby ensuring reliable and unbiased estimation of the relationship between board governance mechanisms and firm performance.

Performance measure /Sector	Chi-square stat	P-value	Preferred Model	Decision
Consumer Goods (ROE)	77.33	0.0020	Fixed effect	$P < 0.005$
Industrial Goods (ROE)	66.43	0.00023	Fixed effect	$P < 0.005$
Consumer Goods (Tobin's Q)	45.39	0.0650	Random effect	$P > 0.005$
Industrial Goods (Tobin's Q)	23.50	0.6750	Random effect	$P > 0.005$

Table 10: Hausman Test

Source: *Author's Computation (2026)*

Comparative Analysis for Consumer and Industrial Goods Using ROE (Panel Least Square)

The analysis in Table 11 evaluated board governance mechanisms' impact on firm profitability, as measured by Return on Equity (ROE), across consumer and industrial goods companies using the Fixed Effect Model. For consumer goods companies, Number of board meetings had no significant effect, while audit committee effectiveness was crucial, positively influencing ROE, indicating enhanced monitoring and accountability. CEO duality and firm size showed no significant effects. In industrial goods companies, board size positively affected profitability by providing expertise and stronger monitoring, while excessive Number of board meetings had a negative impact on ROE. Audit committee effectiveness, CEO duality, and firm size had no significant effects. The results indicate that governance factors differently affect profitability by sector, with audit committee

effectiveness being key in consumer goods and board size being more significant in industrial goods, explaining 66.3% and 49.2% of profitability variation, respectively.

Table 11: Comparative Analysis for Consumer and Industrial Goods Using ROE (Panel Least Square)

Dependent Variable: ROE Method: Panel Least Squares						
	Consumer Good companies (Fixed Effect)			Industrial Goods companies (Fixed Effect)		
Variable	Coefficient	Probability	Remarks	Coefficient	Probability	Remarks
BOS	-0.00380	0.9460	Negative, insignificant	11.94660	0.0038	Positive, significant
NBM	0.00251	0.9740	Positive, insignificant	-15.37350	0.047	Negative, significant
ADC	1.55919	0.0007	Positive, significant	2.95638	0.820	Positive, insignificant
POD	0.04586	0.5520	Positive, Insignificant	-57.86920	0.719	Negative, insignificant
LOGTA	-0.01602	0.3010	Negative, insignificant	5.19638	0.532	Positive, insignificant
	R ²	0.6630	Moderate	R ²	0.4920	Low
	F-statistic	1.290		F-statistic	61.290	
	Prob (F stat)	0.002	Model Significant	Prob (F stat)	0.00023	Model significant

Source: *Author's Computation (2026)*

Comparative Analysis for Consumer and Industrial Goods using Tobin's Q

The comparative analysis in Table 12 examined the effect of board governance mechanisms on market-based firm performance measured by Tobin's Q using the Random Effect Model for both consumer and industrial goods companies. For consumer goods companies, board size and the number of Number of board meetings were found to have positive and statistically significant effects on Tobin's Q, indicating that larger boards and active board engagement enhance investors' confidence, strengthen strategic oversight, and improve market valuation. In contrast, audit committee effectiveness, CEO duality, and firm size were found to have insignificant effects on market performance, suggesting that investors place greater emphasis on board structure and board activity when assessing the value of consumer goods companies. Similarly, for industrial goods companies, board size and the number of Number of board meetings also exerted positive and significant effects on Tobin's Q, confirming the importance of effective board composition and active governance in enhancing firm value. In addition, audit committee effectiveness emerged as a significant

positive determinant of market performance, implying that strong audit oversight improves transparency, financial reporting quality, and investor confidence. However, CEO duality and firm size remained statistically insignificant. Hence, the findings reveal that board size and Number of board meetings consistently enhance market valuation across both sectors, while audit committee effectiveness plays an additional role in improving the market performance of industrial goods companies. The model exhibited a higher explanatory power for consumer goods companies ($R^2 = 76.5\%$) than for industrial goods companies ($R^2 = 23.3\%$), suggesting that governance mechanisms explain a larger proportion of market value variations in the consumer goods sector.

Dependent Variable: Tobin's Q						
Method: Panel Least Squares						
	Consumer Good companies (Random Effect)			Industrial Goods companies (Random Effect)		
Variable	Coefficient	Probability	Remarks	Coefficient	Probability	Remarks
BOS	0.201336	0.0040	Positive, significant	0.44543	0.0300	Positive, significant
NBM	2.543244	0.0410	Positive, significant	0.56412	0.0040	Positive, significant
ADC	0.045856	0.5130	Negative, insignificant	4.54634	0.0260	Positive, significant
POD	0.602234	0.6000	Positive, Insignificant	-0.23037	0.8410	Negative, insignificant
LOGTA	0.112041	0.7060	Positive, insignificant	-0.56772	0.6270	Negative, insignificant
	R^2	0.7645	High	R^2	0.2333	Low
	<i>Adjusted R-Square</i>	0.5632		<i>Adjusted R-Square</i>	0.1433	
	Prob (F stat)	0.001	Model significant	Prob (F stat)	0.003	Model significant

Table 12: Least Square (Consumer and Industrial Goods using Tobin's Q)

Source: *Author's Computation (2026)*

Discussion of Findings

The findings indicate that board governance mechanisms significantly influence firm performance in Nigeria's consumer and industrial goods sectors. Notably, effective audit committees enhance ROE in consumer goods companies, aligning with Agency Theory by

mitigating managerial opportunism and enhancing shareholder wealth. Additionally, the positive correlation between board size and ROE and Tobin's Q in industrial goods companies highlights the benefits of larger boards, such as diverse expertise and improved strategic oversight. Anusi and Egungwu (2022) found that there is positive and significant relationship between board governance and performance of consumer goods companies. This supports the current finding that the relationship exists. The positive influence of Number of board meetings on Tobin's Q across both sectors indicates that active board engagement enhances investors' confidence and strengthens corporate decision-making and this is also in line with Akinsola & Taofeek (2025). However, the negative effect of frequent Number of board meetings on profitability among industrial goods companies suggests that excessive meetings may increase costs and slow decision-making processes. The insignificance of CEO duality in most models suggests that combining leadership roles does not necessarily affect firm performance in the Nigerian context.

Conclusion and Recommendations

The study concluded that board governance mechanisms significantly influence firm performance in Nigeria's consumer and industrial goods sectors. Although the effects vary across sectors and performance measures, governance structures such as board size, Number of board meetings, and audit committee effectiveness remain critical determinants of profitability and market valuation. Effective governance practices enhance accountability, strengthen strategic decision-making, improve investor confidence, and contribute to sustainable organizational performance. Consequently, consumer goods companies should strengthen the independence, effectiveness, and financial expertise of their audit committees, while industrial goods companies should maintain optimal board sizes and efficient board meeting practices to improve oversight and performance. Furthermore, regulatory authorities and shareholders should actively enforce and monitor compliance with corporate governance codes to promote transparency, accountability, and long-term value creation across companies.

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