



## IMPACT OF BOARD DIVERSITY ON CORPORATE SOCIAL RESPONSIBILITY OF LISTED OIL AND GAS FIRMS IN NIGERIA

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### ABSTRACT

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This study investigates the impact of board diversity on corporate social responsibility in a developing country context. Board diversity was measured using four dimensions (board independence, board gender diversity, board professionalism and board nationality). We test our hypotheses using data obtained from annual report of eight (8) listed oil and gas firms on Nigeria Stock Exchange (NSE) from 2012 to 2018. Diagnostic test such as, multicollinearity, heteroscedasticity and Hausman tests were conducted to validate the results. Applying Panel corrected standard error (PCSE) regression, the result reveal that board independence, board gender diversity and board diversity have significant positive impact on corporate social responsibility. In contrast, board professionalism has insignificant relationship with corporate social responsibility. In line with Stakeholder theory, our results suggest that board diversity can be seen as an effective mechanism to enhance CSR participation and spending as diversity of boards improves the ability of firms to meet the needs of their broader stakeholder groups. Our study contributes to a better comprehension of the potential value of the diversity of boards. It is therefore recommended that management of listed oil and gas firms need to maintain diverse balanced boards in terms of gender, independence, and expertise to enhance protection of stakeholder's interest and the reduction of manager's opportunistic tendencies behind CSR investment.

**Contribution/Originality:** This study is one of very few studies which have investigated the influence of board diversity on CSR in developing countries like Nigerian using different measurement (actual amount on CSR) that has previously received little consideration by many researchers and extending the dimension of board diversity beyond gender diversity.

### 1. INTRODUCTION

In recent years, there has been a tremendous growth in public awareness of social responsibility of corporations due to the negative impacts of their activities on the environment and society around the globe. While companies make great contribution to economic and technological development, there also suffer criticisms and are allegedly held liable for crucial issues such as environmental damage and social problems (Tan, Benni, & Liani, 2016). Issues

such as distortion of natural conditions, noises, pollution, waste, resource depletion, health and safety issues and the rights and status of workers among others have become the focus of increasing attention and concern.

Global outcry has been fervent with numerous high-profile environmental, health and safety corporate disasters claiming hundreds of lives in various developing countries including Nigeria. In particular, Nigeria is one of the major environmental polluting countries in the world as it is currently ranked seventh highest gas flaring country and 10th most polluted country in the world (IQAir Airvisual, 2018; World Bank, 2020). Many of these environmental issues are the result of the actions and activities of companies intended to meet the financial needs of their shareholders and investors. This is mostly attributed to oil and gas companies that operate in the region of the Niger Delta, then it is expected that those companies operating under their watch are environmentally responsible.

Despite the negative effects of companies operating in the oil and gas sector, they pay less attention to these issues. As a result, stakeholders urge and pressurize companies to be more responsible for their activities, consider their decisions to include environmental and sustainable development issues and actively involved in Corporate Social Responsibility practices (Braam, de Weerd, Hauck, & Huijbregts, 2016). Thus, in order to meet the growing interest of stakeholders, companies have begun to engage in responsible business activities.

Corporate Social Responsibility (CSR) is an association between a company and society as a whole. The company's CSR suggests that businesses are responsible for not only optimizing profits, but also for addressing the interests of their related stakeholders, such as staff, investors, etc. The CSR has grown and increased its relevance. Accordingly, Yao, Wang, and Song (2011) argue that failure by company to discharge this societal responsibility properly and adequately may result in negative consequences. Currently, CSR is a major concern in the management strategy that affects the competitiveness of organizations and is becoming an effective resource for enhancing the confidence of stakeholders.

In line with the growing importance of CSR, the functions and duties of the boards of directors have been expanded from a traditional shareholder-centric point of view to include different range of stakeholders. Nowadays, boards are increasingly regarded responsible for CSR and sustainability issues. Boards of Directors affect CSR in a number of ways, from the development of stakeholder-friendly organizational policy to the formation of committees concerned with CSR-related issues. The Board of Directors plays a vital role in fostering CSR by balancing the needs of shareholders and other stakeholders (Ibrahim & Hanefah, 2016).

Because CSR performance tests the ability of companies to meet the interests of multiple stakeholders, companies with diverse boards can have a broader perspective and knowledge base to make decisions on socially responsible issues, thereby improving the firm's commitment to CSR. The diversity of the board of directors involves having men and women of different background and knowledge that will bring great benefit to the organization. Such attributes shaped the emergence of an effective board and also influenced their perception of the environmental and social implications of the company's operation. Thus, it is evident that the diversity of the board influences the effectiveness of its performances as directors, particularly in the discharging of CSR related activities.

Abubakar (2016) describe independent board members as an important mechanism that determines stakeholder prominence by influencing CSR activities. In addition, they play significant role in conflict resolution among stakeholders group of a firm by reducing opportunistic tendencies by managers behind CSR investment. Additionally, the implementation of CSR-related initiatives is also significantly enhanced by female board members. Female Directors on board would have a strong incentive to actively influence firm to spend much of their resources in CSR Female directors bring diverse viewpoints to the board and are more concerned about all stakeholders and the community at large, thus inclusion of females at the forefront of decision-making will lead to greater CSR participation (Bear, Rahman, & Post, 2010).

Furthermore, the expertise of the Board members is essential to good corporate governance. Director with an advanced degree and professional qualifications are more likely to have established strong CSR commitments and are better positioned to deliver CSR performance (Ceres, 2019). This can be attributed to the fact that members of

the board with further education would definitely have wider perspectives and a better sense of corporate social responsibility. It is assumed that companies dominated by foreign board members are more vigilant in monitoring the company's actions and are more cognizant of the need for more responsibility for the social impact of the company (Otuya & Ofeimun, 2017).

From the foregoing, it is logical to suggest that a well-diversified board of directors in terms of independence, gender, expertise and nationality of members is able to efficiently deliberate and come out with strategic decisions that will better the company's approach to social responsibility. The study intends to further empirical evidence in this regard, and therefore examined the effect of board diversity on CSR.

The issue of CSR has gained growing interest from both practitioners and academic scholars. Nevertheless, previous work on the CSR determinant concentrated on external monitoring variables and little exposure was given to the diversity of boards, which may potentially offer more insight into management decisions to engage in CSR programs. Even so, several of these studies have evaluated the relationship between corporate social responsibility and board diversity in developed countries (Galbreath, 2017; Harjoto, Laksmana, & Lee, 2015; Oh, Chang, & Jung, 2019; Sanan, 2018; Yaseen, Iskandrani, Ajina, & Hamad, 2019; Zhuang, Chang, & Lee, 2018) with just a small number of studies exploring emerging countries like Nigerian (e.g. (Abubakar, 2016; Awodiran, 2018)).

In addition this study use amount spent on CSR activities as measurement of CSR which has previously received little consideration. Till now, the bulk of CSR researches have used CSR disclosure as measurement. In addition, few studies have explored Nigeria oil and gas industry where CSR concerns such as air pollution and the exploitation of employees have been prevalent. Furthermore, prior research on board diversity has focused on gender diversity (e.g. Yaseen et al. (2019)). This research therefore bridges this gap by utilizing four aspects of the diversity of boards and analyzing their effect on the CSR spending of oil and gas firms in Nigeria.

## 2. LITERATURE REVIEW

### 2.1. Stakeholder Theory

Stakeholders theory is a key theoretical viewpoint for the comprehension of the CSR-related actions of firms (Figar & Figar, 2011; Roberts, 1992). According to stakeholder theory, there is an interdependence between an organization and its stakeholders (employees, customers, investors, local communities, public bodies, NGOs, etc.) who have to be considered while making strategic decisions as the long-term success and even sustainability of a business is influenced by its interaction with stakeholders (Castelo Branco & Lima Rodrigues, 2007).

As Roberts (1992) points out, stakeholder paper explains several issues related to the interaction with stakeholders, including aspects of the privileges of stakeholders, the power of stakeholders and the effective control of the expectations of stakeholders. CSR activities are used by firms to demonstrate their social performance and maintain a relationship with the corporate stakeholder in order to achieve sustainability in a company (Roberts, 1992). In this framework, it is proposed that the Board of Directors is the primary corporate control mechanism for monitoring managers (agents) on behalf of stakeholders (Rupley, Brown, & Marshall, 2012). As the representative of the stakeholders, boards of directors therefore play a key role in overseeing the development and execution of management plans in order to balance multiple stakeholders' needs and interests. Diversity thus enhances the board's ability to identify and address the needs and expectations of various stakeholder groups as reflected in CSR performance. From the point of view of stakeholder theory, the involvement of women in corporate boardrooms is a signal to corporate stakeholders that such a firm is socially conscious (Bear et al., 2010). Female directors are more concerned with specific aspects of corporate responsibility and could perceive CSR issues more carefully than male managers which could thus lead to a greater degree of environmental and social responsibilities (Ibrahim & Angelidis, 1995). The Stakeholder theory also buttress the significance of having independent members on the board of directors to safeguard the rights and interest of the stakeholders (Gul & Leung, 2004). As stakeholder

representatives, independent non-executive directors are perceived as a mechanism for monitoring management behavior (Dixon, Mousa, & Woodhead, 2005).

Independent directors tend to devote more attention to corporate social and environmental responsibilities as this could boost their professional reputation (Webb, 2004). In addition, a more diverse board with expertise and experience will help minimize agency conflict and ensure that the resources of the owner are managed effectively. Furthermore, foreign directors are expected to pay greater attention in social environmental matters due to their international exposure. This research thus applies stakeholder theory to understand how board diversity affects CSR practice of companies, suggesting that diverse boards should influence CSR performance more effectively.

## 2.2. Hypotheses Development

Based on the discussion above, to study the board diversity influence on CSR, we focus on the following board diversity: Board independence, Board gender, Board professionalism, and Board nationality. These factors, among others, are important as they influence the ways in which the boards can direct and exercise their corporate governance responsibilities (Godos-Díez, Cabeza-García, Alonso-Martínez, & Fernández-Gago, 2018). In this study, an attempt is made to summarize some of the significant works so far carried out in this respect.

## 2.3. Board Independence

Independent non-executive directors are professional managers who do not participate in the firm's direct and day-to-day operations as they are not full-time employees of the firm. The presence of independent directors enhances the Board's supervisory role as they are more responsive to societal concerns and more ethically conscious. In this article, an attempt is made to summarize some of the significant works so far carried out on the relationship between board independence and CSR. Some of the previous empirical studies in this area reported mixed results. For example, Alodia and Atmadja (2016) in their contribution investigated the effect of board independence on CSR performance using panel data collected from 16 listed mining sector firms on Indonesia Stock Exchange between the period of 2008 to 2017. The study found that board independence has no significant influence on CSR performance of mining companies.

Harjoto et al. (2015) examined the impact of board independence on CSR performance from stakeholder theory perspective and found that board independence increases CSR performance by reducing CSR concerns. Data used were collected on 1489 U.S. firms from 1999 to 2011 and analyzed using multivariate regression analysis. Moreover, the work of Abubakar (2016) further established that, among other board characteristics, board independence is a relevant mechanism that determines stakeholder prominence by positively influencing CSR involvement of a firm. In a related development, Oh et al. (2019) also found that independent director increases CSR engagement in professionally managed firms as compared to firms with strong family involvement among Korea public firms.

Adib and Xianzhi (2019) investigated the relationship between board independence and CSR. Data were extracted from 100 reports spanning from 2012 to 2016 of South African companies and analyzed using OLS estimation. The result revealed that CSR is significantly influenced negatively by board independence. Similarly, Awodiran (2018) also found that board independence has a significant negative impact on CSR. Furthermore, Galbreath (2017) also concluded that board independence has a significant negative impact on CSR using data collected from 300 Australian largest firm for the financial year 2012 and analysed with Seemingly unrelated regression (SUR).

Considering the stakeholder theory, it is expected that large proportion of independent directors on the board will have positive effects on CSR of an organization. Independent board members as paramount part of the total corporate board members ensure the protection of the interest of all stakeholders of the company (Coffey & Wang, 1998). Thus, the following hypothesis is proposed:

*H1 Board independence has a significant positive impact on corporate social responsibility.*

#### *2.4. Board Gender Diversity*

The growing involvement of women in all activities around the world has risen significantly. As a consequence, the role of women in the boardroom cannot be overlooked in this age. Women directors are likely to play a unique role in enhancing corporate moral legitimacy via CSR practices (Rao & Tilt, 2016). Nielsen and Huse (2010) argue that women might be more responsive to corporate activities such as CSR and environmental policy.

With respect to the gender diversity and CSR, the majority of previous researcher found female directors on board enhances CSR practice. For instance, Harjoto et al. (2015) found that higher gender diverse board are more effective in monitoring CSR performance from stakeholder theory perspective. More recently, Yaseen et al. (2019) investigated and found that board gender diversity has a significant positive effect on CSR performance in France from the critical mass theory perspective. Data used were extracted from 89 French companies covering 2012 to 2015. They concluded that gender diversity boost firm's ability to satisfy the interest of their stakeholder. Similarly, Abubakar (2016) and Awodiran (2018) both investigated the relationship between board gender and CSR in Nigeria and found that gender diversity have significant positive influence on CSR of deposit money bank in Nigeria.

Studies conducted by Alodia and Atmadja (2016) have shown a contract result. Using data collected from 16 mining sector firms listed on Indonesia stock exchange covering 2008 to 2017, they found that gender diversity has no significant influence on CSR performance of mining companies. Sanan (2018) also concluded that female director has no significant influence on CSR using data collected from 171 large Indian firms from 2014 to 2016. Contrary to the above Zhuang et al. (2018) conducted a study on the relationship between board gender and CSR performance using data collected from 839 Chinese firms spanning from 2008 to 2016. The upper echelon theory was used as the theoretical basis of the study. Generalized least square model result indicates gender diversity has a negative influence on CSR performance.

In line with the stakeholder principle, gender diversity will improve decision-making processes by offering a broader variety of viewpoints, which may result in a higher degree of social and environmental commitment. Based on the abovementioned discussion, the following hypothesis is developed:

*H2: Board gender diversity has a significant positive impact on corporate social responsibility.*

#### *2.5. Board Professionalism*

The expertise of the Board members is essential to good corporate governance. Board members with relevant experience in addressing sustainable development issues are also important as they have a wider variety of resources to solve problems and encourage CSR practices (Bear et al., 2010). Companies with board professionalism are more likely to have established strong CSR commitments and are better positioned to deliver CSR performance (Ceres, 2019; Minguel, 2017). There has not been much argument in the literature concerning the relationships between foreign director's representation on board and the strategic implementation of corporate environmental, social, and ethical responsibility. The studies previously conducted by some scholars are review.

For instance, Zhuang et al. (2018) investigated a study on the relationship between board composition and CSR performance using data collected from 839 Chinese firms spanning from 2008 to 2016. The upper echelon theory was used as the theoretical basis of the study. Generalized least square model result indicates that directors with academic experience and qualification have positive influence on CSR performance. Similarly, Harjoto et al. (2015) found that board expertise has a significant positive impact on CSR performance using data collected from 1489 U.S. firms from 1999 to 2011.

In line with stakeholder theory, board members with more knowledge and education are likely to have wider perspectives and a more detailed understanding of corporate social responsibility. On the basis of the preceding argument, we propose the following alternative hypothesis:



*H3: Board professionalism has a significant positive impact on corporate social responsibility.*

### 2.6. Board Nationality

In developed countries such as Nigeria, foreign directors are becoming increasingly prevalent due of the growth and development of multinational companies. Foreign directors are more likely to be conscious of the need for more transparent accountability for the broader social effect of the company due to their foreign exposure and knowledge, and therefore could be more inclined to championing and encouraging further CSR practices (Otuya & Ofeimun, 2017). There has not been much argument in the literature concerning the relationships between foreign director's representation on board and the strategic implementation of corporate environmental, social, and ethical responsibility. The studies previously conducted by some scholars are review.

For instance, Harjoto et al. (2015) examined the impact on board diversity on CSR performance from stakeholder theory perspective. Board diversity examine include nationality among others. Using data collected from 1489 U.S. firms from 1999 to 2011. Multivariate regression analysis revealed that board nationality has a significant positive impact on CSR performance. In addition, Zhuang et al. (2018) also found that oversee background have positive influence on CSR performance using data collected from 839 Chinese firms spanning from 2008 to 2016.

Consistent with the stakeholder theory, foreign directors are expected to show more interest in social and environmental matters. Based on the preceding discussion, we propose the following hypothesis in alternate form:

*H4: Board nationality has a significant positive impact on corporate social responsibility.*

## 3. METHODOLOGY

The purpose of this study is to investigate the impact of board diversity on corporate social responsibility. As a result, correlational research design was adopted. This design is informed by the research paradigm which is the positivism approach. The study population consisted of all the twelve (12) listed oil and gas firms on Nigeria Stock Exchange (NSE) as at 31 December 2019. Oil and gas sector was selected because they operate in environmentally and socially sensitive sectors. There has been increasing hostility against oil and gas firms in Nigeria as a consequence of the negative social and environmental results of their operations. The adjusted population is eight (8) firms based on data availability from their annual report from 2012 to 2018. The time frame coincided with a growing dialogue on CSR and diversity in the corporate board, accompanied by the enactment of the related regulation. The dependent variable in this study is corporate social responsibility, measured as the total expenditure spent on the CSR in the financial statement (Awodiran & Jimba, 2019).

The explanatory variables for this study comprise four board diversity dimensions (board independency, board gender, board professionalism and board nationality). Board independency (BIND) is measured as the proportion of independent non-executive members to the total number of directors on the Board per year as stated by Abubakar (2016). Board gender (BGEN) is measured as the proportion of female directors to the number of directors on the board each year as supported by Oh et al. (2019). Board professionalism is measured number of members with professional qualification divided by the total number of directors (Harjoto et al., 2015). Board nationality is measured by the number of foreign directors who serve on the board divided by the total number of directors (Anazonwu, Egbunike, & Gunardi, 2018). Profitability is used as the control variable which is measured using return on asset calculated as profit after tax divided by total asset of the firm at year end (Sanan, 2018).

On the basis of these variables, the empirical results are therefore based on the following regression model;

$$CSR_i = \beta_0 + \beta_1 BIND_i + \beta_2 BGD_i + \beta_3 BPROF + \beta_4 BNAT + \beta_5 PROF + E_{it} \quad (2)$$

Where;

CSR = Corporate Social Responsibility.

BIND = Board Independence.

BGD = Board Gender Diversity.

BPROF = Board Professionalism.

BNAT = Board Nationality.

PROF = Profitability.

$\beta_0$  = Intercept.

$\beta_1$  to  $\beta_5$  = Coefficient of the independent and control variables.

$\epsilon$  = Error term.

it = Subscript for Panel Data.

#### 4. RESULT AND DISCUSSION

Data collected during the course of the study were presented and discussed in this section. The descriptive statistics, correlation matrix and inferential statistics are presented in this section. The hypothesis formulates for the study was tested to institute the effect of board diversity on corporate social responsibility.

**Table-1.** Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
CSR	56	2.89e+07	5.08e+07	0	1.73e+08
Bind	56	.08	.143	0	.5
Bgd	56	.14	.084	0	.286
Bprof	56	.137	.113	0	.375
Bnat	56	.177	.206	0	.636
Roa	56	-.002	.144	-.735	.132

Table 1 presents the descriptive statistics of the explanatory and explained variables for this study. It indicated that on average, that company's spent a total of ₦28.9m on CSR expenditure with a maximum of ₦173.4m and a minimum of zero spent on CSR expenditure. The standard deviation of ₦50.8m indicates a moderate variation among the samples firms. The average of board independence (BI) across the sampled listed oil and gas firms in Nigeria within the period of the study is 8% and the standard deviation is approximately 14.3%. The standard deviation of 14.3% suggests moderate deviation in the level of board independence of the studied firms over the period of the study. The minimum and maximum board independence of the listed oil and gas firms in Nigeria within the period covered were 0 and 50% respectively. This implies that some firms are yet to fully comply with corporate code of 2012, which stipulated that public firms should at least have one independent non-executive director.

The average level of board gender diversity across the listed oil and gas firms is 14%, while deviation value of approximately 8.4% indicates that there is a moderate deviation of the data from the mean. The maximum and minimum board gender diversity of the listed oil and gas firms in Nigeria within the period covered were 28.6% and 0% respectively. The average level of board professionalism across the listed oil and gas firms is 13.7%, while deviation value of 11.3% indicates that there is a moderate deviation of the data from the mean. The mean value indicate that approximately 13.7% of oil and gas firms board members have financial professional qualification. The minimum and maximum board expertise of the listed sensitive firms in Nigeria within the period covered were 0% and 37.5% respectively.

The mean value of foreign directors across the listed sensitive firms is 17.7%, while deviation value of 20.6% indicates that there is a moderate deviation of the data from the mean. The maximum and minimum proportion of foreign director of the listed sensitive firms in Nigeria within the period covered were 63.6% and 0% respectively. The average board of the sample firms is more diverse in terms of nationality as compared to others diversity dimensions. Finally, profitability measured by return on asset (ROA) reveals an average of 0.2% suggesting a poor profitability among the oil and gas firms during the period under study. The standard deviation of 0.144 shows high

variability across the sampled oil and gas firms. The most profitable oil and gas firms earned N0.132 of net income from a single N1 of asset investment and the maximum losses incurred by the insurance firms is -N0.735 on each N1 of asset investment.

**Table-2.** Correlation matrix.

Variables	Csrexp	Bind	Bgd	Bprof	Bnat	Prof
CSR	1.000					
Bind	0.347	1.000				
Bgd	0.482	0.414	1.000			
Bprof	0.165	0.053	0.150	1.000		
Bnat	0.318	-0.221	-0.265	-0.029	1.000	
Prof	0.614	0.028	0.365	0.074	0.399	1.000

From the correlation matrix [Table 2](#), it can be seen that, all the explanatory variables (BIND, BGD, BPROF, BNAT) have positively correlated with CSR of listed oil and gas firms in Nigeria. The implication is that the above variables move in the same direction with the CSR expenditure. With respect to association among the independent variables themselves, the table reveals that there is positive correlation between BGD, BPROF and BS. However, BNAT has a negative relationship with BIND. More so, positive relationship was found between BGD and BROF. The result also shows that there is negative relationship between BPRO and BNAT. Finally, the result revealed that there is a positive relationship between all the independent variables (BIND, BGD, BPROF, and BNAT) and PROF which is the control variables. On the other hand, the relationship among the independent variables is not too strong to warrant problem of multicollinearity as the coefficient are less than 0.80 ([Gujarati, 2004](#)). To further consider the collinearity issues, this study employed Variance Inflation Factor (VIF) test to measure its magnitude in our model, where the variance factors for each variable are estimated.

The results of the VIF test ranges from a minimum of 1.024 to a maximum of 1.758 which are all less than 10. To further substantiate this claim, the mean VIF is 1.821, also confirming the absence of multicollinearity among all the independent and control variables of the study ([Hair, Black, Babin, & Anderson, 2014](#)).

#### 4.1. Diagnostic Test

Before the conduct of the final regression, this study conducted diagnostic analysis to maintain the un-biasness of the parameters as argued by [Wooldridge \(2012\)](#). Among the test conducted in addition to the multicollinearity test is Hausman test to make a choice between random and fixed effect models. With the P-value of 0.0001 which is statistically significant fixed effect model is therefore considered appropriate for this study. This study also conducted a normility test on the residuals of the model using shapiro-wilk and the study found that, the residual was normally distributed as the p-value is statistically insignificant. While the Wooldridge test for autocorrelation in panel data was also significant indicating presence of auto correlation. Also the heteroskedasticity test conducted using Modified Group Wise proved significant with the p-value of 0.000, which indicates absence of homoscedacity. The presence of heteroscedasticity violates the homoscedasticity assumption and may lead to a wrong inference. This study therefore conducted panel corrected standard error (PCSE) model which overcome the both heteroskedasticity and auto correlation issues. PCSE preserves observation weighting for autocorrelation, but uses a sandwich estimator to integrate cross-sectional dependence when measuring standard errors ([Mantobaye, William, & Robert, 2017](#)). Thus, this study run the PCSE model based on the recommendation of [Gujarati \(2004\)](#) and finally, the PSCE model is hereby presented and discussed next.

#### 4.2. Panel Corrected Standard Error (PCSE) Result

The study presents the panel corrected standard error regression result in [Table 3](#).



Table-3. Panel corrected standard error regression.

CSR	Coef.	St.Err.	Z-value	p-value	Vif
BIND	5.1280	1.4655	3.50	0.000	1.758
BGD	9.8043	3.2780	2.99	0.003	1.674
BPROF	2.0680	2.2552	0.92	0.359	1.552
BNAT	4.1523	1.2304	3.37	0.001	1.237
PROF	6.6582	2.7352	2.43	0.015	1.024
Constant	3.0212	0.8974	3.37	0.001	
R-squared	0.5812		Hettest p-value		0.000
Number of obs	56.000		Hausman p-value		0.001
Chi-square	77.98		Mean vif		1.449
Prob > chi2	0.000				

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

The result in Table 3 shows the result obtained from the Panel Corrected Standard Error Regression (PSCEs) which was interpreted after conducting all relevant tests. The coefficient of determination R-squared was 0.5812 which indicates that about 58% of variation in CSR as proxied as the actual CSR amounts was caused by variations in independent variables as explained by the model. This means that board independence (BIND), board gender diversity (BDG), board professionalism (BPROF) and board nationality (BNAT) jointly explained 58.12% of CSR expenditure of listed oil and gas firms in Nigeria and it is statically significant at 1% as indicated with p-value of 0.0000. And the remaining 41.22 percent were due to other factors not included in the equation but measured by the error term. The chi-square value of 77.98 is significant at 1% significance level; therefore, the model is of good fit.

From the result thus, the model of the study is:

$$CSR = 3.0212 + 5.1280 \text{ BIND} + 9.8043 \text{BGD} + 2.0680 \text{BPROF} + 4.1523 \text{BNAT} + 6.6582 \text{ PROF}$$

From the Table 3 the relationship between board independence and CSR of listed oil and gas firms is positive as indicated with the coefficient of 5.128, which is statistically significant at 1% (from p-value of 0.0000). This signifies independent board members as an important mechanism that determines stakeholder prominence by influencing CSR expenditure of listed oil and gas firms in Nigeria. This is because independent directors are more effective in monitoring and providing independent judgment to resolve the residual dispute among the various stakeholders group by reducing opportunistic tendencies by managers behind CSR investment. This finding supports the proposition of stakeholder theory and the findings of Abubakar (2016); Harjoto et al. (2015) and Oh et al. (2019). However it goes in contrary to the results of Adib and Xianzhi (2019); Alodia and Atmadja (2016); Awodiran (2018); Galbreath (2017) and Sanan (2018). On this basis, we therefore support the alternate hypothesis, which states that board independence has significant positive impact on CSR of listed oil and gas firms in Nigeria.

Similarly, board gender diversity was found to be positively and significantly associated with their CSR at 1% by the coefficient of 9.804 with p-value of 0.003. By implication, it means increase in board gender diversity will foster effectiveness of the board and improve CSR expenditure. This may be as a result of the fact that Female tend to show more sympathy towards CSR issues. Therefore, a firm with high proportion of female director may have more tendencies to engage in CSR to portray good image of their natural being. This positive and significant relation is not strange as it is consistent with findings of Abubakar (2016); Awodiran (2018); Harjoto et al. (2015); Sanan (2018) and Yaseen et al. (2019) who discovered existence of strong positive relationship between gender diversity and CSR. This result is also in line with stakeholder theory which proposes that female directors are more likely to deliver better monitoring function than male directors. This provides basis for supporting the alternate hypothesis, which states that board gender diversity has significant positive impact on CSR of listed oil and gas firms in Nigeria.

From the result, the coefficient of board professionalism has a value of 2.068 with the p-value of 0.359. The implication is that there is a there is a positive but insignificant relationship between board professionalism and CSR of listed oil and gas firms in Nigeria. This implies that proportion of directors with financial professional qualification has no remarkable effect on corporate social responsibility participation and spending. The studies

conducted by Harjoto et al. (2015) and Zhuang et al. (2018) goes contrary to the findings of this study as they concluded that board professionalism had a positive effect on CSR. Therefore, the hypothesis developed earlier that board professionalism has a significant positive impact on CSR of listed oil and gas firms in Nigeria cannot be supported.

Finally, foreign director has a coefficient of 4.152 with the p-value of 0.0001, which means that foreign director has a significant positive relationship with CSR of listed oil and gas firms. It also means that an increase in the number of foreign directors on the board will improve their CSR participation and spending. This is attributed to the fact that foreign directors have more concern towards social and environmental issues and are willing to transfer the knowledge gained to domestic developing countries such as Nigeria. On this basis, we therefore support the alternate hypothesis, which states that Board nationality has a significant positive impact on CSR of listed oil and gas firms in Nigeria. This finding support the proposition of stakeholder theory and the finding of Harjoto et al. (2015) and Zhuang et al. (2018).

## 5. CONCLUSION AND RECOMMENDATIONS

Corporate social responsibility and board diversity have become two pressing issues for companies around the globe. Firm stakeholders are urging firms to be more socially responsible for their actions and, at the same time, regulators are encouraging firms to enhance diversity in boardrooms. Practical issues that lead to this study are the agitations and conflicts of stakeholders on the degradation on community and environment among oil and gas firms in Nigeria. Boards of directors play significant roles in strategy and policy formulation regarding CSR activities. We argue that to achieve this effectively, board of directors should be diverse as greater diversity can affect the board ability to balance the needs and interest of different groups of stakeholders. Our study examines the relationship between the diversity of boards and CSR activities. We measure the diversity of boards in terms of gender, independence, professionalism and nationality of their directors.

The findings of this study were obtained from the panel data collected for the period 2012 – 2018 from a sample of eight listed oil and gas firms in Nigerian Stock Exchange as at 31st December, 2018. Our result provide evidence that board independence, board gender diversity and board nationality positively and significant influences the amount spent on CSR activities, suggesting that diverse boards are more effective in overseeing CSR performance, upholding corporate moral commitment and fulfilling legal and ethical obligations to balance multi-stakeholder interest. However board professionalism has an insignificant impact on CSR spending. In line with stakeholder theory and the perception that the diversity of boards improves the ability of firms to meet the needs of their broader stakeholder groups, we conclude that the board diversity in terms of gender, independence and expertise tends to be the driving force behind the CSR practices of firms. Our results suggest that board diversity can be seen as an effective mechanism to enhance CSR participation and spending.

Our study contributes to the increasing literature on CSR and the diversity of boards. First, our study contributes to a better comprehension of the potential value of the diversity of boards. Precisely, it provides empirical evidence to demonstrate that increasing diversity of the boards of firms in the oil & gas sector could respond to the growing demand of CSR by their Stakeholders. Our research supports the calls for greater diversity of boards from regulators across the globe. Furthermore, the study will no doubt provide management, investors, and regulators of listed oil and gas firms in Nigeria with valuable planning mechanism and exposed them to board diversity dimensions that positively or negatively influence firm involvement in CSR activities, thereby apply them appropriately in order to position the listed oil and gas firms in Nigeria on a proper direction, that will eventually lead to significant reduction of social and environmental pressures. Finally, our study has significant implications for the selection process for directors, as our finding stress the importance of taking into consideration the various backgrounds of nominees for director positions.

Management of listed oil and gas firms need to maintain diverse balanced boards in terms of gender, independence, and expertise to enhance decision making and strategic implementation of environmental and social responsibility, protection of the interest of all stakeholders and the reduction of managers' opportunistic tendencies behind CSR investment. This study is not without limitations. First, this study employed and used only four dimensions among board diversity. Future studies could provide more insight and gain a deeper understanding on the relationship between board diversity and CSR by including more dimension of diversity such as age, ethnicity and race. Furthermore, this study also limited itself to listed oil and gas firms in the Nigeria Stock Exchange. It is therefore suggested that further studies should be conducted in other sectors such as manufacturing or financial service sector as this will enable them to forward more generalized findings and recommendations.

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