

## Moderating Effect of Firm Size on Board Structure and Performance of Firms in African Stock Market

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### **Abstract**

*This study investigated the moderating effect of firm size on board structure and performance of firms in African stock market. Two specific objectives were established at first to ascertain the effect of board meeting and board independence on return on assets of the oil and gas firms from African stock market. On the other hand, the study tested the moderating effect of firm size on relationship between hypotheses actually synchronize with the objectives of the study. The research adopted descriptive study of ex-post facto and collected secondary data from the annual reports of firms covering 2012 to 2022. Sample of six firms were purposely selected from the total population of the ten oil and gas firms listed on African stock market. Panel regression technique was applied in data estimation, whereas Hausman test assisted the study to selected random effect result against fixed effect result. The empirical findings show that; board meeting and board independence have no significant effect on return on assets of the sampled oil and gas firms. Moreover, Firm size does not have significant moderating effect on the relationship between board meeting and firm performance of oil and gas firms listed on African market. Meanwhile, Firm size has significant moderating effect on the association between board independence and financial performance of oil and gas firms sampled at 1% level; Hence, the study recommends amongst others that The shareholders should appoint a good proportion of non-executive directors on the board to enable them engage the CEO fearlessly as to reduce the selfish interest of the CEO and executives directors.*

**Keywords:** Board independence, Board meeting, Board structure, Firm size and performance

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### **1.1 Introduction**

The board of directors is the highest governing body of a corporate entity and has been empowered by Nigerian code of corporate governance to exercise leadership in its oversight and control of the company, establishment of the company's risk management framework and monitoring its effective implementation, ensuring adequacy on the internal control system, arrangement for a succession plan, as well as enforce adequate appraisal on the executive management for the company's sustainability (NCCG, 2018). Commonly, corporate governance of members of the African stock market: Corporate Governance code of Uganda, corporate governance code of Zambia, corporate governance code of Mauritius also corporate governance code of Tanzania all stress that, board of directors is the principal body that functions in governance and management of companies in these countries mentioned above, and has the authority to direct and regulate the

business and affairs of the company as well as delegate functions to individual directors (Fulgence, 2014).

The argument in literature is that the interest of the shareholders could be more protected from the hands of self-centered management by non-executive directors or outside directors (Arosa et al., 2013). More so, Arosa et al. (2013) presented a case in support of agency theory that establishment of adequate monitoring mechanism to guard shareholders' interest through monitoring by non-executive directors. This led to the demand that higher proportion of independent directors should constitute board composition (NCCG, 2018; Fama & Jensen, 1983).

financial performance of firms are measured in literature using ratios like return on assets, return on equity, net profit margin and return on capital employed (Qian et al., 2021; Simionescu et al., 2021). The study by Bekiaris (2021) made an empirical submission that board structure is strongly affecting the performance of firms in Greek. However, whether the company's board of directors is effectively structured to provide the required succor as to maximize profit is a function of the size of the firm. Notably, firms of different sizes especially when having too many branches and group companies, may not have to form boards of the same size, have the same number of meetings a year or need equal number of expert directors.

More indicting position was the assertion made that collapse of well-known world business enterprises like World.Com and Enron are direct consequences of management's accounting earnings manipulation that were undetected by the board of directors (Shahzad et al., 2022). Many corporate governance codes like Code of corporate governance in Mauritius, Tanzania corporate governance practice, and Nigerian corporate governance code have been reviewed to contend consistent breakdown of orders and ensure that the menace of corporate failures are drastically reduced, which will invariably improve performance of the firms. So this study would be adding to the body of knowledge by robustly investigating the moderating effect of firm size on board structure and financial performance of firms in African stock market. The aim of the study is to evaluate the moderating effects of firm size on board structure and performance of firms in African stock market while the sub objectives are to determine: The effect of board meeting and board independence on financial performance and the moderating effect of firm size on the relationship between board meetings, board independence and financial performance of oil and gas firms in African stock market. The study tested these hypotheses formulated in line with the study sub objectives which are presented in their null forms as follows; **H<sub>01a</sub>**: Board meeting and board independence has no significant effect on the financial performance. **H<sub>02</sub>**: The moderating role of firm size has no significant effect on board meeting, board independence and financial performance of oil and gas firms on African stock market.

## **2.0 REVIEW OF REALTED LITERATURE**

### **2.1 Conceptual Review**

#### **Board Independence**

Board Independence represents the portion of the board that is constituted from the outside or non-executive directors of the company. Younas and Kassim (2020) define board independence directors as the outside directors in the board who are not affiliated to the enterprise. Obaje et al. (2021) emphasized that board independence is the freedom of the board members, to express their

opinion objectively on matter of the company, especially on the event of opportunistic behaviour of the manager, and are the mechanism for agency cost reduction. It should be noted that board of directors is made of both executive and non-executive members, but the executive members are the employee of the company while the non-executive members are exclusively independent of the company. Therefore the courage to challenge the managers or the CEO if need be depends on the person that is not a salary earner in that organization (Udezo et al, 2024). In the words of Obaje et al. (2021), board independence is the only basis that CEO and managers undue highhandedness and selfish moves, could be objectively addressed to allow effective running of business of the enterprise.

According to Oyedokun (2019), highly independent board is assured of bringing in high effective monitoring and checkmating of managers excesses and reliably enforcing reduction of agency costs. Meanwhile, there is evidence in literature that too many non-executive directors in a board would make them shift ground or not hold firm with realities on ground, since they are not part of the day to day running of the business.

Board independence has been massively measured in literature as the proportion of independent directors in the board to the executive directors in the board in a given financial year (Obaje et al., 2021; Agubata et al, 2021; Younas & Kassim, 2020; Oyedokun, 2019). Therefore, this study will measure the independent board in line with common measurement in literature as demonstrated.

### **Board Meetings**

Board meeting is the appraisal of efficiency of the board of directors through the number of times they convened to discuss the matters of the organisation. Ntim and Osei (2011) noted that board meetings foster members' ability to supervise, consult and manage when they meet regularly and improves the performance of the organisation financially. Board meeting is the only rallying point for the board members to incubate the strategy of monitoring, formulating and supervision of the operations and policies of the enterprise. If a board is constituted of highly skilled and experienced directors and they are not able to meet to present their prowess on the table, it may be very difficult for the team to achieve a meaningful result because they omitted the rallying point of incubating ideas, which is meeting. Agency theory also supports that the ability of the board to display higher conscientiousness on its duties would gain more control and would have more enhanced oversight function (Fama & Jensen, 1983; Jensen & Meckling, 1976). There are divergent views in literature on the impact of board meetings on the financial performance of firms. Some proponents agree that frequency of meetings have significant role to play in navigating the business as well as improving the financial performance of the organisation (Akpan, 2015; Ntim & Osei, 2011). On the contrary, other studies believe that frequent meetings of the board are adding to the burden of the enterprise by the heavy sitting allowances attached. They believed that the more the meetings of the board, the more the costs for their sitting would be eroding the profit of the organisation (Hanh et al., 2018; Adebisi, 2017). In this study board meeting was computed as number of times the board of directors had meetings in a fiscal year.

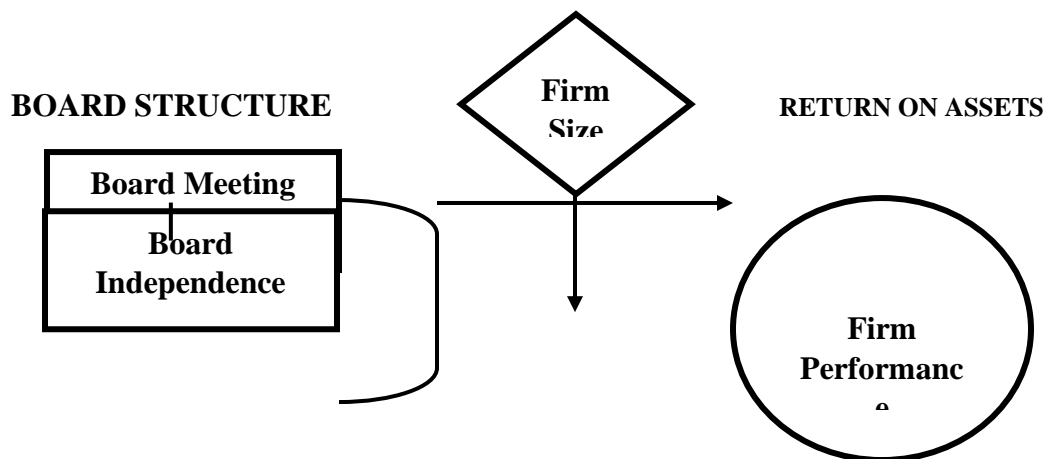
### **Firm Size**

Firm size could be defined from the perspective of total assets, total investment and net worth of the firm. It's widely accepted in literature that the size of firm is likely to influence a firm chances of making profit. Ideally, large firms have many advantages over small firms in their operations and that positions large firms in a position of performing better than small firms. Economies of

scale are one major advantage that large firms explore and maximize the opportunities it brings. Supporting the motion of exploiting the inherent economic of scale, Akinyomi and Olagunju (2013) maintain that large firms are very vital and critical to taking advantage of today's world economies of scales phenomenon. It was measured using log of total assets.

### Financial Performance of Firms

Gunu and Adamade (2015) point that financial performance is the quantitative measurement of attained objectives using financial variables. Akenga (2017) came from a similar perspective that financial performance is a process which measures in monetary terms, the results of a firms operations and policies. The central message form all the definitions above is that financial performance is the economic essence of any firm measurable using profitability ratios. Notably, business organisation that fails to make profit for a long period of time will eventually fail. In other words, improved financial performance is a non-negotiable feat every firm must achieve. Meanwhile, financial performance of firms could be measured in different ways for instance; by growth in profitability, production capacity, sales growth and utilization of the capital and financial resources (Oghenekaro & Onuora 2021; Omondi & Muturi, 2013). In this study it was measured using return on assets calculated using profit after tax divided by total assets.



**Figure 2.1 - Conceptual framework**

Source: Researcher's conceptualization 2024

### Theoretical Review

#### Resource Dependency Theory

This study is underpinned on this resource dependency theory. The Resource dependency theory was propounded by Pfeffer and Salancik in 1978. According to this theory, “the board of directors is a strategic resource, which provides a linkage to various external resources in a business organization”. The resource dependence theory emphasizes that organizations exert positive control over their operating environment by gathering resources needed for the survival of the organization,” (Hillman et al., 2000). In the resource dependence role, outside directors might bring resources to the firm, such as information, skills, access to key constituents (e.g., suppliers, buyers, public policy decision makers, social groups). Furthermore, resource dependence theory suggests that resource exchange (from governance attributes) between partners should be used as a mechanism to control environmental risk. The theory draws the attention of corporate entity to

their internal resources as a means by which they can organize their processes in other to achieve competitive advantage. To this end, we anchor this study to the resource-dependency theory, because according to Hillman et al. (2000), the resource dependency theory sees the board as a resource that not only compliment the need for other resources, but also influence the environment to suit their performance drive.

## 2.4 Empirical Review

**Table 2.1 Webometric analysis**

S/N	Authors (Year)	Title	Variables	Analytical tool	Findings
1	Al-Matari et. al (2020)	Determinants of characteristics of top executive management effect on firm performance in the financial sector: Panel data approach	<b>IV:</b> top executive management size, top executive management professional certificate, top executive management experience and top executive management accounting experience. <b>DV:</b> Tobin's Q. Control variable: firm size, leverage	Correlation and a cross sectional time series FGLS regression analysis	Top executive management experience and top executive management accounting experience have both positive and significant effect on performance of the firms in Oman, where as other variables were not significant in determining firm performance of the firms
2	Obaje et al. (2021)	Moderating effect of firm size on the relationship between board structure and firm financial performance	<b>DV:</b> board size, board independent and board gender diversity. <b>IV:</b> ROA	descriptive statistics, correlation and random effect model	Board size has significant and positive effect on return on assets of quoted deposit money banks in Nigeria. Board independence, board gender and board size have negative and no significant effect on return on assets of the banks. Board independence as moderated by firm size has negative and significant effect at 1% level on return on assets. Again, board gender diversity with the interaction of firm size has negative and statistical significant effect on return on assets of quoted deposit money banks in Nigeria at 1% level
3	James (2020)	Understanding the impact of board structure on firm performance: a comprehensive literature review	<b>IV:</b> board size, independent directors and CEO duality.	comprehensive literature review	Board structure has an endless argument without any hope of reaching conclusion soon. He however upholds that mathematical combinations of the board size and composition borders not the director but the internalized organizational long driven culture.
4	Amin et al. (2022)	Corporate governance and capital structure: Moderating effect of gender diversity	<b>IV:</b> board size, board independence, CEO duality <b>DV:</b> leverage <b>CONTROL VAR:</b> firm size, firm age and return on assets,	correlation analysis and multiple regression	Larger and independent board have positive effect on firm leverage and CEO duality has inverse relationship with capital structure. However, gender diversity relates fairly with corporate governance and impacts positively on capital structure.

5	Simionescu et al. (2021)	Does board gender diversity affect firm performance? Empirical evidence from Standard & Poor's 500 Information Technology Sector	Moderating Female directors <b>IV:</b> number of women on board, percentage of women on board and percentage of female executive directors. <b>DV:</b> price to earnings ratio and ROA	VAR: ordinary least square regression, fixed and random effect regression estimation technique	Number of women on board and percentage of women on board have positive and no significant effect on ROA and Price earnings ratio of the firms under study. The panel data regression estimation method show that board gender diversity, both of number of women on board and percentage of women on board have a positive and no significant effect on price to earnings ratio
6	Alkurdi et al. (2019)	corporate governance and risk disclosure of listed banks on the Jordan stock exchange	<b>IV:</b> board size, independent boards, managerial ownership, separation between chairman and CEO, audit committee <b>DV:</b> risk disclosure index checklist, separated into voluntary risk disclosure and mandatory risk disclosure	Pearson correlation and regression analysis	Board size, board independent, separation of chairman and CEO, audit committee meeting, ROA and ROE have positive statistical effect on voluntary risk disclosure. Though leverage has inverse and statistical significant effect on voluntary risk disclosure. Albeit, managerial ownership, firm size and growth have positive and no significant effect on voluntary risk disclosure. However, independent board, audit committee meeting, and leverage have positive and statistical significant effect on mandatory risk disclosure of the firms. More so, board size, managerial ownership, separation of chairman and CEO, firm size, growth, ROA and ROE have positive and no significant effect on mandatory risk disclosure
7	Kiflee and Ali (2019)	effect of corporate governance characteristics on risk disclosure of selected companies in Malaysia	<b>IV:</b> board independence, board size, independent, committee independence <b>DV:</b> risk disclosure checklist	Descriptive statistics, panel regression analysis	Board independence, auditor independence and audit committee independent have positive significant effect on risk disclosure of firms in Malaysia while board size has negative significant effect on risk disclosure of Malaysian firms

### 3.0 Methodology

#### 3.1 Research Design

The study adopted *ex-post facto* research design and analytical research design based on the secondary data that was collected from annual financial reports of the selected quoted oil and gas companies on the African stock market. The study was based on *ex-post facto* since the event has taken place. Also, the study was based on analytical design because it sought to analyze the moderating effects of firm size on the relationship between board attributes and financial performance of firms. This study employed secondary source of data. Annual reports of the sampled firms were used to obtain information on the variables of financial performance, board

attributes and the moderating variables of firm size. Oil and gas firms listed on African stock market were covered. The population covered the entire 10 oil and gas firm list on African Stock exchange. Purposive sampling size determination was adopted by concentrating on the firms that have traded for the complete eleven years period of the coverage of this study and whose annual reports were readily available on the internet. Six oil and gas firms were captured in our sample size net. The study employed several analytical techniques like descriptive statistics, correlation matrix, and variance inflation factor and regression analysis. Using t-test at 5% significance level.

### Model Specification

The study estimated the following two panel regression models to determine both the primary and moderating effects of firm size on the relationship between board structure and performance of firms in African Stock Market. Equation 1 was employed to estimate the main effects of board structure on performance, while Equation 2 was used to estimate the moderating (interaction) effects of firm size on the relationship that exist between board structure and performance of firms. However the general specification for the study is shown below;

$$FS_{it} = \beta_0 + \sum_{i=1}^3 \beta_i X_i + \mu_{it} \quad (1)$$

$$FS_{it} = \beta_0 + \sum_{i=1}^3 \beta_i X_{it} + \sum_{i=1}^3 \theta_i (X_{it} * SZ_{it}) + \mu_{it} \quad (2)$$

Where:  $FS_{it}$  is firm performance,  $\beta_0$  is the intercept term,  $\beta_i$  are the positive or negative coefficients of the explanatory variables,  $\theta_i$  are the coefficients of the moderating variables,  $X_{it}$  is a vector of explanatory variables and  $\mu_{it}$  is the error term (the time-varying disturbance term is serially uncorrelated with mean zero and constant variance). Following the above general model specification, we adapted and modify the model of Obaje et al. (2021) specified as:

#### Firm Performance Primary Model Specification 1

$$ROA_{it} = \beta_0 + \beta_1 BDM_{it} + \beta_2 BDI_{it} + \mu_{it} \dots \dots \dots (1)$$

#### Firm Performance Moderated Model Specification 2

$$ROA_{it} = \beta_0 + \beta_1 BDM_{it} + \beta_2 BDI_{it} + \beta_3 BDM * FMS_{it} + \beta_4 BDI * FMS_{it} + \mu_{it} \dots \dots \dots (2)$$

Where: ROA = return on assets, BDM = Board meetings, BDI =Board independence, FMS = firm size, i = Cross sections, t = Time effect,  $\beta_0$  = Intercept,  $\beta_1$ -  $\beta_{10}$  = Coefficient of determination

### 4.0 Data Analysis and Interpretation

#### Data analysis

The data was analysed using the following statistical tools as aided by Stata 14 software;

#### Descriptive Statistics

The descriptive statistics result provides evidence on the mean distribution, maximum, minimum, standard deviation, median and the count of the data collected, which span from 2012 to 2022.

**Table 4.1: Descriptive Statistics of the Samples**

stats	ROA	BDI	BDM	FMS
-----+-----				

mean	4.360606	71.58894	4.621212	6.433597
p50	4.905	71.43	4	7.0412
max	21.62	90	6	7.9104
min	-8.84	50	4	3.28
sd	5.889457	11.90386	.8369386	1.354467
N	66	66	66	66

Source: Researchers computation (2024)

The table 4.1 above shows a summary of the descriptive statistics for the study. From the table it is observed that the oil and gas companies listed in African stock market that are sampled, had average of 4% Return on Assets (ROA) during the period under consideration. The maximum Return on Assets recorded in the period is 21.62%. The average value for the variable of board meeting was 5 times in a year with a standard deviation of 0.8369386 while average firm size across our sample was seen to be 6.430 with a standard deviation of 3.28. Board independence on the average was 71.43 with a standard deviation of 11.90386. In which case, the table showed that the maximum composition of non-executive members to executive is 90% and the minimum for the periods covered was 50%. The practice is in compliance with agency theory which helps reduce agency conflicts in organisations.

### Test for Normality of Residua

The assumption to make when testing for normality residua is that “sample distribution is normal”. Hence, the distribution is not normal if the test is significant at 5% or 1% level. This study adopted the Shapiro-Francia w test for normality of residua test procedure for  $n = 10$  to  $n = 2000$  this is in line with the position of Razali and Wah (2011). Consequently, the study conducted the test for normality of residua as shown in the table below:

**Table 4.3 Shapiro-Francia W' test for normal data**

Variable	Obs	W	V	z	Prob>z
ROA	66	0.96013	2.340	1.843	0.03269
BDI	66	0.92975	4.123	3.070	0.00107
BDM	66	0.96400	2.113	1.621	0.05250
FMS	66	0.86066	8.178	4.554	0.00000

Source: Researcher computation (2024)

From the results obtained above, it is observed that the dependent variable of return on assets (ROA) (Prob > z = 0.03269), BDM (Prob > z = 0.05250) and BDI (Prob > z = 0.00107), are not normally distributed since they are statistically significant at 5% level. We justify this interpretation following the study of Bera and Jarque (1982).

### Correlation Analysis

**Table 4.4 Correlation Matrix Analyses**

	ROA	BDI	BDM	FMS
ROA	1.0000			
BDI	-0.0267	1.0000		
	0.8312			



BDM	-0.1983	-0.0287	1.0000	
	0.1104	0.8192		
FMS	-0.3866*	0.5187*	0.3133*	1.0000
	0.0013	0.0000	0.0104	

Source: Researchers computation (2024)

Specifically, the analysis from the spearman rank correlation showed that board independence (-0.0267), board meeting (-0.1983) and firm size (-0.3866) have negative and low correlation with ROA. However, we find that all the associations are seen to be weak but we may have to test for the presence of multicollinearity using variance inflation factor.

**Table 4.4b Variance Inflation Factor Test**

Variable	VIF	1/VIF
BDM	1.62	0.618723
BDI	1.29	0.777751
Mean VIF	1.74	

Multicollinearity arises in multiple regression models when two or more explanatory variables are ‘collinear’ i.e., when they stand in an exact or almost exact linear relation to each other (or to one another). Thus, if some or all of the explanatory variables in a multiple regression analysis are highly inter-correlated, the problem of multicollinearity arises. In multicollinearity, the assumption of no linear dependence among the explanatory variables in a multiple regression equation breaks down, leading to highly correlated explanatory variables. The Variance Inflation Factor (VIF) statistics as presented above was used to ascertain the presence of multicollinearity. The decision rule being that VIF-statistic above ten (10) indicates multicollinearity, otherwise it does not give cause of concern and it is observed that, none of the variables have VIF’s values more than 10 and hence none gave serious indication of multicollinearity.

### Constant Variance

The variance of error term is expected to be constant for each observation or a range of observations which is known as homoscedasticity. Whenever there occurs a change on the variance, it tends to reduce the precision of the estimation in ordinary least square (OLS) linear regression. Hence the study used the Breusch-pagan/ Cook-Waisberg test for the heteroscedasticity of the residuals as presented in the table below.

**Table 4.5 Heteroskedasticity Test**

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
 Ho: Constant variance  
 Variables: fitted values of ROA

chi2(1)	=	0.40
Prob > chi2	=	0.5246

Source: Authors computation 2024

Heteroscedasticity test has a decision rule that there is no heteroscedasticity if the probability of F-value is greater than the critical value at 5% level. The table 4.5 above indicates that probability value of 0.5246 is greater than the critical value of 0.05. Therefore, we conclude that there is no heteroscedasticity or the data is homoscedastic, which means there is constant variance of the error term.

**Regression Equation Specification Error Test (RESET)**

This test is a bases of checking whether non-linear combinations of the fitted values actually helped in explaining the response variable. The understanding behind this test is that non-linear combinations of explanatory variables have any power whatsoever in explaining the response variable, the model is miss-specified in the sense that the data generating process might be better approximated by a polynomials or another non-linear functional form. The study employed Ramsey RESET test to check for the presence of non-linear independent variable combinations as presented in the table below.

**Table 4.6 Ramsey RESET Test**

Ramsey RESET test using powers of the fitted values of ROA  
 Ho: model has no omitted variables  
 F(3, 57) = 6.02  
 Prob > F = 0.2002

Source: Researcher’s computation (2024)

The table 4.6 above is the result of the test for miss-specification or omitted variables done with the help of Ramsey RESET Test, which provides the probability value of 0.2002 and, this implies that the model has no presence of non-linear independent variable combination that determines the dependent variable.

**Panel Regression Analysis**

The study employed panel regression analysis to ascertain the cause and effect links between our explanatory variables and the dependent variable, as well as used this analysis for testing the formulated hypotheses.

**Table 4.7 - Summary of regression estimation**

	Random effect result	Fixed effect result
	Coefficient ( ) p-value [ ] z-stat	Coefficient ( ) p-value [ ] t-stat
<i>BDI</i>	-0.360 (0.407) [-0.83]	.3174 (0.440) [0.78]
<i>BDM</i>	2.064 (0.726) [0.35]	3.093 (0.533) [0.63]

*Mediating variable*

<i>BDI*FMS</i>	.071 (0.239) [1.18]	-.143 (0.010) [-2.50]
<i>BDM*FMS</i>	-.400 (0.622) [-0.49]	-.501 (0.495) [-0.69]
<i>R<sup>2</sup></i>	0.23	0.56
<i>F-Stat</i>	41.29	6.41
<i>P(f-stat)</i>	0.0000	0.0000
<i>Hausman</i>		0.0000
<i>Ramsey RESET Test</i>		0.2002

Source: Researcher's compilation (2024)

From the table 4.7 above, it is seen that the F-statistics and its corresponding P-value were 6.41(0.0000) and 41.29(0.0000) for fixed effect model and random effect models respectively. This shows that both models are valid for drawing inferences since they are both statistically significant at 1% levels. The R-squares (i.e. the regression coefficient) for both models were shown as 0.23 and 0.56 for random effect model and fixed effect model respectively. This values indicate that 23% and 56% of the systematic variations in firm financial performance, measured with return on assets (ROA) is explained by all the explanatory variables as jointly used for random effect and fixed effect models respectively.

For us to have tested the moderating role of firm size on the relationship between board attributes and performance of oil and gas firms on listed on African stock market, the study employed the two widely used panel data regression estimation techniques (fixed effect and random effect). The table 4.7 above contains the results of the two panel data estimation technique. The result reveals the difference in the magnitude of the coefficients, signs and the number of non-significant variables.

The fixed effect panel regression estimation was based on the assumption of no correlation between the error term and the independent variables, whereas the model of the random effect is performed on the bases that the error term and the independent variables are correlated. Put differently, random effects models has the capacity to correct for omitted variable bias, and presence of autocorrelation and heteroscedasticity in panel data. However, it's a convention to introduce a mechanism that will help make a choice between the two panel regression estimator (fixed effect model and random effect model) to rely on, a Hausman Test was used as that mechanism. It is a rule of the Hausman Test to assume that Random Effect result is better applied to fixed effect result on the null hypothesis, but fixed effect is preferable on alternate hypothesis. The table above presents that probability of the Hausman Test is 0.0000, which implies statistical

significant at 5% level. Therefore, the study accepts alternate hypothesis and by the standard of Hausman Test, fixed effect panel regression result is more appealing for the discussion and making inferences. To this end, the study applied fixed effect result in testing its hypotheses as presented below.

### **Test of Hypotheses**

(a) *Board Meeting has no Significant Effect on the Financial Performance of oil and gas Firms Listed on African Stock Market.*

The result in table 4.7 also shows that board meeting has coefficient of 3.093, which shows that board meeting has positive effect on financial performance (return on assets) of oil and gas firms from African stock market. The z-test [ $z=0.63$ ] and the corresponding P-value ( $p=0.533$ ) that is higher than 5% critical value, shows that board meeting has no significant effect on the financial performance of oil and gas firms from African stock market. Therefore, the study failed to reject null hypothesis and conclude that board meeting has positive and no significant effect on financial performance as measured by ROA of oil and gas firms from African stock market.

(b) *The Moderating Role of Firm Size has no Significant Effect on Board Meeting and Financial Performance of oil and gas Firms in African Stock Market.*

The fixed effect panel regression results obtained from the ROA model revealed that firm size has no significant moderating impact, on the relationship between board meeting and financial performance of oil and gas firms from selected African stock market during the period under investigation. This finding is seen to differ in both size of effect, and the direction of effect shown as; board meeting (un-moderated; Coef. = 3.093,  $z = 0.63$  and P -value = 0.533), board meeting (moderated; Coef. = -.501,  $z = -0.69$  and P -value = 0.495). The result implies that the moderating effect of firm size on the relationship between board meeting and financial performance of oil and gas firms from selected African stock market is inversely and statistically significant not significant. Specifically, this result implies that the number of board meeting in a year should be considered and possibly reduced in the face of larger sized firms, in order to boost the financial performance (ROA) of firms within the periods covered. The outcome is consistent with the null hypothesis that firm size is not significant and have negative moderating effect on the relationship between board meeting and return on assets of the sampled oil and gas firms from African stock market.

(a) *Board Independence has no Significant Effect on the Financial Performance of oil and gas Firms in Selected African Stock Market.*

The result in table 4.7 also displays that random effect model result shows that board independence has positive regression coefficient of 0.3174. This figure indicates that board independence has positive association with financial performance (ROA) of the studied oil and gas firms from selected African countries. The result implies that a unit increase in non-executive member of the board of the oil and gas firms from African stock market would cause the mean of financial performance (ROA) of the sampled oil and gas firm to rise by 0.317 units, if all other variables are held constant. The probability value ( $P>/t/= 0.440$ ) and z-score ( $z = 0.78$ ) indicate that board independence has statistical significant effect on return on assets (ROA) of oil and gas firms from selected African countries. The outcome is likely for un-moderated since having too many non-

executive directors on the board may deprive the board certain insider information they would have built on for effective discharge of their duties. This led the study to accept the null hypothesis and uphold that board independence has positive and no statistical significant effect on the financial performance of oil and gas firms from African stock market.

*(b) Moderating Role of Firm Size on Board Independence has no Significant Effect of Financial Performance of oil and gas Firm in African Stock Market.*

The regression result revealed that firm size has statistical significant moderating effect on the relationship between board independence and ROA of the firms during the period under investigation. However, the findings are seen to differ in both sides of the models shown as; board independence (un-moderated; Coef. = 0.317,  $z = .78$  and P -value = 0.440), board independence (moderated: Coef.= -0.143,  $z = -2.50$ , p-value= 0.010). This outcome is likely since according to the signaling theory, having non-executive directors on the board is considered a sign of good governance. However, the study accepts alternate hypothesis and affirms that firm size has negative and significant moderating effect on the relationship between board independence and ROA of the oil and gas firms listed on African stock market.

## **5.0 Conclusion and Recommendations**

The conclusion that, only board independence has strong influence on determination of the financial performance of the oil and gas firms from selected African countries for the periods covered. More importantly, the study concluded that size of the firm is highly important and sacrosanct in determining how board meeting and board independence can cause changes on the financial performance (ROA) of oil and gas firms from African stock market as studied. In this study new findings have been established which we think should complement other findings of related studies. However, we base our recommendations on the hypotheses which we stated earlier. Hence, we carefully suggest that: The boards of oil and gas firms sampled may consider adhering to the code of corporate governance that stipulates quarterly meetings for the board of directors since the directors diligence is not significant in determining the performance of the firms studied. The board of directors should moderately have meetings in the year to brainstorm and cross breed ideas as to maximise the profit of the firms, especially when the firm in view is a large one. This recommendation is justified by the empirical outcome that evidences that firm size has negative significant effect on the relationship between board meeting and firm performance. The shareholders should appoint a good proportion of non-executive directors on the board to enable them engage the CEO fearlessly as to reduce the selfish interest of the CEO and executives directors. Similarly, the shareholders should also generate a balanced mix of executive and non-executive directors in the board when the firm is a large sized one. This will enable the executives utilize the insider information obtained by for brainstorming session and analytical stages, required for effective decision making processes of the organisation for the end result of increasing the return on assets.

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