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BUSINESS COMPLEXITY EFFECT ON THE RELATIONSHIP BETWEEN DIRECTORS' OWNERSHIP AND FINANCIAL PERFORMANCE IN NIGERIAN MANUFACTURING FIRMS

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Abstract

Agency theory suggests that higher information asymmetry in complex firms leads to greater agency conflict. The paper examined the role of directors' ownership on financial performance and the moderating role of business complexity on that effect. Data were collected from secondary source through published annual reports of 22 firms for the period 2007 to 2015. Business complexity was measured by industry-wise Hirfindahl-Hirshman index. Unbalanced panel data were analyzed by way of Ordinary Least Square (OLS) regression with heteroskedasticity corrected standard errors. It was reported that both inside and outside directors' shareholding have negative and significant effect on financial performance. However, the interaction between executive directors' shareholding and business complexity has a significant positive effect on financial performance. It is thus recommended that there should be separate code of corporate governance requirement for firms that are complex from those that are not with respect to directors' shareholding. The outcome of the study provided new evidence on the effect of managerial ownership on corporate performance

that may be useful to regulators for policy formulations in order to minimize agency conflict.

Key Words: Directors' shareholding, managerial shareholding, non-managerial shareholding, business complexity, financial performance.

1. Introduction

The role of directors' shareholding in mitigating agency conflict has attracted the attention of academics, policy makers and regulators for quite in recent years. This is partly as a result of the collapse of once prestigious corporations such as Enron in the U.S. as a result of corporate malpractices by top management. The event has increased the effort of financial economists to devise mechanisms that can help reduce agency conflict between managers and shareholders. Theoretically, corporate directors are expected to act in such a manner that is consistent with shareholders' interest regardless of what they stand to benefit from these actions (Shehu & Abubakar, 2012). However, this is not always the case as corporate managers are tempted to use their position to pursue their own selfish interest at the expense of shareholders (Jensen & Meckling, 1976). Agency theory suggests that ownership structure of a company serves as an important monitoring mechanism that can help achieve goal congruence between managers and shareholders. Similarly, several empirical studies have examined that association between directors' shareholding variables and financial performance (Sanda, Mikailu & Garba, 2005; Gugong, Arugu & Dandago, 2014; Abdolkhani & Jalali, 2013; Mirza & Javed, 2013; Quang & Xin, 2014; Li & Sun, 2014).

Extant literature also provides that the relationship between the relationship between governance variables and accounting outcomes are moderated by some internal and external factors. For example, Osma and Noguera (2007) found that governance mechanisms have varying results for common law and codified law countries because of differences in institutional and regulatory settings. Another factor that falls within the moderators of ownership structure is business complexity. This is because complex firms are characterized by higher degree of information asymmetry between managers and external market participants. A prominent area through which managers of these firms exploit to their advantage is the related-party transactions, which involves sophisticated and diverse transactions between a firm and parties such as directors, controlling shareholders, and other business affiliates (Munir, Saleh, Jaffar & Yatim, 2013). The implication of this is that firms that are more sophisticated present a unique setting in the agent-principal relationship as it provides incentive for managers to expropriate resources and manage earnings. As such, the high degree of information asymmetry suggests that complex firms require better systematic

monitoring (Singh & Davidson, 2003; Ali, Salleh & Hassan, 2008). Consequently, it is expected that business complexity moderates the association between ownership structure and financial performance of Nigerian manufacturing firms.

The Nigerian manufacturing is witnessing an unprecedented change because of the government's renewed effort to diversify the economy as result of the falling oil prices which deeply hurts the economy. It is apparent that sole reliance on oil revenue is no longer sustainable to drive the economy. The sector is composed of sub-sectors with promising business outlook in terms of contribution to economic growth. Although this sector is replete with harsh business conditions in recent years, such as poor infrastructure and hostile business environment, it continues to serve as an important force to reckon with in real Gross Domestic Product (GDP) contribution. It was reported that the consumer goods firms alone accounted for about 13 percent of the GDP of the country, which is approximately 4.2 trillion Naira in 2014 (Business Day, 2015). Also, eight manufacturing firms featured out of the twenty (20) most valuable firms in Nigeria by the end of 2014 (Nigerian Bulletin, 2014). For the sector to continue to play the expected role of leading the economy, it needs to explore all options in order to remain profitable. One such options is to ensure that the directors' and top management of these firms are up and doing so that it can contribute more significantly to economic development of the nation.

While there are empirical studies both local and international that examined the effect of directors' shareholding on financial performance (Uadiale, 2010; Tukur & Abubakar, 2014; Quang & Xin, 2014), these studies are limited by certain problems that call for further investigation of the association. First, there is the need to test the effect of different levels of ownership in relation to performance because of the well documented evidence that managerial shareholding has a non-linearly related to performance. Second, prior studies have usually studied directors' ownership as one variable, a combination of both executive and non-executive directors' shareholding (Sanda et al. 2005; Gugong et al. 2014). While we acknowledge that Board activity is a shared responsibility among top executives, there is a need to study these variables in isolation given the fact that the executives occupy a more influential position than other non-executive directors as they are the leaders of the management team. Lastly, the inconsistency of empirical evidence on this relationship is as a result of some factors that moderate the relationship, which is largely ignored by previous studies.

It is against this backdrop that this study examines the effect of directors' shareholding on financial performance condition on business complexity for the

period 2007 to 2015. To achieve this objective, the study tests two main hypotheses as follows; (1) Directors' shareholding has no significant effect on financial performance of listed manufacturing firms in Nigeria. (2) Business complexity has no significant moderating role on the effect of directors' shareholding on financial performance of listed manufacturing firms in Nigeria. The paper contributes to the literature in the sense that it is the first empirical study that examined the role of business complexity in the association between directors' shareholding and financial performance.

The remainder of the paper is organized as follows. In section two conceptual issues are discussed alongside empirical evidence and theoretical framework. Methodological concerns such as the design, sample and variables measurement are presented in section three. Section four contains result and discussion. In section five conclusions are made and recommendation proffered.

2. Review of Related Studies

The agency conflict is much more pronounced when ownership is diffused among shareholders. Demsetz and Villalonga (2001) observes that the holder of corporate stock loses control over his wealth because ownership is largely dispersed across numerous stockholders and there is lack of power by the owner to oversee managerial performance in modern corporations. It is further observed that managers exercise a great deal of latitude in the use of firms' resources than would an owner-manager or at least, if ownership was less dispersed. Empirically, prior literature has documented that ownership structure influences managerial incentives and firm performance (Klein, 2002). The wisdom behind share ownership of BODs is thus to align as nearly as possible the interest of the parties to agency relationship and ultimately reduce monitoring cost. Uadiale (2010) asserts that when executive board members own part of the firm, they develop shareholder-like interests and are less likely to engage in behavior that is detrimental to shareholders. The same assertions are also directed to outside directors, indicating that their equity stake will affect their decisions. Klein (2002) noted that non-management directors with concentrated ownership are more prone to closely monitor the firm than directors with negligible shareholdings.

Within the BOD's ownership variables, managerial shareholding has been given considerable attention over the last few years. This is partly because; it is assumed that it can play a major role in curbing agency conflict. Berle and Means (1932) in their much publicized work entitled "The Modern Corporate and Private Property" opine that potential conflicts of interest arise between corporate managers and dispersed shareholders when managers do not possess ownership interest in the firm. The central theme of the work is that because managers and

shareholders have divergent interest, there is the need to incorporate managers as part of the shareholding structure of firms, which they note was quite dismal as at that time. On the contrary, Gugong, et al. (2014) observed that conflicts between the shareholders and managers can 'entrench' controlling power over a firm's activities, leaving external or small shareholders with difficulty in influencing the actions of such ownership. Thus, the reason behind the rise of this variable in corporate governance discussions is rooted in the agency theory, which assumes that managers' equity holdings encourages them to act in a way that maximizes the value of the firm.

Empirical evidences abound in the literature regarding the effect of directors' shareholding on financial performance. However, these results are largely mixed and inconclusive. The difference in findings is attributable to sample selection bias, methodology and differences in corporate governance of countries, among other factors. Khan et al. (2008) examined the effect of managerial share ownership on operating performance of Australian companies during the period 2000 to 2006 using 1154 firm-year observations. The regression analysis revealed an inverse relation between ownership and performance for executive directors. However, no significant relation was found between share ownership by independent directors and either earnings or adjusted earnings. It is commendable that the study used both adjusted and unadjusted measures of performance based on the fact that often the earnings reported are managed. Similarly, Abdolkhani and Jalali (2013) investigated the effect of managerial ownership concentrated on firm return and value for a sample that consists of non-financial firms listed on Tehran stock exchange between 2007 and 2009. It was reported that managerial ownership concentration had negative impact on firm value.

Also, Mirza and Javed (2013) examined the performance of firms in terms of profitability and its association with multiple determinants for 60 Pakistani corporate firms listed in Karachi stock exchange for the period of 2007 to 2011. The fixed effect regression result revealed that insider ownership had negative influence on financial performance. It should be noted that the study measured insider ownership as board ownership plus directors' families' shareholding. This method could be misleading because the influence of the directors' shareholding was not examined in isolation. Further, Quang and Xin (2014) assessed the relationship among ownership structure, capital structure and financial performance using a sample of 134 non-financial firms listed on Vietnamese Stock Exchange. An insignificant association was reported between managerial equity interest and performance.

Similarly, Li and Sun (2014) demonstrated that increase in effective managerial ownership as a result of previous tax cut significantly leads to an increase in firm performance in a non-linear fashion. Specifically, firm with intermediate level of managerial ownership has high improvement in firm performance while the effect is small for firms with very low or very high managerial ownership. The sample of consisted of 3,690 different firms for the period 2000 to 2005. Additionally, Zakaria et al. (2014) used a sample of Malaysian firms during 2005 to 2010 to examine the impact of ownership structure on firm performance of the Malaysian listed Trading and Services firms. The study reported that concentrated managerial ownership enhances firm performance for privately held firms, while the relationship is inverse in government owned firms. All empirical studies reviewed so far were conducted outside of Nigeria and therefore the findings may not be applicable to Nigerian firms given the difference in regulatory requirements of countries.

There has also been reasonable effort by Nigerian studies to explore the association between managerial ownership and financial performance. Recently, Gugong et al. (2014) examined the impact of ownership structure on the financial performance of listed insurance firms in Nigeria using a panel data for seventeen (17) firms for the period 2001 to 2010 (10 years). It was documented that positive relationship exists between inside ownership and the measures of performance (ROA, ROE). In the same vein, Tukur and Abubakar (2014) using Feasible Generalized Least Square Model (FGLS) found that directors' equity holding negatively impacts on financial performance measured by Tobin's Q. However, the effect disappears when ROA and ROE are used as measures of performance. Earlier, Sanda et al. (2005) studied the effect of corporate governance mechanisms on financial performance of Nigerian firms using a sample of 93 firms listed on the Nigerian Stock Exchange covering 14 different sectors during 1996 to 2001. The study reported an inverse interaction between directors' shareholding and performance with varying effects on different performance measures. This suggests that measurement of performance is important in the analysis as it significantly influences the magnitude and direction of the relationship. In another context, Adeyemi and Fagbemi (2010) examined the interaction among audit quality, corporate governance and firm characteristics using a sample of 58 firms listed on the NSE for the year 2007. The results of logistic regression revealed that stock ownership by non-Managerial Directors enhance quality of audit. It could be inferred that if directors' shareholding improves earnings or financial reporting quality, it is an indication of incentive alignment. It follows therefore that there is a positive relationship between Directors' equity stake and financial performance.

The conclusion that can be derived from the review of Nigerian empirical studies is that the mixed findings are largely as a result of differences in sample selection, variables measurement and model specifications. It is also observed that none of the studies have attempted to test the effect of directors' ownership at different ownership levels. This is grossly inadequate because of the documented non-linear relationship between managerial ownership and firm value. Lastly, none of the studies have considered the moderating role of business complexity on the association between directors' shareholding and financial performance. The present study argues that because of the information asymmetry inherent in complex organizations, the incentive alignment of the agency theory may not hold. As such level of complexity of organizations may engender different agency problems and possibly give rise to new agency propositions.

Agency theory provides natural background upon which this study is based. The theory prescribes a number of mechanisms that will lead to goal congruence in modern corporations that are characterized by the separation of ownership from control, one of which is Directors' equity ownership. It is widely held that if managers acquire shareholding of their firms they are more likely to act in the best interest of the shareholders.

3. Methodology

The design adopted for this study is correlational research with focus on the relationship between directors' shareholding and financial performance. This design is relevant when a study intends to measure the association and/or variability of variables usually through the positivist paradigm. The population consists of all 74 manufacturing firms listed on the Nigerian Stock Exchange as at 31st December, 2015. There are five categories of industries that match our definition; Agricultural (5 firms), Conglomerates (6 firms), Consumer Goods (27 firms), Industrial Goods (20 firms), Natural Resources (5 firms), Healthcare and Pharmaceutical firms (11). Two criteria are introduced in order to arrive at the sample. One, to be included, a firm must have available data for at least four (4) years of the period of study, that 2007 to 2015. Second, it must not have changed name, merged or liquidated during the period. These yield an unbalanced panel data with 166 firm-year observations. Data were collected through secondary source only via annual reports of the sample firms. It has been generally observed that the data based surveys provide quantitative information that is much needed for the researcher to test the relevant hypotheses. In addition, Ordinary Least Square (OLS) was used as technique of data analysis while taking into account the need to satisfy all of its assumptions in order to ensure robustness of the result.

Financial performance was measured as Return on Assets (ROA), which is defined as earnings before interest and tax divided by total assets. ROA is argued to be the best measure of financial performance and has dominated empirical studies on the subject matter. Business complexity was measured using the industry-wise Hirfindahl-Hirshman index. Consistent with Cheng, Li and Shevlin (2014) complexity is defined as an indicator for high complexity, which equals one (zero) for firm-year observations with above (below) the median first principle component of the ratio of segment sales to total sales of the firm.

$$\sum_{industry=1}^n \left(\frac{Sales_{segment}}{Total Firm Sales} \right)^2$$

The measure has a range between 0 and 1. Higher values of these indices indicate more industry and segment sales concentration, and therefore less complexity. Thus the variable was represented by ‘1’ for complex firms and ‘0’ otherwise. If coefficient for the interaction variable is found to be significant but the COMP is not, it is an indication that COMP is a ‘pure’ moderating variable. However, it is referred to as the ‘quasi’ moderator if the COMP and the interaction variables are both significantly related to ROA (Ali et al. 2008).

Next, based on the agency theory, linear models of the relationship between Directors’ Shareholding and Financial performance are presented as follows:

$$ROA_{it} = \alpha_0 + \beta_1 DIR_{it} + \varepsilon_{it} \dots \dots \dots$$

...i

Model i tested the aggregate effect of directors’ shareholding on financial performance in order to assess the monitoring effectiveness of board ownership as a whole.

$$ROA_{it} = \alpha_0 + \beta_1 DIR1_{it} + \beta_2 DIR2_{it} + \beta_3 DIR_3 + \varepsilon_{it} \dots \dots \dots$$

.ii

Model ii tested the effect of directors’ ownership at different levels through three piece-wise linear terms categorized into low ownership (DIR1), medium ownership (DIR2) and high ownership (DIR3). This is consistent with Morck, Schleifer and Vishney (1988) and Himmelberg, Hubbard and Palia (1999). However, the model differs from both Morck et al. (1998) and Himmelberg et al. (1999) in that we test the piece-wise linear terms in isolation because of the presence of exact correlation noticed between total directors’ ownership and DIR1.

$$ROA_{it} = \alpha_0 + \beta_1 EXECO_{it} + \beta_2 NEXECO_{it} + \varepsilon_{it} \dots \dots \dots iii$$

In model iii, directors' ownership was split between executive and non-executive directors' shareholding. This is relevant because different set of directors' perform varying functions and inside directors are known to have more direct relationship with organizational outcomes.

$$ROA_{it} = \alpha_0 + \beta_1 EXECO_{it} + \beta_2 NEXECO_{it} + \beta_3 EXECO * COMP_3 + \beta_4 NEXECO * COMP_{it} + \beta_5 COMP_{it} + \varepsilon_{it}$$

..... iv

Finally, Model iv was an extension of model iii with the inclusion of the moderator variables. While Model iii tested the direct relationship between executive directors and non-executive director's shareholding on financial performance, Model iv presented both the direct relationship and moderating effect. The variable COMP was also included to assess the nature of its moderation; pure or quasi.

4. Result and Discussion

The analysis starts with the descriptive statistics, which is followed by correlation and matrix and the regression result.

Table 1: Summary Statistics

Variable	ROA	DIR	EXECO	NEXECO	COMP
Mean	12.338	5.550	0.214	4.707	0.355
Std. Dev.	12.587	11.275	0.615	9.524	0.480
Min.	-17.987	0.018	0.000	0.008	0.000
Max.	61.174	53.308	3.095	47.174	1.000
S. Wilk	0.000	0.000	0.000	0.000	0.999
Prob.					

Source: STATA output

Table 1 presents the descriptive statistics of the variables used in the study. It shows that financial performance of the sample firms has a mean of 12.3 indicating that on average the firms made profit to the tune of 12% on total asset during the period of study. A negative return is also reported as indicated by the minimum (-17.98). However, there is substantial performance recorded as shown by maximum of 61%. The mean of combined director's holding is 5.6%, and the minimum and maximum are 0.02 and 53.3% respectively. These indicate that directors' hold a fairly large amount of shares of the companies that they manage. Executive Directors' shareholding (EXECO) has a mean of 0.21% with a minimum of 0%, and a maximum of 3.1%. These show that executive directors'

shareholding in Nigerian manufacturing firms is low and generally less than 5% of total shares in issue. This is further substantiated by the fact that some of the firms still have no managerial shareholding. Non-executive directors' equity interest (NEXECO) on the other hand averages 4.7%. The maximum shareholding of 47% attests to the fact that ownership in emerging economies is characterized by large shareholders who also sit on the boards and are actively involved in overseeing firms' activities. The moderator variable (Complexity) has a mean of 0.35 suggesting that 36% of the observations are generated from complex firms. Since, it is a dichotomous variable, the minimum and maximum are 0 and 1 respectively.

Overall, the large difference between the means and the respective standard deviations of the independent variables indicated that the data are skewed. The Shapiro Wilk test for normality result confirmed that as all the z probabilities, except that of complexity, are significant at 1% indicating that the data are skewed.

Table 2: Correlation matrix

	ROA	DIR	EXECO	NEXECO
ROA	----			
DIR	-0.1927	----		
EXECO	-0.1273	0.3184	----	
NEXECO	-0.1870	0.9975	0.2933	----

Source: STATA output

The correlation matrix table shows that all the directors' shareholding variables have inverse relationship with financial performance. This relationship is stronger when ownership is taken in aggregate (-0.1927). When separated, the inverse relationship between non-executive holdings (-0.1870) is higher than that of the executive ownership (-0.1273). Results indicate that there is multicollinearity between DIR and NEXECO suggesting that the two variables cannot be accommodated in the same model. This is already anticipated, but all variables are included in the same matrix in order to show the direction and strength of the relationships between the explanatory and explained variables. Aside that, the correlation coefficient between EXECO and NEXECO (0.2993) shows that having the variables in the same model will produce a meaningful result.

Various robustness tests were conducted in order to ensure reliability of the findings. These included VIF test for multicollinearity, heteroskedasticity and the test for panel effect. The results indicated that there is no harmful multicollinearity among variables in the same model. However, in all the models, the homoscedasticity assumptions were not met and as such all regressions

analysis are based heteroskedasticity corrected standard errors. Finally, after the Hausman specification test suggested random effect regression was preferred, the Langrange multiplier test result indicated that there is no panel effect in the data set. Consequently, the OLS regression suffices as the appropriate technique of analysis

Table 3: Regression Result

Variable	Model 1	Model 2	Model 3	Model 4
Dir.	-0.215 (-4.12)***			
Dir1		6.87 (2.28)**		
Dir2		0.429 (2.18)**		
Dir3		-0.739 (-0.408)***		
EXECO			-1.603 (-1.89)*	1.960 (-2.10)**
NEXECO			-0.216 (-3.38)***	-0.254 (-3.06)***
EXECO*COMP				58.317 (2.59)**
NEXECO*COMP				-1.102 (-2.17)**
COMP				-0.855 (-0.34)
R2	0.037	0.046	0.041	0.088
F. Stat.	16.96	7.93	9.40	4.79
Prob.	0.000	0.000	0.000	0.000

Source: STATA Output

(***, ** and * indicate significant levels at 1%, 5% and 10% respectively)

Table 3 presents a summary of the results from the four (4) regression models. The F. statics shows all models are fit in explaining the modeled relationships. Note that the R2 for Model 4 is highest suggesting that conditioning on the empirical indicator of business complexity significantly improves the effect of director's shareholding on financial performance coefficients and the overall explanatory power of earnings. The low R2 is as a result of the deliberate exclusion of control variables in all the models.

The result from model 1 indicates that directors' shareholding has an inverse and significant effect on financial performance. This means that when the variable is measured as the total equity ownership of the board, it impedes financial performance. Contrary to the agency theory, which predicts a positive relationship between board ownership and favorable organizational outcomes, the results indicate that share ownership in fact exacerbates agency problems and therefore is a weak monitoring mechanism. There are several empirical studies that this study supports including Sanda et al. (2005), Khan et al. (2008) and Mirza and Khan (2013). Based on this, the null hypothesis which states that directors' shareholding has no significant effect on financial performance is rejected.

In the second model, positive effect of DIR1 and DIR2 on financial performance is observed. Although with varying coefficients, both variables are significant at 5%. Comparing the coefficients, DIR1 has a stronger influence. However, DIR3 revealed an inverse interaction with financial performance. These results are partly consistent with the entrenchment hypothesis which predicts positive effect of managerial shareholding at both lower and higher levels of ownership. Empirically, the finding is partly consistent with Morck et al. (1988) but contradicts Himmelberg et al. (1999). It further contradicts the hypothesis in that we find entrenchment effect at higher levels ownership. There are various factors that can explain this unexpected finding. Most importantly, at high level ownership, it is the non-executive directors that have the largest portion of the equity. At this level, it is not unlikely that they can compel the CEO and the management team to pursue goals that may have detrimental effect to performance. There are classical examples of this corporate malpractice where directors expropriate minority shareholders' funds to pursue personal objectives such as financing the campaign of the political candidates of their choice.

The result from Model 3 shows that both EXECO and NEXECO have inverse effect on financial performance. While the former is significant at 10% with coefficient of -1.6, the latter is significant at 1% with coefficient of -0.2. This further confirms our earlier assertion that non-executive directors' shareholding is the main driver of the negative influence of board ownership on performance. Overall the results contradict the incentive alignment proposition of the agency theory. At this level, it clears that ownership of both management and non-management directors constrain financial performance. The role of Model 3 is to test the direct relationship between EXECO and NEXECO with financial performance

In Model 4, the results for the executive and non-executive directors remain the same but with slight change in the coefficients and levels of significance. This is largely as a result of the substitution effect caused by the inclusion of additional

variables in the model indicating that the positive and significant relationship between the interaction variable and financial performance weaken the significant relationship between executive ownership and financial performance. The result of the interaction between complexity and executive directors' ownership (EXECO*COMP) has produced positive and significant effect on financial performance. To further confirm this, Wald test was conducted to find out whether EXECO coefficients after interaction with COMP is significantly different from that of the earlier proposition. The test result is significant at 1% for executive directors' shareholding while it is not significant for non-executive directors' ownership. Therefore, it is concluded that COMP is a 'pure' moderating variable in the relationship between executive directors' shareholding and financial performance. Thus, the null hypothesis which states that complexity has no moderating role in the relationship between directors' shareholding and financial performance is rejected.

The findings of this study have both theoretical and practical implications. Theoretically, it provides evidence that business complexity could be the factor responsible for the inconsistency of findings that trail studies that examined the effect of managerial shareholding on financial performance. Practically, it demonstrates that the effectiveness of directors' shareholding in achieving goal congruence varies across organizations depending on their levels of complexity. This should be relevant in the design and implementation of future code of corporate governance for public listed firms in Nigeria.

5. Conclusion, Limitation and Recommendation

The paper set to examine the effect of directors' shareholding on financial performance of listed manufacturing firms in Nigeria condition on business complexity. An evidence is provided that directors' equity interest affects financial performance and therefore plays an important role in agency conflict, which is similar to prior empirical results. It is also found that business complexity is a pure moderator of the relationship between executive directors' shareholding and financial performance where the direction of the relationship is changed and strengthened from negative to positive. This is an indication that although executive ownership has a negative influence on financial performance, business complexity affects that behavior in a positive way. Thus, executive directors' shareholding is found to be an important monitoring mechanism in firms that are complex and can substitute for other weak governance mechanism. It is therefore recommended that there should be a provision in the code of corporate governance for manufacturing firms that will encourage inside directors' shareholding for firms that have different segments with significant

revenue contributions relative to total firms' sales. This will entail a regular review of business complexity by the authorities and a report on them.

The findings of the study should be interpreted with caution because of its shortcomings. One of such is that, it did not control for endogenous variables, such as size, that have been well documented to affect the results of studies of this nature. This is rather intentionally as our focus is testing the main effect of the independent variables on the target variable. However, we have a cause to believe that this does not statistically invalidate the findings. Future researches may deem it fit to control for these factors in modelling the relationship between directors' shareholding and financial performance with business complexity as the moderator variable. Secondly, focus was made on ROA only as the measure of financial performance. It is strongly recommended that future researches should test whether results are robust to other performance measures such as return on equity, return on investment and Tobin's Q.

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