
BOARD ATTRIBUTES AND CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE: EVIDENCE FROM NIGERIA AND SOUTH AFRICA

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Abstract

The study investigated the relationship between board attributes and corporate social responsibility (CSR) disclosure of manufacturing firms in Nigeria and South Africa. To achieve the objective, board attributes key proxy variables were used in the study, namely board size, boards independent and board diversity while CSR disclosure which is the dependent variable on the other hand is measured using dummy. Using Judgmental sampling method, sample of forty (Nigeria: 30 and South Africa: 10) manufacturing firms were purposively selected from 124 (Nigeria: 72 and South Africa: 52) populated firms. Three hypotheses were formulated to guide the investigation and the statistical test of parameter estimates was conducted using Pearson Correlation Method and OLS regression. Ex-post facto research design was adopted and data for the study were obtained from the internet, annual financial reports of the selected firms, Nigerian Exchange Group and Johannesburg Stock Exchange with data spanning from 2010 - 2019. Analyses of data indicated that board size has positive relationship with CSR disclosure of listed manufacturing companies in both Nigeria and South Africa; while board independence has negative relationship in both countries. Board diversity has negative and positive relationship with CSR disclosure in Nigeria and South Africa respectively. The study therefore draws the conclusion that Board size is a significant factor in determining CSR disclosure in both countries, and that its optimality is therefore necessary for a better outcome based on the study's findings. The study suggests, among other things, that owners/shareholders of both Nigerian and South African manufacturing enterprises establish competent boards with a size of 9 to 15 members to oversee the firms' operations. Larger board sizes should be promoted since they are more adaptable than smaller ones and have expertise from a variety of viewpoints that mobilize resources for best use.

Key words: Board attributes, CSR disclosure, board size, board independence, board diversity.

1. Introduction

The impact of board attribute on CSR disclosure has been the subject of conflicting and inconsistent findings in the literature. Board size, which is the total number of directors (executive and non-executive) on the board, has been found to have both significant positive and negative effects (Ali & Atan 2013; Oh, Chang & Cheng 2014; Nnubia & Omaliko 2016; Alazzani, Hassanein & Aljanadi 2017); and insignificant positive and negative effects.

Board composition, which distinguishes between executive and non-executive members, is defined as the proportion of outside directors to the overall membership of the board of directors (Hossain & Reaz, 2007). According to Tricker (1984), non-executive directors serve as a check and balance system to guarantee the protection of the interests of the owners as well as those of other stakeholders. The literature on the influence of board composition on CSR disclosure contains inconsistent findings. Board composition has a sizable favourable impact, according to Okafor, Agbata, Nnubia and Okaro (2023), Ali and Atan (2013), Ibrahim and Hanefah (2016), and Cucari, De Falco and Orlando (2017). Jian and Lee (2015) and Esa and Mohd Ghazali (2012) find that board composition has a significant detrimental effect. Board composition has a negligible positive impact on a company's CSR disclosure, according to Ducassy and Montandrou (2015) and Wachira (2017), and a negligible negative impact on a company's CSR disclosure, according to Giannarakis (2014), Rao and Tilt (2016), and Said et al. (2017).

Women's engagement in politics and corporate management is a hot topic right now, especially in light of the Beijing Fourth World Conference on Women's resolution that called for 30% affirmative action. The presence of females on company boards is required by many European nations' regulatory frameworks and governance standards (Upadhyay & Zeng 2014). The private sectors in Kenya, Nigeria, and South Africa have included women representation as a part of good corporate governance; though, Kenya and South Africa mandate female representation on the boards of government-owned companies (Navitidad 2015). In Nigeria, DCSL Corporate Service Limited observed that there was an increase in the percentage of women on the boards of the companies, with an average of 14%, in their survey of 132 listed companies in Nigeria from 2013 to 2015.

According to Rao and Tilt (2016), McGuinness, Vieito, and Wang (2016), females are more socialized, care more about the needs of others, and have a stronger sense of social responsibility. Katnon et al. (2017) were of opinion that boards with a majority of women have effective oversight of general disclosure and reporting, which enhances the quality of disclosure. The results of the research on how female directors on boards affect CSR disclosure are conflicting. Women directors have a considerable impact on CSR disclosure, as shown by the studies of Boulouta (2013), Kiliç, Kuzey and Uyar (2015), Ibrahim and Hanefah (2016), and Welbeck (2017). However, research from Giannarakis, Konteos, and Sariannidis (2014), Cucari, et al. (2017), and Louis and Osemeke (2017) shows that the influence of female directors on CSR disclosure is negligible.

2. Literature Review and Hypotheses Development

2.1. Board Size and CSR disclosure

The number of directors serving on a company's board of directors is referred to as the board size (Jensen & Meckling, 1976). Board size roles have generated debate from a variety of perspectives. The size of the board is said to have an impact on how decisions are made, how they are monitored, and how they are disclosed. Raheja (2005) noted that the two crucial

duties of the board of directors are advising and monitoring. The size of the board has a considerable impact on controlling, monitoring, and information sharing, according to Chaganti et al. (1985) and Akhtaruddin et al. (2009). This could lead one to believe that the size of the board is important to the company.

According to the agency theory, larger organizations require a greater proportion of directors on the board to increase the board's monitoring capacities and control management actions, which will enhance their transparency and disclosure activities (Kaymak & Bektas, 2017). This implies that one important element affecting the size of the board of directors is the firm's size. Numerous scholars have provided empirical support for this position. According to Coles et al. (2008), large, complicated companies with multiple business lines require a larger board of directors since they have more advisory needs. Larger boards are likely to include more experts and competent directors and provide the CEO with better counsel, according to Dalton et al. (1999). This demonstrated the necessity for bigger boards in complicated companies. Many board members may improve the director's board to help them carry out their duties more successfully. A large board may increase corporate transparency by taking shareholder groups into account at board meetings and increasing the level of voluntary disclosure as well as CSR policies and disclosure. Additionally, boards with more members may be able to lessen issues with information asymmetry, ambiguity, and information scarcity (Chen & Jaggi, 2001; Birnbaum, 1984).

With regard to the CSRD, few researches have examined the connection between board size and CSRD, and the findings are still erratic. According to Esa and Ghazali (2010), the board size of Malaysian government-affiliated enterprises is strongly and favourably correlated with the severity of CSRD. Said et al. (2009) discovered that the board size has little impact on the CSRD on company websites or annual reports. Jizi et al. (2014) discovered a favourable correlation between the quality of CSRD and board size in US banks, which is relevant to the banking industry. According to a 2013 study by Frias-Aceituno, Rodriguez-Ariza, and Garcia-Sanchez, board size, independence, and diversity are all related to corporate social reporting. They also discovered a strong positive link between CSR disclosures and board size. However, Beasley (1996), Yermack (1996), and Vafeas (1999) contend that expanding the size of the board may result in poor coordination and director communication issues, which could impair information disclosure. However, Bukair and Abdul Rahman (2015) looked at how board size affected CSRD at Islamic banks in the nations of the Gulf Cooperation Council. Their research confirmed the validity of Lepton and Lorsch's (1992) and Jensen's (1993) recommendations that boards should include a maximum of eight directors. However, their findings showed that the board size has no impact on enhancing CSRD. Studies by Cheng and Courtenay (2006), Sun et al. (2010), Uyar et al. (2013), and Giannarakis (2014) likewise found no connection between board size and voluntary disclosure.

The association between board size and voluntary disclosure in the business setting of Nigeria and South Africa has contradictory outcomes. Board size and voluntary disclosure do not appear to be significantly correlated, according to Al-Moataz and Hussainey (2012). Al-Janadi et al. (2013) discover a favourable connection. In the current research, we argue that manufacturing companies in Nigeria and South Africa with big boards typically provide more information. As a result of the debate above, the following theory is created:

H₁: There is a relationship between board size and the extent of CSR disclosure.

2.2. Board Independence and CSR disclosure

The addition of independent directors strengthens the board's representation of shareholders. The separation of ownership and management is the central tenet of the agency theory, and independent directors are therefore seen as being more effective monitors. The conflict between the agent's and principle's interests, where the agent tends to maximize his interests at the expense of the welfare of the principal, gave rise to the agency dilemma (Jensen & Meckling, 1976).

Independent directors are therefore expected to work in the best interests of shareholders and prevent conflicts of interest between parties to contracts. Theorists of agency theory contend that by ensuring that top managers do not conspire to expropriate the wealth of minority, a higher number of non-executives on the board may more effectively supervise the top management and safeguard shareholders and other stakeholders. Furthermore, according to the resource dependence theory, outside directors provide their company access to more resources, knowledge, and legitimacy, which may help assure sound managerial decisions and boost company performance (Hillman, Cannella, & Paetzold, 2000). According to Chen and Jaggi (2001), the majority of independent directors on the board should help raise awareness of the requirements for information disclosure; as a result, nonexecutives are anticipated to improve the information disclosure in terms of its thoroughness and caliber.

So, according to several studies, independent directors are important players on the board who can influence decisions such as hiring and firing CEOs, paying top management, negotiating takeover premiums, and implementing antitakeover measures (Weisbach, 1988; Borokhovich et al., 1996). Since the outside directors will encourage the top management to consider the social in their strategy and enhance the disclosure of social activities, it is assumed that adding more independent directors to the board may improve the transparency and the corporate social performance and the CSR of both Nigerian and South African manufacturing firms.

Many researches have showed that board independence has a fine effect on CSR and CSR (Webb, 2004; Zhang et al., 2013; Sharif & Rashid, 2013). Prior research (such as Khan, 2010; Al-Janadi et al., 2013) talked about that there may be a widespread wonderful affiliation among the proportions of unbiased directors on the company's board and voluntary disclosure; even as some studies (like Barako et al., 2006; Al-Moataz & Hussainey, 2012) located that board independence issue is related negatively with the extent of voluntary disclosure. Other studies (inclusive of Aljifri et al., 2014; Giannarakis, 2014; Alhazaimh et al., 2014) did not find a good sized association.

In the Nigeria and South Africa context, preceding studies on the association between board independence and voluntary disclosure offers mixed effects. Al-Janadi et al. (2013) discover a high quality correlation among board independence and voluntary disclosure. But, Al-Moataz and Hussainey (2012) find a terrible relationship. In the present paper, we expect that there is a large wonderful association among the proportion of independent directors on the board of Nigerian and South African firms and the level of CSR disclosure. Therefore, based on the above discussion, the following hypothesis is developed:

H₂: There is a relationship between board independence and the extent of CSR disclosure.

2.3. Board diversity and CSR disclosure

Board range but is a widely defined issue that consists out of more than one different elements along with board member gender, age, ethnicity and enjoy (Harjoto & Laksama, 2016; Harfsi & Turgut, 2013). Considering the quantity of the subject of board range and the complexity that incorporates it, this look at will look at board diversity best regarding the factors that, consistent with Harfsi and Turgut (2013), have a vast effect on CSR, that is board member gender.

The maximum notably debated feature of board diversity is gender. Gender composition on the board is an crucial measurement of Corporate Governance, due to the fact women and men are traditional, culturally and socially unique. For example, the extant literature has proven that ladies vary from guys in phrases of personality, communiqué style, instructional heritage, and career experience and know-how. To corroborate this, arguments are used along with the fast socialisation passed through by means of ladies, the position that being of this gender plays of their behaviour as ladies and moms (Betz, O'Connell, & Shepard, 1989). Although a few researches show that lady directors may additionally play an insignificant function in monitoring matters because of sex-based totally biases (Galbreath, 2011; Rodriguez-Dominguez, Gallego-Alvarez & Garcia-Sanchez, 2009).

Studies of the impact of gender diversity in Nigerian, South African regions and in growing international locations are exceedingly scant due to scepticism approximately which includes lady directors within the corporate boardroom. But the good sized participation of ladies in all the sports around the world has highly elevated. As a result, ladies presence inside the boardroom cannot be brush aside in this era.

Agency concept indicates that board range decorates the board independence (Carter et al., 2007) and board gender is taken into consideration as one of the diversity variables. Having girls inside the board has some blessings together with embedding range (Fernando, 2007) and enhancing the possibility to achieving the aggressive gain (Mattis, 2000). With respect to the CSR and CSRD, most people of the preceding studies located that woman administrators decorate the CSR practices (Zhang et al., 2013, Boulouta, 2013) CSR rating (Bear et al., 2010) CSRD (Fernandez-Feijoo et al., 2012) excellent of environmental reporting (Oba & Fodio, 2012). Furthermore, Shauki (2011) studied the CSRD in Indonesia from stakeholders' perceptions and the consequences indicated that gender variety notably inspired the level of CSRD. Webb (2004) and Bernardi and Threadgill, (2011) located that the firms with lady directors are more socially accountable inside the US. Zhang et al. (2013) found evidence that greater girl administrators in the board more advantageous the corporate social performance. Mallin and Michelon (2011) discovered that higher corporate residents have extra proportion of lady administrators of their boardrooms. Having women in the boards can be considered as the awareness signal of the companies about issues associated with minorities and ladies and thus ensures the citizenship of the corporations (Soares, Carter & Combopiano, 2009). The empirical result indicated that companies with extra woman directors serving inside the board have higher stage of philanthropy and charitable giving (Williams, 2003). As well as, better work environments (Bernardi et al., 2006; Nnubia & Ezenwa 2016). Therefore, based on the above mentioned discussion, the following hypothesis is developed:

H₃: There is a relationship between existence of women in the board and the extent of CSR disclosure.

3. Methodology

The study adopted ex post facto research design. The reason for this is because the data used were secondary data and cannot easily be manipulated. The secondary data used for this study were secondarily sourced and obtained from the internet, annual financial reports of the selected firms, Nigeria Exchange Group and Johannesburg Stock Exchange, over a period of 2010 to 2019. Panel data were used for the forty (40) selected listed manufacturing firms over ten (10) year period on four (4) focus variables in the study.

3.1 Population and sample size

The population of this study consist of all the listed manufacturing firms in Nigeria and South Africa. According to the Nigeria Exchange Group and Johannesburg Stock Exchange, and the internet, there are seventy-two (72) listed manufacturing firms in Nigeria and fifty-two (52) listed manufacturing firms in South African, which maintained existence to 2019.

Table 1: Summary of Population

Country	Population	Percentage (%)
Nigeria	72	58%
South Africa	52	42%
Total	124	100%

Using Judgmental sampling method, sample of forty (40) manufacturing firms were purposively selected based on availability and accessibility of the required data (see appendix I). Though 30 for Nigeria and 10 for South Africa were derive and allocated to Nigeria and South Africa based on 41.67% and 19.23% of their various populations. This was done after deleting those firms that were listed after 2010 and those with inconsistence of data.

Unbalanced Panel data were used for the forty listed firms over ten (10) years period due to data consistency and availability on four (4) focus variables in the study. Data collected will be analysed using Pearson Correlation Matrix with the help of E-view version 13.

Table 2: Summary of Sample Size

Country	Sample size	Percentage (%)
Nigeria	30	75%
South Africa	10	25%
Total	40	100%

3.2 Variables

The statistical method of Pearson correlation matrix was employed in the conduct of this study. This technique of data analysis is used in ascertaining the relationship between the independent variables and dependent variable. Additional test was conducted using OLS regression analysis to also ascertain the effects of the independent variables on the dependent variable. Choice and selection of variables is influence by the past research and different study conducted by different scholars on board characteristics.

Table 3: Variable description and measurement

Variable	Measurements
Dependent variable	
Corporate social responsibility disclosure (CSRDI)	= CSR disclosure in dummy (1,0) is measured as "1" for companies that have a section in the Annual Reports for social responsibility or Community activities and "0" otherwise.
Independent variables	
Board size (BODS)	= Board Size in numbers is computed as the total numbers of all directors of a company including the Chairman +Vice Chairman +CEO/Managing director + Executive Directors +Non-Executive Directors or Independent Directors but excluding the company secretary
Board independence (BODI)	= Board Independence in percentage is computed as the non-executive directors to total board size.
Board diversity (BODD)	= Board Diversity in percentage is computed as the Female directors to total board size.

3.3 Model Specification

In order to investigate the relationship between board attributes and corporate social responsibility disclosure of listed manufacturing companies in both Nigeria and South Africa, the study adopts with little modification the model used by Khan, Muttakin and Siddiqui (2013) as follows:

$$CSRDI = a + \beta_1 BS + \beta_2 BI + \beta_3 MOWN + \beta_4 WB + \beta_5 FSIZE + \epsilon$$

Where:

CSRDI = Corporate Social Responsibility Disclosure Index

BS = Board Size

BI = Board Independence

MOWN = Managerial Ownership

WB = Women on Board

FSIZE = Firm Size

a = Represent the fixed intercept element

ϵ = is error term

Therefore, the model for this study is as follows:

$$CSRDI = f(BODS, BODI, BODD, \mu) \dots \dots \dots I$$

$$CSRDI = \beta_0 + \beta_1 BODS_{it} + \beta_2 BODI_{it} + \beta_3 BODD_{it} + \mu \dots \dots \dots II$$

Where,

CSRDI = corporate social responsibility disclosure

BODS = board size

BODI = board independence

BODD = boarddiversity

μ = Error term

β_0 = Intercept

β_1 - β_3 =- the independent variable co-efficient

4. Results and Discussion

The statistical software of E-view (version 10) was used to analyse the nexus between variables of the study. Descriptive statistic merely represents the statistical attributes of the variables in the study model. Table 4 below provides such statistics.

Table 4: Descriptive Statistics of the Variables for 30listed manufacturing firms in Nigeria on board’s characteristics and CSR disclosure for 10 years period

VARIABLES	CSRD	BODS	BODI	BODD
Mean	0.636667	8.553333	63.51040	9.885800
Median	1.000000	8.000000	62.50000	10.00000
Maximum	1.000000	17.00000	91.67000	71.43000
Minimum	0.000000	4.000000	0.000000	0.000000
Std. Dev.	0.481763	2.504943	15.55271	11.28233
Skewness	-0.568308	0.849305	-0.385251	1.282983
Kurtosis	1.322974	3.934995	3.186756	5.493713
Jarque-Bera	51.30390	46.99367	7.856874	160.0349
Probability	0.000000	0.000000	0.019674	0.000000
Sum	191.0000	2566.000	19053.12	2965.740
Sum Sq. Dev.	69.39667	1876.147	72324.13	38060.01
Observations	300	300	300	300

Table 4 above shows the mean (average) for each variable, their maximum values, minimum values, standard deviation. The result provides some insight into the nature of the selected firms’ data used for the study. Firstly, it was observed that over the period under review, the sampled firms in Nigeria have positive average corporate social responsibility disclosure (CSRD) value of 0.636667. The maximum and minimum value of CSR disclosure is 1.000000 and 0.000000 respectively. The large difference between the maximum value and the minimum value shows that the sampled firms used for the study are not dominated by either firms with high CSR disclosure or firm with low CSR disclosure. Secondly, it was observed that on the average over the period, the selected firms have board size (BODS) value of 8.553333, its maximum and minimum values are 17.00000 and 4.000000 respectively, the large difference between the maximum and minimum board size (BODS) value reveals that gyrating nature of the board size among the selected firms. This wide variation in BODS values among the sampled firms justifies the need for this study as we assume that firms with higher BODS will have higher CSR disclosure than those firms with low BODS in Nigeria. Board independence (BODI) has a mean value of 63.51040, maximum value of 91.67000 and minimum value of 0.000000. However, there is a high variation between the maximum and minimum values of BODI. This wide variation in BODI values among the sampled firms justifies the need for this study as we assume that firms with higher BODI will have higher CSR disclosure than those firms with low BODI in Nigeria. Board diversity (BODD) has a mean value of 9.885800, maximum value of 71.43000 and minimum value of 0.000000. The large difference between the maximum and the minimum board diversity reveals that nature of the firm’s board diversity among the selected firms in Nigeria. The wide variation between the maximum and minimum values of board diversity values justifies the need for this study as we expect that those firms with higher board diversity will have higher CSR disclosures than those with smaller board diversity in Nigeria.

Lastly, the Jarque – Bera (JB) which test for normality or the existence of outlier or extreme value among the data from the variables used for the study, the result shows that all the variables are normally distributed at 5% level of significance. This result means that any variables with outlier are not likely to distort our conclusion and are therefore reliable for drawing generalization.

Table 5: Descriptive Statistics of the Variables for 10 listed manufacturing firms in South Africa on board's characteristics and CSR disclosure over 10 years period

VARIABLES	CSR D	BODS	BODI	BODD
Mean	0.870000	11.46000	70.52340	19.90390
Median	1.000000	11.00000	72.08000	20.00000
Maximum	1.000000	17.00000	93.75000	44.44000
Minimum	0.000000	7.000000	50.00000	0.000000
Std. Dev.	0.337998	2.328653	10.25294	9.181670
Skewness	-2.200394	0.890324	-0.045594	0.196827
Kurtosis	5.841733	3.187500	2.043165	2.731296
Jarque-Bera	114.3432	13.35775	3.849371	0.946521
Probability	0.000000	0.001257	0.145922	0.622968
Sum	87.00000	1146.000	7052.340	1990.390
Sum Sq. Dev.	11.31000	536.8400	10407.16	8346.003
Observations	100	100	100	100

Table 5 above shows the mean (average) for each variable, their maximum values, minimum values, standard deviation. The result provides some insight into the nature of the selected firms' data used for the study. Firstly, it was observed that over the period under review, the sampled firms in South Africa have positive average corporate social responsibility disclosure (CSR D) value of 0.870000. The maximum and minimum value of CSR disclosure is 1.000000 and 0.000000 respectively. The large difference between the maximum value and the minimum value shows that the sampled firms used for the study are not dominated by either firms with high CSR disclosure or firm with low CSR disclosure. Secondly, it was observed that on the average over the period, the selected firms have board size (BODS) value of 11.46000, its maximum and minimum values are 17.00000 and 7.000000 respectively, the large difference between the maximum and minimum board size (BODS) value reveals that gyrating nature of the board size among the selected firms. This wide variation in BODS values among the sampled firms justifies the need for this study as we assume that firms with higher BODS will have higher CSR disclosure than those firms with low BODS in South Africa. Board independence (BODI) has a mean value of 70.52340, maximum value of 93.75000 and minimum value of 50.00000. However, there is a high variation between the maximum and minimum values of BODI. This wide variation in BODI values among the sampled firms justifies the need for this study as we assume that firms with higher BODI will have higher CSR disclosure than those firms with low BODI in South Africa. Board diversity (BODD) has a mean value of 19.90390, maximum value of 44.44000 and minimum value of 0.000000. The large difference between the maximum and the minimum board diversity reveals that nature of the firm's board diversity among the selected firms in South Africa. The wide variation between the maximum and minimum values of board diversity values justifies the need for this study as we expect that those firms with higher board diversity will have higher CSR disclosures than those with smaller board diversity in South Africa.

Lastly, the Jarque – Bera (JB) which test for normality or the existence of outlier or extreme value among the data from the variables used for the study, the result shows that CSR D and BODS variables values are close to zero, thus they are normally distributed at 5% level of significance; whereas BODI and BODD variables values are not close to zero, hence they do not have a normal distribution at 5% level of significance. This result means that any

variables with outlier are not likely to distort our conclusion and are therefore reliable for drawing generalization.

4.1 Diagnostic Tests

The study in trying to diagnose for the presence of multi-collinearity in our data and evaluating the association among the variables adopted, employed the Pearson correlation coefficient (correlation matrix) analysis. The result obtained is presented in tables below.

Table 6: Pearson Correlation Matrix (Correlation Analysis) of 30 listed manufacturing firms in Nigeria over 10 years period

VARIABLES	CSRD	BODS	BODI	BODD
CSRD	1.000000	0.025811	-0.077465	-0.083909
BODS	0.025811	1.000000	0.171383	0.027543
BODI	-0.077465	0.171383	1.000000	-0.192990
BODD	-0.083909	0.027543	-0.192990	1.000000

Table 6 focused on the correlation between CSR disclosure and the proxy of independent variables (BODS, BODI and BODD) in Nigeria. The finding from the correlation matrix table shows that independence variables such as BODI = -0.077465 and BODD = -0.083909 were observed to be negatively associated with our dependent variable (CSRD) in Nigeria; while independent variable such as BODS = 0.025811 was observed to be positively associated with our dependent variable (CSRD) in Nigeria. Board size has positive association with both board independence (0.171383) and board diversity (0.027543); whereas Board independence has negative association with Board diversity (-0.192990) in Nigeria. In checking for multi-collinearity, we noticed that no two explanatory variables were perfectly correlated. This means that there is no problem of multi-collinearity between the explanatory variables. Multi-collinearity usually results to wrong signs or implausible magnitudes in the estimated model coefficients obtained. There will also be bias in the standard errors of the coefficients but since there is no such problem in our data, it then means that we should go ahead to run our regression.

Table 7: Pearson Correlation Matrix (Correlation Analysis) of 10 listed manufacturing firms in South Africa over 10 years period

VARIABLES	CSRD	BODS	BODI	BODD
CSRD	1.000000	0.102412	-0.055135	0.023990
BODS	0.102412	1.000000	0.246224	-0.335993
BODI	-0.055135	0.246224	1.000000	-0.253107
BODD	0.023990	-0.335993	-0.253107	1.000000

Table 7 focused on the correlation between CSR disclosure and the proxy of independent variables (BODS, BODI and BODD) in South Africa. The finding from the correlation matrix table shows that independence variables such as BODS = 0.102412 and BODD = 0.023990 were observed to be positively associated with our dependent variable (CSRD) in South Africa; while independent variable such as BODI = -0.055135 was observed to be negatively associated with our dependent variable (CSRD) in South Africa. Board size has positive association with board independence (0.246224) and negative association with board diversity (-0.335993). Board independence also has negative association with Board diversity (-0.253107) in South Africa. In checking for multi-collinearity, we noticed that no two explanatory variables were perfectly correlated. This means that there is no problem of multi-collinearity between the explanatory variables. Multi-collinearity usually results to wrong

signs or implausible magnitudes in the estimated model coefficients obtained. There will also be bias in the standard errors of the coefficients but since there is no such problem in our data, it then means that we should go ahead to run our regression.

Table 8: Hosmer-Lemeshow Test for Binary Specification of 30listed manufacturing firms in Nigeria over 10 years period

Goodness-of-Fit Evaluation for Binary Specification									
Andrews and Hosmer-Lemeshow Tests									
Equation: UNTITLED									
Date: 04/27/23 Time: 08:57									
Grouping based upon predicted risk (randomize ties)									
	Quantile of Risk			Dep=0		Dep=1		Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value	
1	0.4368	0.5531	16	14.7160	14	15.2840	30	0.21990	
2	0.5531	0.5893	13	12.7233	17	17.2767	30	0.01045	
3	0.5893	0.6091	13	12.0014	17	17.9986	30	0.13850	
4	0.6091	0.6290	8	11.3395	22	18.6605	30	1.58110	
5	0.6290	0.6392	15	10.9599	15	19.0401	30	2.34655	
6	0.6392	0.6413	9	10.7691	21	19.2309	30	0.45339	
7	0.6447	0.6641	9	10.2059	21	19.7941	30	0.21596	
8	0.6653	0.6870	9	9.65673	21	20.3433	30	0.06586	
9	0.6917	0.7114	9	8.91603	21	21.0840	30	0.00113	
10	0.7216	0.8324	8	7.74863	22	22.2514	30	0.01099	
		Total	109	109.037	191	190.963	300	5.04382	
H-L Statistic			5.0438	Prob. Chi-Sq(8)			0.7529		
Andrews Statistic			6.7242	Prob. Chi-Sq(10)			0.7512		

In table 8 above, we conducted the goodness-of-fit tests to determine whether the predicted probabilities deviate from the observed probabilities in a way that the binomial distribution does not predict. Here, if the p-value for the goodness-of-fit test is lower than the 5% chosen significance level, the predicted probabilities deviate from the observed probabilities in a way that the binomial distribution does not predict. In Nigerian firms, we observed that the p-value is higher than the 5% chosen level of significance and this implies that our model show a good fit.

Table 9: Hosmer-Lemeshow Test for Binary Specification of 10listedmanufacturing firms in South Africa over 10 years period

Goodness-of-Fit Evaluation for Binary Specification									
Andrews and Hosmer-Lemeshow Tests									
Equation: UNTITLED									
Date: 04/27/23 Time: 09:25									
Grouping based upon predicted risk (randomize ties)									
	Quantile of Risk			Dep=0		Dep=1		Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value	
1	0.7244	0.8062	2	2.20916	8	7.79084	10	0.02542	
2	0.8062	0.8288	2	1.87629	8	8.12371	10	0.01004	
3	0.8312	0.8552	1	1.57436	9	8.42564	10	0.24869	
4	0.8552	0.8569	1	1.44045	9	8.55955	10	0.15734	
5	0.8643	0.8718	1	1.34010	9	8.65990	10	0.09967	
6	0.8727	0.8824	2	1.24081	8	8.75919	10	0.53030	
7	0.8824	0.8939	2	1.10775	8	8.89225	10	0.80821	
8	0.8939	0.9165	1	0.98582	9	9.01418	10	0.00023	
9	0.9170	0.9324	1	0.76748	9	9.23252	10	0.07630	
10	0.9451	0.9692	0	0.45320	10	9.54680	10	0.47471	
		Total	13	12.9954	87	87.0046	100	2.43091	
H-L Statistic			2.4309	Prob. Chi-Sq(8)			0.9649		
Andrews Statistic			13.3569	Prob. Chi-Sq(10)			0.2044		

In table 9 above, we conducted the goodness-of-fit tests to determine whether the predicted probabilities deviate from the observed probabilities in a way that the binomial distribution does not predict. Here, if the p-value for the goodness-of-fit test is lower than the 5% chosen significance level, the predicted probabilities deviate from the observed probabilities in a way that the binomial distribution does not predict. In South African firms, we observed that the p-value is higher than the 5% level of significance and this mean that our model is a good fit.

4.2 Regression Analysis

MODEL: $CSR D = \beta_0 + \beta_1 BODS_{it} + \beta_2 BODI_{it} + \beta_3 BODD_{it} + \eta_{it}$(i)

Testing of hypotheses formulated for listed manufacturing firms in Nigeria.

In order to examine the relationships between the dependent variable CSR D and the independent variables (BODS, BODI and BODD) and to also test the formulated hypotheses given using both Nigerian and South African environmental data, the study used a Binary Logistic regression analysis (see appendix 1).The results of the Binary Logistic regression analysis are presented in tables below.

Table 10: Binary Logistic Regression Result for Nigeria and South Africa

Country	Nigeria			South Africa		
	Coefficient	z-Statistic	Prob.	Coefficient	z-Statistic	Prob.
BODS	0.0250500	8.086960	4.187	0.1122191	2.998790	1.936
BODI	-0.008777	-1.764289	0.0777	-0.013239	-0.7647660	4.444
BODD	-0.011750	-1.760748	0.0783	0.0090300	4.636990	6.429

Source: derived from appendix

Table 10 above presents the Binary Logistic regression result obtained in investigating the relationships between the dependent variable CSR D and the independent variables (BODS, BODI and BODD). Binary Logistic regression was used because the dependent variable is a

dummy variable. The logistic distribution constrains the estimated probabilities to lie between 0 and 1. Maximum likelihood estimation (MLE) is a statistical method for estimating the coefficients of a model. The likelihood function (L) measures the probability of observing the particular set of dependent variable values that occur in the sample. Here, the higher the L, the higher the probability of observing the Ps in the sample.

In Nigeria, we observed from the analysis that the p-value for board size (0.4187), board independence (0.0777) and board diversity (0.0783) is > 0.05 ; this means that these variables do not significantly impact the CSR disclosure in Nigerian manufacturing firms. Though, board size (0.025050) has positive sign which means that an increase in board size of manufacturing firms in Nigeria will lead to an increase in CSR disclosure; whereas the negative signs of both the board independence (-0.008777) and board diversity (-0.011750) indicate that an increase in both variables will tends to decrease CSR disclosure in Nigerian manufacturing firms.

In South African, we observed from the analysis that the p-value for board size (0.1936), board independence (0.4444) and board diversity (0.6429) is also > 0.05 ; this means that these variables also do not significantly impact the CSR disclosure in South African manufacturing firms. Though, board size (0.112219) and board diversity (0.009030) have positive signs which indicate that an increase in both board size and board diversity of manufacturing firms in South Africa will lead to an increase in CSR disclosure; whereas the negative sign of the board independence (-0.013239) suggests that an increase in the variable will tends to decrease CSR disclosure in South African manufacturing firms.

5. Conclusion and Recommendations

The need for good corporate governance arises because in corporations, the owners are usually separate from managers of such corporation even when the owners of corporation form part of the management, there is need to protect the interest of individual stakeholders. Board attributes are seen to have a positive association with the level of corporate social responsibility disclosure in both countries.

The study finds that Board size and women diversity in the board are having a positive relationship with CSR disclosure in the South African manufacturing firms; whereas only Board size is positively associated with CSR disclosure in the Nigerian manufacturing firms. The implication of this findings are that it provides evidence to the society, investors and regulators that larger boards are associated with the CSR disclosure in both Nigerian and South African manufacturing firms; also as more women are appointed on the board in South African firms, it brings among others to the organization such thing as prestige, skills, knowledge, and connection to external resources. Another implication is that independent directors has negative relationship with CSR disclosure in both the Nigeria and South African manufacturing firms, and this implies that the conflict between owners and managers of resources may not be reduced on the ground that independent directors were appointed.

The report draws the conclusion that Board size is a significant factor in determining CSR disclosure, and that its optimality is therefore necessary for a better outcome based on the study's findings. It is consequently stated that larger board sizes should be encouraged because they have expertise from diverse aspects that mobilize resources for best exploitation, making them more likely to be versatile than smaller ones. Additionally, having women on the boards of South African manufacturing companies helps improve CSR and corporate reputation scores, which is important for sending signals to stakeholders. Therefore,

the amount of CSR disclosure rises in South Africa and falls in Nigeria when women are represented on boards. Finally, an essential monitoring and control mechanism is also the percentage of independent directors on the board because of its negative correlation with CSR disclosure in manufacturing enterprises in both nations.

As a result, the study suggests, among other things, that owners/shareholders of both Nigerian and South African manufacturing enterprises establish competent boards with a size of 9 to 15 members to oversee the firms' operations. Larger board sizes should be promoted since they are more adaptable than smaller ones and have expertise from a variety of viewpoints that mobilize resources for best use. Additionally, women's representation on the boards of South African manufacturing companies should be supported as much as possible because more women on boards help ensure comprehensive disclosure of all CSR-related facts because they may possess different abilities than their male counterparts. As a result, it is advised that additional research be done on the same subject in a different sector or business, taking other board features into account that were not covered in this study.

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Appendix

Binary Logistic Regression Resultfor Nigeria

Dependent Variable: CSR				
Method: ML - Binary Probit (Quadratic hill climbing)				
Date: 04/27/23 Time: 08:37				
Sample: 2010 2019				
Included observations: 300				
Convergence achieved after 4 iterations				
Covariance matrix computed using second derivatives				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.813545	0.390385	2.083957	0.0372
BODS	0.025050	0.030976	0.808696	0.4187
BODI	-0.008777	0.004975	-1.764289	0.0777
BODD	-0.011750	0.006673	-1.760748	0.0783
McFadden R-squared	0.013820	Mean dependent var		0.636667
S.D. dependent var	0.481763	S.E. of regression		0.479536
Akaike info criterion	1.319178	Sum squared resid		68.06656
Schwarz criterion	1.368561	Log likelihood		-193.8767
Hannan-Quinn criter.	1.338941	Deviance		387.7533
Restr. deviance	393.1872	Restr. log likelihood		-196.5936
LR statistic	5.433883	Avg. log likelihood		-0.646256
Prob(LR statistic)	0.142647			
Obs with Dep=0	109	Total obs		300
Obs with Dep=1	191			

Binary Logistic Regression Resultfor South Africa

Dependent Variable: CSR				
Method: ML - Binary Probit (Quadratic hill climbing)				
Date: 04/27/23 Time: 09:24				
Sample: 2010 2019				
Included observations: 100				
Convergence achieved after 5 iterations				
Covariance matrix computed using second derivatives				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.630894	1.572686	0.401157	0.6883
BODS	0.112219	0.086331	1.299879	0.1936
BODI	-0.013239	0.017312	-0.764766	0.4444
BODD	0.009030	0.019475	0.463699	0.6429
McFadden R-squared	0.028289	Mean dependent var		0.870000
S.D. dependent var	0.337998	S.E. of regression		0.340280
Akaike info criterion	0.830912	Sum squared resid		11.11590
Schwarz criterion	0.935119	Log likelihood		-37.54561
Hannan-Quinn criter.	0.873087	Deviance		75.09122
Restr. deviance	77.27734	Restr. log likelihood		-38.63867
LR statistic	2.186126	Avg. log likelihood		-0.375456
Prob(LR statistic)	0.534686			
Obs with Dep=0	13	Total obs		100
Obs with Dep=1	87			