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EFFECTS OF BOARD SIZE AND COMPOSITION ON THE FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS IN NIGERIA

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Abstract

No consensus has been reached among researchers in the extant literature on the effects of the composition of corporate boards and size on the financial performance of manufacturing firms. In spite of expansive literature on this subject matter the debate is inconclusive. This research is therefore designed to empirically address these variables as they apply to the Nigerian manufacturing firms in the post enactment of the Code of Corporate Governance Act. The objective of this study is therefore to examine the effects of the board composition on the financial performance of Nigerian manufacturing firms.

The research used the descriptive cross sectional survey design. Data was collected by secondary method. Ten firms were sampled for analysis using audited annual reports and accounts for eleven years covering 2005 to 2015. The fixed effect model of the regression analysis was found most suitable and employed in estimating the variables of the study. Our findings revealed that non-executive directors have significant effect on the financial performance of manufacturing firms in Nigeria. Also the board size has positive and significant influence on the financial performance of manufacturing firms in Nigeria. The findings from this study has been able to show that the implementation of the Code of Corporate Governance in Nigeria has positive and significant effect on the financial performance of the manufacturing sector of the economy. The policy implications of this new knowledge is that the improvement of firm performance is heavily dependent on board independence as depicted by the ratio of non-executive to executive directors and the appropriate board size. Any policy aimed at improving the financial performance of Nigerian manufacturing firms must focus on the composition of the boards. It was therefore recommended to increase the minimum board members from five to eight, the expansion of the coverage of the governance code and the establishment of Corporate Governance Board to oversee compliances and implement sanctions.

KEYWORDS: Board Composition, Board size, Manufacturing Firms, Non-executive Directors

INTRODUCTION

Board in any organisation whether public or private, profit oriented or not is an endogenously determined institution created as the apex decision making organ of such establishment. The board of directors is an instrument through which shareholders can exert influence on the behaviour of managers to ensure that a firm is operated in their interests. One feature of modern companies is the general separation of ownership and management. Productivity is improved due to promoting individual strength of managers. However, the separation incurs an agency problem that the managers of firms might pursue their own interests rather than the interests of owners, which is against the principle of maximization of shareholders' wealth (Jensen and Meckling, 1976). Board Composition is the proportion of non-executive directors to the total directors on board of a firm. The board size refers to the total number of directors (both executive and non-executive) that make up a particular board of a firm. The board may be less influential when its composition or (and) size are inappropriate.

According to Gevurtz (2016), today's corporate boards found their genesis in the political theories and practices of medieval Europe. Although they were hardly democratic, they often called for the use of collective governance by a body of representatives. The Bank of England's 1694 charter according to him, provided for a board of twenty-four directors. Indeed, this charter seems to have pioneered the term "director." A meeting of shareholders which was then called a "court of proprietors" annually elected the Bank of England's directors.

It is clear that this representative institution (boards) in medieval Europe had the purpose, at least in part, of mediating between various corporate claimants. According to Santos and Barbosa (2007), the board has the responsibility of ensuring efficient executive management and supervision of the organisation with the goal of meeting the dividend expectations of the shareholders, while at the same time providing transparency and responsible behaviour towards all stakeholders. According to Arguden (2009), the board of directors is the most important element in corporate structures. He stressed that issues such as the composition of the board of directors, the issues that the board focuses on, processes they follow for decision making and how they learn to continuously improve the governance of the firm critically influence the quality of decisions and the management quality.

Dalton and Dalton, 2005 argued a board with a great presence of outside directors may administrate to safeguard the interests of shareholders. However, outsiders are less informed about firm projects. Inside managers are an important source of firm-specific information, and their inclusion in boards can lead to more effective decision making. In examining the impact of board composition on financial performance, insider-outsider director ratio is an extensively used classification in the extant literature and no consensus has been reached among researchers.

Adam and Mehran (2005), argued that larger boards are better for corporate performance because they have a range of expertise and opinion around the table to help make better decisions, and are harder for a powerful CEO to dominate. The few directors in a small board are preoccupied with the decision-making process, leaving less time for monitoring activities. However when a board gets too big, it becomes difficult to co-ordinate and process problems. A large board

could also result in less meaningful discussion, since expressing opinions within a large group is generally time consuming and difficult and frequently results in a lack of cohesiveness on the board. There would be productivity losses when work groups grow large. The appropriate board size that engenders proper monitoring of management of firms for improved financial performance is still inconclusive among researchers. Other studies within and outside Nigeria document inconclusive findings because of mixed results that have been found. The findings of Yermack (1996), and Hermalin and Weisbach (2003), found significant negative association between board size and performance, Bhagat and Black (2002), found no solid evidence on the relationship between board size and performance, although there are hints of an inverse correlation between the two. This calls for further investigation especially in Nigeria in the post period of the enactment of the Corporate Governance Act, 2011. This research sets out to examine the effects of the corporate governance variables of board size and board composition on financial performance of Nigerian manufacturing firms for the period 2005 to 2015.

Review of Related Literature

Board size refers to the number of directors in a board. The number of board members vary from firm to firm, country to country, or because of the differences in regulation, corporate culture and corporate ownership structure. The earliest literature on board size is by Lipton and Lorsch (1992) and Jensen (1993). Jensen (1993), argued that the preference for smaller board size stems from technological and organizational change which ultimately leads to cost cutting and downsizing. Hermalin and Weisbach (2003), argued the possibility that larger boards can be less effective than smaller boards. When boards consist of too many members agency problems may increase, as some directors may tag along as free-riders.

A large board could also result in less meaningful discussion, since expressing opinions within a large group is generally time consuming and difficult and frequently results in a lack of cohesiveness on the board (Lipton and Lorsch, 1992). Lipton and Lorsch (1992) and Jensen (1993), argued that there would be productivity losses when work groups grow large, an insight borrowed from organizational behaviour research such as Steiner (1972) and Hackman (1990). In addition, the problem of coordination outweighs the advantages of having more directors (Jensen, 1993) and when a board becomes too big, it often moves into a more symbolic role, rather than fulfilling its intended function as part of the management (Hermalin and Weisbach, 2003).

On the other hand, Dalton and Dalton (2005), found that very small boards lack the advantage of having the spread of expert advice and opinion around the table that is found in larger boards. Furthermore, they assert that larger boards are more likely to be associated with an increase in board diversity in terms of experience, skills, gender and nationality. Expropriation of wealth by the Chief Executive Officer (CEO) or inside directors is relatively easier with smaller boards since small boards are also associated with a smaller number of outside directors. According to them, the few directors are preoccupied with the decision making process, leaving less time for monitoring activities.

The above arguments were empirically tested and a negative association between board size and performance were reported by Yermack (1996), Eisenberg, Sundgren and Wells (1998) and Barnhart and Rosenstein (1998). Yermack (1996), found an inverse

relationship between board size and firm performance. They presented evidence of a negative association between board size and profitability, thus supporting the theory put forward by Lipton and Lorsch (1992) and Jensen (1993). Similarly, Barnhart and Rosenstein (1998), found that firms with smaller board size perform better than firms with large board size. Vafeas (2000), reported that firms with the smallest boards (minimum of five board members) are better informed about the earnings of the firm and thus can be regarded as having better monitoring abilities.

While Yermack (1996) found significant negative association between board size and performance, Bhagat and Black (2002), found no solid evidence on the relationship between board size and performance, although there are hints of an inverse correlation between the two. Thus their results do not fully support Yermack's findings. They explained that board size is often taken to be endogenously related to other control variables that may correlate with performance. Although Yermack included other control variables in his analysis, the approach taken might cause the difference in results. In an attempt to compare the effects of board structure on firm performance between Japanese and Australian firms, Bonn, Yokishawa and Phan (2004), found that board size and performance (measured by market-to-book ratio and return on assets) was negatively correlated for Japanese firms but found no relationship between the two variables for its Australian counterpart.

On the other hand, Adam and Mehran (2005), found a positive relationship between board size and performance in the U.S banking industry, which is contrary to the findings of Yermack (1996) and Eisenberg, Sundgren and Wells (1998) in US non-financial firms. Adam and Mehran's results suggest that such performance relationship may be industry specific, indicating that larger boards work well for certain type of firms depending on their organizational structures. In the same vein Oki (2015), in a study of Nigerian banks found an active and significant relationship between board size and bank performance. This finding agrees with the earlier studies of Bonaziz and Triki (2012), Tornyeva and Wereko (2012), Kader, Cigdem & Ozsalih, (2011) and Bathula (2008). A meta-analysis based on 131 studies by Dalton and Dalton (2005), revealed that larger boards are correlated with higher firm performance which is in contrast to the results of an earlier meta-analysis by Dalton, Daily and Johnson (1999).

The Malaysian Code of Corporate Governance was silent on the number of directors that should sit on board. However, it was recommended that the board size should not be too big nor too small but sufficient enough to allow for active and effective participation and that they should be able to perform their duties effectively. From an agency perspective, larger companies require bigger boards to monitor and control management's actions (Kiel & Nicholson 2003). As suggested by agency theorist (Jensen 1993), an optimal limit should be around eight directors and Lipton and Lorsch (1992), suggested the maximum size of the board should be ten members, as greater numbers will interfere with the group dynamics and hinder board performance.

In summary, board size suggests that greater board size in most cases is negatively associated with firm performance, although a meta-analysis by Dalton and Dalton (2005) found positive correlations between the two variables. Boards with a large number of directors can be a disadvantage and expensive for the firms to maintain. Planning,

work coordination, decision-making and holding regular meetings can be difficult with a large number of board members. The effectiveness of the board does not depend on how many directors sit on it, although a minimum number of directors with adequate experience and knowledge are vital to ensure tasks are carried out efficiently.

The composition of the board refers to executive and non-executive director representation on the board. Dalton, Daily, Ellstrand, & Johnson, (1998), posit that an effective board should comprise of majority non-executive directors. However, executive director's responsibility is the day-to-day operation of the business such as finance and marketing. They bring specialised expertise and a wealth of knowledge to the company (Weir, Laing & David, 2001). As they are subordinates of the CEO, they are not in a position to monitor or discipline the CEO (Daily & Dalton, 1993). Therefore it is important to have a mechanism to monitor the actions of the CEO and executive directors (Weir et al., 2001).

Cadbury (1992), identifies the monitoring role as the key responsibility of the non-executive directors. O'Sullivan & Wong (1999), held that the non-executive directors may become less effective monitors as the length of their service increases as they build close relationships with executive directors. This supports Cadbury's claim that the independence of non-executive directors may diminish as the tenure of the board increases (Bhagat & Black, 1998; Dalton et al., 1998; Yarmack, 1996).

If the representation on the board of non-executive directors increased the effectiveness of monitoring, then the performance of the company should improve. Studies by Fama (1980) and Fama & Jensen (1983), indicate that non-executive directors have more incentive to protect the interest of the shareholders, because of the importance of maintaining their reputation in the market for outside directorships. Therefore, independent directors are considered valuable by the regulators due to their importance of better monitoring. Beasely (1996), reported that corporate boards with higher ratio of outside directors fulfil the monitoring role in respect to financial reporting.

Empirical evidence regarding firms' financial performance and board composition is mixed. Kesner & Johnson, (1990) posit that outside directors provide many advantages. According to them, they also bring in a wide breadth of knowledge, expertise and contacts, which may enhance the ability of management to secure scarce external resources, as well as the independence they have from the CEO. Firms with a higher proportion of outside directors are likely to replace the CEO after a period of poor performance of the company (Weisbach, 1988). Similarly, outside directors are likely to join boards after a poor performance or leave when a shift in strategy requires new or additional outside guidance (Hermalin & Weisbach, 1988).

Some studies find that there is a positive link between firm performance and board composition. Lee, Rosenstein, Rangan & Davidson (1992) and Rosentein & Wyatt (1990), stated that boards dominated by independent outside directors are associated with substantially higher abnormal returns. There are others which state that having more outside directors on the board, increases performance (Barnhart, Marr & Rosenstein 1994; Daily & Dalton 1992; Schellenger, Wood & Tashakori, 1989). The works of Aamir & Sajid (2012), also found that the

listed companies of Pakistan at Karachi stock exchange, which have non-executive (independent) board members in their board, were showing greater Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q. This is also in tandem with the results of Kader, Cigdem & Ozsalih (2011) and Ogbechie & Koufopoulos (2010), who hold that outside directors bring their experience and social capital to add value to the firm. There is also evidence which indicates that the percentage of inside directors is high on boards of declining firms (Pfeffer 1972). Studies by Valenti, Luce & Mayfield (2011), reported that during periods of declining performance the number of outside directors would be affected. Conversely, when performance improves firms were able to add more outside directors. According to Baysinger and Butler (1985), the degree of financial health is affected by the board composition. They also find that boards with a higher percentage of outside directors have an above average performance compared to firms with a lower number of non-executive directors.

Alternatively, there are studies which show a negative relationship between the proportion of outside directors and corporate performance (Bhagat & Black 1998). Weir and Lang (2001), state that there are a number of reasons why empirical evidence may not support the positive relationship between non-executive directors and performance. Non-executive directors are only employed on a part-time basis and are likely to have other work commitments, which may result in devoting insufficient time to the company. They may lack the expertise required to understand certain technical issues in the business and they may not possess sufficient information when called upon to make key decisions.

Accordingly, lack of time, the absence of an appropriate level of expertise (Zahra & Pearce 1989), and fear of challenging difficult decisions made by management (Lorsch & MacIver 1989) are some of the arguments which inhibit the effectiveness of non-executive directors' contribution to corporate performance. MacAvoy, Cantor, Dana & Peck (1983), do not find any support for the hypothesis that a board's composition affects firm performance. Forsberg (1989) and Molz (1988), did not find any link between outside independent directors and performance. Other recent findings are; the works of Matanda, Oyugi & Lisiolo (2015), *Gupta*, Duane & Weaver, *(2009)* and Postma, Theo, Hans & Sterken, (2009) who hold that board composition has no significant effect on performance. The argument for board composition is that the skills and the knowledge base they bring to the firm are of importance to firm performance (Bonn, Yoshikawa & Phan 2004).

Manufacturing has historically been the driver of economic growth and structural change. In the twenty-first century manufacturing development remains relevant for developing countries trying to catch up with more advanced economies and to provide increasing standards of living for their populations. It is crucial for employment generation, wealth creation and raising the quality of life of Nigerians. Indeed without manufacturing, growth prospects will remain vulnerable to external shocks, adverse changes in terms of trade, and the challenges of avoiding the 'natural resource curse' when commodity prices boom (Page, 2011).The challenges and failure of corporate governance in Nigeria stems from the culture of corruption and lack of institutional capacity to implement the codes of conduct governing corporate governance. Manufacturing company executives enjoy an atmosphere of lack of checks and balances in the system to engage in gross misconducts

since investors are not included in the governance

Theoretical Perspectives

Bathula, (2008) identifies four major theoretical perspectives of boards and governance mechanisms, viz., agency theory, stewardship theory, resource dependence theory and stakeholder theory

Agency Theory

This view is based on the idea that in a modern corporation, there is separation of ownership (principal) and management (agent), and this leads to costs associated with resolving conflict between the owners and the agents (Berle & Means, 1932; Jensen & Meckling, 1976; Eisenhardt, 1989). The fundamental premise of agency theory is that the managers act out of self-interest and are self-centred, thereby giving less attention to shareholder interests. In essence, the managers cannot be trusted and therefore there is a need for strict monitoring of management by the board, in order to protect shareholder's interest. The monitoring of management activities is seen as a fundamental duty of a board, so that agency problems can be minimised, and superior organisational performance can be achieved.

Stewardship Theory

Stewardship theory on the other hand takes a diametrically opposite perspective. It suggests that the agents (directors and managers) are essentially trustworthy and good stewards of the resources entrusted to them, which makes monitoring redundant (Donaldson 1990; Donaldson & Davis, 1991; Donaldson & Davis, 1994). Stewardship theory suggests that managers should be given autonomy based on trust, which minimises the cost of monitoring and controlling the behaviour of the managers and directors. The theory considers that manager's decisions are influenced by non-financial motives, such as need for achievement and recognition, the intrinsic satisfaction of successful performance, plus respect for authority and the work ethic.

Resource Dependency Theory

A key argument of the resource dependence theory is that organisations attempt to exert control over their environment by co-opting the resources needed to survive (Pfeffer & Salancik, 1978). Accordingly, boards are considered as a link between the firm and the essential resources that a firm needs from the external environment for superior performance. Appointment of outsiders on the board helps in gaining access to resources critical to firm success (Johnson, Daily & Ellstrand 1996,). In the resource dependence role, outside directors "bring resources to the firm, such as information, skills, access to key constituents (e.g., suppliers, buyers, public policy decision makers, social groups) and legitimacy" (Hillman, Canella & Paetzold 2000).

Stakeholder Theory

Stakeholder theory views "companies and society as interdependent and therefore the firm serve a broader social purpose than its responsibilities to shareholders" (Kiel & Nicholson, 2003). Likewise, Freeman (1984), one of the original proponents of stakeholder theory, defines stakeholder as "any group or individual who can affect or is affected by the achievement of the organisation's objectives". This researchers adopt the agency theory to guide the study.

Methodology

The study uses the descriptive cross-sectional survey design. Uniform information is collected across the selected firms over the period of eleven years (2005 to 2015) from all the desired elements. Panel data is employed

as the research design requires that the effect of the independent variable on the dependent variable be measured using the formulation of causal correlation hypotheses. The target population for this study consists of all the seventy (70) manufacturing companies (firms) listed in the Nigerian stock exchange as at 2015.The use of quoted manufacturing firms is due primarily to data availability and reliability because these are required by law to provide end of year financial statements.

This study employs the stratified sampling method. To eliminate some of the firms that have no complete records of all the data needed for measuring the variable of the study within the period. A three-point filter approach was adopted in the selection of the samples as follow; (i) firm must be listed by the Stock Exchange throughout the period of the study, (ii) firm must have declared profit throughout the period and (iii) firm must have a consistent board of directors all through the period. This is to reduce any problem associated with validity and reliability.

Secondary method is employed to gather the data for this study. The secondary sources consist of historical data already prepared or existing and authenticated. These are obtained from publications and websites of recognized institutions. The secondary sources of data collection for the purpose of this research are the audited annual Reports and Accounts of the sampled individual firms in the manufacturing sector. Nigerian Securities & Exchange Commission, Nigerian Stock Exchange (NSE), National Bureau of Statistics (NBS) and other similar oversight organisations' publications were other sources of data relevant for the analysis. Some of the annual reports that were not available in the NSE fact book were either collected from the corporate offices of concerned companies or downloaded from the companies' corporate websites.

Model Specifications

This study employed a modified version of the econometric model of Miyajima, Omi, & Saito (2003) and Coleman & Nicholas-Biekpe (2006). The Econometric model of Miyajima et al (2003) and also adapted by Oki (2015), is represented as;

$Y_{it} = \beta_0 + \beta_1 G_{it} + \beta_2 C_{it} + e_{it}$

The modified version is stated as;

$ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_3 CFMZ_{it} + e_{it}$

Where;

ROA= Return on Assets (i.e. a proxy for firm financial performance).
BDS= Board size
BDC = Board composition
FMZ = Firm Size

β_0 = Intercept of the model
β_1 = Coefficient of board size
β_2 = Coefficient of board composition
β_3 = Coefficient of the control variable (firm size)
e = the error term which account for other possible factors that could affect the dependent variable not captured in the model.
= 1, 2, 3,.....10 indicating the number of firms used for the study
= 1,2,3,.....11 indicating the time period used for this study (2005-2015).

The apriori is such that:

$B_1 + \beta_2 \beta_3 > 0$. The implication of this is that a positive relationship is expected between explanatory variables (BDS_{it}; BDC_{it}) and the dependent variable. The size of the coefficient of correlation will help explain various levels of relationship between the explanatory variables.

Regression Analysis

To analyse the variables of this study, the panel data methodology was adopted because the study combined time series and cross

sectional data. The study made use of both descriptive and inferential panel regression analyses. The descriptive analysis has been executed to summarise and describe the data set. However, the inferential panel regression analysis explains the effect of board composition and the control variable on the financial performance of manufacturing firms. Serial correlation test was conducted to determine which of Random effect (GLS) model and Pooled effect (OLS) is most appropriate for estimating the parameters under study.

i) Pooled Regression versus Random Effect Models

The Breusch and Pagan Langragian multiplier test usually called the LM test was adopted for the comparison. The Pooled regression assumes that there is no panel effect in the series. The Random Effect on the other hand assumes that there is panel effect in the series. The model that eventually emerges as the most appropriate between the pooled regressions and random is then adopted in analysing the static equations formulated in the study. If the Pooled regression (representing the non-existence of panel effect in the series) is preferred, the ordinary least square (OLS) regression method will be used to analyse the data. The choice of the Random Effect model will necessitate the use of generalised least square (GLS) regression method to analyse the data.

The hypothesis for the Breusch and Pagan Langragian multiplier test is stated as:

H_0: There is no panel effect

H_a: There is panel effect

The decision criterion in the selection process is to accept the alternative hypothesis which hypothesized that there is panel effect in the series, if p-value is less than the critical value at 5% (p<5%) level of significance and reject the null hypothesis which posits that there is no panel effect. If otherwise, we reject the alternative hypothesis (random effect) and accept the null (pooled regression).

ii) Random Effect versus Fixed Effect

The choice of the random effect will lead to a further test to determine if the panel or individual effect in the series is fixed or random. The Hausman Taylor test will be employed to make the appropriate choice between random effect and fixed effect. The hypothesis for the Hausman's test is therefore stated as follows:

H_0 = Difference in coefficients not systematic (Random is Preferred)

H_a = Difference in coefficients systematic (Fixed is Preferred)

The **decision criterion** is to reject the null hypothesis and therefore the random effect model if the p value is less than 5% (P<5%) and accept the alternative hypothesis which states that fixed effect is preferred. If however the P> 5% then the null hypothesis which states that Random is preferred will be accepted and the alternative hypothesis will be rejected.

HYPOTHESES FORMULATION AND TESTING

Two hypotheses were formulated for testing. These are:

Ho_1: There is no significant relationship between the contribution of non-executive directors and the financial performance of manufacturing firms in Nigeria.

Ho_2: Board size has no significant effect on the financial performance of manufacturing firms in Nigeria.

i) Hypothesis 1

Ho_1: There is no significant relationship between the contribution of non-

executive directors and the financial performance of manufacturing firms in Nigeria.

From the null hypothesis, we posit that there is no significant effect irrespective of the proportion of outside directors sitting on a board and the financial performance of manufacturing firms.The model earlier defined in the previous section is restated as;
$ROA_{it} = \beta_0 + \beta_1 BDC_{it} + \beta_2 FMZ_{it} + V_i + e_{it}$

a) Determination of the Choice of Analytical Method

Prior to carrying out the regression analysis, two tests are conducted. These are the Breusch and Pagan Lagrangian multiplier (LM) test and the Hausman Taylor test. The need for the latter test is determined by the outcome of the former. If the result of the former test prefer the pooled regression to the Random Effect, the Hausman Taylor test would not be necessary.

(a i) **Serial Correlation Test**

A serial correlation test would needs to be conducted to determine whether random effect or pooled regression is more appropriate for estimating the parameters. This is to test whether the individual effects are homogeneous across the cross-sectional units or not. The Breusch and Pagan Lagrangian multiplier (LM) test would be employed to test for the model specified earlier. The data for the test is attached as an appendix on pages 25 to 27. The STATA package version 13 is employed to analyse the data.

The hypotheses for the test are stated as follows;

H_0 There is no panel effect (accept OLS)

H_1 There is panel effect (accept GLS)

The **decision criterion:** Reject the null hypothesis if the calculated p-value is less than the level of significance at 5% and accept the alternative. This implies that the random effect model estimated using GLS technique is preferred to the pooled regression model estimated using the technique of OLS. The test results are presented on table 1.

Table 1: LM Test Showing the Result of Random Effects Model against the Pooled in Models

	X^2	p
Model One	48.03	0.0000
Model Two	54.75	.0000

Note: X^2 = Chi-square and P- value = probability value.

Source: Result of Analysis using STATA Window 13.

Decision: It is clear that the chi-square tests are in each case asymptotically large with 0 percent probability value. Therefore, at alpha value of 1 percent the null hypothesis that there are no panel effects is rejected. This suggests that random effects model appears to be more adequate or robust than the pooled regression model in the two models.

(aii) **The Hausman Taylor Test**

Since the Random Effect model is selected, the second test is imperative. The Random Effect is therefore tested against the Fixed Effect model. Both Random and Fixed effects models assume the presence of individual effect in the series. However it is important to identify whether this individual effect is fixed or random across the units. The model that eventually emerges as the more appropriate between the random effect and fixed effect is then adopted in analysing the hypotheses in the study. The Hausman's test is employed in conducting the test. The data used for this test is attached as an appendix on pages 25 to 27.

The hypothesis are stated as follows;
H_0: Difference in coefficients not systematic (Random Effect is preferred)
H_a: Difference in coefficients systematic (Fixed Effect is preferred)

Decision Rule: If the p-value is less than 5% reject null hypothesis which means that random effect is rejected but if otherwise, then accept null hypothesis and reject alternative hypothesis. The result is summarised below:

Table 2: Hausman's Test Showing the Result of Random Effects against Fixed in the Models

Variable	fixed	random	Difference	S.E.	X^2	P
Model One						
Dbdc	-1.555	0.692	- 2.246	-	26.29	0.0000
Logfmz	-16.965	-0.196	- 16.768	3.270	-	-
Model Two.						
logbds	17.07	32.24	-15.17	6.39	29.82	0.0000
logfmz	-16.24	-1.75	-14.49	3.25	-	-
$X^2 = 29.82$						
P- value (X^2) =0.0000						

Note: roa = return on Assets (dependent variable) dbdc = board composition differenced to order 1. logfmz = the log of the firm size.S.E. = standard error.

Source: Result of Analysis using STATA Window 13.

Decision: From the table above, the observed p-value is 0.0000 which is less than the critical value at 5% (i.e 0.05). Therefore the null hypothesis which states that the individual effects do not correlate with the included variables is rejected. The fixed effect model which states that the difference in the coefficients is systematic is therefore accepted.

Regression Results and Discussions

Based on these preliminary tests carried out, the Fixed Effect model using the Generalised Least square Regression (GLS) method is adopted in the analysis. The data to use is the proportion of the non-executive directors earlier computed on Excel computer package which is exported to STATA 13. The data used for this analysis is attached as an appendix on pages 25 to 27. The result of the analysis is summarized below;

Table 3: Results of the Fixed Effect Model on the Relationship between Return on Assets and Board Composition-Model one

Variable	Coefficient.	Std. Err.	t	P-value
dbdc	-1.555	5.592	-0.28	0.782
logfmz	-16.965	4.428	-3.83	0.000
cons	87.597	18.168	4.82	0.000
$R^2 = 0.243$				
rho = 0.875				
F-test = 7.34				0.0011.

Note: roa = return on assets (dependent variable) dbdc = board composition differenced to order 1.logfmz = the log of the firm size t= t-test.

Source: Result of Analysis using STATA Window 13

.Interpretation

If all the independent values are zero, the mean value of ROA is 87.6. The coefficient of the board composition (BDC) is -1.55 and a p value of 0.782 which is greater than 5% level of significance. This means that the coefficient of bdc is not significantly different from zero implying that bdc alone does not have significant impact on ROA. The F-test with a value 7.34 has a p value of 0.0011 which is less than 5% level significance. This implies that the regression model is good. The rho which is a measure of the correlation across units is 0.875 shows that all the variables across units are positively correlated. On the whole, the independent variables contributed 24.3% to the variations in return on assets (roa). The coefficient of the firm size is -16.965 and the p value of 0.0000 which is less than 5% level of significance. This implies that the coefficient of the firm size is significant and can therefore impact on ROA. The F-test and the Rho are respectively positive at 7.34 and 0.875 and the p value is 0.0011. Since the p-value is less than the critical value at 5%, the null hypothesis is rejected and the alternative hypothesis which states that non-executive directors have significant effect on the financial performance of manufacturing firms in Nigeria is accepted.

ii) Hypothesis 2

H_0: Board size has no significant effect on the financial performance of manufacturing firms in Nigeria.

From the null hypothesis above, we postulate that the total number of board members has no significant effect on the financial performance of manufacturing firms.The model ealier defined in the previous chapter is restated as;

$$ROA_{it} = \beta_0 + \beta_1 \log BDS_{it} + \beta_2 FMZ_{it} + V_i + e_{it}$$

Based on these preliminary tests carried out, the Fixed Effect model using the Generalised Least square Regression (GLS) method is adopted in the analysis. The data to use is the ratio of non-executive directors to the total number of directors on board earlier computed on Excel computer package which is transferred to STATA 13. This data is attached as an appendix on pages 25 to 27. The result of the analysis is summarized in table 4;

Table 4: Results of the Fixed Effect Model on the Relationship between Return on Assets and Board Size Variables -Model Two.

Variable	Coefficient.	Std. Err	t	P-value.
logbds	17.074	15.743	1.08	0.281
logfmz	-16.238	4.419	-3.67	0.000
cons	67.763	25.327	2.68	0.009
R^2 = 0.222				
rho = 0.858				
X^2 = 7.97				0.0006.

Note: roa = return on assets (dependent variable) logbds = logarithm of board size logfmz = the logarithm of the firm size, t= t-test.

Source: Result of regression Analysis using STATA Window 13.

Interpretation

If all the independent values are zero, the predicted value of the intercept will be 67.7.

The board size (BDS) shows a coefficient value of 17.07 and a p-value of 0.281 which is greater than 5% level of significance. This means that the coefficient of bdc is not

significantly different from zero implying that bdc alone does not have significant impact on ROA. The F statistics has a value of 7.97 and the corresponding p value is 0.0006 which is less than 5% level significance. This implies that the regression model is good. In addition, correlation coefficient has a positive value of 0.858. The coefficient of the firm size is -16.238 with a p-value of 0.0000 which is less than 5% level of significance. This implies that the coefficient of the firm size is significant and can therefore impact on ROA. The p value of 0.0006 is less than the table value of 0.05. On the basis of the decision criterion set, we reject the null hypothesis and accept the alternative hypothesis which states that Board size (BDS) has significant effect on the financial performance of manufacturing firms in Nigeria. This invariably means that the board size must be considered while taking financial decision.

Discussion of Findings

The finding from the first hypothesis shows that board size has positive and significant influence on the financial performance of manufacturing firms in Nigeria. This finding is supported by Oki, (2015), Bonaziz and Triki (2012), Tomyeva and Wereko (2012), Kader, Cigdem & Ozsalih, (2011) and Bathula (2008). They hold that the right board size which is highly independent from the management of the company and with the appropriate skills would ensure that the board is well diversified and have the competence to give the strategic direction of the company. This finding however disagreed with the previous work of Jensen (1993) and Lipton & Lorsch (1992) and Hermalin and Weisbach (2003), who argue that large boards are less effective and are easier for the CEO to control.

The findings of hypothesis two showed that the independence of the board of directors as depicted by the composition of the board (executive and non-executive) has positive and significant effect on the financial performance of manufacturing firms in Nigeria. This finding is consistent with the earlier works of Aamir & Sajid (2012), who found that the listed companies of Pakistan at Karachi stock exchange, which have non-executive (independent) board members in their board, were showing greater Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q. The author's finding is also in tandem with the results of Kader, Cigdem & Ozsalih (2011) and Ogbechie and Koufopoulos (2010), who hold that outside directors bring their experience and social capital to add value to the firm. This finding is however contrary to the findings of Biekpe & Coleman (2006), who pointed out that boards may expand for political expediency and often result in too many outsiders on the board which does not help performance. The works of Matanda et al (2015), *Gupta*, Duane & Weaver, *(2009) and* Postma, Theo, Hans & Sterken, (2009) also hold that board composition has no significant effect on performance.

Conclusions and Recommendations

This research was designed to empirically address the board composition variables as it applies to the Nigerian manufacturing firms in the post enactment of the Code of Corporate Governance Act. The variables considered are the proportion of non-executive directors to the total directors and the board size. The research used the descriptive cross sectional survey design. Data was collected by secondary method. The audited annual reports and accounts of nineteen firms covering the period of twelve years (2005 to 2015) met the selection criteria set for analysis in this study.

Specifically, this research found that board size has significant effect on the performance of manufacturing firms in Nigeria. Our findings also revealed that the proportion of the non-executive directors to the total directors has significant and positive effect on the financial performance of the sampled firms. We therefore conclude generally that dysfunctional board size adversely affects the performance of manufacturing firms in Nigeria. Also the role of the non-executive

directors in monitoring the performance of management is indispensable. There is also substantial compliance with the Code of Corporate Governance Act of 2011 by manufacturing firms in Nigeria.

On the basis of the findings of this study, the author recommends an increase of minimum Board Size to Eight. The Code of Corporate governance, 2011 stated that the minimum number of board membership should be five (5). This number in our opinion is quite minimal even for small public companies and may have negative implications on effectiveness where companies decide to adopt the minimum requirement. Also, we recommend the expansion of coverage of Governance Code. In view of the importance of the non-executive directors to the overall performance of manufacturing firms, we recommend that unquoted or private limited liability firms should be covered by the Code of Corporate Governance.

Finally, we recommend the establishment of Corporate Governance Board. The role played by the Securities and Exchange Commission (SEC) in monitoring compliance to the Code falls outside the Act that established them. We therefore recommend the establishment of "Nigerian Corporate Governance Board" (NCGB) to be located in Abuja the Political capital of the country.

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