

# Studying the Influence of Board Size on the Financial Performance of Selected Manufacturing Firms in Nigeria

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## Abstract

This study examined the effect of board size on financial performance (proxied by both economic value added (EVA) and return on assets (ROA) of the manufacturing sector in Nigeria using publicly listed firms. The study investigated the extent and nature of the relationship between board size and profitability of publicly listed manufacturing firms; and nature and extent of the relationship between board size and firm size of same firms. The study adopts quantitative panel methodology in analyzing secondary (panel) data collected and collated from the audited financial statements of 46 quoted manufacturing firms drawn from 95 subsectors of (NSE) for the twelve year period (2003-2014). It revealed that manufacturing firms with smaller board size are more viable than those with larger board size. It also reported that firms within the sector with larger boards recorded lesser profits in contrast. The implication of the findings can be deduced from the problem associated with free rider syndrome characteristic of chief executive officer dualizing as managing director for firms in Nigeria. Further, stricter regulating of corporate institutions is imperative because of the significant role that these institutions play in the stock markets and negative repercussions that are experienced when their risk-taking is not properly regulated. The study, recommends, among others, that firms seeking some improvement in their performance should constitute smaller sized boards of directors composed of few independent directors. Moreover, there may be a need to revisit regulation with respect to constituting board size which would balance the interest of executives and shareholders.

**Key words:** Board size, Financial Performance, Quoted Manufacturing Firms

## 1. Introduction

### 1.1 Background of the Study

In today's global manufacturing environment characterized by increased competition, the efficacy of corporate governance in protecting shareholder' and other stakeholders' interests has been brought to the forefront due to the demise of such giants as Enron, WorldCom, and 820 manufacturing firms between 2000 and 2008 (African Vanguard, 2009; Kwode, 2015). Board structures, a determining factor in establishing good corporate governance is made up of such variables as board size, board composition, and board independence in relation to firm performance. Board size, in particular, has been variously described as regards each country's legislation (company law). According to Adusei (2011), it connotes a board's capacity for monitoring increases as more directors are added. Several authors before him Klein (2002), Andres and Vallelado (2008) and Belkhir (2009) opined that board size and firm performance have direct relationship. However, such opponents of incremental board size of directors argued that it culminates in poorer communication and decision making, a characteristic feature of larger groups (Fama and Jensen, 1983; Lipton and Lorsch, 1992; Yermack, 1996; Uwuigbe and Fakile, 2012; and Manaseer, Al-Hindawi, Al-Daluyat and Sartawi, 2012). On the other hand, Topak (2011) found no relationship between board size and firm performance in their respective studies.

Firm performance which shows if the resources of a firm are used effectively, efficiently and economically to fulfill the goals of the firm (Daft, 1997) is crucial in evaluating the overall success of the firm (Parker, 2000). For performance evaluation, firms employ both financial and non financial performance criteria. Measures such as Return on Assets (ROA), Return on Equity (ROE) and Earnings Per Share (EPS) are financial performance measures that are most frequently used. Stern, Shiely and Ross (2004) opined that Return on Assets and Return on Equity are better indicators of corporate performance because they include the statement of financial position and statement of comprehensive income. Contrastingly, Ehrbar (1998) argued that earnings, earnings per share and earnings growth are misleading measures of firm performance.

### 1.2 Statement of the Problem

A significant problem on how board size exerts influence on firm performance is that it cannot be isolated from such other factors including board structure and composition, frequency of board meetings and CEO duality. That is, these other factors and board size are jointly determined unobservable firm specific variables. There are also simultaneous endogeneity (board size being determined simultaneously with firm performance / increased profitability in any given period) and dynamic endogeneity/size being determined by past performance). The potential problems of large boards will depend on the specific functions and effectiveness of boards likely to differ according to institutional framework, legal and operating environment.

There are several reasons why the board of directors monitoring function will be carried out less effectively. For instance, outside directors are rarely held legally accountable for failing to fulfill their legal duty of care and loyalty. Consequently, they regard their role as being fundamentally that of advising rather than monitoring. It is most likely that these boards are made up of a lower proportion of outside directors who are often less independent from management. This can emanate from the fact that financial incentives via shareholding and outright remuneration for outside (independent) directors to fulfill their obligations are in most instances, much smaller than that of executive directors.

Most corporate failures including banks in Nigeria and beyond are largely as a consequence of Chief Executive Officers (CEOs) possessing unregulated/ undiluted power as they act as both CEO and Chairman of board of directors. A significant percentage of experts suggest that the benefits of separating the chairman and CEO roles are not clear cut (proponents of stewardship and administrative theories). They further stressed that having clear and unambiguous authority concentrated in one person is vital to effective management. Nonetheless, these divergent views among experts have necessitated a study in our native environment with its inherent and peculiar features (industry and firm specifics).

### *1.3 Objectives of the Study*

The main objective of this study is to assess the effect of board size on financial performance of selected manufacturing companies in Nigeria. Specifically, it will assess:

- The nature and extent of the relationship between board size and profitability of publicly listed manufacturing firms; and
- The nature and extent of the relationship between board size and firm size using publicly listed manufacturing firms.

## **2. Literature Review**

### *2.1 Conceptual Review*

Board of directors primarily focuses on utilizing an organization's strengths and available opportunities to attain an ever increasing market value of the company. The two most important functions of the board of directors are those of advising and monitoring. While the advising function involves the provision of expert advice to the CEO and access to critical information and resources; monitoring involves discipline and removal of ineffective management teams (Adenikinju and Ayorinde, 2001; Raheja, 2005; and Adams and Ferreira, 2007). They must be strong enough to exert influence on the managers. Thus, the largely shared view regarding the ideal board size is that the higher the number of directors sitting on the board, the lower their pooled performance and firm performance (Jensen, 1993, Lipton and Lorsh, 1992; Belkhir, 2009). It emanates from the fact that boards with too many members lead to problems of coordination, control, and flexibility in decision making (Topak, 2011).

The optimal board size reflects good corporate governance practice. That is, company boards of directors should play a central role in the corporate governance of companies through obeisance to adequate corporate governance laws and regulations existing in Nigeria (Osugwu, 2013). Examples include the regulations enacted by the Corporate Affairs Commission (CAC), the Companies and Allied Matters Act (CAMA) of 2004 as amended, the Prudential Guidelines, the International Financial Reporting Standards (IFRS) and Financial Reporting Standards (FRS), the pronouncements by manufacturers association of Nigeria (MAN), Lagos Chamber of Commerce and Industry (LCCI), the Economic and Financial Crimes Commission (EFCC), Money Laundering Act of 2004 and Code of Conduct Bureau (CCB).

### *2.2 Empirical Review*

Cheema and Mohammadu (2013) examined the influence of corporate governance on financial performance of listed cement companies in Pakistan. The study tried to ascertain the nature of the relationship between three independent variables (board size, CEO duality and family controlled firms) and the dependent variable proxied

by return on equity, return on assets, and earnings per share. Significant positive relationship exists between the variables of interest. Topak (2011) investigated the relationship between board size and firm performance in Turkey, an Eastern European country. The study made use of panel data techniques to statistically ascertain the relationship between board size and firm performance via a sample of 122 firms from a variety of industries. Using Tobin's Q to represent dependent variable against board size, he concurs that there exists no significant relation between the board size and firm performance. It could be because most Turkish firms are family owned emanating from weak protective laws for investors.

Olayinka (2010) explored the relationship between board structure and financial performance of companies listed on the Nigerian Stock Exchange (NSE) for the single period 2008. The independent variables (board composition, board ownership, board size and chief executive officer dual function) acted as proxies for board structure while the dependent variable, financial performance is proxied by return on equity (ROE). The study employed the ordinary least square regression technique to estimate the relationship between the variables. It was deduced that board structure exerts a very significant positive influence on financial performance. Further, the influence of both CEO dualized function and directors' stockholding on the regressand, ROE is negative. Onyerogba, Memba and Riro (2016) tried to fathom the relationship between the dependent variables (board size and characteristics of the firm) and profitability of publicly listed companies in Nigeria. The study employed descriptive survey design via the questionnaire. The study population consists of 196 listed firms for the 10 year period (2004 to 2013). The findings include R-squared at 87% for the model summary and the existence of a positive relationship between board size and profitability of the sampled firms. In addition, profitability is increased in absolute terms with the size of the firm. Nuhu (2014) studied the relationship between board composition and firm profitability using the content analytical approach and concurred that the role of the board is most essential in planning and monitoring operations of the firm.

Uwuigbe and Fakile (2012) studied the impact of board size of Nigerian banks directors on the firm's performance of listed twenty-one deposit money banks as at 2011. The study showed the existence of an inverse relationship between the two variables. It also noted that board size below the Company Acts designated six has no impact on performance of the banks. The study adopted both content analytical and panel study techniques in analyzing the relationship between the variables. Using simple regression method, they found out that banks with board size below 13 are more viable than those with board size above 13. Further, the study depicted that, banks with larger boards recorded lower profits in comparison. It concurred that there is a significant negative relationship between board size and bank financial performance with a t-value of -1.977 and a p-value of 0.053 in accordance with the agency theory as the large board members being agents tend to look after their personal / individual interests. Adusei (2011) conducted his study on the effect of board structure on bank performance in Ghana. He used panel method in both data collation and collection of 17 banks. Keeping bank age, size, funds, ownership structure and listing status constant, he discovered that as the size of a bank's board of directors increases, its profitability diminishes. Also, board independence (proportion of non-executive directors) is negatively correlated with the bank's profitability albeit statistically insignificant. This is in agreement with prior works of Chaganti, Mahajan and Sharma (1985); Daily and Dalton (1992), (1993); Kesner (1987); and Zahra and Stanton (1988). In other words, Adusei's conclusion is in accord with extant literature. He suggested that banks seeking efficiency and effectiveness in their utilization of resources should make do with small-sized board of directors made up of few independent directors.

Manaseer, Al-Hindawi, Ai-Dahiyat and Sartawi (2012) investigated the impact of Board Size, Board Composition, Chief Executive Officer (CEO) status and Foreign Ownership on Jordanian banks performance. They adopted pooled data and Ordinary Least Square (OLS) estimation technique to ascertain the relationship between corporate governance and the performance of 15 banks quoted on the Asian Stock Exchange. They found the existence of a positive relationship between the number of outside/independent directors/board members and foreign ownership and banks' performance. Conversely, board size and the separation of the role of CEO and chairman have a negative relationship with banks' performance. The determinants of the dependent variable include return on equity, return on assets, profit margin and earnings per share. They surprisingly, aver that banks benefit from large size in offering services more than granting loans. They highlight the need for bank regulation in the area of corporate governance that would balance the interests of relevant groups: executives, board of directors and shareholders. Conversely, Okpanachi, Samuel and Suleiman (2013) and Mansur and Ahmad (2013) observed an insignificant relationship between corporate governance, corporate structure and financial performance of post consolidated deposit money banks in Nigeria.

Some of the studied reviewed above surmised that board size has a negative relationship to firms' financial performance. Though they adopted different statistical techniques, they arrived at similar conclusions with slight variations as to significance level. Further, their studies are in alignment with previous researches of agency theory proponents. However, a few employed and tried to control proxies, constants, dummy variables which may not accurately capture the actual outcomes experienced by firms in the market place. However, studies carried out by Belkhir (2006), Topak (2011) Adams and Mehran (2009) are inclusive as there are no significant relationship between the board size and financial performance of firms studied. They explained that banks may have special governance features that need to be taken into account unlike manufacturing and other firms.

### *2.3 Theoretical Framework*

This study is anchored on the Agency theory. Agency relationships occur when one partner in a transaction (the principal) delegates authority to another (the agent) resulting in the welfare of the principal being affected by the choices of a 'selfish' agent. In other words, the theory focuses on the relationship between managers and owners of the firm that often result in goal divergences. The Agency theory assumes the existence of bounded rationality, opportunism and information asymmetry (agents / manager withholding information). The proponents of the theory opined that the delegation of the power to make business decisions by the manager on behalf of the business owners is problematic as the interest of the stakeholders (shareholders, bondholders, etc) and the manager(s) will diverge; the stakeholders can neither perfectly and costlessly monitor the actions of the manager(s) nor monitor and acquire the information available to or possessed by the managers (Jensen and Meckling, 1976; Brennan, 1995). Thus, there exists the possibility of opportunistic behavior on the part of the manager(s) that works against the interests of the stakeholders (i.e. agency problem). Further, agency costs (cost incurred to protect the stakeholders' interests and to reduce the possibility of the managers misbehaving) include monitoring costs, bonding costs and residual loss of the stakeholders. It is either more of the manager's actions are hidden from the principal or are costly to observe. Also, the manager(s) possess information that is too costly or unobservable, for the stakeholders to obtain.

Naturally, as firms grow, managers become risk averse as they would like to protect their position and maximize chance(s) of success by embarking in already tested projects and is likely to boost their chances of control (Demirdag and Serter, 2003). Agency conflicts have many facets. These conflicts arise as a consequence of moral hazards (Shleifer and Vishn, 1996) which are more prominent in larger companies (Jensen, 1993). Conflicts also arise via earnings retention in that studies of compensation structure have generally found that directors' remuneration is an increasing function of company size providing managers with a direct incentive to focus on size growth, rather than on growth of shareholders' returns. Conflict of interest is likely to arise between shareholders and managers as regards the timing of cash flows. While shareholders will be concerned with all future cash flows into the indefinite future, managers (especially ones nearing retirement) may only be concerned with company cash flows for their term of employment leading to short term accounting returns projects favored at the expense of long-term positive Net Present Value (NPV) projects (Dechow and Sloan, 1991; Fenn and Liang, 2000). The relevance of this theory to the study is such that accurate knowledge of the behavior(s) or likely activities of managers / directors should facilitate the selection of the right executive and non-executive directors making up the company board. It is aimed at achieving goal congruency.

Such essential sources of agency problems as moral hazard, adverse selection and risk aversion are somewhat minimized / resolved through monitoring (observing the behavior and performance of managers), bonding (arrangements that reward and penalize the managers' actions, inactions and mistakes) in pursuance of the shareholders' goals / objectives. Delegation became necessary as the size and complexity of operations expand beyond the scope of the owner(s) and the later being overwhelmed by the increasing decision making situation. Since business owners seek maximum effort from managers at minimal cost while employees and managers seek to minimize effort and maximize remuneration (goal divergence), shareholders, to minimize agency cost, do specify the activities workers should engage in (e.g. board of directors monitoring top management activities). Further, they can monitor consequences of managers' behavior through outcome based contracts in the form of rewards, commissions, compensation, etc. The outside board members also provide objectivity as the whole board ratifies and monitors the decisions of managers. As regards bonding, managers must be induced both to engage in the contract and to invest in those areas which benefit the shareholders. The relevance of the theory to the study as against stewardship theory is gleaned from the fact that managers are individuals with individualized goals and ultimately they strive toward the achievement of these 'selfish' goals. The bonding and monitoring would help greatly in resolving these divergences.

### **3. Methodology**

The study adopted quantitative panel methodology in analyzing secondary (panel) data collected and collated from the audited financial statements of 46 quoted manufacturing firms drawn from 95 subsectors of NSE for the twelve year period (2003-2014). The study also adopted the pair wise Pearson's Product Correlation Matrices to test the data collected in alignment to the stated objectives: assessing the nature and extent of the relationship between board size and profitability of publicly listed manufacturing firms; and the nature and extent of the relationship between board size and firm size using publicly listed manufacturing firms. To ascertain and analyze the impact of board size on the profitability of firms in the manufacturing sector of the economy from 2003 to 2012, the model to be used is based on the following function(s).

$$\text{Financial Performance (FP)} = f(\text{Board Size}) \quad (1)$$

$$FP_{it} = \beta_0 + \beta_1 BS_{it} + \beta_j \ln TA_{jt} + \varepsilon_{it} \quad (2)$$

Where  $FP_{it}$  = Profitability of firm  $i$  at time  $t$ ,  $i = 1, 2, \dots, n$ .  $t = 1, 2, \dots, 12$ .

$\beta_0$  = Intercept  $\beta_i$  = Coefficients of  $BS_{it}$  (Board Size)

$\beta_j$  = Coefficients of  $\ln TA_{jt}$  (Natural Logarithm of Total Assets)

$FP_{it}$  is represented by both mean economic value added (EVA) and mean return on assets of the sampled firms. According to Jackling and Johl (2009), board size is measured using the natural logarithm of total number of members of the board of directors denoted as (BS). This is easily extracted from the audited annual report of the firms. Anderson et al (2003) stated that the size of a firm is calculated as the natural logarithm of the total assets. Size of the firm proxied by total assets is also used in deflating both EVA and ROA. Equation (2) then becomes

$$EVA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_j \ln TA_{jt} + \varepsilon_{it} \quad (3)$$

$$ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_j \ln TA_{jt} + \varepsilon_{it} \quad (4)$$

#### 4.0 Results

Table 4.1 Mean Variables of the Study in Decimals

YRS	EVA	ROA	LOG (BS)	LnTA
2003	0.97505	0.29728	0.99944	15.81565
2004	0.49169	0.25645	1.00813	16.44329
2005	0.38505	0.16380	0.98082	16.86181
2006	0.39021	-0.20387	1.01376	16.78669
2007	0.53444	-0.25046	1.02514	16.59059
2008	0.14102	0.20371	1.02789	16.57498
2009	-0.02064	0.23308	1.03362	16.62864
2010	-0.05121	0.07541	1.07598	16.74474
2011	0.20966	0.21895	1.08271	16.90962
2012	0.19990	0.17673	1.09871	16.88133
2013	0.17853	0.19225	1.10452	16.79254
2014	0.15722	0.22576	1.11039	16.48834

Source: Computed from the Processed Data of the Sampled Firms

As seen from table 4.1 above, Economic Value Added (EVA), one of the proxies for financial performance in the study, is captured as the difference between net earnings excluding both internal and external taxes and net assets i.e. the net value added (difference, of course, is deflated by total assets) by the firms in the accounting period. The mean values depict negative values in 2009 at -2% and 2010 at -5%. It was 98% in 2003, dropped to 49% in 2004 at a rate of 50%, to 39% in 2005 at the rate of 20.4%, rose to 53.4% in 2007 and dropped sharply to 14% as at 2008. The highest mean yield occurred in 2003 as shown above, followed by 53.4% in 2007. Return on Assets (ROA), another proxy for financial performance of firms is captured as the sum of profit after tax and interest earnings net of tax divided by net assets. The mean value for the ROA of the sector was at its lowest ebb in 2007 at -25%. It stood at 30% in 2003 and 26% in 2004 at a deceleration rate of 13%. 2007, the GFC period yielded the lowest mean return, negative as depicted above. It seems the industry blossomed after the GFC as ROA geometrically grew to 20.4% in 2008 and crawled for the rest of the study period reaching 23% in 2014. However, note that it decelerated from 23.3% in 2009 to 7.54% in 2010 at a rate of 67.4%.

Table 4.2 below shows that the average EVA is 29.9% of total assets while mean ROA stood at 13.2% of same total assets. Table 4.3 depicts the level of correlation between the variables studied. In particular, there is a very significant association between EVA, the dependent variable and the predictor variables LOGBS and LnTA (i.e. Board Size and Firm Size) as shown by their probabilities at 0.049 and 0.017 respectively given that  $\alpha = 0.05$ . Similarly, tables 4.4 and 4.5 show the results of the regression analyses. There exists a significant negative relationship between the predictors (LOG (BS) and LnTA) and the regressand (EVA) in the equation (3) but an

insignificant relationship between the same predictors and ROA in equation (4). In equation (3) the P-values are respectively 0.021 and 0.007 both less than  $\alpha = 0.05$  and negative coefficients of -2.331 and -0.526.

Table 4.2 Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EVA	498	0.299243	0.280830	-0.05121	0.97505
ROA	498	0.132424	0.176698	-0.25046	0.29728
LOG (BS)	498	1.046759	0.045121	0.98082	1.11039
LnTA	498	16.64318	0.319139	15.81565	17.08133

Table 4.3 Pairwise Correlation

	EVA	ROA	LOGBS	LnTA
EVA	1.0000			
ROA	-0.0711	1.0000		
	0.8262			
LOGBS	-0.5783	0.1732	1.0000	
	0.0489*	0.5904		
LnTA	-0.6713	-0.2541	0.4067	1.0000
	0.0168*	0.4254	0.1895	

\*Correlation is significant at the 0.05 level (2-tailed).

Table 4.4 Regression Analysis for Equation (3)

						Number of Obs = 498
		(10, 487)	=	5.27		
		Prob > F	=	0.0028		
		R-squared	=	0.9055		
		Root MSE	=	0.4952		

EVA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
LOG (BS)	-2.331	0.834	-2.79	0.021	-4.218198 -0.4434027
LNTA	-0.526	0.150	-3.50	0.007	-0.865812 -0.1854512
_CONS	11.478	2.626	4.37	0.002	5.537418 17.4194936

Table 4.5 Regression Analysis for Equation (4)

						Number of Obs = 498
		F (10, 487)	=	7.82		
		Prob > F	=	0.0927		
		R-squared	=	0.4910		
		Root MSE	=	0.257		

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
LOG (BS)	1.254	1.155	1.09	0.306	-1.35934 3.867208
LNTA	-0.239	0.132	-1.81	0.104	-0.53711 0.059877
_CONS	2.787	1.413	1.97	0.080	-0.40903 5.983485

## 5. Conclusion

The study empirically examined the effect of board size on financial performance of manufacturing firms in Nigeria. There is evidence that small board size increases performance of these firms in Nigeria which is consistent with the existing literatures. Increase in board size occurs with increase in agency problems (such as director' free-riding) within the board and the board becomes less effective. The study depicted that there is significant negative relationship between board size and financial performance of manufacturing firms in Nigeria. Firms seeking some improvement in their performance should constitute small sized boards of directors composed of few non-executive / independent directors. Secondly, there may be a need for industrial wide regulation in the area of constituting board size which would balance the interests of executives and shareholders. As a sequel, there should be reduction of the board size in other to reduce the problem of free-rider syndrome of directors in Nigeria.

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**List of Quoted Manufacturing Firms adopted in the Study**

<b>Sector (Broad)</b>	<b>Companies</b>
Agriculture	Okomu Oil Palm Plc. Presco Plc Livestock Feeds Plc.
Construction / Real Estate	Costain (W A) Plc.
Consumer Goods	DN Tyre & Rubber Plc 7-Up Bottling Company Plc Champion Breweries Plc Guinness Nigeria Plc Consolidated Breweries Plc Nigerian Breweries Plc Dangote Sugar Refineries Plc Dangote Flour Mills Plc Flour Mills of Nigeria Plc Cadbury Nigeria Plc Nestle Nigeria Plc

	Beta Glass Plc Vitafoam Nigeria Plc
Conglomerates	A.G. Leventis Nigeria Plc. UTC Nigeria Plc UAC Nigeria Plc PZ Cussons Nigeria Plc Unilever Nigeria Plc
Healthcare	Nigerian-German Chemicals Plc. Evans Medical Plc. Glaxo Smithkline Consumer Nig May & Baker Nigeria Plc. Neimeth International Pharmaceuticals Plc
Industrial Goods	Ashakacem Plc Berger Paints Nigeria Plc CAP Plc Cement Company of Northern Nig. Plc IPWA Plc Lafarge Wapco Nig. Plc. Avon Crown caps & Containers Nig. Plc
Natural Resources	Thomas Wyatt Nig. Plc.
Oil & Gas	Forte (African Petroleum) Plc. MRS Oil Nigeria Plc. Conoil Plc Eterna Oil & Gas Plc. Total Nigeria Plc. Oando Plc
Services	R T Briscoe Plc. Studio Press (Nig) Plc. Academy Press Plc. Longman (Learn Africa) Nigeria Plc University Press Plc.