Board Characteristics and the Quality of Environmental Reporting in Nigeria.

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Abstract: This study examines how board characteristics interact with quality of environmental reporting. Data obtained from twenty one environmentally sensitive firms was analysed using logistic regression. Content analysis was utilised 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. We identify an inverse relationship between board size and environmental reporting. The study offers revelation on the implications of board mechanisms on environmental concerns and recommends further investigation into other explanatory factors exogenous to the model employed in this study.

Keywords: Social Responsibility; Corporate Governance; Emissions.

JEL Classification: M140, G340, Q250.

1 Introduction

In recent years, adverse environmental effect of economic development has become matter of great public concern all over the world. Businesses and corporations all over the world are increasingly being made to account for the impact of their activities on the environment (Adekoya and Ekpenyong, 2009).

Uwalomwa (2011) emphasizes that the increasing demands for clear and hard facts about the corporate environmental performance of organizations by an increasingly well informed breed of stakeholders have made corporate environmental disclosure an essential issue of debate.

The demand for published corporate environmental disclosure of companies has increased worldwide as users of the information become more attentive. Ultimately, corporate environmental accounting and reporting has been considered by accountants as an important issue. Pramanik et al (2008) observe that it has now become a 'global issue' with a pressing need to harmonize accounting and reporting of environmental costs and liabilities. However, Rouf (2011) argues that such reporting does not usually serve the need of the user because managers are likely to consider their own interests when exercising managerial judgment and as such increase the disclosure gap – difference between expected and actual disclosure. Therefore, the decision to provide or not provide certain information is likely to depend on a variety of factors like the board composition and other corporate characteristics (Sheila et al, 2012).

In this light, corporate governance is a factor which brings quality information submitted by management (Khodadadi et al, 2010). Disclosure on environmental

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issues can be regarded as one of the element of good corporate governance. Indeed, according to Hess (2007), the growing interest and rise in prominence of corporate environmental and social reporting for achieving corporate accountability is in line with the new governance regulation model.

It then goes to say that there needs to be a convergence between environmental reporting and corporate governance for better and qualitative reporting. Regardless of the expedience of corporate governance and its potential influence on organizations to engage in environmental reporting, research in this area is still lacking (Sharifah et al 2008)

The objective of this paper therefore is to ascertain if any relationship exists between governance characteristics and environmental reporting.

2 Corporate Governance in Nigeria

The recent crises in the global stock market as well as the unpardonable degree of corporate fraud in the Nigerian economy generally are enough to ask whether corporate governance activities exist in Nigeria (Oyebode, 2009). A survey by the Securities and Exchange Commission in 2003 and quoted in the Central Bank of Nigeria annual report of 2006 shows that corporate governance is at an elementary stage in Nigeria. Only one third of quoted firms had recognized code of corporate governance in place.

The Nigerian economy being a fraction of the global economy suggests that it is illogical to assume that we are impenetrable and therefore immune to the caprices and fluctuations of the so called global meltdown.

The concept of corporate Governance as a regulated practice emerged in Nigeria in November 2003 when the Nigerian code of Corporate Governance was initiated for public liability companies. The code which is binding on all firms was targeted at instilling basics of Corporate Governance as is found in global best practices.

In 2008, a national committee was inaugurated by the Securities and Exchange Commission (SEC) to address the weaknesses posed by the 2003 code of Corporate Governance, improve mechanisms for enforceability and align the code with international best practices. The result of that committee was the code of corporate governance for public companies 2011 alternatively referred to as ‘the code’.

However, aside the 2011 code, the mandatory corporate governance provisions for companies and banks in Nigeria are contained in the Companies and Allied matters act (CAMA) 2004 (Part xi, section 342, and section 359(3) and (4)), the banks and other financial institutions Act 2004 (Cap B3 LFN 2004: Section 28) and the investment and Securities Act 2007 (Part B), as well as the CBN code.

The 2011 code has detailed prescriptions for companies to follow that included recommendation that the board should be made up of a balance of executive and independent directors. The objective is to ensure the effectiveness of the board in maintaining sound quality of disclosures (Uwalomwa, 2011).

Corporate governance practices in Nigeria generally reflect systemic governance problems which have resulted to stunted economic growth. According to Suberu and Aremu (2010), other constraints to good Corporate Governance in Nigeria include an efficient judiciary and unclear prescriptions in the regulatory framework.

However, it is imperative that the roles of audit committees, non-executive directors and shareholders' association in Corporate Nigeria be strengthened such that the quality of governance and board integrity is not compromised (Oyebode, 2009).

2.1 Environmental Reporting in Nigeria

The concept of corporate environmental reporting was introduced in the early 1990s and since then it has rapidly gained acceptance as a means of communicating and demonstrating a company's commitment to improving corporate environmental performance to its stakeholders (ACCA, 2003)

Over the years, there has been an increasing need for organizations to voluntarily disclose in their annual reports activities that interface between them and the society (Ebimobowei, 2011) but this has not been the case in developing countries like Nigeria.

According to Adekoya and Ekpenyong (2009), the inherent weaknesses of regulatory framework, inadequate resources for enforcing legislative requirement, insufficient environmental awareness and advocacy, absence of reputable professional bodies and environmental rights groups and inadequate commitment to acceptable environmental performance by Nigerian companies have been identified as the factors responsible for poor corporate environmental performance and reporting in Nigeria.

Iyoha (2010) argues that the concern of organizations in Nigeria is profit making and dividend payment and as such lesser attention is given to environmental matters. However, the by-products and after effects of industrial activities in Nigeria has triggered the establishment of the Federal Environmental Protection Agency and the National Environmental Standard and Regulatory Enforcement Agency. Both agencies have been charged with the responsibility of ensuring that industrial activities do not negatively impact the environment and also initiating control measures.

Regardless of the establishment of these agencies, it is expedient that the Nigerian Government goes beyond this to enforcing the maintenance of scorecards on environmental issues by organizations (Asechemie, 1996). There should exist, accounting standards specifying how such scorecards are reported or reflected.

2.2 Theoretical Underpinnings

One of the best ways to reduce the agency cost that arises from separation of ownership and control is the implementation of good corporate governance (Judge et al, 2003). According to Cheung and Chan (2004), a major tool for reducing such cost and also for monitoring management is sound information disclosure. This explains the agency theory.

Another most frequently cited theory in social and environmental reporting studies is the legitimacy theory (Gray et al, 1995). The theory rationalizes the basics and practice of environmental reporting by companies. 'Legitimacy' exists when there is concordance between the expectations of the society and operations of the organization. Uwalomwa and Uadiale (2011) in their study assert that the explanation for this trend is not unconnected with business organizations' desire to create, maintain or repair their societal legitimacy. The legitimacy theory argues that companies will offer information bordering around its activities to society including environmental information (Deegan and Gordon, 1996). According to O' Donovan (2002), this could better be done by using environmental reporting so as to gain a reputable image and acknowledgement by society.

Other researchers that have agreed to the supremacy of the legitimacy theory as a more profound explanation to environmental reporting include (Walden and Schwartz, 1997; Wilmshurst and Frost, 2000; and Hooghienstra, 2000).

The resource dependency theory also underpins the importance of board structure on environmental concerns. The theory considers management as a resource that influences the environment. It posits further that non-executive board members will provide more information and legitimacy to the board (Johnson et al, 1996).

Other theories that corroborate the value of social and environmental accounting disclosure research works are inter alia the stakeholder theory (Guthrie and Parker, 1990) and the institutional theory (Cornier et al, 2005)

However, being streamlined by the Agency, legitimacy, and resource dependency theories, this study attempts to establish the effect of board composition on environmental reporting of selected firms.

2.3 Prior Research Studies/Hypotheses Development

Published studies that linked board size and voluntary disclosure of corporate environmental information are still evolving. A study by Trotman and Bradley (1981) found a positive association between board size and environmental responsibility disclosures. Halme and Huse (1997), found no significant association between the number of board members and the tendency for companies to report on the environment.

A similar result was found by Cheng and Courtenay (2004) in which environmental reporting (as a voluntary disclosure) was found to have no relationship with board size. Uwalomwa et al (2011) documented a negative impact of the board size on organization's environmental performance and reporting.

The Agency theory presupposes that a moderate board size has an optimal capacity to monitor the decision of the management with regards to information disclosure. The findings of Byard et al (2006) are in line with theoretical expectations. They revealed that financial disclosure decreases with board size. Fulfilling the proposition of the agency theory, we hypothesize that:-

H_1: There is a negative relationship between board size and environmental reporting quality.

The state of 'independence' of a director according to section 5.5(b) of the code of corporate governance for public companies(2011) is met when such director is free of any relationship with the company of its management which may impair or appear to impair its ability to make independent judgment. It is expected that since these independent directors are to represent the interests of other stakeholders, they will have more influence on environmental reporting (Haniffa and Cooke, 2005)

Fama and Jensen (1983), Ho and Wong (2001), Cheng and Courtenay (2004), Norita and Nahar (2004), found a significant association while Eng and Mak (2003) and Barako et al (2006) found a negative association between board independence and environmental reporting.

Based on the resource dependency theory, according to Johnson et al (1996), the selection of more independent directors will provide more information and legitimacy to the board. We thus hypothesize that:

H_2: There is a positive relationship between proportion of independent non-executive directors on the board and quality of environmental reporting.

Women participation in all most all the activities around the world is increasing. As a result, the composition of the board may not be able to disregard the women representation. Ability to imbed diversity (Fernando, 2007) and opportunity to achieve competitive advantage (Mattiss, 2000) are some of the benefits of having women on the board. Agency theory suggests that a more diverse board is a better monitor of managers because board diversity increases board independence (Carter et al., 2007).

Gender composition is not indifferent in the board's decision as found in previous research (Wang and Coffey,1992; Johnson and Greening,1999;Hillman et al.,2002;Singh et al.,2008;Terjesen et al.,2009; and Bear et al., 2010).Along this line, we hypothesize that:

H_3: There is a positive relationship between proportion of women on board and quality of environmental reporting

Mahmud et al (1994), Cornier, and Magnan (2003) and Romlah et al (2002) demonstrate that large quoted firms tend to disclose more voluntary information (Sharifah, 2010). Alongside the legitimacy theory, a company that is visible in public has a greater likelihood to disclose information so as to enhance corporate image and acceptability. We control for firm size because bigger firms are more likely to be concerned with their corporate environmental reputation since they are

more visible to external stakeholders who always demand for an improved environmental performance (Uwalomwa, 2011). Firm size is measured as the natural logarithm of firm's total assets because of its widely spread values. Based on the legitimacy theory we hypothesize that-

H_4: There is a positive relationship between company's size and quality of environmental reporting

The general understanding in the corporate world is that environmental responsibility is extravagant and does not improve shareholder wealth directly (Rose, 2007). Johnson et al (1996) demonstrate that firms that have the financial muscle can undertake more social and environmental expenses. To account for the effect of financial slack on environmental performance and reporting, we control for slack resources of sample firms. We employ formula as utilized by Bourgeois and Singh, 1983; and thus compute slack as

Slack = current assets divided by current liabilities. As such we hypothesize that:

H_5: There is a positive relationship between financial slack and quality of environmental reporting

Several works have investigated the extent to which a board's demographic diversity could impact on its social and environmental responsibilities. Demographic diversity traits such as age, ethnicity etc have been observed(Milliken and Martins, 1996;Petersen, 2000).This study however considers demographic diversity as it reflects the number of foreign directors on the board. We hypothesize that they bring experience and strategy to the table. As such:

$H_{6:}$ There is a positive relationship between foreign directors and quality of environmental reporting.

3 Methodology

This study investigates the impact of board characteristics on the quality and quantity of environmental reporting among listed companies in Nigeria.

The Chemical and Paints, Construction, Conglomerates and Building Materials industries have been identified as environmentally sensitive firms due to their direct impact on the environment in terms of pollution (Halme and Huse, 1996; Haslinda et al, 2004). Twenty one companies in the industries have been randomly selected for the investigation in this study. The list is found in Appendix 2.

The study covers the period of 2005-2009. Corporate annual reports have been analyzed to obtain both dependent and independent variables.

A logistic regression analysis has been utilized to examine the impact of board size, foreign directors, gender mix and board independence on the quality of environmental reporting. The combinatorial method was employed to control for firm size and slack resources in the model. Content analysis has been identified as

the most appropriate method to capture environmental information in annual reports (Neuendorf, 2002; and Sharifah, 2010). This study adopts content analysis to measure quality of environmental reporting. We adopt a corporate environmental disclosure index comprising of twenty (20) established checklist instruments developed by Fodio and Oba (2012). A dichotomous rating system is utilized by assigning 1 if an instrument is disclosed by the firm and 0 if it is not disclosed. Thus a firm could have a maximum score of 20 points and a minimum of 0.In the index development stage, the problem of the possibility of companies being penalized unnecessarily for the non disclosure of information that is not relevant to them was addressed. We carefully selected only items that are perceived to be applicable to all sample firms. Along the line of Cooke (1989), we read the whole of the report before scoring and then calculate the indices as the 'ratio of the actual scores awarded to a company to the scores that the company is expected to earn'. Formula for calculating the reporting scores by using the environmental disclosure index is expressed thus:

$$IJ = \sum_{i=1}^{nj} xij \quad (1)$$

Where IJ = total reporting score

nj = number of relevant instruments for jth firm.

Xij=1 if ith instrument is disclosed and 0 if ith instrument is not disclosed

i = 1, 2, 3 …20

Companies that have up to 50% of the total scores are considered as those that disclose quality environmental reports and are assigned a dummy variable of 1 while those that score less than 50% are considered as those who do not disclose quality environmental reports. As such they are assigned '0'.

3.1 Data Analysis Method/Model Specification

The data in this study is analyzed using a logistic regression analysis (with the aid of the SPSS Version 17.0) to test the relationship between the dependent and independent variables. This method of analysis is considered appropriate since the logistic analysis is a statistically robust method for use when the dependent variable is dichotomous and categorical in nature while the independent variables are continuous. De Vaus (2002) demonstrates that logistic analysis is considered appropriate when the dependent variable is a dummy variable. The form of the logistic regression equation is:-

$$\text{Logit}\,[p(x)] = \log\,[p(x)/1-p(x)] = a- b_1x_1+ b_2x_2+ b_3x_3+ b_4x_4+ b_5x_5+ b_6x_6 + u_{it}$$

Where:

P(x) = probabilities that companies disclose quality environmental reports

1-P(x) =probabilities that companies do not disclose quality environmental reports

X_1 = Board size

X_2 = Board independence

X_3 = Gender composition

X_4 = Foreign directors

X_5 = Firm size

X_6 = Financial Slack

U_{it} = Random disturbance term

4. Results and Discussions

Table 1 Correlation Matrix

	constant	X1	X2	X3	X4	X5	X6
Step1constant	1.000	.481	-.471	.149	.493	-.648	-.596
X1	.481	1.000	-.659	.005	-.027	-.593	-.398
X2	-.471	-.659	1.000	.049	-.148	.347	.697
X3	.149	.005	.049	1.000	-.023	-.195	-.084
X4	.493	-.027	-.148	-.023	1.000	-.445	-.357
X5	-.648	-.593	.347	-.195	-.445	1.000	.412
X6	-.596	-.398	.697	-.084	-.357	.412	1.000

Table 2 Classification Table[a,b]

	Predicted		
	Quality		Percentage Correct
Observed	.00	1.00	
Step 0 Quality 0.00	72	0	100.0
1.00	33	0	0
Overall Percentage			68.6

a. Constant is included in the model

b. The cut value is .500

Table 3.Variables in the Equation

	B	S.E	Wald	df	Sig	EXP(B)
Step 0 constant	-.780	.210	13.773	1	.000	.458

Table 4. Variables not in the Equation

	Score	Df	Sig
Step 0 variables X1	3.841	1	.050
X2	14.062	1	.000
X3	.639	1	.424
X4	4.179	1	.022
X5	14.044	1	.000
X6	7.058	1	.010
Overall Statistics	43.823	1	.000

Table 5.Omnibus Tests of Model Coefficients

	Chi- Square	df	Sig
Step 1 Step	42.135	6	.000
Block	42.135	6	.000
Model	42.135	6	.000

Table 6. Model Summary

step	-2 log likelihood	Cox and Snell R Square	Nagelkerke R Square
1	88.588[a]	.331	.464
Step	Chi Square	df	Sig
1	10.574	8	.227

Table 7. Hosmer and Lemeshow Test

Step	Chi Square	df	Sig
1	10.574	8	.227

Table 8. Classification Table[a]

	Predicted		
	Quality		Percentage
Observed	.00	1.00	**Correct**
Step 1 Quality .00	66	6	91.7
1.00	12	21	63.6
Overall percentage			82.9

a. The cut value is.500

Table 9. Variables in the Equation

	B	S.E	Wald	df	Sig	EXP(B)
Step 1[a] X1	-.481	.195	6.062	1	.014	.618
X2	.780	.216	13.025	1	.000	.990
X3	-.005	.443	.000	1	.990	.995
X4	.424	.176	5.838	1	.016	.654

X5	2.630	.693	14.421	1	.000	13.877
X6	2.001	.681	8.626	1	.003	7.395
Constant	-19.507	4.424	19.438	1	.000	.000

The classification table (table 1) shows that if nothing is known about the variables and if we assumed that companies did not disclose quality environmental reports, we would be correct 68.6% of the time. The variables not in the equation in table 3 tell us the extent to which each explanatory variable improves the model. All the explanatory variables except for gender are significant and if included would add predictive power to the model. An inclusion of our predictors changes the classification error rate from the original 68.6%. As such, by adding these variables, we can now predict with 82.9% accuracy. The model appears sound. The overall significance is tested using the model chi square derived from the likelihood of observing the actual data under the assumption that the model that has been fitted is accurate. The -2LL from the model summary in table 5 is 88.588. In this study, model chi square has 6 degrees of freedom, a value of 42.135 and a probability of $P \leq .000$(table 4). Thus, the indication that the model has a poor fit and as such indicating that the predictors have a significant effect. The Cox and Snell R square in table 5 indicates that 33.1% of the variation in quality environmental reports is explained by the logistic model. The Nagelkerke R square ranges from 0 to 1 and is a reliable measure of the relationship (Menard, 2002). Its R2 is normally higher than the Cox and Snell measure. In this study it is 0.464, indicating a moderate relationship of 46.4% between the predictors and the prediction. The Hosmer and Lemeshow goodness of fit statistic is used to assess the fitness of the model. If it exceeds 0.05, as we expect for well-fitting models, this indicates that the model's estimates fit the data at an acceptable level. Well fitting models show non-significance on the Hosmer and Lemeshow goodness of fit test (Pampel, 2000). The Hosmer and Lemeshow statistic in this study (table 6) has a significance of 0.227 which explains that there is no significant difference and therefore our model is a good fit. The Wald criterion provides an index of the significance of each explanatory variable in the equation. Where the significance values of the Wald criterion is less than 0.05, the null hypothesis is rejected since the variable does not make a significant impact. Our Wald statistics in table 8 show that gender does not make a significant contribution to the prediction of quality environmental reports. This finding contradicts the investigation results of Bernardi and Threadgill(2010) who argued that the presence of a woman in the boardhas substantial effects on a company's social and environmental concerns. Our findings are also not in agreement with Fernandez Feijoo et al (2012) who conclude that women in boards moderate the extent of corporate social responsibility reporting. However, the result concurs with the views of Ahern and Dittmar (2011) that the presence of female directors has no effect on social, environmental and financial performance. Board size in this study was found to have a negative significant effect on the quality of environmental reporting. In other words, the more the directors on the board, the less the quality of environmental reporting. This is consistent with the investigations of Sheila et al (2012) that smaller board size will

result in better disclosures. It is also in line with agency theoretical expectations and arguments of several researchers such as Mak and Li (2001), Yoshikawa and Phan (2003) and Khanchel (2007) that a small board size escapes the difficulty of organizing and coordinating large group of directors and ensures effectiveness and performance. The Wald criterion for firm size reveals a positive significant impact of size on the dependent variable. This is consistent with the findings of Cormier and Gordon (2001) that a larger company is more visible and accountable to the public with respect to environmental issues. Exp(B) for this variable explains that for every unit change in the assets of a sample company, the quality of environmental report increases by 13.87 units. Also, foreign directors were found to play a significant role in the quality of environmental reporting. Our possible explanation for this is that a demographically diversified board goes to bring in experience and competitive advantage to the table. In line with prior research works (Chen and Courtenay, 2006; Byard et al, 2006; and Norita and Shamsul Nahar; 2004), higher proportion of independent directors has positive impact on disclosure. Our results corroborate this position .Exp (B) demonstrates that for every unit change in the number of independent directors, the quality of environmental reporting improves by 2.18 units. In the same vein, financial slack was also found as a positive significant influence on the extent of environmental reporting; thereby lending support to the work of Ahmad et al (2009) that liquidity of a firm plays a role in determining companies' involvement in social and environmental concerns. The Exp(B) of this variable demonstrates that for every unit change in slack resources, the quality of environmental reporting changes by 7.39 units.

5 Conclusion and Recommendations

After analyzing the available data for this study, several associations and impacts become evident. Firm size as measured by total assets, foreign directors, independent directors, and financial slack has been identified as firm traits with positive impacts on quality of environmental reporting. Gender was found to exhibit a neutral association with environmental reporting while an inverse relationship was documented between board size and quality of environmental reports. Our findings agree with much of the previous research that has been conducted in studies of similar topics. With these findings, it was no surprise that our logistic model was found to be significant in predicting quality of environmental reporting. As such, companies that desire to increase and improve the quality of their environmental responsibilities and reports may want to consider the direction of these board characteristics and firm traits. The effects of these mechanisms on the extent of environmental reporting are far-reaching and as such, companies may look for any available advantages in these areas. This study has a major limitation that must be pointed out so as to contextualize this research. The investigation relied solely on content analysis of information presented in annual reports; therefore, some companies might engage in certain environmental responsibility and report it via other means other than annual reports such as magazines, bulletins, or corporate websites. Further study encompassing these data sources could be considered for future research works.

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Appendix 1: Twenty established environmental checklist instruments
Environmental management
1. Compliance with environmental laws/regulations
2. Environmental policies
3. Environmental audit
4. Environmental committee in board/department for pollution
5. Environmental research and development
6. Environmental performance section in annual report
7. Environmental spending-fines, penalties and compensation
8. Financial data on environmental savings or investments/expenses or liabilities

Impact on biodiversity
9. Emissions- air, water, noise, waste, green house gas, ozone depleting substances, spills.
10. Recycling waste products/waste management
11. Materials, water, and energy conservation

12. Awards for environmental vision and strategy

Fair labor practices

13. Staff diversity- Employment of physically disabled, employment of women, and multi-ethnicity
14. Staff protection-Work place safety and security, information on accidents at workplace
15. Staff training, career development and employees' welfare
16. Compliance with labor standards

Products/Energy

17. Product innovation and packaging, product life cycle management
18. Identification of environmental impacts of products/services
19. Disclosing energy savings resulting from products/services
20. Disclosing company's energy policies