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CORPORATE GOVERNACE AND ENVIRONMENTAL INFORMATION DISCLOSURE OF LISTED CEMENT COMPANIES IN NIGERIA

Kabiru Shuaibu[1], Aliyu Muhammad[2], Usman Isah[3]

Department of Accounting, Gombe State University, Nigeria[1, 2&3]

Abstract: **This study examines the impact of Corporate Governance on Environmental Information Disclosure of Listed Cement Companies in Nigeria. Data were extracted from the annual report and accounts of the listed cement companies for the period 2008-2017. Board independence, Board size and Board meetings was used as a proxy for corporate governance. In order to measure the extent of environmental information disclosure, the annual reports of the firms were analyzed through content analysis and the study analyzed the data using descriptive statistics, correlation and multiple regression technique via STATA 13.0. Findings from the study revealed that board independence, board size, board meetings and firm size has a positive significant relationship with environmental information disclosure. It is recommended that companies should pay more attention to corporate governance mechanisms in terms of board independence, board size and board meetings in order to improve environmental information disclosure and financial reporting council of Nigeria should make environmental disclosure mandatory especially for companies that their operation's are hazardous to the environment so as to have a uniform way of disclosing information regarding environment of a firm.**

Keywords: **Board independence, Board size, Board meetings and environmental information disclosure.**

I. INTRODUCTION

The increasing global concern for the environment, the demand for increased stakeholder reporting, and the importance of sound corporate governance structures have triggered the need for more research into the value creation of environmental disclosure for stakeholders and its integration within corporate governance structures. Stakeholders such as customers, governments and regulatory bodies, non-governmental organizations, local communities, investors, financial agencies and institutions, employees and society as a whole have paid great attention to the environmental impacts of firms, i.e., emissions of greenhouse gases, carbon footprint, their disposal of toxic wastes (Akbas,2016). Furthermore, over the past few years, financial crises, accounting and auditing scandals such as those at Enron, WorldCom, Global Crossing, HIH Insurance and Parmalat have led to a growing demand for transparency about the operations of firms (Cormier, Lapointe-Antunes, and Magnan, 2015).

Environmental disclosure is an important and efficient means of protecting shareholders and is at the heart of corporate governance. It is also integral to corporate governance, i.e. an important element of corporate governance, since higher disclosure could be able to reduce the information asymmetry, to clarify the conflict of interests between the shareholders and the management, and to make corporate insiders accountable. Among the different types of information disclosed in the annual reports, disclosure on social and environmental information is focused in this study because corporate governance guidelines extends the responsibilities of the board of directors from the shareholders to wider aspect, i.e. stakeholders (Htay, Rashid, and Meera, 2012).

However, environmental disclosure is still voluntary reporting in most of the developing countries, including Nigeria because they do not have strong policy on environmental reporting. Voluntary Disclosure is whereby Companies disclose environmental information on voluntary terms. They are not obligated by law to disclose as is a practice in Nigeria. They do this from pressures from financial institutions, investors, and the community at large. Culture of the organization may also influence such disclosures as may be the preference of dominant management and CEOs. Organizations do this as a way remaining legitimate in the eyes of the society as there may be benefits to be reaped. In the long run (Eltaib, 2012), Involuntary Disclosure is a type of disclosure that goes against the will of the company. Permission has not been granted by the company against such disclosure. This disclosure is done by the media, civil society groups, and green groups' activists as a result of the detrimental actions of the company toward the society or environment (Uwaloma, 2011).

Annual reports are the means of communicating companies' activities. It communicates both financial and non financial activities. It is good that a firm should disclose in its annual report the cost incurred in managing and improving its immediate environment. Ohodoa, Omokhudu and Oserogho (2016) are of view that companies, especially those whose operations are said to have effect on environment should disclose their financial commitments towards environmental improvement more especially those companies that their operation has to do with pollution and other environmental hazard.

Environmental reporting can be seen as disclosure of environmental issues through some techniques for implementation by a company in other to fulfils the environmental objectives of Diverse stakeholders where the company exist (Yunusa, Mohamedm and Adam, 2016). Corporate governance has been seen as a crucial apparatus of transparency and accountability regarding the reporting aspect of financial and non-financial transactions in a giving annual report of the said company (Devinney, Schwalbach, Williams, 2013).

The cement industry has significantly contributed to degradation of the land, noise pollution through blasting of quarry and loss of life in the mining industry in general and cement industry in particular (Ade-Ademilua and Umebese, 2007; Ade-Ademulia and Obalola, 2008) For instance, the study of Ade-Ademulia and Obalola ,(2008) conducted in Nigerian cement area showed that the present of high levels of chromium, silica, iron and calcium in the production of cement have affected vegetative growth in the areas where such cement factories are located. On the extent of the damage caused by cement emissions, Aigbedion and Iyayi (2007) argued that the large volume of dust emissions, which are discharged daily in form of air pollution from the cement factories and mining operations have caused declining effect on the output of some farm produce from the plantations within the radius of the cement factory in some part of Nigeria.

Some companies operations are hazardous to the host communities; in return, companies tend to do something to reduce the effects of its operation on the host communities. Some companies even though they operation do not harm their host communities, yet they tend to do something that will make them appear good corporate citizens.

Following from the review of studies conducted in Nigeria so far, it could be concluded that the majority of studies have been around corporate governance and environmental disclosure in other sectors such as Ajibolade and Uwuigbe, 2013; Oscar and Juliet, 2015; Yunusa, Mohamed and Adam, 2016; Olusegun, 2017; Adeniyi and Fadipe , 2018; Emmanuel, Uwuigbe,.Teddy, Tolulope and Eyitomi, 2018, but none of the studies examine corporate governance and environmental information disclosure considering cement industry despite the negative impact of the companies on the environment and therefore the findings of the previous studies cannot be applicable to all sectors. The main objective of this study is to examine the impact of corporate governance mechanisms on environmental information disclosure of listed cement companies in Nigeria.

The remainder of the paper is organized as follows: Section two (2) provides literature on corporate governance and environmental information disclosure and previous researches about these concepts. Section three (3) presents methodology of the study. Section four (4) Presents results and discussions and lastly section five (5) discusses conclusions and recommendations.

II. LITERATURE REVIEW

The Concept of Corporate Governance

Corporate governance is simply defined as the acceptance by management of the alienable rights of shareholders as the true owners of the corporation and their role as the trustees on behalf of the shareholders (Dombin, 2013). A lot of scholars however attribute the considerable interest in corporate governance practices in modern corporations to the high profile collapse of a number of large firms in the US such as the Enron Corporation. Dar, Naseem, Rehman and Nazi (2011) opines that corporate governance serves two major indispensable purpose which are to enhance the performance of corporations by establishing and maintaining a corporate culture that motivates directors, managers and entrepreneurs to maximize the company's operational efficiency thereby ensuring returns on investment and long-term productivity and it ensures the conformance of corporations to laws, rules and practices which provide a mechanism to monitor directors' and managers' behavior through corporate accountability that in turn safeguards the investor interest. The corporate governance mechanisms as they relate to the extent of the environmental disclosure are discussed as follows:

Board Independence and Environmental Information Disclosure

Several researchers based on the agency theory highlight the importance of board independence. It has been well recognized by the corporate governance literature that higher proportion of independent non-executive directors makes the board independent from the management and that allows them to freely express their opinion and issues concerning the organizations including environmental information disclosure. Therefore, the findings of previous researchers are in line with the expectation of agency theory, for instance Htay, Rashid and Meera (2012); Oba and Fodio (2012); Terri and Geri, (2016), found that higher proportion of independent directors has positive impact on disclosure. Therefore, the researchers expect that higher proportion of independent non-executive directors will contribute to higher disclosure thus, a hypothesis that indicates a positive relationship has been developed below:

H_{01} Board independence has a significant impact environmental information disclosure (EID) of listed cement companies in Nigeria.

Board Size and Environmental Information Disclosure

The role of board of directors is to align the behavior of the corporation, ensure compliance with legal framework and maintain credibility in the eyes of stakeholders through proper and timely disclosure (Jensen & Meckling, 1976) it is expected that the size of the board should be able to monitor the decision of the management related to the information disclosure. This expectation is supported by the findings of Htay *et.al,* (2012); Yunusa, Mohamed, and Adam, (2016); Khalid, Kouhy, and Hassan, (2017). Thus, a hypothesis that indicates a positive relationship has been developed below:

H_{02}Board size has a significant impact on environmental information disclosure (EID) of listed cement companies in Nigeria.

Board meetings and Environmental Information Disclosure

Oversight is one of important activities in the implementation of good corporate governance. Agency theory claims that the quality of monitoring can reduce information asymmetry; Effective monitoring may increase when board members meet regularly and frequently and it may increases corporate disclosure which is in agreement with the findings of Oba and Fodio (2012); Odoemelam and Okafor, (2018); thus, hypothesis which indicates positive relationship has been developed below:

H_{03} Board meeting has a significant impact on environmental information disclosure (EID) of listed cement companies in Nigeria.

The Concept of Environmental Information Disclosure

Environmental disclosures are simply defined as those disclosures pertaining to the impact that an organizational process or operation may have on the natural environment (Campbell, 2004). Corporate environmental disclosure comprises information about the past, current and future financial implications resulting from a firm's environmental management decisions or actions (aburayya, 2012). However, Uwaloma (2011) as cited in (Gatimbu, & Wabwire, 2016) suggested there are two types of disclosure mandatory and involuntary disclosure, Mandatory Disclosure is whereby companies disclose sustainability information as per requirement of the legal rules and regulations of the country and voluntary disclosure is that type that organizations discloses at their own wish.

Empirical Studies

Aburayya, (2012) empirically examine the relationship between corporate governance and the quantity and the quality of corporate environmental disclosures in the UK. Content analysis of a sample of UK companies' annual reports is undertaken to examine the quantity and quality of corporate environmental disclosure practices and their association with corporate governance mechanisms, over a period of four (4) years 2004- 2007. The study reveals that corporate environmental disclosure quantity in UK companies' annual reports is relatively low, corporate environmental disclosure quality is comparatively high. Results also revealed a significant association between environmental disclosure quantity and, to a lesser extent, environmental disclosure quality and most corporate Governance mechanisms.

Htay *et.al*, (2012) investigate the impact of corporate governance on social and environmental information disclosure of Malaysian listed banks by using a panel data analysis. Content analysis is conducted by cross checking between the social and environmental information disclosed in the annual reports and the disclosure index developed by the researchers. The findings shows that smaller board size, higher percentage of independent directors (1%) on the board, higher board size (1%), higher percentage of director ownership, lower institutional and lower block ownership (5%) have higher information disclosure.

In Nigeria, Oba and Fodio (2012), examine board characteristics and the quality of environmental reporting of environmental sensitive firms. Content analysis was utilized to identify firms that disclose qualitative environmental reports. All investigated board dynamics except for gender mix were ascertained to have significant impact on environmental reporting. The study also identifies an inverse relationship between board size and environmental reporting.

In the work of Ienciu, (2012), examines the relationship between environmental reporting and corporate governance characteristics of Romanian listed entities. The study found that board independence and board size are factors that explain the level of environmental reporting within Romanian companies.

Ajibolade and Uwuigbe, (2013) explore the effects of corporate governance (CG) mechanisms on corporate social and environmental disclosure (CSED) among firms listed on the Nigerian Stock Exchange. Forty firms (44) were selected for the study using judgmental sampling technique and content analysis of information in the corporate annual reports and websites of the selected firms for the period 2006-2010 provided data for the study. Findings revealed a significant negative relationship between CEO duality and CSED; and significant positive relationships between proportion of non-executive directors, board size, audit size and CSED.

Furthermore, Campbell (2004) investigates voluntary environmental disclosure in UK companies and its relationship to membership of environmental lobbying organizations and environmental sensitivity of the industry. The annual reports of 10 UK-based companies in five sectors of varying degrees of environmental sensitivity were content analyzed between 1974 and 2000. Findings showed an overall increase in disclosure volume over the period but with a marked upturn in the late 1980s. The use of environmentally sensitive measure was used to test for cross-sectional effects and this yielded a positive association between environmental 22 disclosures and the structural vulnerability of the five sectors to environmental liability and /or criticism.

Umoren, Udo, and George, (2015) From Nigeria provided evidence that the level of environmental information reported by sample companies listed on Nigeria Stock Exchange was 7%. The study used a sample of 40 companies across eight sectors and data from two-year 2013-2014 and used descriptive statistics, correlation, and linear regression. The study desperately calls for integrated reporting in Nigeria. While in South Africa, KPMG (2013) reported that companies that prepare environmental report increased from45% in 2008 to 98% in 2013. Mandatory integrated annual reporting, enhanced governance structure, and stable legal environment could be factors to this upsurge.

Oscar and Juliet (2015) examine the effect of corporate governance on environmental reporting of listed oil and gas companies in Nigeria for the period 2010-2013. The study used annual reports and accounts of 14 oil and gas companies. The findings of the study shows that board size, board independence, audit committee independence and managerial ownership concentration have positive and significant relationship with environmental reporting.

Similarly in Indonesia, Setyawan and Kamilla (2015) investigate the impact of corporate governance on corporate environmental disclosure of mining companies for the period of 2011 to 2013. The study used GRI‟s checklist to get disclosure index and content analysis on annual reports and sustainability reports of the sample companies. The study couldn't find robust findings on the relationship between corporate governance variables and environmental disclosure except for size and meeting frequency.

Ahmad, and Osazuwa, (2015) in Malaysia set out to investigate the effect of director's culture on the level of environmental disclosure among companies quoted on the main stream of the Bursa. The study uses the ethnic background of the directors to categorize the culture of the board. The dependent variable environmental disclosure in the annual report of the selected companies is measured by an index score based on content analysis. The result indicate a significant relationship between environmental disclosure and boards dominated by Bumiputra directors, board dominated by foreign directors, firm size and leverage.

Haladu and Salim (2016) examine the moderating effects of board characteristics and sustainability reporting of sensitive firms in Nigeria, Covering the period 2009 to 2014, secondary data was obtained from firms' financial, sustainability and triple bottom line statements selected at random from six sectors of the economy. The findings reveal that there is a significant relationship between corporate governance variables and environmental disclosure.

Yunusa *et.al,* (2016), concentrated on environmentally sensitive industry to confirm whether the meetings as well as the size of the board play a role in determining reporting of environmental issues in Nigeria. The study used 37 firms that are considered sensitive to environment for the financial year of 2014. The study measured environmental reporting in terms Global Reporting Initiatives indicators as the companies disclose or not. The study found out that board size is significant in explaining changes in environmental reporting while board meetings is not and jointly they are significant in explaining changes in environmental reporting of those environmentally sensitive industries in Nigeria.

Akbas (2016), analyze the relationship between selected board characteristics and the extent of environmental disclosure in annual reports of Turkish companies, using a sample of 62 non-financial firms listed on the BIST-100 index at the end of 2011. The content analysis is used to measure the extent of environmental disclosure. Four board characteristics, namely board size, board independence, board gender diversity and audit committee independence, are considered as the independent variables that may have an impact on the extent of the environmental disclosures of Turkish companies. According to the results of the regression analysis, only board size has a statistically significant and positive relationship with the extent of environmental disclosure. This result implies that firms with larger boards disclose more environmental information than firms with smaller boards. On the other hand, board independence, gender diversity and audit committee independence are found to be unrelated to the extent of environmental disclosure. The low degree of independence and gender diversity on the boards of the sample companies for the time period analyzed in the study could be one possible explanation for the result.

Terri and Geri, (2016) examine corporate governance and environmental disclosure in the Indonesian mining Industry. Corporate governance variables and the extent of environmental disclosures made by the mining companies listed in the Indonesia Stock Exchange (IDX) in their annual reports for the period of 2015. The main findings of this study show that the extent of environmental disclosure made by these companies was moderate, and that there is a significant positive relationship between the size of board of directors and the extent of environmental disclosure.

Olusegun, (2017) examine corporate governance attributes and disclosure of forward looking information on the Nigerian Stock Exchange using the data for 15 listed deposit money banks. The data spanned 2010 - 2014. Findings from the estimated panel regression model reveal that Proportion of independent directors and frequency of audit meeting are correlated with total information disclosure, but not statistically significant except audit quality. On the other hand, Board size and Proportion of outside share ownership are negatively correlated with total disclosure but not significant.

Rafique, Malik, Waheed, and Khan, (2017) investigate the association between environmental reporting and corporate governance traits in Pakistan. The study fills the gap by using cross sectional data of 100 randomly selected firms registered at Karachi Stock Exchange for the year 2015. The results of the research showed a positive association between the level of environmental disclosure and fraction of independent directors on the board. Negative relationship was found between environmental disclosure and institutional investors. The result shows a positive association between the level of environmental reporting and board size. It confirms a positive association. The analysis revealed a lack of association between level of environmental reporting and fraction of female directors on a board.

In Jordan, Khalid *et.al,* (2017) examine corporate characteristics influence on the amount of corporate social and environmental disclosure (CSED) in the manufacturing sector listed on Amman stock exchange. The study developed a disclosure index to measure the amount of CSED for three years (2010, 2011 and 2012). The results indicated that the firm size, type of audit firm and financial performance of manufacturing companies are significantly associated with the amount of CSED. On the other hand, the study also found that firm profitability, age, type of industry and ownership are not related to the practices of CSED.

Ezhilarasi and kabra (2017) empirically investigates the impact of corporate governance attributes on companies' decision to disclose environmental information of listed non financial companies in India. Environmental disclosures are measured by a checklist of items based on Global Reporting Initiative guidelines. Disclosure scores are drawn individually by using content analysis of annual reports for a sample of 177 most polluting companies in India for a period of 6 years (2009 – 2015). The result indicates that foreign institutional ownership is the most important corporate governance attribute that engages corporate in environmental disclosure behavior. In addition to this, firm-specific characteristics such as company size and environmental certification are more likely to influence environmental disclosures.

Matta (2017) explore the association between ownership structure variables and level of corporate environmental disclosure in the annual reports and standalone sustainability reports of 313 non-financial companies listed in Bombay Stock Exchange, India. The results show that the extent of corporate environmental disclosure has a significant positive association with government ownership and institutional ownership. The results also highlight the fact that promoter ownership and foreign ownership concentration has no significant influence on the level of environmental disclosure.

Isukul and Chizea (2017) examine corporate governance disclosure in Nigerian and South African Banks using the un weighted disclosure index technique. This research provides a cross-sectional examination of corporate governance disclosure practices in the annual reports of listed banks in Nigeria and South Africa. The results suggest that Nigerian and South African banks have a high level of corporate governance disclosure. However, Nigeria and South African banks have low levels of voluntary corporate governance disclosure. Furthermore, in reporting of voluntary corporate governance disclosure, Nigerian banks appear to be collating information with no link to the overall business strategy of the organization while the South African banks have a more robust approach to voluntary corporate governance disclosure as they apply international guidelines such as the global reporting Initiative to their disclosure.

Elshabasy, (2017) examines the impact of corporate characteristics on environmental information disclosure of listed firms in Egypt. The study selects the 50 most active firms in the Egyptian stock exchange and the analysis is done using the financial statements from the disclosure book for the period 2007-2011. The study findings found that there is an insignificant relationship between two factors of firms' characteristics (Firm Size and Firm Financial Leverage) and environmental information disclosure, while Firm's age showed a negative significant relationship with environmental information disclosure and finally Firm's profitability showed a positive significant relationship with environmental information disclosure.

Similarly, in the work of Adeniyi and Fadipe (2018), the study the discovered that board gender diversity does not significantly affect sustainability reporting in a study of corporate diversity and environmental information disclosure of breweries manufacturing companies in Nigeria. The study also found that the number of women on board of directors is as low as one (1) while the number of man counterpart is ten (10) especially in Champion Brewery Nigeria Plc. However, the maximum number of females on board of directors among the sample companies is three (3). Regression analysis was used for the panel data analysis in order to establish relationship between sustainability reporting and board diversity.

Odoemelam and Okafor, (2018) investigate the influence of corporate governance on environmental disclosure of nonfinancial firms listed in Nigeria Stock Exchange (NSE), anchoring on "Trinity theory" (agency, stakeholder and legitimacy theories). 86 companies listed in Nigeria Stock Exchange (NSE) using content analysis, cross-sectional data, OLS regression techniques were used to analyze the influence of board characteristics on the extent of overall environmental disclosure (OED). The results show that board independence, board meeting, and the environmental committee were statistically significant while audit committee independence and board size were insignificant. Auditor type "big 4" (Ernest Young, Deloitte, KPMG, and PwC) and industry membership show insignificant relation to environmental disclosure. The findings indicated that the level of environmental disclosure of nonfinancial companies in Nigeria is quite insufficient at an average of 10.5 percent.

Ofoegbu, Odoemelam and Okafor (2018) examine the influence of corporate board characteristics on environmental disclosure quantity of listed firms in two leading emerging economies: South Africa and Nigeria which practice integrated reporting framework and traditional reporting framework, respectively. The study provides evidence on corporate board characteristics influence on environmental disclosure of quoted firms in South Africa and Nigeria. Data obtained from annual reports of 303 environmentally sensitive companies selected from South Africa (213) and Nigeria (90) was investigated using descriptive, multivariate, and regression model. Major findings indicate a significant positive association between board independence and environmental disclosure in Nigeria. In South Africa, 45% of environmentally sensitive industries significantly influence environmental disclosure, while 51% of environmentally polluting industries in Nigeria show insignificant association with environmental disclosure.

Adinehzadeh, Jaffar, Shukor, and Abdul Rahman, (2018) examine the mediating role of environmental performance on the relationship between corporate governance mechanisms and environmental disclosure of 344 companies listed on Bursa Malaysia for the year of 2013. Environmental performance (EP) data were collected from the Malaysia department of the environment (DOE). Corporate Governance (CG) data were collected from the annual report of sample companies using corporate governance index based on Malaysian Code on Corporate Governance (MCCG). The results of study show that corporate governance is positively associated with environmental performance and its disclosure. The results also show that environmental performance partially mediates the relationship between corporate governance and environmental disclosure quality.

Emmanuel, Uwuigbe,.Teddy, Tolulope and Eyitomi, (2018) This study examine the impact of corporate diversity on corporate social environmental disclosure of registered manufacturing firms in Nigeria. The study considered both industrial and consumer goods firms, respectively, using a total of 37 firms for the period 2012–2016. While the content analysis technique was engaged to ascertain the extent of corporate social environmental disclosure and findings from the study revealed that board size, foreign directors and gender had a significant positive influence on the extent of corporate social environmental disclosure of the selected firms. On the other hand, the presence of an independent director and non-executive director had an insignificant positive influence on corporate social environmental disclosure.

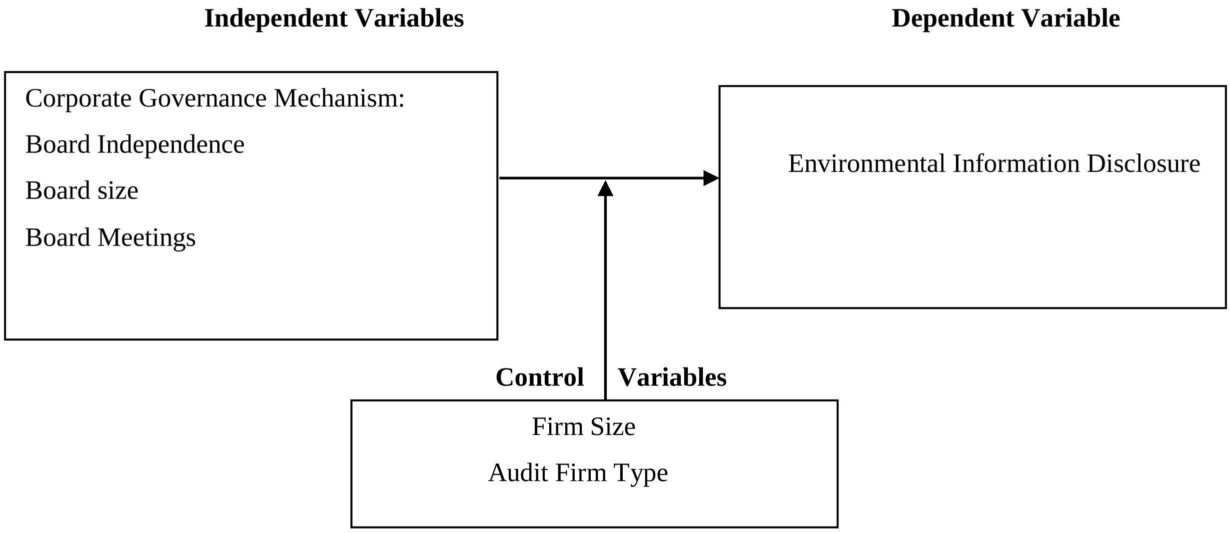

Figure 1: Corporate Governance and Environmental Information Disclosure

Source: Researchers' own based on literature review

Agency theory provides a framework to link corporate governance to environmental disclosure, as corporate governance mechanisms intend to control the agency problem and align the interests of management and stakeholders by reducing information asymmetry.

Theoretical Framework

It can be deduced that this study adopts the trinity theories i.e Legitimacy, Agency and Stakeholders theories as the theories that underpins the presents study. Legitimacy theory posits that social contract exists between the organizations and the environment in which they operate and the organizations need to operate legitimately within the norms and values of the environment and therefore, Organizations are to disclose their effect on the environment they operate and report to stakeholders (stakeholders' theory). On the other hand corporate Governance are monitoring mechanism that improves the quality of information flow between agent and stakeholders, in order word; corporate governance reduces the problem of information asymmetry (agency theory).These theories align with the observation of Matta, 2017; Odoemelam and Okafor, 2018 and Ofoegbu, *et.al*,2018.

III. METHODOLOGY

The study used ex-post factor design as the most suitable method. The selection was made because of the nature of both the dependent and independent variables of the study. Data were obtained from annual report and account of the companies as well as the fact book of Nigerian stock exchange for the period of ten years (2008 to 2017). The population of this study comprises of all the cement companies quoted on the Nigerian stock exchange (NSE) as at 31^{st} December, 2017. There are three (3) listed cement companies in Nigeria and these companies are; Ashaka Cement PLC, Dangote Cement PLC and Lafarge (WAPCO) PLC. The study adopts census sampling that is where all the companies are to be used. The annual reports of the cement companies for the period of 2008 to 2017 are analyzed through content analysis in order to measure the extent of the environmental disclosure of the companies.

Variables of the Study and their Measurement

The means by which the various variables adopted in this study are measured or computed are shown in Table 3.3

Table 3.1: Variables Measurement

Variables	Type	Measurement
Environmental Information Disclosure	Dependent	Environmental information disclosure measured using a dummy variable and assign a value of "1" if environmental issues are disclosed and "0" if otherwise as used by Oscar and Juliet, 2015; akbas, 2016; Odoemelam and Okafor; 2018
Board Independence	Independent	The percentage of independent directors of the total number of directors on the board of a company as used by Aburayya, 2012; Oscar and Juliet, 2015; akbas, 2016 Odoemelam and Okafor; 2018
Board size	Independent	The total number of directors on the board of a company as used by Aburayya, 2012; Oscar and Juliet, 2015; akbas, 2016; Odoemelam and Okafor; 2018
Board Meetings	Independent	The total number of meeting held by the board of a company by Aburayya, 2012; Akbas, 2016; Odoemelam and Okafor; 2018
Audit firm type	Control	Measured as a dummy variable 1 if the company is audited by one of the "Big 4" and 0 otherwise as used by Odoemelam and Okafor; 2018
Firm size (size)	Control	The natural logarithm of total assets at the end of fiscal year as used by Aburayya,2012; Oscar and Juliet, 2015; akbas, 2016; Odoemelam and Okafor; 2018

Source: Generated by the Researchers, 2019

Environmental Information Disclosure Quantity Index for each company is computed according to the following equation:

$$\text{EID Quantity} = \sum_{i=1}^{n} \frac{Quantity}{Max\ Quantity}$$

Where,

EID Quantity = Environmental Information Disclosure Quantity Index

Quantity = 1 if item i is disclosed; 0 if item i is not disclosed

MAX Quantity = maximum applicable disclosure quantity score

N = number of items disclosed

Model Specification

The study adopts the model used in the study of Odoemelam and Okafor, (2018) as shown below:

$EID_{it} = \alpha + \beta_1 BIND_{it} + \beta_2\ BSIZE_{it} + \beta_3 BOMET_{it} + \beta_4\ BIG4_{it} + B_5 SIZE_{it} + \varepsilon i$

Where;

EID = Environmental Information Disclosure

BIND = Board Independence

BSIZE = Board Size

BOMET = Board Meetings

BIG4 = Audit Firm Type

SIZE= Firm Size

α = Constant Term

β = Coefficient Term

i = No of firms

t = Time Period

e = Error term

IV. RESULTS AND DISCUSSIONS

Table 4.1: Descriptive Statistics of the Data

Variable	OBS	MEAN	STD.DEV.	MIN	MAX
EID	28	0.54436	0.33433	0.23454	0.86423
BIND	28	0.65438	0.55342	2.0000	4.0000
BSIZE	28	8.76532	0.31968	5.0000	12.0000
BOTMET	28	0.32643	0.87654	3.0000	6.0000
BIG4	28	0.87654	0.54212	1.0231	2.4120
SIZE	28	6.98643	0.76543	6.32543	9.2314

Source: Computed by the Researchers Using Stata 13.0

Table 4.1 shows that EID has a mean of 0.54436 with standard deviation of 0.33433, minimum and maximum values of 0.23454 and 0.86423 respectively. It also show an evidence from the table 4.1 that BIND has a mean of 0.65438 with 0.55342 as standard deviation and 2.0000 and 4.0000 as minimum and maximum values respectively. Table 4.1 also revealed that the mean BSIZE of the cement companies is 8.76532 with 0.31968 as standard deviation and 5.0000 and 12.0000 as minimum and maximum respectively. The table shows that, averagely, BOTMET for cement companies in Nigeria is 0.32643 with the standard deviation of 0.87654, minimum and maximum values of 3.0000 and 6.0000 respectively. BIG4 has a mean of 0.87654 and standard deviation of 0.54212 and 1.0231 and 2.4120 as the minimum and maximum values respectively. And lastly from the table SIZE shows a mean of 6.98643 with standard deviation of 0.76543 and minimum of6.32543 and maximum value of 9.2314.

Table 4.2: Correlation Matrix

Variable	EID	BIND	BSIZE	BOTMET	BIG4	SIZE
EID	1.0000					
BIND	0.4531	1.0000				
BSIZE	0.8234	0.5612	1.0000			
BOTMET	0.9065	0.8732	0.7631	1.0000		
BIG4	-0.6523	0.5421	0.9057	0.0443	1.0000	
SIZE	0.2621	0.7861	0.2151	0.1892	0.8924	1.0000

Source: Computed by the ResearchersUsing Stata 13.0

Table 4.2 shows that there is a positive correlation between EID and BIND, BSIZE, BOTMET, SIZE with the exception of BIG4 that reveals a negative correlation with EID of listed cement companies in Nigeria during the study period. This indicates that the extent of environmental disclosure of cement companies in Nigeria has a direct relationship with the proportion of independent directors on the board, there is likely that environmental information are disclosed in the annual reports of cement companies in Nigeria when there is high proportion of independent directors in the board. BSIZE also shows a positive relationship with EID of cement companies in Nigeria showing that as the size of board increases EID in the annual report of the companies may also increases. The table further shows that BOTMET has a positive relationship with EID of cement companies in Nigeria and this reveals that as the number of meetings of the board members increases, EID will also increase. The table also indicates that BIG4 has a negative correlation with EID means that BIG4 has an inverse relationship with EID. However, SIZE shows a positive correlation between EID of cement companies in Nigeria means that as SIZE of the companies' increases the disclosure of EID in annual reports also increases.

Regression Results on CG and EID

Table 4.3 shows the regression results of Random Effects (RE). The dependent variable used in this model is the environmental information disclosure. Although three results are shown, however, analysis and interpretation would only be made on the Random Effects (RE) as the Hausman test suggests RE more efficient.

Table 4.3: Regression Result

EID	Coefficient	Std. Err.	t	P>|t|
cons	3.159301	.390844	8.08	0.000
BIND	2.61049	1.8630	0.82	0.000
BSIZE	7303312	.0597653	5.83	0.073
BTMET	8.94399	2.18207	4.59	0.000
BIG4	-.268512	.0215366	-5.37	8.530
FSIZE	1.25790	.0906751	62.84	0.000

R-squared = 0.5218
Number of obs = 28
Prob > F = 0.0000

Source: Computed by the ResearchersUsing Stata 13.0

The cumulative R^2 0.5218 which is the multiple coefficient of determination gave the proportion of the total variation of independent variable jointly, hence it signifies that 52% of the total variation in total environmental disclosure of listed cement companies firms in Nigeria was caused by board independence, board size, board meetings and size of the firm.

Table 4.3 shows that t-value for board independence (BIND) was 0.82 and a coefficient of 2.61049 with a significant value of 0.000. This means that board independence has a positive significant relationship with total environmental disclosure of listed cement companies in Nigeria. It is expected that the existence of independent board member can provide an objective opinion and recommendation on the annual report. Independent members motivate managers to provide accurate information and accelerate environmental information disclosures. The results of the study is consistent with that of Ajibolade and Uwuigbe, (2013);Odoemelam and Okafor, (2018) and the findings contradicts to that of Akbas (2016) who documented non relationship between board independence and environmental disclosure.

The regression result from table 4.3 shows that board size has a t-value of 5.83 with a coefficient value of 7303312 with a significant value of 0.0000 showing that board size has a positive significant relationship with total environmental disclosure of listed cement companies in Nigeria. This indicates that the number of the board members is important in monitoring and controlling listed cement companies in Nigeria. Implying that for every increase (1%) increase in the size of the board, the environmental disclosure practices also increases by the same %. The findings agrees with the findings of Emmanuel, *et.al*, (2018) and disagrees with the findings of Ajibolade and Uwuigbe, (2013) ; Oba and Fodio (2012); Rafique, *et.al*, (2017) that documented negative relationship between board size and environmental disclosures.

The board meetings have a t-value of 4.59 and a coefficient value of 8.94399 with a significant value of 0.0000. This shows that board meetings have a significant and strong influence on environmental disclosure of listed cement companies in Nigeria. This indicates that oversight is one of important activities in the implementation of good corporate governance and active involvement of board members in any regularly scheduled meeting enable them to discuss any issues related to company activities including environmental information disclosure. The findings of this study agrees with the findings of Odoemelam and Okafor, (2018) and the findings disagrees with the findings of Yunusa *et.al*, (2016) who found that board meetings does not influence environmental disclosure.

Audit firm type (BIG4) has a t-value of -5.37 and a coefficient value of -.268512 with an insignificant value of 8.530. This shows that big4 have insignificant inverse relationship environmental disclosure of listed cement companies in Nigeria. The findings is consistent with the findings of Odoemelam and Okafor, (2018) who found insignificant relationship between audit firm type and environmental information disclosures and it contradict with the findings of Khalid *et.al*, (2017) who found significant relationship between audit firm type and environmental information disclosure.

Table 4.3 indicates that firm size has a t-value of 62.84 and a coefficient value of 1.25790 with a significant value of 0.0000. This means that firm size is positively and significantly influencing environmental information disclosure of listed cement companies in Nigeria. The results of the study is consistent with that of Elshabasy, (2017; Ezhilarasi and kabra (2017) whose results shows significant relationship between firm size and environmental information disclosure.

V. CONCLUSION AND RECOMMENDATIONS

The purpose of the study is to ascertain the impact of corporate governance on environmental information disclosure of listed cement companies in Nigeria. Corporate governance was proxy by board independence, board size and board meetings in addition the study controlled for audit firm type and size of the firm. In line with previous studies, content analysis approach was used and the study covers the period of 2008 – 2017.The study concludes that board independence, board size, board meetings, firm size significantly influences environmental information disclosure with the exception of audit firm type (big4) that has an inverse insignificant relationship with environmental information disclosure of listed cement companies in Nigeria during the study period.

Based on these findings, it is therefore recommended that, to ensure high transparency level of environmental disclosure within a company, the board of directors should ensure a sufficient number of independent members so that to be able to exercise an independent reasoning in order to solve potential conflicts of interests. And the board size should be large for the companies to enjoy diversified experienced members and board meeting should be regularly in order to improve environmental disclosure. Also, regulatory bodies like the financial reporting council of Nigeria should come up with a guidelines and make environmental disclosure mandatory especially for companies that their operation's are hazardous to the environment so as to have a uniform format of disclosing information concerning environment.

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APPENDIX - A

Environmental Disclosure Index Checklist

A. Environmental policies

1. Actual statement of environmental policies

2. Departments or positions for environmental and/or safety management

3. Past, current, or future estimates of capital and operating expenditure for environmental protection or remediation

4. Environmental investment & investment appraisal

5. Financing of pollution control equipment and facilities

6. Research and development expenditure for pollution abatement

7. Environmental impact studies

8. Environmental contingent liabilities and provisions

9. Conservation of natural resources

10. Energy saving and conservation

11. Health and safety policies

12. Aesthetics policies and landscaping

B. Product and process-related environmental issues

1. Pollution emissions and effluent discharge

2. Waste

3. Packaging

4. Recycling

5. Products and product development

6. Efficient use of materials

7. Energy efficiency of products

8. Product Safety

9. Rehabilitation

C. Compliance with Environmental Laws and Standards

1. Discussion of environmental regulations and requirements

2. Compliance with pollution laws and regulations

3. Compliance with health and safety standards and regulations

4. Compliance status with environmental and/or health and safety such as ISO, EMS, BS OHSAS, and PAS

D. Environmental Auditing

1. Internal and/or external verification, review, scoping, audit, and assessment of environmental performance and/or environmental disclosure

E. Sustainability

1. Any mention of sustainability

2. Any mention of sustainable development

F. Other environmentally related information

1. Receiving awards for environmental protection or safety excellence

2. Environmental protection e.g. pest control

3. Wildlife conservation

4. Supporting anti-liter campaigns

5. Environmental education and training

6. Environmental actions/lawsuits against the company

7. Any environmental issues other than the above