

BOARD STRUCTURE AND FINANCIAL PERFORMANCE OF LISTED FIRMS IN NIGERIA: MODERATING EFFECT OF BOARD REMUNERATION

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Abstract

This study examined relationship between board structure proxied by board size and board independence and corporate financial performance (earnings per share and return on assets) of listed manufacturing firms in Nigeria. It also explored the moderating effect of board remunerations on the board structure-financial performance relationship. The study adopted ex post facto and descriptive research design. It employed convenience sampling technique to determine the sample size of nine manufacturing firms in the consumer goods sector on the Nigerian Stock Exchange for the period 2010 – 2019. It collected data from the annual reports of the sampled firms and analyzed them using Fixed Effect Model and Random Effect Model of Panel Least Square Regressions. Findings/conclusion. It was found that that: (1) board size has a positive but insignificant relationship with earnings per share; (2) board size exhibited a positive and significant relationship with return on assets. (3) Board independence has a significant negative relationship with both earnings per share and return on asset. (4) Board remuneration has insignificant moderating effect on the relationship between board size and earnings per share as well as between board independence and earnings per share. (5) board remuneration has a significant adverse moderating effect on the positive board size-earnings per share relationship. And (6) Board remuneration has a significant positive effect on the board independence-return on asset relationship. The study concluded that board structure has significant impact on financial performance and recommended that consumer goods manufacturing firms should

embrace larger board size, elect more non-executive directors who are truly independent, and grant more board remunerations that reflect performance.

Keywords: Board Structure, Corporate financial performance, Board remuneration, Consumer goods manufacturing firms

JEL Code Classification: G34, L66, M41

1. Introduction

One of the most visible characteristics of modern firms is the separation of ownership and control which leads to agency conflicts between corporate managers and shareholders (Jensen & Meckling, 1976). Agency theorists therefore advocate for the introduction of mechanisms to monitor, advise and control managers. One generally agreed veritable mechanism is the board of directors (board). Separation of ownership and control also leads to conflicts of interest between board of directors and shareholders (Agrawal & Knoeber, 1996). In line with the perspective of Agency Theory the Companies and Allied Act (CAMA) 2020 which replaced the 1990 version makes it mandatory for each company to establish a board. Boards serve as the apex and custodian of corporate governance in firms. However, there has been no consensus on the effect of boards structure on the impact of boards on financial performance of firms. Prior studies documented positive impact, negative impact and no significant impact on financial performance (for instance, Akinleye *et al.*, 2019; Borlea *et al.*, 2017; El-Maude *et al.*, 2018; Enakireri, 2016; Eyenubo, 2013; Kiel & Nichoison, 2003; Marashdeh *et al.*, 2021; Muchemwa *et al.*, 2016; Nath *et al.*, 2015; Okolie & Uejeyan, 2022; Scholtz & Kieviet, 2018; Yasser *et al.*, 2017). The conflicting results of past studies on the effect of board structure on firm performance serve to sustain the attention of regulators and academics in board structure. This is further strengthened by series of corporate collapses which were blamed on ineffectiveness of boards (Berglof, 2011; Van Den Berghe, 2009).

Majority of the studies were conducted with data drawn from jurisdictions whose corporate culture and institutional arrangements are quite different from Nigeria. Adams *et al.* (2010) show that differences in corporate culture and institutional arrangements explain board practices. Furthermore, the data seem obsolete in the light of rapidly changing economic environments and corporate governance reforms. For instance, the Securities and Exchange Commission of Nigeria reviewed the Code

of Corporate Governance in Nigeria of 2003 and issued a new code, Code of Corporate Governance for Public Companies in Nigeria in 2011. The Financial Reporting Council of Nigeria harmonized all the existing codes of corporate governance in Nigeria and issued the National Code of Corporate Governance 2016 effective 2018.

Board remuneration is a vital incentive suggested from the perspective of Agency Theory to align the divergent interest of managers and shareholders Bebchuk & Fried 2003. A plethora of studies on the impact of remuneration on financial performance concentrated on executive remunerations instead of the boards. Magnan *et al.* (2010) and Mumu *et al.* (2021) provide syntheses on board and executive remunerations. The board itself needs to be remunerated for its services. They also failed to explore the moderating effect of board remuneration on firm financial performance.

The aim of this study therefore is to investigate the effect of board structure in terms of board size and independence on financial performance of consumer goods manufacturing firms listed on the Nigerian Stock Exchange in the period 2011 to 2019. It also attempts to investigate whether or not board remuneration moderates the board structure-financial performance relationship.

2. Review of related literature

2.1 Conceptual Review

Board Structure

A board of directors is a body of persons in a company whose members are elected at annual general meetings by shareholders to exercise overall control over the governance of the firm on their behalf. The board is to address agency problems stemming from the separation of ownership and control and consequently serve as the guardian of shareholders' interests (Berle and Means, 1932; Fama & Jensen 1983; Jensen & Meckling 1976). Board structure refers to the characteristics of the board. It covers board size, type of directors viewed in terms of relationship with managers, gender, tenure, expertise, nationality, religion, age, and leadership amongst others. The description of what board structure is can be easily observed in past studies such as Abidin *et al.* (2009), Adams and Mehran (2012), Fauzi and Locke (2012), Jackling

and Johl (2009), Nath *et al.* (2015), Uadiale (2010). Vafeas and Theodorou (1998), and Yasser *et al.* (2017).

Two dimensions of board structure has continued to receive academic and regulatory attention because of mixed empirical findings. These are size board size and board independence. The extant literature defines board size as the number of directors who constitute the board. The CAMA 2020 like CAMA 1990 prescribes a minimum of two directors for non-listed companies. For public companies that are not regulated private companies, the Code of Corporate governance 2016 (FRC, 2016) mandates a minimum of eight directors. There is no stipulation as regard maximum size and/optimal size of boards for non-financial firms in Nigeria. Prior studies such as Agrawal and Knoeber (2001), Bennedsen *et al.* (2008), Coles (2008), Crutchley *et al.* (2004), Demsetz and Lehn (1985), Fama and Jensen (1983), Hermalin and Weisbach, (1988), Linck *et al.* (2008), Martín and Begoña Herrero (2018), and Yermack (1996) have however identified the determinants of board size to include but not limited to: firm size and complexity of the firm's operations, specific business and information environment in which the firm operates, firm life cycle, firm health status, industry norms, competition, leverage, ownership structure, the degree of agency problems and firm diversification strategy.

Another dimension of board structure is board independence. Board independence refers to the mix of executive directors, non-executive directors, and outside or independent directors. A board is considered to be independent if its members are persons who have neither personal nor business relationship with the company. However, boards usually have members who are managers – executive directors - because of operation reasons (Fama & Jensen, 1983). They are a valuable source of firm-specific information (Raheja, 2005). There are also non-executive directors. These are non-employee directors with personal or business relationship with the company but are not involved in the day-to-day operations of the firm. Amongst the non-executive directors are independent non-executive directors. These are directors who are outside persons without any business or personal relationship with the firm appointed as directors on the basis of their professional skills, expertise, reputation and network. FRC (2016) recommends that the board be composed to reflect a mix of executive and non-executive directors. It further recommends that while executive directors should not be more than one-third of the

board, the balance of two-third which is non-executive directors should have not less than half of the number reserved for independent non-executive directors.

Corporate Financial Performance

Firms set objectives they wish to achieve within a given period. They equally establish measures for evaluating the attainment of the set objectives. Corporate performance principally focuses on the capability and ability of a firm to efficiently exploit the available resources to accomplish its set objectives (Peterson *et al.*, 2003). Corporate performance can be financial performance, non-financial performance or a combination of both. This study concentrates on financial performance since it is widely used in accounting literature. Financial performance which is usually expressed as ratios measures the results of a firm's policies and operations in monetary terms. It measures the organization's monetary wellbeing and viability of the company in utilizing the assets to produce income from the business (Fatihudin & Mochklas, 2018). Financial performance can be either market based or accounting based or a combination of both (Nicholson & Kiel, 2003). Market based measures of financial performance rely on market forces in ascribing overall value to the firm. Examples include stock returns, stock volatility, and share prices. market-to-book ratio. Accounting based measures of financial performance are computed using data extracted from financial statements. These include earnings per share, return on assets, profit margin, sales growth, return on equity, amongst others. For this study, accounting-based measures of financial performance - earnings per share and return on assets - were used. The availability of data and ease of computation and need for comparison with past studies informed the choice.

Earnings per share (EPS) is an accounting-based measure of financial performance which relates the firm profit after tax to number of shares outstanding at measurement date. It is a neat summary of the earnings generated for shareholders. EPS has a strong appeal to investors and management alike. Indeed, Graham *et al.* (2005) provided survey evidence taken from 400 financial executives in the USA that the majority of the executives were of the opinion that earnings were the most important performance measure they report to outsiders. Firms are required report EPS as a line item on Income Statements.

Return on assets (ROA) is another extensively used measure of accounting-based financial performance metric (Combs *et al.*, 2005). It is a measure of short-term

financial performance of a firm which indicates how effectively a company utilized its assets in generating earnings (Epps & Cerepla, 2008). It is a ratio computed as net profit divided by total assets. A high return on assets is suggestive of high performance.

Board Remuneration

Shareholders elect members of directors to guard their interest in the face of managerial opportunism. In pursuit of its mandate, the boards need to recruit and retain capable and experienced executive as well as non-executive directors and offer attractive incentive packages in the form of directors' compensations (Frydman & Saks 2010; Lee & Isa 2015). Remuneration takes the form of salaries, fees, allowances and stock options. From the Agency Theory perspective, proper remuneration will help to align the conflicting interests thereby providing needed zeal to directors to exert greater effort in the discharge of their duties (instruments to ease agency conflicts that might exist between directors and owners (Bebchuk & Fried 2003; Fama, 1980; Fich & Shivdasani, 2006); Jensen & Meckling, 1976; Jensen & Murphy, 1990; Munisi & Mersland 2016; Theeravanich, 2013; Zhang *et al.*, 2016). Directors' remuneration is consistent with the resource provision role of the board which in turn situates also in the Resource Dependency Theory.

2.2 Theoretical Review

Agency Theory

Agency theory, one of the two theories used to underpin this study, became popular as a result of the work of Jensen and Meckling (1976). Jensen and Meckling (1976) defined 'agency relationship as a contract under which one or more persons (the principal(s)) engage another person(agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent'. Basically, the theory emerged to provide further insights on the issue of separation and control in an organization. It is clear that shareholders provide finances in a firm and expect to earn dividend and equally maximize their wealth. Therefore, managers were contracted to manage these finances so that shareholders expectations will be fulfilled. However, there is conflict of interest between managers and shareholders. Clarke (2005) clarifies that 'the principals' being shareholders have expectation that the agents – managers - would manage the firm for the maximization of interest of shareholders. However, the managers as self-interested persons tend to exploit the information asymmetry which is at their advantage to pursue their interest. Agency

Theory suggest that managers should be monitored and controlled so as to align the interest of the managers with that of the shareholders. One mechanism to achieve the alignment is the board. CAMA (2020) vests the board with the authority to exercise overall control over the affairs of the firm. Boards direct and govern firms by advising, monitoring and controlling management.

Resource Dependency Theory

Resource Dependency Theory as proposed by Pfeffer (1972) and Pfeffer and Salancik (1978) is the second theory employed to guide the discussion of the relationship between board structure and firm performance. Resource Dependency Theory is apt for this study because the board serves as a provider essential resource for the attainment of firm objectives (Hillman & Dalziel, 2003). Firms are dependent on other organizations and the surroundings for the provision of critical resources needed to maximize performance. The board is seen as one of the connecting mechanisms for linking firms with sources of external dependencies (Hillman *et al.*, 2009). By increasing board size, the firm increases the number of external connections. Independent directors are scarce and critical resources cherished by the firm and the market. They are expected to bring their particular skills, reputation, network, and knowledge to bear on the advisory and monitoring roles of the board (Johnson *et al.*, 2013).

2.3 Empirical Review

Board Size and Financial Performance

A firm could have small board size or large board size. There is no consensus on specific number that is small board size or large board size. Inferences are usually drawn from industry norms Jensen (1993) considered a board made of maximum seven or eight people to be a small board. Both small and large board size have advantages and disadvantages. Large board size enables the board to tap into a wider pool of talents (Dalton *et al.*, 1999). A board with large number of members is less likely to be controlled by chief executive officer. However, the costs of servicing the boards would be greater for firms with large board size compared to firms with small board size. These could impact negatively on financial performance of firms. Jensen (1993) argues that as board size increases, boards become less effective at monitoring management because of free-riding problems amongst directors. Yermack (1996) submits that in contrast to small boards, large boards face difficulty

in achieving consensus to reach decisions thereby encountering increased decision-making time. Timely decision making is vital to firm success.

Akinleye *et al.* (2019) focused on the effect of board size, activism and committee activism on return on asset and firm growth rate of Nigerian multinational firms from 2012 to 2016. They extracted secondary data from four multinational firms and analyzed them using static panel estimation techniques. Findings indicated that while board size and board activism exerted significant negative impact on return on asset, committee activism exerted insignificant impact.

Board is the apex and custodian of corporate governance. Dzingai and Fakoya (2017) conducted a study using data from firms listed on Johannesburg Stock Exchange from 2010–2015 to assess the effect of corporate governance structures on firm financial performance. The panel dataset contained variables including board independence, the board size, and return on equity. The study contended that a large board has difficulty of effective coordination resulting in reaching decisive decision on time which in turn could impact performance adversely. Findings revealed a weak negative association between board size and financial performance but positive association between board independence and financial performance.

Nath *et al.* (2015) examined the influence of board structure on firm's financial performance in the pharmaceutical industry of Bangladesh. Four major board attributes (board composition, board size, board ownership and CEO duality) were selected to identify their influence on firm's financial performance. The findings from the study show that there is a significant negative relation between board size and firm's financial performance.

Eyenubo, (2013) investigated the impact of board size on financial performance of 50 listed firms in Nigeria for the period 2001-2010. The study employed regression analysis and showed that bigger board size affects the financial performance of a firm negatively. The study was based on data derived from periods preceding major corporate governance reforms and mandatory adoption of International Financial Reporting Standards in Nigeria. Prior studies revealed that the adoption of IFRS has significant impact on accounting numbers.

Ahmadi *et al.* (2018) studied impact of board structure on firm performance among French CAC 40 listed firms in the period 2011 to 2013. The sample composed of 108 non-financial firms. The study showed that board size affected none significantly the firm performance as measured by ROA. The study reported a positive effect which is significant at the 1% level of board independence on firm performance measured by ROA.

A study by Scholtz and Kieviet (2018) employed a sample made up of Top 100 South African companies listed on the Johannesburg Securities Exchange in 2013 to 2015 to investigate the impact of board structure on firm performance. Findings indicated board size was significantly positively related with return on assets - the performance - of South African companies.

Using expo factor research design and purposive sampling technique, EL-Maude *et al.* (2018), evaluated the effect of board size, board composition and board Meetings on the financial performance of ten listed consumer goods in Nigeria over the period of ten years from 2006 to 2015. The study applied ordinary least square regressions as statistical tool of analysis of data obtained from the annual reports of the sampled firms. Firm performance was measured using return on assets. Evidence showed that while board size was negatively associated with firm performance, board independence was positively associated with firm performance.

Board Independence and Financial Performance

The key argument of Agency Theory which FRC (2016) has accepted is that directors, free of relationship with management, would be an effective monitor of management and therefore contribute to enhanced financial performance. However, empirical evidence is inconclusive.

A study conducted by Borlea *et al.* (2017) on Romanian listed companies observed a negative and significant relationship between board independence and firm performance.

Enakireri (2016) utilized forty manufacturing firms listed on the Nigerian Stock Exchange from 2009 to 2013 to examine the relationship between board structure, ownership structure and financial performance. Random Effect Model of panel regression was the statistical tool of analysis. The results showed that board size and

board independence have positive but insignificant effect on the proxies of financial performance – ROA and EPS. They suggested that the statistical insignificance of the result could lie in factors outside the board structure.

In their study of the impact of board characteristics on firm performance, Marashdeh *et al.* (2021) extracted data from 77 Jordanian non-financial firms listed on the industrial and services sector over the period 2008–2019. The result from Random Effect Model of panel regression revealed a negative and statistically significant relationship between board size as well as board independence and financial performance whose proxy was return on assets.

Using data from 338 firms listed on South Africa's Johannesburg Stock Exchange, over a seven-year period, 2006–2012, Muchemwa *et al.* (2016) investigated the effect of board composition on firm performance. While they found a positive and significant relationship between board size and return on assets, they failed to document a significant relationship between board independence and return on assets. They therefore recommended further study to unravel the multitude of causal effects that could influence the effectiveness of board independence.

Okolie and Uwejeyan (2022) explored the influence of corporate board attributes on the financial performance of a sample of five quoted conglomerates in Nigeria over a 10-year period from 2011 to 2020. Board characteristic studied were board size, board independence, board committees, board meetings, and board shareholdings. Return on Assets (ROA) was measure of financial performance. The study obtained data from the annual reports of the selected conglomerates and employed panel data regression. Findings demonstrated that board size and board independence had a significant positive effect on the financial performance of conglomerates in Nigeria.

A study seeking to assess the studied the effects of board independence on firm performance in Kuwait from 2000 2019 was undertaken by Al-said (2021). The outcome of the multiple regression analyses involving both the OLS estimates and two stage least squares indicated that board independence affected firm performance negatively.

A sample comprised of 475 firm-year observations from firms of Karachi Stock Exchange 100 index over a period of five years, 2009 to 2013, was taken by Yasser *et*

al. (2017) to test which board structure is associated with the firm performance in Pakistan. The study estimated fixed effects regression in the analysis. The results documented a positive relationship between board size and firm performance proxied by return on assets. It however reported that higher percentage of independent directors on board were negatively correlated with firm performance.

Board Remuneration and Financial Performance

From the Agency Theory perspective, proper remuneration will help to align the conflicting interests thereby providing needed zeal to directors to exert greater effort in the discharge of their duties (Bebchuk & Fried 2003; Fama 1980; Fich & Shivdasani 2006; Jensen & Meckling 1976; Jensen & Murphy, 1990; Munisi & Mersland 2016; Theeravanich 2013; Zhang *et al.*, 2016). Directors' remuneration is also consistent with resource provision role of the board. It is contended that based on power theory, boards tend to grant directors' remuneration that reflect the directors' ability to extract wealth from the company rather than being a reward for superior performance (Bebchuk & Fried 2003). Consequently, excessive board of directors' remuneration could be detrimental to effective monitoring of management (Dah & Frye 2017; Magnan *et al.*, 2010).

Lemma *et al.* (2020) assessed the effect of directors' remuneration on financial performance of a sample comprising 1,736 company-year observations obtained from entities traded on the Johannesburg Stock Exchange, for the period 2005–2018. They documented a direct relationship between directors' remunerations and firm performance, suggesting that firms that provided higher, or even excessive, incentives to their directors tended to post superior financial performance.

Akter *et al.* (2020) investigated the impact of board incentives as proxied by directors' remuneration on the financial performance of listed textile companies in Bangladesh. The study which covered the period 2011 to 2017 analyzed a dataset of 140-year firm observations from 20 textile firms listed on Dhaka Stock Exchange using Generalized Method of Moments (GMM). Controlling for firm age, size, leverage, and operating efficiency, the study found a negative association between board remuneration and firm performance. It also found no significant relationship between board independence and firm performance of the sample firms.

Ahmed et al. (2020) investigated the moderating effect of board size and board independence on the relationship between directors' remuneration and financial performance of listed insurance companies in Nigeria. The study used data generated from annual reports and accounts of 19 Insurance companies listed on the Nigerian Stock Exchange from 2012 to 2017. Results from panel regression analyses indicated that board remuneration has a negative effect on firm performance. The relationship was moderated positively by board independence but negatively by board size.

In UK, while Alqatan *et al* (2019) found that the board of directors' pay has a positive and significant relationship with firm performance, Afrifa and Tauringana (2015) observed that high-board remuneration could impact negatively on corporate financial performance.

Arising from the review of related literature and in line with the stated aim, this study proposes the following null hypotheses.

- Ho₁: There is no significant relationship between board size and earnings per share of listed consumer goods manufacturing firms in Nigeria.
- Ho₂: There is no significant relationship between board size and return on asset of listed consumer goods manufacturing firms in Nigeria.
- Ho₃: There is no significant relationship between board independence and earnings per share of listed consumer goods manufacturing firms in Nigeria.
- Ho₄: There is no significant relationship between board independence and return on asset of listed consumer goods manufacturing firms in Nigeria.
- Ho₅: Board remuneration does not have significant moderating effect on the relationship between board size and earnings per share of listed consumer goods manufacturing firms in Nigeria.
- Ho₆: Board remuneration does not have significant moderating effect on the relationship between board independence and earnings per share of listed consumer goods manufacturing firms in Nigeria.
- Ho₇: Board remuneration does not have significant moderating effect on the relationship between board independence and return on assets of listed consumer goods manufacturing firms in Nigeria.
- Ho₈: Board remuneration does not have significant moderating effect on the relationship between board independence and return on assets of listed consumer goods manufacturing firms in Nigeria.

3. Methodology

This study adopted ex post facto and descriptive research design. Consumer goods manufacturing firms listed on the Nigerian Stock Exchange from 2011 to 2019 formed the population of study. The choice of study period was to accommodate corporate governance changes and adoption of IFRS exclude the impact of COVID-19 pandemic. The study employed a convenience sampling technique in determining a sample of 10 firms. Data for the study were from the annual reports of the sample.

Model Specification

The model of this study essentially relates corporate financial performance to board structure, board remunerations and firm size. This presented in explicit form thus:
Financial performance = (board structure, board remunerations and firm size).

For purposes of estimation, the study restates the model as econometric equations as follows:

$$EPS_{it} = \delta_0 + \delta_1 BS_{it} + \delta_2 BN_{it} + \delta_3 RM_{it} + \delta_4 FS_{it} + \delta_5 BS*RM_{it} + \delta_6 BN*RM_{it} + \varepsilon_{it} \quad (\text{EPS Model})$$

$$ROA_{it} = \Psi_0 + \Psi_1 BS_{it} + \Psi_2 BN_{it} + \Psi_3 RM_{it} + \Psi_4 FS_{it} + \Psi_5 BN*RM_{it} + \Psi_6 BS*RM_{it} + \varepsilon_{it} \quad (\text{ROA Model})$$

In the Models, EPS is earnings per share (profit after tax divided by weighted average ordinary shares outstanding), ROA is return on assets (profit after tax divided by total assets), BS is board size (natural logarithm of total number of directors), BN is board independence (number of non-executive directors divided by total number of directors), RM is board remunerations (natural logarithm of total salaries, fees and allowances of directors), FS is firm size (natural logarithm of total assets), $\delta_5 BS*RM$ is interaction term between board size and board remunerations, $BN*RM$ is interaction term between board independence and board remunerations, and ε is error term. While δ_0 and Ψ_0 are intercepts, δ_1 to δ_6 Ψ_1 to Ψ_6 are regression coefficients. The dependent variables are EPS and ROA. BS and BN are the independent variables. While RM is the moderating variable, FS is a control variable. The subscripts on the variables are firm i in year t .

4. Results and discussions

Table 4.1 presents data analysis using descriptive statistics.

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Median	Std. Dev.	Min	Max
eps (Kobo)	81	546.6667	145	1125.441	-149	5763
roa	81	0.0760182	0.0513003	0.0974565	-0.262381	0.2649347
pat	81	9406.258	4766.551	12333.2	-7419.674	45683.11
bs	81	10.25926	10	2.401967	7	15
bn	81	0.7142065	0.7	0.1381834	.4	0.9285714
tasst (N'million)	81	125857.8	79936.74	126309.8	6799.2	482603.3
fsz	81	18.06454	18.1967	1.196663	15.7323	19.9947
rm (N'millon)	81	297.0735	165.647	371.9066	3.29	1691.151

Source: Researchers' Computations, 2022

Table 4.1 shows mean value of earnings per share is 547 kobo and is quite greater than the median of 145 kobo. EPS has a range from minus 149 kobo to 5763 kobo. On the average, the sample utilizes their assets to generate 7.8% profit. The maximum ROA is 26%. Some firms recorded negative ROA. Table 4.1 indicates the average board size of 10 directors and range from 7 directors to 15 directors. The minimum board size of 7 is at variance with the recommendation in the Code of corporate governance. This because the study covered period preceding the Code. On the average, 71% of the board members are non-executive directors. With a minimum of 40%, some firms in the sample were clearly in breach of the Code of Corporate Governance. Further check on Table 4.1 shows N297million as the average board remunerations during the sample period. The amount of board remunerations falls between N3.29million and N2,691million. Firm size varies from 15.73 to 19,99 in terms of logarithm of total assets, with a mean standing at 28.06. The standard deviations of EPS, ROA, and RM were higher than their mean suggesting wide dispersion amongst the sampled firms. Conversely the standard deviations of BS and BN suggests little dispersion.

Correlation Analysis

The result of correlation analysis is reported in Table 4.2. Both board size and board independence are negatively and correlated with earnings per share as well as return on assets. Only the correlation between board independence and return on assets is

significant. While board remuneration and earnings per share is positive and insignificant, board remuneration and return on assets is positive and significant. This supports the conjecture of Agency Theory that remuneration can mitigate agency problems.

Table 4.2: Correlation Matrix

	eps	roa	bs	bn	fs	rm	bs*rm	bn*rm
eps	1.0000							
roa	0.5565*	1.0000						
bs	-0.1945	-0.1527	1.0000					
bn	-0.2047	-0.3802*	0.2356*	1.0000				
fs	0.2868*	0.1395	0.5611*	-0.1235	1.0000			
rm	0.1236	0.3198*	0.0134	-0.5624*	0.4941*	1.0000		
bs*rm	-0.0964	0.0671	0.7371*	-0.2042	0.7390*	0.6666*	1.0000	
bn*rm	-0.1519	-0.1938	0.3035*	0.7782*	0.2588*	0.0237	0.2503*	1.0000

Source: Researchers' Computations, 2022

* on each figure denotes 5% level of significance.

Test of Hypotheses.

The study estimated EPS Model and ROA Model with the aid of STATA 12. It performed Breusch and Pagan Lagrangian multiplier test for random effects and the results rejected Pooled Regressions in favour of Random Effect Model as suggested by the probability value of the chi-square in Table 4.3. It then conducted Hausman Specification tests to select between Fixed Effect Model and Random Effect Model. The results displayed in Table 4.4 indicated preference of Fixed Effect Model for EPS Model and Random Effect Model for ROA Model. In Hausman Specification test, Fixed Effect Model is preferred if the probability value is not greater than 0.05 and Random Effect Model otherwise.

Table 4.3: Results of Breusch and Pagan Lagrangian Multiplier Test

	EPS Model		ROA Model	
	Var	sd = sqrt(Var)	Var	sd = sqrt(Var)
eps	1266617	1125.441		
roa			0.0094978	0.0974565
e	306570.1	553.6877	0.0031521	0.056144
u	301361.4	548.964	0.0080787	0.0898817
chibar2(01)		86.70		70.41
Prob > chibar2		0.0000		0.0000

Source: Researchers' Computations, 2022**Table 4.4: Result of Hausman Specification of EPS Model (Coefficients)**

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
bs	923.1599	1208.034	-284.874	1188.04
bn	-1223.673	-1751.777	528.1039	1374.51
Fs	263.2681	429.2147	-165.9466	246.5719
rm	235.4978	312.8232	-77.32537	41.87022
bs*rm	-104.4039	-186.1945	81.79066	54.95792
bn*rm	13.80772	38.71411	-24.90638	48.24293
chi2(6)	14.53			
Prob>chi2	0.0242			

Source: Researchers' Computations, 2022**Table 4.5: Result of Hausman Specification of ROA Model (Coefficients)**

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
bs	0.3274002	.4512883	-.1238882	.0956121
bn	-0.9445002	-.9208224	-.0236778	.1077517
fs	-0.1023247	-.0500811	-.0522436	.0198748
rm	0.0379817	.0445047	-.0065229	.0031527
bs*rm	-0.0259038	-.0336939	.00779	.0041425
bn*rm	0.0599828	.0558801	.0041027	.0036342
chi2(6)	8.89			
Prob>chi2	0.1797			

Source: Researchers' Computations, 2022

The study presents the results of test of hypotheses in Table 4.6. Table 4.6 shows that the test of hypotheses was based on 81 firm-year observations. The probability

values of the F statistic and Wald chi-square suggests that the Models have good fit. While the variables in the Models explained 19.95% variations in EPS, they explained 7% variations in ROA. The study reports the results of test of hypotheses using robust standard error to mitigate issue of heteroskedasticity. The decision criterion for acceptance or rejection of formulated hypotheses was based on probability value (p-value). A null hypothesis would be rejected the null if the p-value of the test statistics (t) is less than or equal 0.05 and vice versa.

Table 4.6 shows board size has a positive coefficient in EPS Model ($\delta_1 = 923.16$) and a p-value of test statistics of 0.179. Since the p-value is greater than 0.05, H_{o1} is accepted. On the other hand, board size has a positive coefficient in ROA Model ($\Psi_1 = 0.4512$) and a p-value of test statistics of 0.024. Based on the p-value, H_{o2} is rejected. In EPS Model, the coefficient on board independence (BN) is negative ($\delta_2 = -1223.67$) with p-value of test statistics of 0.043. In line with the decision criterion, H_{o3} is rejected. The coefficient of board independence in ROA is also negative ($\Psi_2 = -0.9208$) and the p-value of test statistics is 0.008. H_{o4} is rejected. The interaction terms, $bs*rm$, and $bn*rm$, measures the moderating effect of board size and board independence on financial performance respectively. In EPS model, the coefficient of $bs*rm$ is negative ($\delta_5 = -104.40$) with a p-value of test statistics of 0.228. Using p-value, H_{o5} is accepted. In respect of ROA, the coefficient of $bs*rm$ is negative ($\Psi_5 = -0.0337$) with a p-value of test statistics of 0.006. Consequently, H_{o6} is rejected. The coefficient of $bn*rm$ with respect to EPS is positive ($\delta_6 = 13.81$) with a p-value of test statistics of 0.863. Guided by the p-value, H_{o7} is accepted. In the ROA Model, the coefficient of $bs*rm$ is positive ($\Psi_6 = 0.0559$ with a p-value of 0.013. Dictated by the p-value, H_{o8} is rejected.

Table 4.6: Regression Results

	EPS				ROA			
	Coef.	Robust Std. Err.	t	p-value	Coef.	Robust Std. Err.	t	p-value
bs	923.16	626.433	1.47	0.179	0.4512	0.2002	2.25	0.024
bn	-1223.67	508.85	-2.40	0.043	-0.9208	0.3471	-2.65	0.008
fs	263.268	285.62	0.92	0.384	-0.0500	0.0252	-1.99	0.047
rm	235.50	327.82	0.72	0.493	0.0445	0.0294	1.52	0.130
bs*rm	-104.40	79.97	-1.31	0.228	-0.0337	0.0123	-2.75	0.006
bn*rm	13.81	77.74	0.18	0.863	0.0559	0.0226	2.47	0.013
cons	-5523.61	7428.77	-0.74	0.478	0.5232	0.4884	1.07	0.284
Model Summary								
Number of obs			81				81	
Number of groups			9				9	
Obs per group: min			9				9	
Obs per group: avg			9				9	
Obs per group: max			9				9	
F(6, 8)			11.46					
Prob > F			0.0015					
Wald chi2(6)							30.66	
Prob > chi2							0.0000	
R-sq: within			0.0427				0.2703	
R-sq: between			0.2427				0.0301	
R-sq: overall			0.1995				0.0717	

Source: Researchers' Computations, 2022

Discussion of Findings

The study found that board size has insignificant positive effects on earnings per share. It shows that an increase of board size by one director is accompanied with an increase in EPS by 923 kobo, all else held constant. This seems to corroborate the prediction of Agency Theory that large board size allows for wider viewpoints in board decision-making process. However, the relationship is insignificant. The lack of significance could be due to difficulty in coordinating decision-making process and free riding problem (Yermack, 1996). The study showed that board size has a positive and significant relationship with returns on assets. In specific terms, as board size increases by one director, return on assets increases by 45%, holding other variables constant. The finding corroborates the evidence of Kieviet (2018), Muchemwa *et al.* (2016), and Okolie and Uwejeyan (2022) but contradicts Dzingai

and Fakoya (2017), Eyenubo, (2013), Marashdeh *et al.* (2021), and Nath *et al.* (2015). It was documented that board independence has a significant and negative relationship with both EPS and ROA. An increase in the proportion of non-executives is associated with a decrease in earnings per share by 1223 kobo, *ceteris paribus*. Also, as board independence increases by 1%, return on assets declines by 92%. The findings negate prediction of Agency Theory that a higher proportion of non-executives would lead to effective monitoring which in turn would result in enhanced financial performance. The findings are in contrast with Ahmadi *et al.* (2018), EL-Maude *et al.* (2018), Okolie and Uwejeyan (2022) but corroborates Al-said (2021) and Marashdeh *et al.* (2021).

The negative relationship could be because some of the non-executives were not truly independent. Social ties could vitiate effective monitoring and advisory roles of the board. The study found that board remuneration has an insignificant moderating effect on the relationship between board size and earnings per share as well as between board independence and earnings per share. The findings deviate from Ahmed *et al.* (2020). On the other hand, it was shown that board remuneration strengthened the board size-return on asset relationship. This does not affirm the finding of Ahmed *et al.* (2020). It was also shown that board remuneration improved the board independence-return on asset relationship, thereby lending support to Ahmed *et al.* (2020). This demonstrates that board remuneration is a valuable corporate governance tool for enhancing performance as predicted by Agency Theory. The insignificant moderating effect of board remuneration could be due the design of remuneration structure and manner of implementation.

5. Conclusions and Recommendations

From the findings, it can be concluded that firms with a larger board size, especially in the manufacturing sector, are likely to perform better than those who smaller board sizes due to a richer blend of ideas and expertise. Thirdly, proportion of non-executive directors has a significant negative effect on both earnings per share and return on assets, implying that as the proportion of non-executive directors increases, manufacturing firms are likely to experience a significant fall in financial performance. Board remuneration enhances the positive effect of board size as well as board independence on financial performance metrics – EPS and ROA. However, it was uncovered that board remuneration has insignificant moderating effect on the

relationship between board size and EPS on one hand and board independence and ROA on the other hand.

From the findings and conclusion the study recommends that consumer goods manufacturing companies should embrace larger board size. It is also recommended that consumer goods manufacturing companies should increase board independence by electing truly independent directors with industry expertise. In addition, it boards should institute board remunerations that reflect performance so as reinforce positive relationship between board structure and financial performance.

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