



The Effect of Corporate Governance on Environmental Disclosure by Listed Nigerian Consumer Goods Firms

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Abstract: *In recent times, companies improve corporate communication with stakeholders by providing information on measures taking to protect the environment through environmental disclosures. The main objective of the study is to examine how corporate governance affects environmental disclosures listed Nigerian consumer goods firms. The ex-post facto research design was used and regression analysis was used to analyzed data derived from seventeen consumer goods firms. The findings revealed that the presence of environmental sustainability committee, number of meetings held by the board of directors, and firm size have significant positive impact on the quantity of environmental information disclosure (EDI). However, the size of the board of directors (BSIZE) and board independence have an insignificant inverse influence on the Environmental Disclosure Index (EDI) of the sampled companies. It was concluded that corporate governance affects environment disclosure. Based on the findings it was recommended that companies should constitute environmental committee on the board of directors to improve environmental disclosure.*

Keywords: Board Size; Corporate Governance; Environmental Disclosure; Firm Size

Introduction

One of the key resources of a nation is the quality of its environment. However, due to the negative operations of the organizations there has been a major concern on the climatic conditions, ozone layers and human lives. Ajibolade & Uwuigbe (2013) asserts that environmental issues have become major topics because of how it negatively affects the stability of the ecosystem. Our world is adversely affected as a result of careless management by business organizations of what the earth is blessed with (Onyali & Okafor, 2018). This resulted in research of how the earth can be rescued from its devastated state through increased global environmental education and enlightenment on sustainable economic development which has been changing the direction of firms' attention towards environmental sensitivity (Ngwakwe, 2008).

Corporate environmental disclosure also known as green reporting relates to the costing and disclosure of environmental occurrences and activities that relates to an organization at a particular period. It is focused on ongoing environmental monitoring and environmental data collection (Batra, 2013). Environmental disclosure (ED) communicates to the public whether the decision makers (the management) of companies are taking environmental issues seriously (Monica,

2005). Accounting and management concerns related to environmental and social impacts, legislation and controls, protection, environmentally sustainable, and commercially viable energy production and supply are all covered by environmental reporting (Amran & Devi, 2008). Despite the increased focus on EDs in general, environmental disclosure continues to be voluntary on a global scale, with substantial variations in the quality and quantity of environmental data reported by businesses from different sectors and countries (Ala' Mohammad, 2019).

Corporate Governance (CG) refers to a collection of procedures that decide how and by whom organizations are regulated, as well as how effective responsiveness and knowledge disclosure to stakeholders should be implemented (Arani, 2016). Consequently, CG is a method of ensuring that managers' disclosures of company knowledge are more transparent. The openness of information is a vital feature of CG, and it can be considered one of the tools for evaluating managers' responsiveness to duties (De Villiers & Staden, 2009). This concept is quite undeveloped in Nigeria in relations to Environmental Disclosures (Ajibolade & Uwuigbe, 2013).

Nigeria as a developing nation, blessed with natural resources and good climatic atmosphere, has strongly been affected

negatively by the operations of consumer goods companies over the years (Uwuigbe & Jimoh, 2012). Corporate organizations in Nigeria disclose environmental information but at their volition in respect to some financial determinants which often times are favorable to them. This resulted to issue of how transparent are this information been disclosed in terms of quality, quantity. and relevance.

The study's main goal is to examine how CG affects environmental disclosures by consumer goods firms that are publicly traded on the Nigerian Stock Exchange. In order to achieve the stated main objectives, the following specific objectives are to: evaluate the influence of Board Size (BSIZE) on the Environmental Disclosure (ED) of the selected publicly traded consumer goods corporations in Nigeria; assess the influence of Board Independence (BIND) on the Environmental Disclosure (ED) of selected publicly traded consumer goods corporations in Nigeria; evaluate the influence of Environmental Sustainability Committee (ESC) on the Environmental Disclosure (ED) of the selected publicly traded consumer goods corporations in Nigeria; and determine the influence of the Meeting Frequency of Board of Director (MFBD) on the Environmental Disclosure (ED) of the selected listed consumer goods companies in Nigeria.

The following alternative research hypotheses are formulated in order to obtain empirical findings for this study:

H01: Board Size (BSIZE) have an important influence on the Environmental Disclosure (ED) of the nominated publicly traded consumer goods corporations in Nigeria.

H02: Board Independence (BIND) has substantial effect on the Environmental Disclosure (ED) of the nominated publicly traded consumer goods corporations in Nigeria.

H03: Environmental Sustainability Committee (ESC) has major influential power on the Environmental Disclosure (ED) of the nominated publicly traded consumer goods corporations in Nigeria.

H04: Meeting Frequency of Board of Director (MFBD) has relevant power on the

Environmental Disclosure (ED) of the nominated publicly traded consumer goods corporations in Nigeria.

Literature Review

Attributes of Corporate Governance

Board Size

The Board of Directors of a company comprises of appointed professionals given the responsibility of the daily operation of the business. Board size is the aggregate sum of directors on the board of any business organization even though no specific number of board sizes is generally agreed yet there exists a lot of proponents on board size with equivalent beliefs report at the end of a fiscal year (Mgbame & Onoyase, 2015).

Board Independence

Board independence can be described as when a director does not have a significant ownership nor have any executive office in a company. Board independence is determined by the percentage of non-executive directors on the board. A large percentage of non-executives is a strong sign of CG that will encourage transparency and disclosure levels (Habbash, 2015).

Environmental Sustainability Committee

Environmental committee is conferred with the role of examining the environmental procedures, policies, plans and activities of the company and to see to it that those information as disclosed shows a high measure of openness in the direction of the environment (Odoemelam & Okafor, 2018).

Board Meeting Frequency

This is the number of board meetings done per annum. Board of Directors meeting is a major factor in board of director's effectiveness. BOD meeting is the result of a joint decision between the fellow members of the Board of Directors to determine the company's policies. Buniamin, *et al.* (2011) were of the opinion that constant board meetings imply a more active board that will be monitoring the activities of the

management.

Firm Size

In most studies, the size of the company is characterized to be a major influencer of disclosure levels (Akbas, 2016; Habbash, 2015; Arani, 2016; Rashid, 2009; Naseer & Rashid, 2018) with a positive relationship between the size of a firm and its extent of environmental disclosure. This association has been explained by agency theory, which postulates that big firms have more agency costs and they adopt more extensive disclosure to decrease this agency cost.

Environmental Disclosure

Environmental reporting is in stages ranging from ad-hoc comment in the yearly report to stand alone environmental report. Environmental investment is no more known as additional cost but they are known as important component of corporate social responsibility, therefore environmental reports are necessary in reaching the stakeholders so as to address the environmental issues (Adediran & Atu, 2010).

Benefits of Environmental Disclosure Reporting

Pater, Xiaohua, Yue and Richardson (2013) examined, in a more detailed way that, ecological disclosure is an active means for putting ecological matters strongly on strategic management's plan, making worthwhile statistics available to enlighten environmental and financial executives for proper policy making, and to strongly show environmental obligation to interested parties. Environmental disclosure can also draw more investors because investors may at times require environmental metrics and costs information to make decisions. Environmental disclosure can add more accuracy to product costing and pricing.

Theoretical Background

Agency Theory

The relationship between agents and principals is defined by agency theory. In a commercial deal, the negotiator represents the principal and is meant to represent the principal's best interests over his or her own. Since certain agents do not behave entirely in the principal's best interests, conflicts of

interests between principals and agents may be a source of conflict. This miscommunication and differences may lead to diverse problems and discord within corporations. Disagreeing interests may push a rift between each stakeholder and cause disorganizations and financial damages. This leads to the principal-agent dilemma.

In line with the agency theory, the business organization is accountable for the discretion to open up environmental statistics to meet stockholders desire (Buniamin, *et al.*, 2011). But, Akbas (2016) opines that the given reports often do not meet the user's needs, reason being that when practicing managerial judgment, managers are likely to consider their own well-being, thus increasing the disclosure cavity, or the difference between expected and actual disclosure. As a result, the decision to include or not provide such information may be influenced by a variety of factors, including CG characteristics (Onyali & Okafor, 2018).

Empirical Review

Between 2014 and 2017, Ala' Mohammad (2019) studied the connection between the characteristics of the board of directors and the environmental disclosure of listed manufacturing firms on the Amman Stock Exchange in Jordan. The report looked at sixty-three industrial corporations and looked at 3 variables: board scale, board freedom, and board ownership, with organization size serving as a control variable. The study discovered that there was a general rise in the amount of environmental disclosure, which was due to an increased understanding of the value of environmental disclosure among Jordanian industrial firms. In comparison to developing countries, environmental disclosure is also very poor.

Baalouch, Ayadi, and Hussainey (2019) looked at the effect of a number of factors on the standard of environmental transparency by publicly traded French firms. The report used a self-constructed metric based on IASB and GRI qualitative qualities to assess the standard of environmental disclosure. Using a multiple hypothesis paradigm, the authors investigated whether different variables could influence the credibility of knowledge revealed. To respond to the need for greater transparency and disclosure, the study suggested that standard-

setters and policymakers consider enacting a widely agreed system of non-financial reporting.

Naseer and Rashid (2018) used stakeholder and agency theory to investigate the relationship between CG characteristics and environmental monitoring (ER), which is a component of corporate social responsibility in Pakistan. The findings revealed that more environmental monitoring is correlated with a greater board size, a higher proportion of elected non-executive members on the board, the separation of the dual position of chairman and CEO, and institutional ownership.

The effect of company characteristics on corporate environmental efficiency of listed industrial goods firms in Nigeria was studied by Onyali and Okafor (2018). Pearson correlation coefficient and multivariate regression analysis were used to interpret the results. The study's findings revealed that firm characteristics such as profitability, height, and age have a substantial and positive impact on environmental performance, as calculated by disposal costs at a 5% critical value. As a result, it was suggested that, in order to achieve a strategic edge and maximize firm value, industrial products companies should solve environmental protection challenges by designing business models and policies that ensure environmental sustainability.

Odoemelam and Okafor (2018) investigated the impact of CG on ED of listed non-financial companies in NSE, hinging on "Trinity theory" which include legitimacy, agency, and stakeholder theories. The researchers used content analysis, cross-sectional data, and OLS regression methods to look at the impact of board features on overall ED in eighteen companies listed on the Nigerian Stock Exchange. Board meetings, board independence, and the environmental committee were statistically important, while board size and audit committee independence were not. The findings show that environmental exposure by non-financial firms in Nigeria is slightly insufficient, at 10.5 percent on average. Environmentally responsive industries and auditor form had no substantial effect on the degree of environmental exposure, as predicted. This demonstrates that the companies' operating atmosphere is institutionally and morally

deficient.

Yahaya and Lawal (2018) opined that, incentive alignment challenges become more obvious when a business's ownership structure shifts and authority is removed from ownership thereby resulting in the necessity for more research. Secondary data from the Audited Report of Nigerian Deposit Money Banks for a nine-year period (2008-2016) was used to sample fifteen (15) banks listed on the Nigerian Stock Exchange. System Generalized Moment Method was used to test data gotten. Only institutional ownership had a favorable and substantial impact on financial results, according to the findings while others variables affected it insignificantly. This empirical study concluded that there is a substantial relationship between ownership structure and deposit money bank financial performance in Nigeria. This study suggests that institutional stockholders should continue to use their capital and experience to prevent management abuse of influence that could harm the company's efficiency.

Method

Model Specification

The model specification of Odoemelam & Okafor (2018) was adopted with necessary modifications to fit the peculiarity of this study. The functional model of the study is:

$$EDI = f(CG_{it}, \mu) \text{-----Eq. 3.1}$$

Where EDI signifies Environmental Disclosure Index; CG signifies Corporate Governance; μ signifies error term.

The model in its econometric form is specified below:

$$EDl = \beta_0 + \beta_1 BSIZE + \beta_2 BIND_{it} + \beta_3 ESC_{it} + \beta_4 MFBD_{it} + \beta_5 FSIZE_{it} + \beta_6 PRF_{it} + \beta_7 FLEV_{it} \mu \dots \text{Eq. 3.2}$$

Where

EDI represents corporation *i*'s Environmental Disclosure Index at *t* period; BSIZE = Size of the board of directors of corporation *i* at *t* period;

BIND = Board of Directors' Independence of corporation *i* at *t* period

ESC = Environmental Sustainability Committee of corporation *i* at *t* period;

MFBD = Meeting Frequency of Board of Director of corporation i at t period; FSIZE = Corporation i 's Firm Size at t period;

PRF = Profitability of corporation i at t period;

FLEV = Firm Leverage of corporation i at t period;

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$, represent the constant term and the coefficients of EDI, BSIZE, BIND, ESC, MFBD and FSIZE, PRF and FLEV, respectively.

Research Design

This analysis used an ex-post facto research design, meaning it was conducted after the incidents had occurred and the data had already been collected. Secondary data was used in this analysis, and it was gathered from the selected firms' annual reports, which span an eight-year period from 2011 to 2018. Meanwhile, year 2011 was chosen as the beginning year because the code of CG was enacted in Nigeria in that year which emphasized the disclosing of environmental activities in companies' annual report and accounts and subsequently companies began to disclose their environmental activities. The model was estimated using regression technique.

Population and Sample Size

On the NSE, there are population of twenty-eight (28) firms in the consumer goods sector. The sample size for this study was determined purposively thus, seventeen (17) companies were selected from the consumer goods industry over a period of eight reporting period (2011 – 2018).

Variable Measurement

Explained Variable

Environmental Disclosure Index (EDI)

The EDI's environmental practices data came from material review of company annual reports. Content analysis was chosen because it is one of the most objective, appropriate, orderly, and quantifiable methods of data analysis that has been used in previous study studies to determine a company's social environmental disclosure in annual audited financial statements. For both qualitative and quantitative disclosures, EDI is used to assess the degree of environmental accounting

knowledge.

Explanatory Variables

Board Size

As a significant determining factor of board effectiveness, board size can be understood as a critical CG characteristic that may impact the quantity of corporate voluntary environmental disclosure (Akbas, 2016).

Board Independence

Board independence is another important CG characteristic that has received a lot of attention in the environmental disclosure literature. In most cases, the board of directors is made up of both executive and non-executive members. The executive members are dependent members that direct responsibility to the effective management of the business. The ratio of independent directors to executive directors on the board is used to measure board independence (Habbash, 2015).

Environmental Sustainability Committee

Several reviewed empirical studies have employed the existence of audit committee to determine the extent of environmental disclosure (Habbash, 2015; Akbas, 2016; Naseer & Rashid, 2018).

Meeting Frequency of Board of Director

A frequent board meeting suggests a more active board which will be effective in monitoring the management which in turn influence the attitude of voluntary disclosure of information (Buniamin, *et al.*, 2011). The number of meetings held by the board of directors in a year is referred to as the meeting frequency.

Control Variables

Some firm characteristics are incorporated as control variables in the analysis to avoid model misspecification and control other factors that may have an effect on environmental disclosure (as other previous studies have done).

Firm Size

The size of a company is regarded as a significant factor in determining the firm's operational strength (Onyali & Okafor, 2018) and its volition to engage in sustainability activities and disclosure transparent

Table 1. Summary of Statistics

	EDI	BFSIZE	BIND	ESC	MFBFD	FSIZE	PRF	FLEV
Mean	0.4945	8.7206	0.4937	0.3382	5.2794	8.2925	0.0634	1.7259
Maximum	0.6571	13.0000	0.7500	1.0000	15.0000	8.4042	0.2649	8.0243
Minimum	0.1714	6.0000	0.2500	0.0000	4.0000	7.4398	-0.2569	0.1433
Jarque-Bera	19.0813	4.7501	1.1578	23.9059	1325.3960	203.3525	18.0312	316.2761
Probability	0.0001	0.0930	0.5605	0.0000	0.0000	0.0000	0.0001	0.0000
Observations	136	136	136	136	136	136	136	136

Source: Author's Computation, 2020

environmental information. The natural logarithm of a company's total assets is used to calculate its size.

Profitability (ROA)

The bottom-line of a company's income statement is profitability. It is the excess of generated revenue over the expenses that are incurred over a given period of time. Companies that are profitable are more likely to invest in environmental initiatives. The ratio of net profit after taxes to total assets is used to determine profitability (Naseer & Rashid, 2018).

Firm Leverage

Environmental cost significantly impacts the credit profile of firms; as a result, high-leveraged company executives are less likely to consider existing or contingent environmental commitments. Thus, the level of environmental transparency is projected to have a negative impact on leverage (Trireksani & Djajadikerta, 2016). The ratio of total debts to total assets of the sampled company is used to calculate firm leverage.

Sources of Data

The information for this analysis came from secondary sources. From 2011 to 2018, data was derived from annual reports and accounts of businesses.

A Priori Expectation

This is the expected outcome of the explanatory and control variables in the model. Based on reviewed empirical literature, all the CG attributes (Board Size, Board Independence, Environmental Sustainability Committee, Meeting Frequency of Board of Director) are expected to have a positive effect on the amount of voluntary environmental data disclosed by businesses that pollute the

atmosphere heavily. For the control variables, Firm size and profitability are expected to have a positive impact on the amount of environmental information disclosed by environmentally sensitive firms, while firm leverage is expected to have a negative impact.

Results and Discussions

Table 1 reveals the descriptive statistics of the variables used in the model. The mean, maximum, minimum, Jarque-Bera and probability of Environmental Disclosure Index are 0.4945, 0.6571, 0.1714, 19.0813 and 0.0001, respectively. The maximum value of 66% indicates the company with the highest concern towards disclosing relevant environmental information in its annual reports and accounts. On the other hand, the minimum value of 17% is attributable to the company with the lowest interest in disclosing environmental information and it shows that the company is reluctant on this issue. The summary statistics for EDI is significant as the P-value is less than 10%, 5% and 1% levels of significance.

The mean, maximum, minimum, Jarque-Bera and probability values for Board Size (BFSIZE) are 8.7206, 13.000, 6.0000, 4.7501 and 4.7501, respectively. The mean value indicates that the sampled consumer goods companies on the average have nine (9) directors on their board with the highest number of thirteen (13) directors and a minimum of six (6) members. It is also seen that the mean, maximum, minimum values are odd numbers suggesting an appropriate of board composition practice among the selected companies. The summary statistics for BFSIZE is significant as the P-value is less than 10% level of significance.

The mean, maximum, minimum, Jarque-

Table 2. Correlation Matrix

	EDI	BSIZE	BIND	ESC	MFBD	FSIZE	PRF	FLEV
EDI	1.0000	0.2489	-0.1407	0.4109	-0.3136	-0.2804	0.1654	0.1638
BSIZE		1.0000	-0.3487	0.1521	-0.0010	0.1010	0.0903	-0.0382
BIND			1.0000	-0.1322	0.0922	-0.1873	-0.0373	-0.0326
ESC				1.0000	-0.1925	0.0915	0.0274	0.1837
MFBD					1.0000	0.0922	-0.1314	0.0140
FSIZE						1.0000	-0.1424	-0.1330
PRF							1.0000	-0.2186
FLEV								1.0000

Source: Author's Computation, 2020

Bera and probability values for board independence (BIND) are 0.4937, 0.7500, 0.2500, 1.1587 and 0.5605, respectively. The mean value indicates that the sampled consumer goods companies on the average have 49% proportion of their board composition to be independent directors with the highest proportion of 75% and minimum proportion of 25% of the sampled companies' board composition. However, the summary statistics for BIND is not significant as the P-value (0.5605) is greater than 10%, 5% and 1% levels of significance.

The mean, maximum, minimum, Jarque-Bera and probability values for Environmental Sustainability Committee (ESC) are 0.3382, 1.000, 0.000, 23.9059 and 0.000, respectively. The mean value suggests that 34% of the sampled companies over the eight years under review maintains an environmental sustainability committee that is significant at 10%, 5% and 1% levels of significance (P-value = 0.0000 < 0.1, 0.05, 0.01).

The mean, maximum, minimum, Jarque-Bera and probability values for Meeting Frequency Board of Directors (MFBD) are 5.2794, 15.0000, 4.0000, 1325.3960 and 0.0000, respectively. The mean value indicates that on the average the selected consumer goods companies hold meetings five (5) times in a year. For the eight years under review, the highest number of meetings held was fifteen (15) and a minimum of one meeting per quarter making a total of four (4) meetings per year. The summary statistics for MFBD is significant

as the P-value is less than 10% level of significance.

The mean, maximum, minimum, Jarque-Bera and probability values for Firm Size are 8.2925, 8.4042, 7.4398, 203.3525 and 0.0000, respectively. The three statistics show that the sampled companies are highly capital intensive with huge impact on the environment wherein they operate. The mean, maximum, minimum, Jarque-Bera and probability values for Profitability are 0.0634, 0.2649, -0.2569, 18.0312 and 0.0001, respectively. The mean, maximum, minimum, Jarque-Bera and probability values for Firm Leverage (FLEV) are, 1.7259, 8.0243, 0.1433, 316.2761 and 0.0000, respectively. The summary statistics for Firm Size, Profitability and Firm Leverage is significant as the P-values are less than 10%, 5% and 1% levels of significance.

Correlation Analysis

Table 2 shows the relationships that exist among the variables used in the model. The table reveals that there exist a positive relationship between Environmental Disclosure Index and Board Size (25%), Environmental Sustainability Committee (41%), Profitability (17%). and Firm Leverage (16%). This relationship implies that a unit increment in these variables will increase the extent of environmental information disclosure by the selected consumer goods companies. In order words, a company with increasing board size, existence of environmental-based committee, improvement in profitability and with a high gearing ratio will tends to disclose more environmental information to its stakeholders.

Table 3. Regression Results: EDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.570529	0.340977	1.673215	0.0971
BFSIZE	-0.003887	0.003888	-0.999942	0.3195
BIND	-0.119646	0.044294	-2.701148	0.0080
ESC	0.023119	0.006319	3.658400	0.0004
MFBD	0.003059	0.001942	1.575392	0.1180
FSIZE	0.001675	0.040381	0.041489	0.9670
PRF	-0.099435	0.044958	-2.211727	0.0290
FLEV	-0.008447	0.002702	-3.126252	0.0023
R-squared	0.979510	Mean dependent var		0.494538
Adjusted R-squared	0.975302	S.D. dependent var		0.170066
S.E. of regression	0.026727	Akaike info criterion		-4.247527
Sum squared resid	0.080003	Schwarz criterion		-3.733529
Log likelihood	312.8318	Hannan-Quinn criter.		-4.038651
F-statistic	232.7874	Durbin-Watson stat		1.387563
Prob(F-statistic)	0.000000			

Source: Author's Computation, 2020

Meanwhile, the positive relationship seen to exist between these variables and the extent of environmental disclosure validate the a-priori expectations of the associations between the variables except for firm leverage with a negative a-priori expectation.

On the other hand, the analysis also reveals that there is a negative relationship between Environmental Disclosure Index and Board Independence (14%), Meeting Frequency of Board of Director (31%) and Firm Size (16%), respectively. This implies that the extent of environmental information disclosed will deteriorate when there is improvement in the number of independent directors on the board of directors; meetings held in a fiscal year and enlargement in the size of the companies in terms of their total assets. In reference to the a-priori expectation, the nature and degree of association between the extent of environmental discourse and Board Independence, Meeting Frequency of Board of Director and Firm Size, respectively do not confirm the positive a-priori expectations.

Model Estimation Result

$$EDI = 0.5705 - 0.0039BFSIZE - 0.1196BIND + 0.0231ESC + 0.0031MFBD + 0.0017FSIZE - 0.0994PRF - 0.0084FLEV$$

Table 3 reveals that Board Size (BFSIZE) has a negative impact on the extent of environmental information disclosure (EDI) of the sampled listed consumer goods companies in Nigeria. A unit increase in the total number

of directors on the board will result to 0.39% reduction in the amount of environmental information being disclosed by the sampled firms over the eight years under review. However, this negative effect is insignificant as the P-value (0.3195) is greater than the 10%, 5% and 1% levels of significance.

The model estimation result shows that Board Independence (BIND) has a significant negative effect on the amount of environmental information disclosure (EDI) of the sampled listed consumer goods companies in Nigeria (p-value = 0.0080 < 0.1, 0.05, 0.01). A unit increase in the number of independent directors on the board of the sampled firms will result to 12% reduction in the amount of environmental information been disclosed by the sampled firms over the eight years under review.

Table 3 shows that Environmental Sustainability Committee (ESC) has a significant positive impact on the quantity of environmental information disclosure (EDI) of the sampled listed consumer goods companies in Nigeria (p-value = 0.0004 < 0.1, 0.05, 0.01). The existence of environmental based committee will improve the sum of environmental information that are being disclosed by 2.31%.

The regression result also reveals that the number of meetings held by the directors (MFBD) of the sampled companies has a positive impact on the extent of environmental information disclosure (EDI). A unit increase in the total number of meetings held in a year will

result to 0.31% reduction in the amount of environmental information being disclosed by the sampled firms over the eight years under review. However, this positive effect is insignificant as the P-value (0.1180) is greater than the 10%, 5% and 1% levels of significance.

For the control variables, Firm Size has an insignificant positive effect on Environmental Disclosure Index while Profitability (p-value = $0.0290 < 0.1, 0.05$) and Firm Leverage (p-value = $0.0023 < 0.1, 0.05, 0.01$) both have significant negative influence on the amount of environmental information been disclosed by the sampled firms over the eight years under review.

The F-statistic of 232.7874 with the associated p-value of 0.000000 indicate that BSIZE, BIND, ESC and MFBD with the control variables have a joint statistically significant impact on the volume of environmental information been disclosed by the sampled consumer goods firms in Nigeria at 1% level of significance. This implies that the overall goodness of fit of the model is satisfactorily fitted. The adjusted coefficient of determination (adjusted R^2) shows 0.975302. This implies that 98% variation in the EDI of the selected listed consumer goods companies are jointly explained by the explanatory and control variables. While the remaining 2% is accounted for by other factors which are not captured in the model.

Discussion of Findings

Between 2011 and 2018, this study examined at the effect of CG on environmental disclosure by publicly traded consumer goods firms in Nigeria. The fallouts revealed that the Size of the Board of Directors (BSIZE) has an insignificant inverse influence on the Environmental Disclosure Index (EDI) of the experimented companies. This indicates that increasing the number of directors on the board would decrease the amount of environmental data that is released. These empirical findings supported the findings of Mgbame and Onoyase (2015). He opined that a larger board size delays decision making process which could affect the readiness of environmental or sustainability report at the close of a financial period. However, this finding is inconsistent with the *a-priori* expectation and the findings of Odoemelam & Okafor (2018), Akbas (2016),

Trireksani & Djajadikerta (2016), who concluded in their study that a larger board size improves the quantity and willingness to divulge environmental statistics to its various interested parties.

The results of the analysis also reveal that Board Independence (BIND) has a significant negative effect on the amount of environmental information disclosure (EDI) of the sampled listed consumer goods companies in Nigeria. This implies that increasing the number of independent directors on the board of the sampled companies will adversely affect the extent of environmental information disclosed by them.

The existence of Environmental Sustainability Committee (ESC) in the composition of sampled companies' board has a significant positive impact on the quantity of environmental information disclosure (EDI). This finding reveal the importance of having an environmental based committee as a sub-committee of a company's board composition. This committee helps the board of directors to be more effective and efficient in assessing the environmental procedures, policies, plans and activities of the company and to ensure that such information as disclosed shown a high level of transparency towards the environment (Odoemelam & Okafor, 2018). This finding validates the findings of Ionel-Alina, *et al.*, (2012) and Odoemelam & Okafor (2018) as they concluded in their study that environmental committee significantly and positively affect the extent of environmental information disclosed.

The regression result also reveals that the number of meetings held by the directors (MFBD) of the sampled companies has a positive impact on the extent of environmental information disclosure (EDI). Meanwhile, a frequent board meeting suggest a more active board which will be effective in monitoring the management which in turn influence the attitude of voluntary disclosure of information (Buniamin, *et al.*, 2011). This finding is in consonance with the *a-priori* expectation and with the findings of Odoemelam & Okafor (2018) and Setyawan & Kamilla (2015) as they concluded that having more meetings improves significantly the amount of environmental information that are disclosed by the sampled companies in their study.

For the control variables, the Firm Size has a positive effect on the extent of environmental information disclosure (EDI). This implies that bigger firms tend to disclose more environmental information to its stakeholders than smaller firms do. Finally, Firm Leverage also has a negative effect on the extent of environmental information disclosure (EDI) reported by the sampled companies in the study. This supported the opinion that geared companies do not want to disclose environmental information relating to fines, penalties and contingent liabilities as these disclosures would deter investors from investing in the business.

Conclusions

As a whole, this study ascertained that CG mechanisms are useful in explaining the extent of environmental information disclosure. Based on the estimation results, this study concludes that Board Size, Board Independence, Environmental Sustainability Committee and Frequency of Board of Director's Meeting influences the amount of environmental information that are been disclosed by the sampled consumer goods companies in Nigeria.

Board Size and Board Independence negatively affect the disclosure of environmental information while Environmental Sustainability Committee and Frequency of Board of Director's Meeting positively influences the disclosure of environmental information to the various stakeholders of the sampled companies. As for the control variables, Firm Size positively affects the amount of environmental information that are been disclosed by the sampled firms while Profitability and Firm Leverage negatively affect corporate environmental disclosure.

Recommendations

Based on the conclusions reached, the following recommendations were made: Firstly, Since Board Size is a negative determinant of environmental disclosure, the Securities Exchange Commission (SEC) and the Financial Reporting Council of Nigeria (FRCN) should review the Code of CG by setting a maximum number of directors that a company can have on its board which will not decline the extent of voluntary and transparent environmental disclosure. These bodies should equally ensure

that the maximum number to establish should capture the necessary expertise needed for the effective and efficient running of the business.

Secondly, the Securities Exchange Commission (SEC) should also set a limit to the number of independent directors that a company can have on its board of directors in relation to the maximum number advised to be established in (i) above. More so, a keen attention should also be given to the professional knowledge and experience of these category of directors before they are appointed as independent directors. And at least one of these independent directors should be vast and knowledge in environmental issues relating to the company and the industry wherein the company is operating.

Thirdly, there is the need for every company having an environmental/ecological committee in order to be proactive with regards to environmental issues. Hence, the regulatory bodies of CG should review the existing Code of CG to make it compulsory for all companies to establish and manage an environmental based committee which should be chairman by an independent director that is educated in environmental issues.

Finally, environmental issues and reporting are such that need deliberations upon deliberations for the purpose of becoming an environmentally responsible company. Hence, the Securities Exchange Commission (SEC) and the Financial Reporting Council of Nigeria (FRCN) should review the Code of CG by setting a minimum number of meetings that should be held in any given fiscal year beyond the existing one of one meeting per quarter.

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