

## Board Structure and Financial Performance of Manufacturing Companies in Nigeria

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**ABSTRACT:** *This study examines the impact of board structure on corporate financial performance in Nigeria. It investigates the Diversity of boards of directors in Nigerian firms and analyses whether board structure has an impact on financial performance, as measured by return on equity (ROE) and return on capital employed (ROCE). Based on the extensive literature, four board characteristics (board Diversity, board size, board ownership and CEO duality) have been identified as possibly having an impact on corporate financial performance and these characteristics are set as the independent variables. The Ordinary Least Squares (OLS) regression was used to estimate the relationship between corporate performance measures and the independent variables. Findings from the study show that there is strong positive association between board size and corporate financial performance. Evidence also exists that there is a positive association between outside directors sitting on the board and corporate financial performance. However, a negative association was observed between directors' stockholding and firm financial performance measures. In addition, the study reveals a negative association between ROE and CEO duality, while a strong positive association was observed between ROCE and CEO duality. The study suggests that large board size should be encouraged and the Diversity of outside directors as members of the board should be sustained and improved upon to enhance corporate financial performance.*

**KEY WORDS:** board composition, structure, tax compliance, Nigeria

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### INTRODUCTION

The subject of board characteristics has spurred research interests with respect to principal-agent relationship in recent times. Issues of board characteristics and corporate performance have also received serious concern recently. This concern arises mainly out of the threat occasioned by the unending enthusiasm on governance issues like high profile corporate

demise, financial scandals and the global financial meltdown resulting in general loss of public confidence and investors apathy. As a result, the public concern for the relationship between corporate organizations and its performance has led to the emergence of corporate governance (Bairathi, 2009). Corporate governance is dynamic and appears broader than the conventional management practices. It is concerned with the transparency in business dealings, probity and accountability, ethical conduct, fairness and strict compliance with both regulatory and ethical standards. Against this backdrop, one fundamental question becomes pertinent: do board characteristics affect the performance of the organization? Board Characteristics is an organizational content, totality of control, monitoring and directing mechanism utilized by strategic management in the best interest of its stakeholders.

Corporate Performance is a composite assessment of how well an organization executes its most important parameters, typically financial, market and shareholder performance. However, in order to gain back the confidence, Security and Exchange Commission came up with the code of Best Practice. It provides guidelines on the principles of corporate governance in Nigeria. Therefore, a good system of corporate governance is considered as an important element in running the affairs of the company for the best interest of the shareholders. It assists in controlling the performance of the board in business operations.

The board of directors have a part to play in listed companies as their main duty is that of supervising the management to ensure proper accountability to shareholders and other stakeholders. The central role of board of directors in this process has, therefore, been recognized and in recent years has gained significant attraction. One key element of corporate governance is the role of board of directors in overseeing management. Management oversight is needed because managers have their own preferences and may not always act on behalf of the shareholders (Jensen, Meckling, 2006).

In a dynamic environment, boards become very important for smooth functioning of organizations. Boards are expected to perform different functions, for example, monitoring of management to mitigate agency costs (Eisenhardt, 1989; Shleifer & Vishny, 2007; Roberts, McNulty & Stiles, 2005), hiring and firing of management (Hermalin & Weisbach, 1998), provide and give access to resources (Hillman, Canella & Paetzold, 2000; Hendry & Kiel, 2004), and grooming CEO (Vancil, 1987) and providing strategic direction for the firm (Tricker, 1984; Vander Walt & Ingley, 2001, Kemp, 2006).

In addition, boards also have responsibility to initiate organizational mission (Hill, Green & Eckel, 2001; Bart & Bontis, 2003). Further, the boards seek to protect the shareholder's interest in an increasingly competitive environment while maintaining managerial professionalism and accountability in pursuit of good firm performance (Ingley & Van der Walt, 2001; Hillman & Dalziel, 2003; Hendry & Kiel, 2004; McIntyre, Murphy & Mitchell, 2007).

In addition, companies all over the world have started seeking ways of maintaining their governance systems in ensuring corporate performance (Pergola and Joseph, 2011). This has, therefore, increased studies on board characteristics by companies. Nevertheless, differences

in corporate performance have been looked at in relation to board's characteristics (like board independence, board equity, board education, gender diversity) in Nigeria (Zureigat, Fadzil and Ismail, 2014), while few studies have investigated the characteristics of corporate performance in Nigeria despite increasing emphasis on governance processes (Johl, Kaur, and Cooper 2015). Hence, this study is, therefore, driven by the desire for a convergence between board characteristics and corporate performance for better governance process.

To this end, many developed countries like Canada and the United States of America have been greatly concerned with regard to the board characteristics that determine corporate performance. For example, Forbes and Milliken (1999), Kula (2005) and Gabrielsson (2007) have covered aspects such as board Diversity, characteristics, and their impact on firm performance. However, in spite of Nigeria being one of the countries with the increasing level of industrialization and unethical business practices, not much has been done in the area of board characteristics and corporate performance (Sanda, Mukailu, and Garba 2005, Ehikioya (2009), Babatunde and Olaniran (2009), Kajola (2010), and Akhalumeh, Ohiokho, Ohiokho (2011) have studied corporate governance and corporate performance, but did not consider the elements of gender and educational qualification. Therefore, to improve the quality of corporate performance, this study basically looks at board characteristics and corporate performance of listed companies in Nigeria.

Boards of directors have been largely criticized for the decline in shareholders' wealth and corporate failure. They have been in the spotlight for the fraud cases that had resulted in the failure of major corporations, such as Enron, WorldCom and Global Crossing. In Nigeria, a series of widely publicized cases of accounting improprieties have been recorded in Wema Bank, NAMPAK, Finbank and Spring Bank (Joshua, 2019).

Some of the reasons stated for these corporate failures are the lack of vigilant oversight functions by the board of directors, the board relinquishing control to corporate managers who pursue their own self-interests and the board being remiss in its accountability to stakeholders. As a result, various corporate governance reforms have specifically emphasized on appropriate changes to be made to the board of directors in terms of its diversity, structure and ownership configuration.

Moreover, most empirical studies carried out in the developed and developing economies, including Nigeria on board structure and financial performance have produced inconsistent and mixed results. Hence, the results of most studies conducted are either reporting positive or sometimes negative results. In addition, there have been methodological weaknesses in terms of one medium of reporting short period of observation and limited sample size in most previous studies (Fisayo & John, 2018).

The main causes of poor and weak financial performance have to do with board structure (like board size, board diversity and board independence). Also, the need of stakeholders is low in terms of board structure and financial performance. Hence, there is a dearth of evidence of a significant relationship in Nigeria to explain the interaction between and among these variables.

Thus, a gap exists due to previous studies that have not exhaustively addressed board structure and financial performance of manufacturing companies in Nigeria (Abidin, Kamal & Jusoff, 2009).

## **LITERATURE REVIEW**

### **Conceptual Review**

#### **Board Size**

Board size is the number of board members in the company's organizational structure, of which many researchers already studied and the results are varied. Yermack (1996) found a negative relation between board size and firm performance, he uses Tobin's Q as a firm performance, and take a firm from Forbes in 1984-1991, then some researchers argue that more members into the board may result in worsening the performance of the company (Eisenberg, et al. 1998, and Jensen 1993). Then, Hermalin and Weisbach (1988) support with their argument, stating that smaller boards are more effective than larger boards due to agency problems arising from increasing board size. The larger boards face difficulties in expressing their views in limited time available during the board meetings (Yermack 1996, Jensen 1993).

#### **Board Diversity**

Board of Directors Diversity is the diversity of a company's board of directors. Coffey and Wang (1998) characterize the diversity of the board as an individual contrast of the board. Van der Walt and Ingley (2003) found that the assortment of board diversity arrangements ranged from women, ethnic and racial minorities (non-Anglo-Australian individuals) on the board. Heterogeneity was characterized (Wang and Cliff, 2009). Board diversity involves bringing together characters with different ethnic foundations, cultures, educational abilities, genders, abilities, and perspectives to lead to a huge number of important issues (Society for Corporate Governance in Nigeria, 2014).

#### **Board Independence**

Board independence is the proportion of non-executive directors (NED) to the number of directors. NEDs are not employees of the firm. They advise management on strategy and operations based on their professional experience. Some studies define board independence as the proportion of independent non-executive directors to the number of directors on the board. This study adopts the latter as the meaning of board independence. The presence of independent non-executive directors on the board serves as a mediator between the directors and management. Independent directors are engaged to supervise the activities of the executive directors and top management (Fuzi, Abdul Halim & Julizaerma, 2016). They ensure that the interest of the directors does not conflict with that of the owners (shareholders). In addition, they are expected not to have material interest in the company, because this might influence their independent stance. Berghe and Baelden (2005) examined the issue of independence as an important factor in ensuring board effectiveness through the monitoring and strategic roles of the directors. The ultimate factor for the board independence is by acquiring enough numbers

of the independent directors on board. They stated that the director's ability, willingness and board environment might lead to the independent attitude of each director.

### **Financial performance**

According to Armstrong (2006), performance is often defined simply in output terms- the Achievement of quantified objectives. Firm performance is a multidimensional construct that consists of four elements (Alamet *al.* 2011). Customer-focused performance, including customer satisfaction, and product or service performance; financial and market performance, including revenue, profits, market position, cash-to-cash cycle time, and earnings per share; human resource performance, including employee satisfaction; and organizational effectiveness, including time to market, level of innovation, and production and supply chain flexibility. Financial performance have been studied and measured by different researchers (Shah et al., 2011; Matolcsy & Wright, 2011; Yasser et al., 2011) using different measures. Matolcsy & Wright (2011) measured firm performance by ROA (Return on Assets= $\text{EBIT} / \text{Average total Assets} - \text{in book value} -$ ), ROE (Return on Equity= $\text{net profit} / \text{equity} - \text{in book value} -$ ), Change in market value of equity, Change in market value of equity, adjusted for dividends and risk). Yasser et al. (2011) used return on equity (ROE) and profit margin (PM) for the measurement of firm performance. Market based measures of companies' performance were done by Shah, et al. (2011) by Market value of equity divided by book value of equity and Tobin's Q (market value of equity + book value of debt/total of assets - in book value -), whereas financial reporting perspective was measured by ROE and Return on investment ( $\text{net result} + \text{interest} / (\text{equity} + \text{total debt})$ ). Bhagat & Black (1999) measured dependent variable firm performance by Tobin's Q, Return on assets (Operating income/Assets), Turnover ratio (Sales/Assets), Operating margin (Operating income/Sales), Sales per employee and also by Growth of Assets, Sales, Operating income, Employees and Cash flows. The study was focused on those measures that are strategically important for the success of the company. In that direction, the study would measure the financial performance of the companies by looking at profitability (Return on Assets, Return on Equity and Dividend Yield).

Return on Assets (ROA) refers to the amount of net income returned as a percentage of total assets. It can be decomposed as follows:  $\text{Return on Assets} = \text{EBIT} / \text{Average total Assets} - \text{in book value}$  while Return on Equity (ROE) refers to the amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Each insurance firm's ROE has been obtained for its annual reports. ROE is expressed as a percentage and calculated as:  $\text{Net Income} / \text{Shareholder's Equity} * 100$  Net income is for the full fiscal year, before any dividends are paid to common stockholders but after dividends are paid to preferred stock, Shareholder's equity does not include preferred shares.

### **Theoretical Underpin Review**

The following theories try to explain the relationship between board structure and corporate financial performance literature.

### **Agency Theory**

Agency theory is defined as the relationship between the principals, such as shareholders and agents such as the company executives and managers. In this theory, shareholders who are the owners or principals of the company, hires the agents to perform work. This theory was put forth by Mitnick (1975) and Ross (1974) in an attempt to explain the separation of ownership and control in corporations. It views the firm as an interrelated set of contracting relationship among individuals. The theory holds the assumption that both parties of the contract relationship will act to maximize their utility by using the information available to them. In the agency theory, there is a principle who hires an agent to perform a task that the principle is unable to do. In this case, the principle and the agent are the parties in the theory.

### **Upper Echelon Theory**

The Echelon theory was first put forth by Finkelstein and Hambrick (1996). The central premise of the theory is that top executives in organizations analyze the opportunities, threats, alternatives and likelihoods of various outcomes of their activities. These individualized construal of strategic situations arise because of executives' experiences, values, personalities and other human factors. Thus, according to the theory, organizations become reflections of their top executives. Proponents of the theory hypothesized that strategic choices cannot be separated from inherent demographic characteristics of decision makers. While most studies on corporate executives and corporate strategy have emphasized more on CEO and/or Top Management Teams (TMT), this study follows Finkelstein and Hambrick's (1996) suggestion that research needs to extend to board of directors because boards of directors have a significant influence in strategic decisions of the firm. Boards of directors provide advisory roles, and play a major role in reviewing, approving, and facilitating strategic decisions.

### **Resource Dependency Theory**

Resource dependency theory concentrates on the role of board directors in providing access to resources needed by the firm. Resource Dependency Theory (RDT) originated from Pfeffer (1981). The theory characterizes the link between organizations as a set of power relations based on exchange resources. It proposes that actors lacking essential resources will seek to establish relationships with others in attempts to obtain needed resources. Similarly, organizations attempt to alter their dependence relationships by minimizing their own dependence or by increasing the dependence of other organizations on them. Within this context, organizations reviewed as coalitions alerting their structure and patterns of behavior to acquire and maintain needed external resources (Pearce & Zahra 1992). Acquiring the external resources needed by an organization comes by decreasing the organization's dependence on others and/or by increasing other's dependency on it, that is, modifying an organization's power with other organizations. Resource dependency theory considers agents (management as well as the board) as a resource since they would provide social and business networks and influence the environment in favor of their firm (Johnson, et al., 1996; Carpenter & Westphal, 2001).

RDT is based on three assumptions. First is that Organizations are assumed to be comprised of internal and external coalitions which emerge from social exchanges that are formed to influence and control behavior, secondly, the environment is assumed to contain scarce and valued resources essential to organizational survival. As such, the environment poses the problem of organizations facing uncertainty in resource acquisition and thirdly, organizations are assumed to work toward two related objectives: acquiring control over resources that minimize their dependence on other organizations and control over resources that maximize the dependence of other organizations on themselves. Attaining either objective is thought to affect the exchange between organizations, thereby affecting an organization's power. The basic implication of this theory on corporate governance is that boards of directors are an important mechanism for absorbing critical elements of environmental uncertainty into the firm. Environmental linkages could reduce transaction costs associated with environmental interdependency. The organization's need to require resources leads to the development of exchange relationships between organizations. Hence, appointing directors that have influence and expertise is seen as an important strategy for survival because of their knowledge and prestige in their professions and communities, firms are able to extract useful resources.

The standings of Modigliani and Miller (1958), which serves as one of the supreme and vital advancement in financial economics examining capital. The trade-off theory model is traceable to the debate over the M and M's theorem. In line with M&M, an advantage for debt is perceived that it protects earnings from taxes (Getahun, 2016). Trade-off theory posits that the optimal capital structure is the trade-off between the benefits (the interest tax shields) and costs of debt (the financial distress and agency costs) (Getahun, 2016; Brigham, Foster and Houston, 2004). Distinct to the trade-off theory, the pecking order theory doesn't adopt an optimal level of capital structure. It posits that establishments rank their source of financing; from internal to equity financing. Agreeing to the principle of the least resistance, choosing to raise equity as a financing means is of last alternative.

Pecking Order Theory, also acknowledged as Asymmetric Information Theory is established on least resistance principle, and a renowned theory advocated by Myers and Majluf (1984). Also, the pecking order theory asserts that internal reserves and sources are used first, and if all internal means of finances have been exhausted, corporations will opt for debt. When not feasible to source for further debt, firm in the end turn to equity as last resort (Olowe, 2018). In distinction to the Trade-off Theory that focuses on interest tax shields and future cost of debt, this theory sees those to be only of secondary importance. Leverage is reevaluated and only companies whose investment necessities surpassed internally sourced funds would source more debt.

Researchers concluded that each company's debt ratio, reflects its collective necessity for external finance and that profitable enterprises with restricted growth opportunities use their cash surplus to moderate debt rather than repurchasing shares since it does not perform sufficient fund-raising and debt is less costly compared to share (Lambe, 2014; Odi, 2014; Nirajini and Priya, 2013; Salawu, 2009).

The Modigliani and Miller methodology to capital structure irrelevance posits that the market enjoys full information about the activities of a firm. Ross (1977), nonetheless, recommends a methodology for company's capital structure determination established on the presence of symmetric information between the company's insiders and outsiders. Ross contends that if directors have insider information, the approach by directors about the financial structures signal information to the market. Therefore, decision making to modify financing structure will alter the market's opinion of the company. Subsequently, the value of the entity will increase with leverage.

### **Empirical Review**

Many studies have been done on board structure and financial performance. Within the background of this study, we shall concentrate research on board size and financial performance followed by board Diversity and financial performance as well as board independence and financial performance. For the purpose of this study, prior studies examining board structure and financial performance would be discussed within domain of the extant body of literature.

### **Board Size and Financial Performance**

Yermack (1996) evaluated a proposal for limiting the size of boards of directors in order to improve their effectiveness and found evidence to support the proposal. Using the least squares regressions on a sample of 452 on large U.S. public corporations for periods covering 1984 to 1991, the study found an inverse relation between firm values, as represented by Tobin's Q, and the size of the board of directors.

Okiro (2006) studied companies quoted on the Nairobi Security Exchange between the year 2000 to 2002 to determine the relationship that exist among board size, board Diversity and firm performance. Tobin's Q was used as performance measure with company size and gearing being the control variables. Using the multiple linear regression models to analyze the data collected, the study concluded that there is no relationship between board size and financial performance.

In Sri Lanka, Somathilake (2018) investigated the effect of board characteristics on firm financial performance listed on Colombo stock exchange for a period of two years spanning between 2016 and 2017. The study revealed that board size has a negative but significant influence on company performance.

Gambo, Bello and Rimamshung (2018) examined the effect of board size, board Diversity and board meetings on financial performance of listed consumer goods in Nigeria and found that smaller board size are more effective than larger board size and are likely to enhance the return on asset of the firm. Therefore, hypothesise that board size has no significant effect on financial performance of Information Communication Technology companies.



Yermack (1996) in an analysis of 452 companies ranked by the Forbes magazine as one of the 500 largest US public corporations found that board size was inversely associated with firm value. In addition, Eisenberg et al. (1998) also found significant negative correlation between board size and profitability for the sample of small Finnish firms.

Cheng et al. (2008) also demonstrated a significant relation between smaller boards and better firm performance (before the passage of antitakeover laws). Similarly, several other studies have provided evidences of the negative effect of board size on performance (Barnhart and Rosenstein, 1998; Hermalin and Weisbach, 2003; Bennedsen et al., 2004; Bonn et al., 2004 (for Japanese firms only); Mak and Kusunadi, 2005; Guest, 2009; Ranti and Sameul, 2012).

In addition, there are some studies which have stated no relationship between the board size and firm performance (Topak, 2011; Al-Matari et al., 2012). Moreover, Jensen (1993) had pointed out that when boards go beyond seven or eight people, they are less likely to function effectively and are easier for the CEO to control. Some empirical studies have also adduced an inverse impact in case of board size having more than seven members (Yermack, 1996; Bennedsen et al., 2004).

In comparison to the developed countries, where a vast amount of literature has been available on the linkage between board size and firm performance, few studies have been conducted in India on the relationship between board size and firm performance, and that too are characterised by the disparate results with lack of convincing evidence. Where some of the empirical studies on corporate board size in India have demonstrated positive relationship with firm performance (Kathuria and Dash, 1999; Dwivedi and Jain, 2005 (weak relationship); Jackling and Juhl, 2009), there are other studies that have stated a negative relationship (Ghosh, 2006; Garg, 2007; Ghosh, 2007; Dey and Chauhan, 2009). Apart from that, few studies have reported insignificant (or no effect) relation between board size and firm performance (Mayur and Saravanan, 2006; Sarkar and Sarkar, 2009).

### **Board Diversity and Financial Performance**

Sixtus, Samuel and Shukriyya (2019) evaluated the relationship between board diversity and a company's financial performance. The study specifically investigated the relationship between board diversity factors (gender, non-leader director, board size) and financial performance factors (resource rate of return and value rate of return). The review included board information from the bank's annual report from 2006 to 2017. The review used the board recurrence to analyze the information. Then, at that point, the study showed that gender diversity had a significant impact on the bank's financial performance. Studies also showed that the size of the non-executive and board of directors had no fundamental impact on the bank's performance. Therefore, the review suggested that the cash banks in Nigeria's cited stores should bring women extents into the boardroom to work on their financial performance.

Olabisi, Kajola, Oladejo, Ojeaga, and Abass (2018) investigated the quality and performance of the board of directors of the cited customer product companies. In particular, the

review examined the relationship between the quality of the board and the performance of the cited Nigerian customer product companies. This review included option information for 27 customer commodity companies recorded in Nigeria between 2011 and 2017. In this review, we used autoregressive distribution lag (ARDL) regression to evaluate the information. Then, at that point, the review showed a great link between the freedom of the board, the indomitable spirit of the board, and the performance of the buyer product company. Studies have also shown that there is an insignificant relationship between board size, board construction, and customer product company performance. Therefore, the review estimated that regular board meetings and board autonomy envision an important part of the ideal choice that affects the impartiality of the general public. As a result, the review suggested a regular board meeting and board autonomy skilled in making essential choices that would affect the company's overall performance.

Aifuwa, Musa, Gold and Usman (2020) investigated the link between board intellectual diversity and corporate performance. Concentration investigated the impact of a beneficial level of diversity. Beneficial Foundation Diversity; Nigeria's Solid Financial and Market Performance Board Individual Skilled Registration Diversity. This review used information from shopper product companies from 2013 to 2018. The review used the least-squares method of the board to investigate the information. The review shows that while the diversity of individual leadership levels and the diversity of the professional part of the board have a decisive and overall impact on market performance, the diversity of the educational foundation of the board is in Nigeria. We have shown that it hurts the market performance of our client product companies and has a fundamental impact. Studies also showed no evidence of the organisation between beneficial levels of diversity. Beneficial Foundation Diversity; The diversity of individual skilled registrations of the Board, and the financial performance of the companies surveyed. Therefore, the review estimated that the intellectual diversity of the board had some impact on Nigeria's corporate performance. In line with these policies, the review suggested that Nigerian companies, companies that explicitly purchase product companies, need to enhance the depiction of board directors in graduate certificates.

Osemwegie and Ugbogbo (2019) examine the impact of board compensation and diversity on the financial performance of Nigerian citation banks. In particular, this review evaluated selected listed banks in Nigeria and then investigated the gender of the board, the identity of the board, the ethnicity of the board, and the impact of the creation of a board on profits. This review used 15 quoted banks on the Nigerian Stock Exchange that were ordered between 2009 and 2017. This review used fascinating insights, Pearson relationship studies, variable iteration tests, and recurrence studies to analyze the information. Then, at that point, board remuneration, board gender diversity, board ethnic diversity, and board arrangements have very beneficial consequences for financial performance, while board identity. It was studied that diversity is hurting financial performance. Therefore, board individuals should be fully compensated, as studies can play an important role in reducing irreconcilable situations between board individuals and bank investors. Bukar and Musa and Ahmed (2020) analyzed the impact of gender diversity on the financial performance of Nigerian store cash

banks. In particular, the review investigated the impact of women on pigs. The presence of a female CEO on the female onboard rate and the return of resources and the return of value. This review used information from 16 banks between 2011 and 2015. The review used various recurrences to analyze the information. Later, at that point, it was stated that gender diversity had decisive constructive consequences for ROA and did not affect ROE. Therefore, although there are cautions against approaches aimed at expanding or empowering women in such situations in agricultural countries such as Nigeria, we have proposed increasing the number of women on board the director.

Sabo (2018) investigated the gender diversity and financial performance of the board of directors of Nigeria's recorded structural materials organizations. In particular, the review examined the impact of board diversity on the financial performance of Nigeria's recorded structural materials organizations. This review used information from nine organizations between 2005 and 2015. The review used multivariate recurrence to analyze the information. The review showed that the gender of the board has a non-significant effect on financial performance, while the age of the company as a control variable essentially affects financial performance. The review then suggested that Nigeria's recorded structural materials organization should delegate multiple women to the Presidency.

### **Board Independences and financial Performance**

Bhagat and Black (2002) conducted a study on 934 largest US firms covering a 10 year period. They questioned the empirical validity of the need for board independence and its effect on performance. The study found that firms with a higher percentage of outside directors had significantly lower financial (ROA) and stock market (Tobin's Q) performance in the following three years. They also found that lower performing firms were more likely to add independent directors. However, the results offered no evidence that firms with more independent boards perform better.

Chan and Li (2008) found that independence of the audit committee (i.e. to have at least 50 per cent of expert-independent directors serve on audit committee) positively impacts the firm performance as measured by Tobin's Q. Similarly, Ilona (2008) showed that there is a positive relationship between audit committee independence and firm performance as measured by return on equity. Using data collected from top 100 companies listed in Colombo Stock Exchange, Somathilake (2018) concluded that director's independence has positive but insignificant influence on firms' performance in Sri Lanka.

Gambo, Bello and Rimamshung (2018) reported a positive relationship between board independence and return on asset of consumer goods companies listed on the Nigeria Stock Exchange. Their outcome showed that a higher proportion of outside directors in a board tend to result in higher performance. We, therefore, hypothesis that board independence has a significant impact on financial performance of Information Communication Technology companies

It is supported by the findings of Schellenger et al. (1989), Rosensstein & Wyatt (1990), Pearce II & Zahra (1992), Daily & Dalton (1993), Cho & Kim (2007) who stated similar ideas with Agrawal & Knoeber (1996), Yermack (1996), Bhagat & Black (2002), Kiel & Nicholson (2003), Cornett et al. (2008), Coles et al. (2008) Knyazeva et al. (2013) and Chen et al. (2015) who stated that the proportion of independent commissioners positively influences the company's performance. On the other hands, there was a finding stating that the proportion of independent commissioners does not influence the company's performance.

It was stated by Chaganti et al. (1985) who conducted the research in retailing companies; Daily & Dalton (1992) who took the data of 100 American companies registered in Inc Magazine; Ezzamel & Watson (1993) on 184 companies in UK; Klein (1998), Ghosh (2006), and Al Farooque et al. (2007), also Abdullah (2016) with research in Malaysian Listed firm. In addition, the results of the mentioned researchers have not mentioned the companies in Indonesia, especially companies in the field of banking.

## **METHODOLOGY**

### **Research Design**

The study uses correlational research design and panel data using ordinary least square regression. The correlational design is considered appropriate because the study seeks to examine the board structure (board size, board Diversity and board independence) and financial performance of manufacturing companies. A panel data was utilized to justify the statistical relationship among the variables. Similarly, correlational research design was used to analyze the statistically relationship between the dependent and independent variables (Emeh & Appah, 2013).

### **Study Population**

The study uses population that encompasses all 26 Basic materials and Industrial listed companies on the Nigeria Exchange Group (NGX) from 2017 to 2021.

### **Sample size and Sampling Techniques**

The sample size is made up of 26 Basic materials and Industrial listed companies on the Nigeria Exchange Group (NGX). The sample size used for this research was purposive towards the 26 companies in Nigeria.

### **Sources of Data**

A secondary source of data was used in this study. This source was utilized because information on board structure and financial performance is mainly and widely derived from annual reports and corporate websites of companies (Jinadu, Ojeka & Agbeyangi, 2016). The data were sourced from the annual reports and corporate websites of the selected Nigerian listed companies for the period between 2017 and 2021. The use of corporate annual reports and companies' websites arises due to the fact that the sources are extensively viewed as the most consistent and regular medium for companies to communicate with their stakeholders (Jinadu,



Where:  $\beta_0$  = Intercept of the regression line, regarded as constant  $\beta_1$ -  $\beta_3$  = Coefficient or slope of the regression line or independent variables  $e$  = Error term that represents other independent variables that affect the model but not captured.

' $t$ ' = year or period and  $i$  = company.

FP = Financial performance (ROA)

BS = Board Size

BI = Board Independence

BC =Board Diversity

### Method of Data Analysis

The study employed a panel data with the application of ordinary least square regression technique of data analysis to examine the influence of the independent variables on the dependent variables. The panel ordinary least square regression technique was utilized to test the hypotheses and find out the significant relationship between the variables. The panel ordinary least square regression technique was complemented by some preliminary statistical analyses like descriptive statistics, correlation analysis, and multi-collinearity check, for the measurement of normality of the variables and their relationship respectively. Econometric package of E-view 9.5, was applied to the panel data from 2017-2021 for the estimation of the respective models and their coefficients. The result of the correlation was used to decide on the measurements of the variables that should be included in the panel ordinary least square regression model.

## DATA ANALYSIS AND INTERPRETATION OF RESULTS

### Descriptive Statistics

**Table 1 Descriptive Statistics**

	FP	BS	BD	BI
Mean	1.038538	9.830769	1.692308	5.430769
Median	0.040000	9.000000	2.000000	5.000000
Maximum	37.18000	22.00000	6.000000	15.00000
Minimum	0.000000	4.000000	0.000000	0.000000
Std. Dev.	4.957980	3.838076	1.391258	3.699861
Skewness	0.7909368	0.546899	0.561403	0.316449
Kurtosis	3.001408	2.693385	2.898543	2.620021
Jarque-Bera	7439.162	6.989702	6.884507	2.951780
Probability	0.000000	0.030353	0.031993	0.028575
Sum	135.0100	1278.000	220.0000	706.0000
Sum Sq. Dev.	3171.022	1900.277	249.6923	1765.877
Observations	130	130	130	130

**Source: Researchers' Computation from E-view 9.5 (2024)**

Table 1 reveals the descriptive statistics of board structure and financial performance of manufacturing companies in Nigeria. The mean scores of the data displayed high level of

consistency as they fall between the minimum and maximum scores. Thus, board structure and financial performance of manufacturing companies in Nigeria, for the periods examined stood at mean values of 1.038538, 9.830769, 1.692308 and 5.430769 for Financial Performance (FP), Board Size (BS), Board Diversity (BD) and Board Independence (BI) respectively. The standard deviation measuring the spread of the distribution stood at values of 4.957980, 3.838076 1.391258 and 3.699861 for Financial Performance (FP) Board Size (BS), Board Diversity (BD) and Board Independence (BI) respectively while their Jarque-Bera statistics stood at 7439.162, 6.989702, 6.884507 and 2.951780 with p-values of 0.000000, 0.030353, 0.031993 and 0.028575 respectively. The skewness and kurtosis statistics of the variables were normally distributed as they are close to zero. Also, skewness and kurtosis of the variables were normally distributed as they are within the range of  $\pm 1.96$  and  $\pm 3$  respectively (Haniffa & Hudaib, 2006). Thus, the variables exhibited normality.

**Table 2: Correlation Analysis**

	FP	BS	BD	BI
FP	1.000000			
BS	0.664735	1.000000		
BD	0.130299	0.518606	1.000000	
BI	0.742439	0.672261	0.415996	1.000000

**Source: Researchers' Computation from E-view 9.5 (2024)**

Table 2 shows Pearson correlation matrix for the variables as contained in the analysis. The correlation coefficients show a relationship between the board structure and financial performance of manufacturing companies in Nigeria as contained in the analysis. The significant relationship is at 95% confidence level. The results demonstrated a significant relationship between board structure and financial performance of manufacturing companies in Nigeria. The correlation coefficients also showed a positive relationship between the board structure and financial performance of manufacturing companies in Nigeria as shown on the above table. Hence, most of these results are in conformity with the hypotheses with regard to the relationship between board structure and financial performance of manufacturing companies in Nigeria. Hence, there is no problem about correlation as the correlation coefficients were less than 0.8 (Gujarati, 2003). This implies the presence of a linear relationship between two or more independent variables.

### **Multicollinearity Check**

Multicollinearity suggests the existence of a linear relationship between two or more independent variables. The existence of multicollinearity was tested on the basis of the correlation matrix that incorporated all the independent variables. The correlation matrix result showed no existence of multicollinearity as the coefficients of correlation were less than 0.8, showing the correlation percentage limit usually suggested by prior studies (Gujarati, 2003). These findings suggest that there is no problem with regard to correlation.

The variance inflation factor was utilized to check for multicollinearity in this study. Accordingly, Gujarati (2003) found no problem with multicollinearity provided the VIF of all the independent variables are less than 10 and the tolerance coefficients exceed 0.10. Table 4.3

shows the result of the VIF and tolerance coefficients of the independent variables. The table displays the highest VIF as 1.17 and the mean VIF as 1.12. In addition, the least tolerance coefficient was 0.85. Hence, the results accepted the level of multicollinearity among the independent variables, which confirms no problem with regard to the correlation between and among the independent variables.

**Table 3: Variance Inflation Factor (VIF)**

Variable	VIF	Tolerance 1/VIF
BS	1.17	0.85
BD	1.08	0.93
BI	1.11	0.90
Mean VIF	1.12	

Source: Researchers' Computation from E-view 9.5 (2024)

**Test of Hypotheses**

Panel least square regression method was utilised to test the research hypotheses one to three. The regression analysis was engaged to examine the relationship between the board structure and financial performance of manufacturing companies in Nigeria. In addition, the panel data regression method uses ordinary least square method with more statistical significant parameters. Table 3 presents the results of the panel least square regression method in order to analyze the relationship between and among the variables.

**Table 3: Estimation of Panel Least Square Results**

**Dependent Variable: FP**

**Periods included: 5**

**Cross-sections included: 26**

**Total panel (balanced) observations: 130**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BS	0.003040	0.001424	2.134839	0.0212
BD	0.807323	0.365642	2.207958	0.0291
BI	0.034670	0.158794	0.218335	0.8275
C	1.953785	1.198501	1.630191	0.1056

Source: Researchers' Computation from E-view 9.5 (2024)



<b>Results of statistical properties</b>	
R-Squared	0.541286
Adjusted R-Squared	0.418460
F-statistics	4.808704
Prob(F-statistics)	0.048946
Durbin-Watson test	1.875373
Total Panel (balanced) observation	130 observations included

**Source: Researchers' Computation from E-view 9.5 (2024)**

The results in Table 3 show that the  $R^2$  of 0.54 shows that board structure (Board Size, Board Diversity, and Board Independence) account for 54% of their financial performance. The remaining 46% is unaccounted for by other factors included in the disturbance term. In addition, Durbin Watson statistics of 1.8753 shows the non-existence of autocorrelation as it is close to 2. This is within the acceptable limit for zero autocorrelation and it reinforces the acceptance of the null hypothesis of no serial correlation in the residual model. The various hypotheses formulated in chapter one is, therefore, tested in this section. The decision rule is that if the calculated P-value is lower than 5% significant level, the alternate hypothesis is accepted and the null hypothesis is rejected. The restatement of the hypotheses and their results are as follows:

H<sub>01</sub>: There is no significant relationship between board size and financial performance of manufacturing companies in Nigeria

Board Size (BS) has a significant positive relationship with the financial performance of manufacturing companies in Nigeria at the probability level (p-value) of 0.02 and t-statistic of 2.1348 at 5% significant level. This implies that the null hypothesis should be rejected while the alternate hypothesis accepted.

H<sub>02</sub>: There is no significant relationship between board diversity and financial performance of manufacturing companies in Nigeria.

Board Diversity (BD) has a significant positive relationship with the financial performance of manufacturing companies in Nigeria at the probability level (p-value) of 0.029 and t-statistic of 2.2079 at 5% significant level. This indicates that null hypothesis should be rejected while the alternate hypothesis should be accepted.

H<sub>03</sub>: There is no significant relationship between board independence and financial performance of manufacturing companies in Nigeria.

Board Independence (BI) has an insignificant positive relationship between board independence and financial performance of manufacturing companies in Nigeria at the probability level (p-value) of 0.8275 and t-statistic of 0.21834 at 5% significant level. This indicates that null hypothesis should be accepted while the alternate hypothesis rejected.

## **DISCUSSION OF FINDINGS**

The findings in respect of hypothesis one is in agreement with expectation, as board size exhibited a significant positive relationship with the financial performance of manufacturing

companies in Nigeria. The result showed that the P-values (0.02) at T-statistic (2.1348) were lower than the 5% significant level. Hence, the result supported the acceptance of the alternate hypothesis as against the null hypothesis. The implication is that, an increase in board size is associated with a greater increase in financial performance of manufacturing companies in Nigeria. The result is in conformity with the studies conducted by Kathuria and Dash (1990), Dwivedi and Jain (2005), Jackling and Johl (2009) but not in agreement with the study carried out by Yermack (1996), Okiro(2006), In Sri Lanka and Somathilake (2018), Gambo *et al.* (2018).

The findings from hypothesis two showed a significant positive relationship between board diversity and the financial performance of manufacturing companies in Nigeria. The result showed that the P-values (0.0291) and T-statistic (2.208) were lower than the 5% significant level. Thus, the result supported the acceptance of the alternate hypothesis as against the null hypothesis. This indicates that an increase in board diversity is associated with a higher increase the financial performance of manufacturing companies in Nigeria. The result is in agreement with the work of Sixtus *et al.* (2019), Ogboi, *et al.* (2018) but in contrast to study conducted by Ruth and Korolo (2017)

Hypothesis three, the findings also showed an insignificant positive relationship between audit type and the financial reporting quality of listed money deposit bank in Nigeria. The result showed that the P-values (0.0029) and T-statistic (-3.0852) were lesser than the 5% significant level. Thus, the result supported the acceptance of the alternate hypothesis as against the null hypothesis. This implies the lesser board members are independent, the higher the financial performance of manufacturing companies in Nigeria is enhanced. The result is consistent with Schellenger *et al.* (1989), Rosensstein and Wyatt (1990), Pearce II and Zahra (1992), Daily and Dalton (1993), Choand Kim (2007), Agrawal and Knoeber (1996), Yermack (1996), Bhagat and Black (2002), Kiel and Nicholson (2003), Cornett *et al.* (2008), Coles *et al.* (2008) Knyazeva *et al.* (2013) and Chen *et al.* (2015) but not in consistent with the work of BhagatandBlack(2002), Odudu *et al.* (2016).

## CONCLUSIONS

This study carefully examined the relationship between board structure and financial performance of manufacturing companies in Nigeria. On the basis of the research findings, the following conclusions were reached:

- i. Board size exhibited a significant positive relationship with financial performance of manufacturing companies in Nigeria.
- ii. Board diversity showed a significant positive relationship with financial performance of manufacturing companies in Nigeria.
- iii. Board independence displayed an insignificant positive relationship with financial performance of manufacturing companies in Nigeria.

## Recommendations

Based on the findings from this study, the following recommendations are provided:

- (i) Manufacturing companies in Nigeria are to ensure that board size, board diversity and board independence are adequately maintained in order to improve their financial performance.
- (ii) The regulatory bodies such as Security and Exchange Commission (SEC) of Nigeria should set standards for the inclusion of reasonable number of women on the board of directors, in order to increase the financial performance of manufacturing companies in Nigeria.
- (iii) Government should enforce the code of good corporate governance to ensure the commitment of stakeholders to financial performance of manufacturing companies in Nigeria.

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