

Board Structure and the Profitability of Listed Consumer Goods Firms in Nigeria

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<p>Article Info:</p> <p>Article History:</p> <p>Received: June 27, 2023</p> <p>Accepted: October 2, 2023</p> <p>Published: December 1, 2023</p> <p>To cite this:</p> <p>Yusufu, Ojochenemi Sunday - Ibrahim, Mohammed Gaddafi - Ali, Abubakar - Sunday Alewo Omale. (2023). Board Structure and the Profitability of Listed Consumer Goods Firms in Nigeria. Eurasian Journal of Management & Social Sciences. doi:10.23918/ejmss.V4i2p120</p> <p>DOI: 10.23918/ejmss.V4i2p120</p> 	<p>Abstract</p> <p><i>This study investigated the relationship between board structure and the profitability of Listed Consumer Goods Firms in Nigeria. The ex post facto method was used for the study. The study drew on secondary data from twenty (20) listed consumer goods firms in Nigeria as of May 31, 2021. Data was gotten from the annual reports and accounts of the sampled listed consumer goods firms in Nigeria, as well as the stock exchange fact book website from time range (2012 to 2020). Generated data was analyzed using a fixed effect generalized least square (GLS) Multiple linear regression technique and descriptive statistics. The study found that board size (BDS) has a positive (0.020759) and statistically significant (0.033) relationship with return on asset (ROA) of selected listed consumer goods firms in Nigeria between 2012 and 2020. More also, findings reveal that board independence has a negative (-.3488214) and statistically significant (0.037) relationship with the return on asset of listed consumer goods firms in Nigeria from 2012 to 2020. The study recommended that listed consumer goods firms in Nigeria should maintain the required minimum and maximum size of their board as specified in the Nigeria code of corporate governance. However, it was also recommended that independent directors should possess the necessary skills and expertise relevant to the consumer goods industry.</i></p> <p>Keywords: Board structure, Board size, Board independence, Profitability, Return on Asset. Listed consumer goods firms.</p>
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1- Introduction

Board structure have been identified as an important factor in determining a company's overall performance. The composition and structure of a company's board of directors can play a crucial role in its profitability. Companies that prioritize independence, and strategic involvement on their boards may be more likely to achieve long-term success and create value for their shareholders.

The structure of a board refers to the organization and composition of the board of directors of a company. As noted by Hillman and Dalziel (2003) the composition of the board may exhibit variations influenced by factors such as the company's size, industry, and legal obligations.

However, common elements of board structure include the size of the board, independence, diversity, committees, and leadership. A well-structured board can provide important benefits for a company, such as effective governance and oversight, better decision-making, and enhanced shareholder value (Khurana & Rivkin , 2006).

The board structure of a company refers to the composition and organization of its board of directors, which is responsible for overseeing the management and direction of the company (Miyajima & Hoda, 2015). The board typically consists of a group of individuals who are elected by the shareholders to represent their interests and provide strategic guidance to the company.

The profitability of a company refers to its ability to generate income and create value for its shareholders. A company's profitability is influenced by a range of factors, including its business model, market conditions, management practices, and board structure.

This study offers support to corporate managers and policymakers in developing institutional support to improve the effectiveness of board structure mechanisms. The structure of a board of directors has been identified as an important factor in determining a company's overall performance. However, there is a lack of consensus on the specific elements of board structure that are most effective in enhancing a company's profitability.

While some studies have suggested that having a larger board with more independent directors can improve a company's financial performance, others have found that board diversity and the

presence of specialized committees can be more important factors. The absence of unanimity on this matter gives rise to significant inquiries concerning the most effective configuration of a board of directors and how it affects a company's financial performance. Furthermore, there is a necessity to investigate whether the connection between board structure and profitability remains consistent across various industries and situations.

Martín and Herrero (2018) found that there is a negative and significant relationship with the independence of boards. More also, a study by Alabdullah and Nasser (2023) indicated a minimal sway of board size in their findings. Studies conducted by Saggar et al. (2023), Alabdullah and Mohamed (2023), Alabdullah and Zubon (2023) were undertaken in different countries outside the shores of Nigeria, this also creates a research gap because the findings cannot be universally applied due to variations in corporate regulations across countries. Hence, this study addresses these gaps by expanding the scope to encompass listed consumer goods firms in Nigeria.

1.1 Research Questions

The following research questions were generated:

- (i) To what extent does board size enhance the return on assets of listed consumer goods firms in Nigeria.
- (ii) To what extent does board independence enhance the return on assets of listed consumer goods firms in Nigeria.

1.2 Objectives of the Study

The broad objective of the study is to investigate board structure and the Profitability of Listed Consumer Goods Firms in Nigeria, the specific objectives are to:

- (i) assess the relationship between board size and the return on assets of listed consumer goods firms in Nigeria.
- (ii) determine the relationship between board independence and the return on assets of listed consumer goods firms in Nigeria.

1.3 Research Hypotheses

H01: Board size has no positive and significant effect on the return of asset of listed consumer goods firms in Nigeria.

H02 Board independence has no positive and significant effect on the return of asset of listed consumer goods firms in Nigeria.

2 Literature review

2.1 Concept of Board Structure

Board structure refers to the composition, organization, and arrangement of individuals who make up the governing body of a corporation or organization. It encompasses the roles, responsibilities, and relationships among board members, including the division of power, decision-making processes, and the level of independence from management (Du, 2016).

Corporate board structure refers to the configuration of directors and executives within a corporation's board of directors. It includes aspects such as the ratio of inside directors (company executives) to outside directors (independent directors), the presence of various board committees, and the leadership structure (chairperson, CEO duality) (Hermalin & Weisbach, 2018).

A board structure of a company refers to the composition and organization of its board of directors. Common elements of board structure include the size of the board, the independence of directors, diversity, committees, and leadership (Hermalin & Weisbach, 2003). Board structure refers to the composition and organization of the board of directors of a company. The structure of a board can vary depending on a number of factors such as company size, industry, and regulatory requirements. Khurana and Rivkin (2006) suggest that board structure can have an impact on a company's performance, with well-structured boards providing effective governance, monitoring, and strategic guidance. In contrast, poorly structured boards may be prone to conflicts of interest, insufficient oversight, and a lack of strategic vision.

2.2 Board Size

Board size refers to the number of directors serving on a company's board of directors. It is an important aspect of corporate governance that determines the composition and structure of the

board. The size of a board can vary significantly across companies and industries, ranging from small boards with a few members to larger boards with numerous directors. According to Hermalin and Weisbach (2003) defined board size as the number of directors serving on a company's board at any given time. The Board of Directors, often known as corporate directors, is a group of elected individuals whose principal role is to act in the best interests of the shareholders by formally monitoring and overseeing the corporation's top-level executives. Corporate directors have three basic fiduciary duties: care, good faith, and loyalty (Al-Tawi, 2016; Sheehy & Feaver, 2014).

The Nigeria code of corporate governance (2018) stipulates the establishment of specific committees, such as audit committees, remuneration committees, and nomination committees. These committees play a crucial role in ensuring transparency and accountability within the organization.

Many corporate governance codes stipulate a minimum number of directors required for a board. This is typically done to ensure diversity of perspectives and expertise. The minimum board size can vary, but it's often around three to five directors (Nigeria code of corporate governance, 2018). Having a small minimum board size ensures effective decision-making while still allowing for a diversity of opinions. A maximum board size is sometimes specified to prevent boards from becoming too large and unwieldy, which can hinder effective communication and decision-making. Maximum board size can also vary, but it often ranges from around 15 to 20 directors. Codes of corporate governance may encourage boards to have a mix of directors with diverse backgrounds, skills, and expertise. This can include financial, legal, industry-specific, and management expertise. Codes of corporate governance may encourage boards to have a mix of directors with diverse backgrounds, skills, and expertise. This can include financial, legal, industry-specific, and management expertise.

2.3 Board Independence

Independence is a mental state in which one's judgment is not influenced by others. According to Fuzia et al., (2015), the words independent directors, non-executive directors, and outside directors were used interchangeably since the failure of several large corporations, including Enron and WorldCom, most organizations have recognized the critical role that independent directors play. Both the Cadbury Report of 1992 and the Tyson Report of 2003 place a premium on non-executive directors. The Cadbury Report of 1992 sparked debate and centered on the effectiveness of board

directors as critical corporate governance tools. The board is made up of executives and non-executives who are either independent or non-independent directors. Non-executive directors serve as watchdogs over the activities of the chief executive officer (CEO). Several global studies have demonstrated that non-executive directors are effective at monitoring management and defending shareholder interests, resulting in improved performance and profitability. Corporate governance codes (2018) often recommend or require a certain percentage of independent directors on the board. Independent directors are those who don't have any significant financial or personal ties to the company, which helps ensure objective decision-making. The specific percentage of independent directors can vary but is commonly around one-third of the total board size.

2.4 Concept of Firms Profitability

According to Pandey (2010), profit is the difference between sales and expenses over a set period (often one year). Profit is an important indicator of an organization's success, and profitability metrics are regarded to be especially appealing to business performance (Ogunleye et al., 2018). According to Todorovic (2013), if a company closely conforms to corporate governance rules, it will have a higher net profit margin and earnings per share.

Profitability and return on assets (ROA) are two important financial concepts used to assess a company's financial success. Profitability refers to a company's ability to earn profits over a given time, whereas ROA measures how efficiently a company uses its assets to generate profits. A corporation's ROA, on the other hand, is calculated by dividing its net income by its total assets. This ratio measures how efficiently a company utilizes its assets to generate earnings. A higher ROA implies that a company's assets are producing more profits, whereas a lower ROA suggests that the company's assets are not being utilized as efficiently as they may be.

Profitability and ROA are important metrics for investors and analysts to consider when assessing a company's financial health and performance. These measurements, however, should be used in conjunction with other financial facts and qualitative criteria when making investment decisions.

ROA is measured by dividing the net income by total assets.

$ROA = \frac{\text{Profit after tax}}{\text{Total asset}}$

Total asset.

Return on asset is frequently used to calculate the rate of return on total assets after interest and tax (Brigham & Houston, 2005).

2.5 Theoretical Framework

This study was anchored on Agency theory. Agency theory is a paradigm frequently used in corporate finance and organizational studies to explain the connection between principals (such as shareholders) and agents (such as managers). According to the idea, conflicts of interest can occur between principals and agents because of different goals and incentives, which can lead to agency difficulties. According to Jensen and Meckling (1976), the main premise of agency theory is that individuals are self-interested and would act to maximize their own value. This can result in agents pursuing their own interests at the expense of the principals they are intended to represent, causing the firm and its shareholders to lose value.

Agency theory has been criticized for being overly simplistic and failing to account for significant contextual factors that influence the behavior of agents and principals. Some researchers, for example, have pointed out that agency theory assumes all agents are rational and fully conscious, which may not be the case.

Others have argued that agency theory ignores the influence of social and cultural factors in shaping behavior and overemphasizes monetary incentives at the expense of other types of motivation.

Despite these reservations, agency theory is nevertheless widely used to explain organizational behavior and corporate finance. Its findings have influenced a wide range of management practices and policies, including executive compensation.

2.6 Empirical Review

Saggar et al. (2023) conducted a study that delved into the role of board characteristics in influencing the connection between the financial performance of Indian non-financial firms and the extent to which they disclose corporate risks in their annual reports. The research focused on three specific board attributes: board size, board independence, and gender diversity. To fulfill the study's objectives, a hierarchical moderated regression analysis was employed on a dataset drawn from the S&P BSE-100 index, centered on the financial year 2018-2019. The outcomes of the

study indicated noteworthy findings. Firstly, it was observed that both larger board sizes and higher levels of board independence play a positive moderating role in the relationship between firm performance and risk disclosure. This suggests that companies with larger boards and a greater proportion of independent directors tend to exhibit a stronger connection between their performance and the extent to which they disclose risks.

2.7 Firm performance.

Alabdullah and Naseer (2023) conducted an impartial investigation into the influence of board size, firm size, and firm age on the financial performance of companies listed in Dubai. Employing a quantitative approach, they utilized a sample of 40 non-financial firms listed on the Dubai Stock Exchange during the fiscal year 2022. Through meticulous data analysis and rigorous statistical testing, the research outcomes illuminated the associations among the key variables. Notably, the study determined that the size of the board held minimal sway, if any, over the financial performance of the sampled companies. In contrast, the investigation unveiled a substantial and positive correlation between company age and size and firm performance, as measured by Return on Assets (ROA). This suggests that as companies evolve over time and expand in scale, they tend to exhibit heightened levels of profitability.

Alabdullah and Mohamed (2023) conducted an in-depth examination of the impact of CEO duality, company size, and board size on capital structure, with a specific focus on the role of knowledge management. The study was carried out in Bahrain over a span of one year, utilizing a cross-sectional design that concentrated on a sample of 12 companies listed within the industrial machinery sector. The data for the year 2022 was predominantly sourced from annual reports. The study's findings unveiled a noteworthy and positive correlation between board size and financial leverage (LEV). The results suggested that companies with larger boards tended to exhibit higher levels of financial leverage. A broader board composition was seen as indicative of a diverse range of knowledge and expertise, which in turn could facilitate improved decision-making concerning capital structure. These findings underscored the significance of factoring in board size when considering capital structure strategies. Additionally, the research revealed a strong and advantageous link between CEO duality and financial leverage. This implies that enterprises where the CEO also serves as the board chairman are inclined to have elevated levels of financial leverage.

Alabdullah and Zubon (2023) conducted a comprehensive examination of the influence of board independence and board ownership (specifically managerial ownership) on the attainment of business success. Employing advanced analytical techniques such as Structural Equation Modeling (SEM) and Partial Least Squares (PLS), the study focused on a sample comprising 62 manufacturing firms that were publicly listed on the Kuwait Stock Exchange in the year 2022. The outcomes of the analysis revealed significant insights into the correlation between the return on assets and a range of key indicators of company success, notably encompassing board independence and managerial ownership. These findings bear practical significance, advocating for heightened attention from Kuwaiti policymakers towards bolstering internal control mechanisms within manufacturing enterprises. This enhancement can contribute substantively to the advancement of the nation's financial sector. By illuminating relatively less-explored realms, specifically the ramifications of managerial ownership and board independence on the performance of firms, this research augments the existing body of knowledge concerning corporate governance.

Pareek et al. (2019) investigated the impact of corporate governance, firm characteristics, and environmental performance disclosure policies on Indian company profitability. Using disclosures from 38 Indian non-financial corporations listed on the national stock exchange (NSE) from 2013 to 2017. Panel data analysis was used in the study. The findings show that board size and firm age have a favorable impact on the environmental performance and profitability disclosure of Indian enterprises. The study also discovers a significant and negative effect of board independence on such companies' environmental performance disclosure. Based on its findings, the study advised that the function of independent directors as an internal regulatory body be expanded to include external regulatory standards.

Osemene and Fagbemi (2019) explored the link between corporate governance and environmental reporting in Nigeria's publicly traded consumer products firms. This study examined panel data spanning 11 years, from 2008 to 2018. Secondary data gathered from the annual reports of the 20 consumer goods companies included in the study were analyzed using descriptive and inferential statistics. The data was analyzed using multiple regression in the study. The Fixed Effect Model (FEM) and Random Effect Model (REM) estimating techniques were used, as well as the Hausman test. Findings demonstrated a considerable positive influence of board size, independence, and

institutional ownership on environmental reporting. Firm size, leverage, and profitability were also found to have a substantial positive link with environmental reporting. The study advised that adequate and active board members make up the board size in order to increase environmental reporting, while passive directors be removed.

3. METHODOLOGY

For the study's time range (2012 to 2020), an *ex post facto* research design was used with panel data. The *ex post facto* method was used for this study because it considers the effect of the predicting variables on the response variable. Panel data enables a multidimensional collection of secondary data sources. The study's population consists of the entire number of listed consumer products firms on the website of the Nigeria stock exchange market, which is 20 as of May 31, 2021. The choice of 20 consumer products companies was justified by the availability of data. The study used a convenience sample size approach that was equivalent to the population of study, and all the listed consumer goods firms operating in Nigeria from 2012 to 2020 were included for the study.

This study drew on secondary data from the annual reports and accounts of the sampled listed consumer goods firms in Nigeria, as well as the stock exchange fact book website. To investigate board structure and profitability of listed consumer goods firms in Nigeria, data was analyzed using a fixed effect generalized least square (GLS) Multiple linear panel regression technique. The Hausman test was used to choose between the fixed effect model and the random effect model regression. STATA 13 software was used for the analysis. Descriptive statistics were also used in the investigation.

Population under Study

Table 3. 1

Table 1: study	Company Name	Year of Incorporation
Population S/N		
1.	Flourmills of Nigeria Plc	1960
2.	N.N.Flour Mills.Plc	1971
3.	Dangote sugar refinery plc.	2005
4.	Multi-Trex plc	1999
5.	Honeywell flour plc	2008
6.	Cadbury Nigeia plc	1965

7.	Champion Brewery plc	1974
8.	DN Tyre & rubber plc	1961
9.	Golden Guinea Brewery plc	1962
10.	Guinness Nigeri plc	1962
11.	International Breweries plc	1971
12.	MC Nichols plc	2004
13.	Nascon allied industries plc	1973
14.	Nestle Nigeria plc	1969
15.	Nigerian Brewery plc	1946
16.	Nigerian Enamelware plc	1960
17.	PZ Cussons Nigeria plc	1948
18.	Unilever Nigeria plc	1923
19.	Union Dicon Salt plc	1991
20	Vitafoam Nig plc	

Source: Nigeria stock exchange; 2021

Variables Justification and Measurement

Table 3.2

Variables	Acronyms	Types of Variables	Measurement	Justifications
Return on Asset	ROA	Dependent	Return on assets is calculated as net income/total assets divided by 100.	Alabdullah and Zubon (2023)
Board size	BDS	Independent	Board size is defined as the number of directors on a company's board.	of Saggar et al. (2023), Alabdullah and Mohamed (2023). ;
Board independence	BID	Independent	Independent board, defined as the proportion of non-executive directors on a company's board divided by the total	Pareek et al. (2019), Osemene and Fagbemi (2019).

			number of directors on the board.
Firm Size	FMS	Control	Firm size is calculated as <i>Osemene and Fagbemi</i> the logarithm of total (2019) assets.

Source: Researchers Variable Definition and Measurement:2022.

3.1 Model Specification

The study investigated Board structure and the profitability of listed consumer goods firms in Nigeria. The regression model that was used for the estimation was stated using the dependent variable (profitability) proxy by return on asset (ROA) and the independent variable (Board structure) which has the following proxies: Board size (BDS), Board independence (BID). Firm size (FS) is the study's control variable.

$$ROA = f(BDS + BID + FS) \dots\dots\dots 1$$

In specifying the above equation into an econometric model, we have.

$$ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BID_{it} + \beta_3 FS + \mu_{it} \dots\dots\dots 2$$

Where:

ROA = Return on asset (indicator representing dependent variable)

BDS = Board size (predictor representing independent variable)

BID = Board independence (predictor representing independent variable)

FS = Firm size (predictor representing control variable)

β_0 = the intercept terms (a constant)

β_1 to β_3 = The coefficients of the variables to be estimated.

β_1 = Coefficient of Board size

β_2 = Coefficient Board independence

β_3 = Coefficient Firm size

μ = Stochastic error term.

i = Firms (cross sectional units)

t = time periods; and

f = Functional relationship.

4. Data Analysis

4.1 Descriptive Statistics of the Variables

The descriptive statistics of the variables are shown in Table 4.1, where the mean, standard deviation, minimum and maximum of the variables are used to characterize the nature and pattern of the data set in the study.

Table 4.1: Descriptive Statistics of the Variables

Variable	OBS	Mean	Std. Dev.	Min	Max
ROA	180	.0389243	.1800602	-.9932388	.8199731
BDS	180	10.93855	3.035672	4	18
BID	180	.5771111	.1909356	.13	.92
FMS	180	7.465051	1.192102	4.739335	10.49008

Source: STATA Software output, 2022

Table 4.1 shows that return on asset (ROA) has a mean value of .0389243, indicating that listed consumer goods firms in Nigeria have an average return on assets of 3.9%. The minimum ROA for listed consumer goods firms is -.9932388 indicating that some of the listed consumer goods firms performed poorly and are running at a loss, whereas the maximum ROA for listed consumer goods firms is 81% indicating that some listed consumer goods firms have higher return on assets than the sector average. The standard deviation is .1800602 meaning the level to which listed consumer goods firm can vary, their ROA is more than the average.

Board size has an average of 10.93855, indicating that the sample listed consumer goods firm has 10 directors on its board on average, with a standard deviation value of 3.035672, a minimum of 4 directors and a high of 18 directors.

Board independence, defined as the proportion of independent executive directors on the board, averages 57%, implying that 57% of the tested listed consumer goods firms in Nigeria have independent executive directors. It has a standard deviation of .19%, with a minimum of 13% and a high of 92% independent directors. Table 4.1 shows that company size has a minimum log value of 4.739335 and a maximum log value of 10.49008, showing that the difference between the largest and smallest sampled listed consumer products firms is not large. It also has a mean value of 7.465051, indicating that the average asset size of listed consumer products firms in Nigeria is 7.4.

Firm size has a standard deviation of 1.192102, showing a modest departure from the mean. The descriptive statistics variables in table 4.1 have mean values that fall between their respective minimum and maximum, indicating that the data distribution is equally spaced (Ifarajimi & Ola 2017). The table above shows that the standard deviations for all variables except return on asset (ROA) are all lower than their respective means, indicating that the variables all had slow growth rates during the period studied; and that return on asset had a fast growth rate.

4.2 Pearson Correlation Matrix for Multi- Collinearity

The pearson correlation matrix, which examined the strength of the association in the model, is shown in Table 4.2. It is also used to test the model for problems. Hair *et al.*, (2005) state that any two independent variables that correlate above 0.85 (85%) are not independent of one another and should be explored further.

Table 4.2

	ROA	BDS	BID	FMS
ROA	1.0000			
BDS	-0.0666	1.0000		
BID	0.0766	0.0759	1.0000	
FMS	0.3145	0.2699	-0.0336	1.0000

Source: STATA Software output, 2022

Table 4.2 reveals a -0.0666-coefficient negative and weak association between board size and return on asset (ROA). Board independence has a positive but modest link with return on asset (ROA) of listed consumer goods firms in Nigeria, with a coefficient of 0.0766, indicating that the more independent directors there are, the greater the firms' return on asset. With a value of 0.3145, firm size has a positive link with return on asset of listed consumer goods firms in Nigeria.

4.3 Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity

The outcome of the heteroskedacity test below reveals that the residuals are stable. If the Prob > chi2 is less than 0.05, there is no constant residual variance, but if it is more than 0.05, the residual has constant variance.

Table 4.3

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 0.20

Prob > chi2 = 0.6587

Source: STATA Software output, 2022

Table 4.4 shows a Prob > chi2 of 0.6587, which is greater than 0.05, showing that the null hypothesis, stating that residual variance is constant, is accepted. The outcome implies that the study's findings are useful for forecasting future output.

4.4 Variance Inflation Factor (VIF)

Table 4.5 presents the variance inflation factor of the independent variable in this study, According to Eriabie and Izedonmi (2016) any VIF more than ten (10) demonstrates the presence of a multi-collinearity problem in the model.

Table 4.5

Variable	VIF	1/VIF
FMS	2.57	0.388422
BDS	1.53	0.653268
BID	1.37	0.728793
Mean	VIF	1.63

Source: STATA Software output, 2022

Table 4.5 shows that all the independent variables have VIF below ten (10). This result corroborates the results of correlation coefficients which find no evidence of multi-collinearity among the proxies of the independent variable.

4.5 Ramsey RESET- Model Specification Test

Table 4.6 displays the model's Ramsey regression equation specification error test (RESET). If variables are eliminated, the P-value will be smaller than 0.05. There were no missing variables in the following results:

Table 4.6

Ramsey RESET test using powers of the fitted values of ROA	
Ho: model has no omitted variables	
F(3, 112) =	1.25
Prob > F =	0.2945

Source: STATA Software output, 2022

The table above produces an F-statistic of 1.25 and a probability value of 0.2945, indicating that the null hypothesis, which states that there are no missing variables in the model, is accepted. As a result, the finding implies that the model has been sufficiently explained.

4.6 Shapiro-Wilk W Data Normality Test

The Shapiro Wilk normality test, shown in Table 4.7, assesses whether the data is normally distributed around its mean. According to the rule of thumb, any variable with a P-Value less than 0.05 is not normally distributed (asymmetrical). A variable with a p value larger than 0.05 has a symmetrical (regularly dispersed) distribution around its mean. (Option xb assumed; fitted values)

(57 missing values generated) Shapiro-Wilk W test for normal data.

Table 4.7

Variable	Obs	W	V	z	Prob>z
resid	180	0.98277	1.693	1.182	0.11868

Source: STATA Software output, 2022

Result above reveals that the Prob>z value of 0.11868 which is greater than the significant level of 0.05, this implies that the data is normally distributed.

4.7 Hausman Specification Test

In adopting the generalized linear regression technique, the Hausman specification test was conducted after carrying out the fixed effect and random effect estimations and the result of the Hausman test is shown below.

Coefficients

Table 4.8

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
ROA	-.4971483	-.4089738	-.0881745	
BDS	.020759	.0245433	-.0037843	
BID	-.3488214	-.3653306	.0165092	

Source: STATA Software output, 2022

b = consistent under Ho and Ha;

B = inconsistent under Ha, efficient under Ho;

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(6) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 19.05$$

$$\text{Prob}>\text{chi2} = 0.0041$$

In table 4.8, the Hausman specification test result shows that the Prob>chi2 is 0.0041. As a result, the null hypothesis is rejected, which states that coefficient differences are not systematic. When coefficient fluctuations are systematic, it indicates a system problem, which means that the reason of the coefficient variations is consistent across the organizations under scrutiny. This finding shows that a fixed effect estimator that is consistent under both the alternate (Ha) and null (Ho) hypotheses is better suited for estimating this model.

4.8 Regression Analysis Based on Fixed Effect

Table 4.9

Fixed-effects (within) regression	Number of obs = 180
Group variable: id	Number of groups = 15
R-sq: within = 0.2671	Obs per group: min = 5
between = 0.6950	avg = 8.1
Overall = 0.5341	max = 9

$F(6,101) = 6.14$

$\text{corr}(u_i, X_b) = 0.6372$

Prob > F =

0.0000

ROA	Coef.	Std. Err.	t	P> t
BDS	.020759	.0096251	2.16	0.033
BID	-.3488214	.1652665	-2.11	0.037
FMS	-.4971483	.2588308	-1.92	0.058
_cons	6.959978	.2843309	24.48	0.000

rho | .95904805 (fraction of variance due to u_i)

F test that all $u_i=0$: $F(14, 101) = 87.95$ Prob > F = 0.0000

Source: STATA Software output, 2022

From table 4.9, the overall adjusted R-square indicates that the influence of the components of Board structure (board size, board independence, and firm size) accounts for approximately 53.4% of the variations in return on asset (ROA), with the remaining 47.6% being caused by factors not included in this model.

In the fixed effect regression table 4.9 above, the F-Statistics probability value is 0.0000, which is less than the alpha criteria of 0.05. This demonstrates that the outcome is adequate and that the model is suitable for attaining the overall objectives.

4.9 Test of Hypotheses

Hypothesis One

According to the regression results in table 4.9 above, board size (BDS) has a positive (0.020759) and statistically significant (0.033) relationship with return on asset (ROA) of selected listed consumer goods firms in Nigeria between 2012 and 2020. This means that the null hypothesis one (H_01), which claims that board size has no meaningful association with the return on asset of Nigerian listed consumer goods firms, is rejected.

Hypothesis Two

The study further reveals in table 4.9 above that board independence has a negative (-.3488214) and statistically significant (0.037) relationship with the return on asset of listed consumer goods firms in Nigeria from 2012 to 2020, implying that the formulated null hypothesis (H02) that board independence has no significant relationship with the return on asset of listed consumer goods firms in Nigeria is rejected.

5. Discussion of Findings

5.1 Board Size

The results of this study reveal that board size (BDS) has a positive and substantial link with return on asset (ROA) in table 4.9. This means that a 1% increase in board size will result in a considerable improvement in profitability (return on asset) of listed consumer goods firms in Nigeria for the period under study of 20.7%. As a result, an increase in the number of individuals on the boards of directors of listed corporations will greatly boost the profitability of listed consumer products firms in Nigeria. The agency theory focuses on resolving conflicts of interest that arise due to the vast number of members who comprise the board, primarily between principals and agents. The policy implications of these findings include that a larger board size may promote board independence and diversity, leading to increased productivity and profitability. Furthermore, the findings encourage corporate executives and investors to anticipate high performance, as well as lawmakers and regulators to ratify legislation and build institutional support to increase the effectiveness of Board. The result is in consistent with the findings of Saggar et al. (2023), Alabdullah and Mohamed (2023).

5.2 Board Independence

Similarly, for the period under consideration, table 4. 9 shows that board independence has a negative (-.3488214) and statistically significant (0.037) association with the profitability of listed consumer goods firms in Nigeria. This implies that board independence has a negative and significant influence on the profitability of a publicly traded consumer goods firm, with a beta value of (= -.3488214) at the 95% confidence level ($p < 0.05$), implying that as board independence increases, the probability of return on asset decreases by -.3488214 unit. This suggests that having more independent directors on a board would reduce the profitability of a publicly traded consumer

goods company. According to the coefficients, one unit change in board independence results in a negative -34.8% decrease in ROA. Jensen and Meckling's (1976) agency theory suggest that independent directors can improve a firm's decision making by providing effective board monitoring. The policy implications of these findings include that executive directors guarantee that shareholders' interests are effectively protected and that their abilities and expertise match the directors' mix. Berghe and Baelden (2005) identified board independence as an important factor in attaining board effectiveness through the directors' monitoring and strategic responsibilities. The most critical aspect of establishing board independence is having enough independent directors on the board. They asserted that a director's competence, willingness, and board environment might all have an impact on their independence. Independent non-executive directors are an excellent instrument for monitoring managers' operations (Amba, 2013). The study's findings are consistent with those of Osemene and Fagbemi (2019), Pareek et al. (2019)

5. 3 Conclusion and Recommendations

The results of this study reveal a significant positive relationship between board size (BDS) and return on assets, suggesting that larger boards positively impact profitability. Additionally, the study finds that board independence exhibits a negative association with the profitability of listed consumer goods firms in Nigeria, with a statistically significant coefficient of $-.3488214$ and a p-value of 0.037 . These findings indicate that greater board independence may have a detrimental effect on profitability in the consumer goods sector. Overall, the study highlights the importance of board composition and structure in shaping financial performance within the Nigerian consumer goods industry.

Based on the results of this study, the following recommendations can be made:

- i. The study recommends that listed consumer goods firms in Nigeria should maintain the required minimum and maximum size of their board as specified in the Nigeria code of corporate governance.
- ii. While board independence showed a negative association with profitability, it is still crucial to maintain a level of independence within the board. Ensure that independent directors possess the necessary skills and expertise relevant to the consumer goods

industry. Strengthening independence can promote impartial decision-making and better governance practices, which can positively impact long-term profitability.

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