

Corporate Governance and Environmental Disclosures In Nigeria: A Quantile Regression Approach

Eneh Onyinye M.

Department of Accountancy,
Nnamdi Azikiwe University Awka Nigeria

Abstract: *The objective of this study is to examine the impact of corporate governance mechanisms on the level of environmental disclosure (ED) in Nigeria. This study utilized the ex-post facto research design. A sample of 40 companies listed in the manufacturing and Food and Beverage sector was used for the study. The necessary data was extracted from the annual reports of corporate organizations for the period 2011-2017 financial years. The data analysis method used is the conditional quantile regression estimator. The results reveal that for firms at the lowest ED quantile, board independence has a negative effect but as firms move up the ED quantile to higher environmental disclosures, we observed that the effect of board independence becomes positive and significant at 5%. The results thus supports that the presence of more independent boards is significant in influencing higher levels of environmental disclosures. For both firms in the low, middle and slightly high levels of ED, we do not find evidence that the size of the board plays any significant role except for firms in the highest levels of ED. The effect of foreign ownership on environmental disclosure significant but just at the moderate levels of disclosure (3rd-5th quantile) with a negative coefficient. For disclosure levels at higher quantiles, foreign ownership does not show up as a determinant factor. Based on the study findings, the recommendations are as follows; Firstly, the study recommends the need for more independent directors to be brought into corporate boards and those directors should be such that hold fewer multiple directorship and are devoted to effective monitoring. Secondly, the study recommends that increasing or reducing the presence of foreign ownership will not still be effective if these contextual challenges are not addressed. Thirdly, the study recommends that companies should adopt the optimal board size that ensures that environmental issues are addressed*

Keywords: Corporate governance, environmental disclosures, quantile regression.

1. INTRODUCTION

The environment has generated a great deal of concern globally since the last two decades and consequently environmental concerns have attracted a considerable attention arising from the need to ensure environmental sustainability. Of particular emphasis in this regards has been the roles that various stakeholders can play in this regards. From the accounting angle, the need for environmental disclosures (ED) can be seen as a response to these concerns about the environment. This has been exacerbated by the growing environmental problems and challenges coming from the impact of corporate activities. In this regard, the role of ED has emerged as a result of a concern for the relationship between the organization and the natural environment. Consequently, environmental accounting and disclosures is fast becoming a key issue both in the academic and corporate circles. The advocacy for companies to integrate environmental performance into their financial performance model has been a key driver for several initiatives encouraging companies to become more environmentally responsible. In response, companies have begun to intensify their environmental performance initiatives across several dimensions. However, the depth and quality of these initiatives is still very debatable and varies considerably from firm to firm, industry to industry and even from county to country.

However, as KPMG (2013) have rightly noted, environmental reporting by companies occurs under a largely voluntary and discretionary regime which suggest that there is no standardized consensus on what and how environmental reporting should be done. Whilst the early research into environmental disclosure appeared to be so delighted that any such disclosure was taking place, this acquiescence has given way to a more critical analysis of practice. The level of environmental disclosures in the Nigerian environment is still quite at its nascent stage and appears to be lagging critically in terms of quality and comprehensiveness (Owolabi 2015). However, a key recognition that must be brought forward within the push for robust corporate reporting model to incorporate environmental disclosure is the fact that environmental disclosure is still largely voluntary and unregulated especially in developing economies. As Zhang (2001) notes voluntary disclosure is an endogenous choice of the firm but mandatory disclosure is an exogenous shock to the firm.

Given the evolving nature of ED reporting and the pressing need for academics to understand the economic forces and executive incentives behind firms' ED reporting practices (Ramanna 2013), our study examines the role board characteristics in firms' ED reporting practices. Based resource based view theory, the values and orientation of management tend to have a great deal of influence on the corporate strategic decision. Hence, the observable

characteristic of corporate boards is expected to have a direct influence on ED. Waldman et al. (2006) argues that one of the core responsibilities of corporate boards is that of formulating the corporate strategy of the company and also promoting the image of their firms through social responsibility. Though there is a growing amount of accounting research in focusing on the effect of corporate governance in Nigeria (Mgbame and Omokhualé 2015; Owolabi 2015; Osazuwa, Ahmad & Adam 2017; Ebimobewe 2011; Fodio and Oba 2012; Ajibolade and Uwuigbe 2013; Onyali, Okafor and Egolom 2014) a conditional quantile regression approach has scarcely been used by studies in this regards. Conditional quantile regression traces the entire distribution of the dependent variable conditional on a set of values of the independent variables. One of the important property of quantile regressions is that quantile regressions estimation allows for different values of the regression coefficients across the different quantiles of the distribution of sample, and is thus competent to capture nonlinearities in the response of the dependent variable to its determinants. The focus of the study is to examine the effect of corporate governance structures specifically; board size, board independence and foreign ownership. The study is divided into the following sections; section I is the introduction, section 2 examines the literature review and hypotheses, section 3 articulates the methodology. In section 4, the results are presented and discussed and section 5 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Board independence and Environmental Disclosures

Ong and Djajadikarta (2017) examined the relationships between the total disclosures and, separately, the three aspects of sustainability disclosures - economic, environmental and social - and various attributes of board composition, including independent directors, multiple directorship, and women directors. The results showed that statistically significant positive relationships was observed between sustainability disclosures and the percentage of independent directors. Haziwan and Taha (2014) for Malaysian firms, investigated the relationship between corporate social and environmental disclosures and board characteristics with particular focus on board independence. The findings of the study revealed that there is no statistically significant positive relationship between board independence and the level of social and environmental disclosure.

Ahmad, Rashid and Gow (2017) studied the influence of board independence on corporate and social and environmental reporting by publicly listed companies in Malaysia. A reporting index consisting of 51 items was developed based on six themes: "General, Community, Environment, Human Resources, Marketplace and Other". Using the Ordinary Least Square (OLS) regression for the estimation, the results indicate that the association between board independence and social and environmental reporting

is industry specific. Lone, Ali and Khan (2016) examined the effect of board characteristics on social and environmental disclosure from annual and sustainability reports of 50 companies from eight different sectors from 2010 to 2014. The results from the study show that independent directors have a direct impact on the level of social and environmental disclosure.

H1: Board independence has no significant impact on environmental disclosures in Nigerian quoted firms.

2.2. Board size and Environmental Disclosures

Giannarakis (2014) study conducted in the U.S, examined the impact of board characteristics on the extent of social disclosure using a sample of (100) companies. The results reveal that board composition, board size have a direct and statistically significant impact on the extent of social disclosure. For Indonesia, Handajani, Subroto, Sutrisino and Saraswati (2014) investigated the impact of board attributes on corporate social disclosure using public firms during the period of 2010-2012 using multiple regression analysis. The results revealed that corporate social disclosure is significantly affected by board size.

For Brazilian firms, Furtado, Araujo and Moreira (2016) investigated the relationship between board attributes and social and environmental disclosures. The sample was formed by 146 Brazilian companies and the model utilized for the study was based on Khan and Siddiqui (2013). The findings of the study reveals that board size has a direct statistically significant impact on social and environmental disclosure. Lone, Ali and Khan (2016) in a study investigated the relationship between board characteristics and social and environmental disclosure from annual and sustainability reports of 50 companies from eight different sectors from 2010 to 2014. The results show that the extent of disclosure is directly influenced by board attributes.

For Nigerian firms, Muhammed and Sabo (2015) examined how board characteristics affects social and environmental disclosure over the period 2005-2014 using a sample of six firms. The study reveals that social and environmental disclosure is affected by board size in a direct and significant manner. In the light of the above, the following hypothesis is specified in the null;

H2: Board size has no significant impact on environmental disclosures in Nigerian quoted firms.

2.3. Foreigners on the Board and Environmental Disclosures

Some researchers find significant positive relationship between environmental disclosures and foreign board presence (Haniffa & Cooke, 2005). It is, thus possible that foreigners on the board can be a driver of environmental disclosures initiatives for corporations in any country (Khan et al., 2013). According to KPMG (2005), foreign investors are assumed to have a positive impact on the promotion of environmental and social engagement. There is also the argument that foreign investors prefer companies that address their environmental issues because by so doing, they are reducing the risk of their investments. (Siegel &

Vitaliano, 2007). Gelb and Strawser (2001) notes that when companies engage in environmental and social disclosure, it is a way of signalling their responsibility to stakeholders and thus it is expected that foreign investors will prefer such companies. In China, Hu, Zhu, and Hu (2016) investigated how different types of shareholders react to environmental disclosures. Their findings reveal that all classes of owners have their unique and different influence on impact on the environmental and social disclosure. The state controlled firms have a higher tendency to disclose environmental and social information when compared to privately owned companies. Also, the study found that firms that have mutual funds, foreign investors are high equity owners have a better response towards environmental and social disclosure. Malik, Ahsan and Khan (2017) in their study examined the impact of ownership structure on environmental disclosures for firms in Pakistan. The study used a composite index measure of social and environmental disclosures and the regression results show that that foreign ownership affects environmental and social disclosure in a positive way.

H3: Board independence has no significant impact on environmental disclosures in Nigerian quoted firms.

3. THEORETICAL FRAMEWORK

The Resource-Based View (RBV)

The RBV is raised by Penrose (1959) who described a corporation as an accumulation of competencies. Wernerfeldt (1984) expanded this concept to a new research field next to the traditional competitive based view (Porter, 1985). The analysis of firm's core competencies stands in contrast to the approach of the competitive based view, whereas competitive advantages gain through specific resources and not through industry structures (Hamel & Prahalad, 1990). The concept of the RBV emerged in the strategic management research since the early 1990s. The RBV overtakes the perspective that a corporation's internal environment, in terms of its resources and capabilities, affect strategic action to a larger extend than external factors do. In this respect, Teece et al (1997), define resources 'as firm-specific assets that are difficult if not impossible to imitate'. These resources can be classified into three categories: "1) physical capital, 2) human capital and, 3) organizational capital". Branco and Rodrigues (2006) explained on the basis of the RBV why firms implement social and environmental initiatives by describing their internal and external benefits. Furthermore, Mc Williams and Siegel

(2001) state that the optimal degree of ED activities depends on several internal and external factors which includes the corporate governance structure of the firm. Following the RBV, corporate governance structure of the firm is a strategic system since it control the direction of the corporation. Hence the disposition of a firm and their initiatives towards ED will be largely determined by the position of the corporate governance on the issue since the governance structure has the responsibility of deciding the direction of the company.

4. METHODOLOGY

This study utilized the ex-post facto research design and a sample of 45 companies from manufacturing and Food and Beverage sector was selected because these sectors are regarded as environmentally sensitive sectors. The simple random sampling was used for the selection. The necessary data was extracted from the annual reports of corporate organizations for the period 2011-2017 financial years. The data analysis method used is the conditional quantile regression estimator. Conditional quantile regression traces the entire distribution of the dependent variable conditional on a set of values of the independent variables. The quantile estimates are generated for different values that allow us to examine the impact of corporate governance at different levels of environmental disclosures. Prior to that the preliminary analysis was done using the descriptive statistics, correlation analysis and the variance inflation factor test for multicollinearity.

Model Specification

The Model for the study builds on the studies of Lone, Ali and Khan (2016), Ahmad, Rashid and Gow (2017) and Lone, Ali and Khan (2016). The model specification for the study is specified below.

$$ED_{it} = \beta_0 + \beta_1 BDS + \beta_2 BDIND + \beta_3 BDFOWN + \mu_{it} \quad \text{----- (1)}$$

Where;
 ED = Environmental disclosure measured using the Global reporting initiative (GRI) index
 BDS = Board size measured as number of individuals on the board
 BDIND = Board independence measured as ratio of independent to total board size
 BDFOWN = Board foreign ownership measured as % share of foreign owners.

, i = ith firm, t = time period, μ_{it} = Model disturbance term

4. PRESENTATION AND ANALYSIS OF RESULTS

Table 4.1: Descriptive statistics

	BIND	BSIZE	BDFOWN	ED
Mean	0.354988	9.079625	6.877143	0.677833
Median	0.670000	9.000000	6.810000	0.695652
Maximum	0.930000	17.00000	10.65000	0.956522

Minimum	0.170000	4.000000	3.700000	0.000000
Std. Dev.	0.155903	2.568906	1.311686	0.159753
Jarque-Bera	7.938716	15.02715	11.59275	139.8029
Probability	0.018886	0.000546	0.003039	0.000000

Source: Researcher’s compilation (2018)

The descriptive statistics of the data is presented in table 4.1 above. As observed, ED has a mean of 0.6549 with maximum and minimum values of 0.93 and 0 respectively. The mean ED suggests that on the average the level of attention given to environmental disclosures in corporate reports appears fair. The standard deviation showing the dispersion of the data about the mean is quite low at 0.1555 which further suggest clustering of the firm specific scores around the mean. The mean for BSIZE is 9.079 which indicate the average board size for firms in the sample with

maximum and minimum values of 17 and 4 respectively with a standard deviation of 2.56. The mean value for BDFOWN stood at 6.877 which suggest that on the average foreign ownership for the firms in the distribution is about 6.88% with maximum and minimum values of 10.65 and 3.7 respectively with a standard deviation of 1.3117. The Jacque-bera statistics for all the variables reveals that the series are normally distributed given that the J.B values are all less than 0.05. This implies the absence of significant outliers in the data.

Table 4.2: Pearson Correlation Matrix

	BIND	BSIZE	BDFOWN	ED
BIND	1	0.241835	-0.0217552	0.07291
BSIZE	0.24183	1	-0.002600	-0.03160
BDFOWN	-0.02175	-0.002600	1	-0.032150
ED	0.0729131	-0.031600	-0.032150	1

Source: Researcher’s compilation (2018)

As observed, a positive correlation exists between ED and the following variables; BIND ($r=0.0729$), but negatively correlated with BSIZE ($r=-0.0316$) and FOROWN ($r=0.032$). The positive coefficient suggests that an increase

in these variables could be associated with increases in ED and vice-versa. On the other hand, a negative correlation suggests that increase in these variables could be associated with decreases in ED and vice-versa.

Table 4.3: Multicollinearity Test

Variable	VIF
C	NA
BDIND	3.48393
BSIZE	4.0002
BDFOWN	1.8089

Source: Researcher’s compilation (2018)

The Variance Inflation Factor (VIF) statistics will be used to ascertain the presence of multicollinearity. The decision rule being that VIF-statistic above ten (10) indicates multicollinearity, otherwise it does not give cause of concern

and observed, none of the variables have VIF’s values more than 10 and hence none gave serious indication of multicollinearity.

Table 4.4. Quantile regression process estimates.

	Quantile	Coefficient	Standard error	t-statistic	Prob
BIND	0.1	-0.05124	0.13283	-0.38572	0.6999
	0.2	0.047899	0.076221	0.628423	0.5301
	0.3	0.150034	0.053137	2.823514	0.005*
	0.4	0.095761	0.054275	1.764385	0.0784
	0.5	0.091938	0.05122	1.794947	0.0734
	0.6	0.128186	0.052021	2.464131	0.0141*
	0.7	0.185568	0.051889	3.576247	0.0004*
	0.8	0.185966	0.056358	3.299736	0.001*

	0.9	0.127269	0.060267	2.111753	0.0353*
BSIZE	0.1	-0.00386	0.008577	-0.45016	0.6528
	0.2	-0.00538	0.006596	-0.81547	0.4153
	0.3	-0.00494	0.004981	-0.99264	0.3215
	0.4	-0.00222	0.003811	-0.58107	0.5615
	0.5	-0.00076	0.003185	-0.23876	0.8114
	0.6	-0.0028	0.002784	-1.00685	0.3146
	0.7	-0.00442	0.002537	-1.74348	0.082
	0.8	-0.00543	0.002613	-2.07926	0.0382*
	0.9	-0.00851	0.002869	-2.96687	0.0032*
FOROWN	0.1	0.002498	0.015983	0.156286	0.8759
	0.2	-0.00913	0.009234	-0.98898	0.3232
	0.3	-0.01823	0.00602	-3.02855	0.0026*
	0.4	-0.01967	0.006214	-3.16608	0.0017*
	0.5	-0.01556	0.006269	-2.48157	0.0135*
	0.6	-0.01227	0.006728	-1.82415	0.0688
	0.7	-0.01323	0.007163	-1.84627	0.0656
	0.8	-0.00496	0.007612	-0.6511	0.5153
	0.9	-0.00816	0.007568	-1.07768	0.2818

Source: Researchers compilation (2017), () are standard errors; { } are p-values, * sig at 5%

Unlike the OLS or panel linear regression which does not show the effect of an independent variable on different level of the dependent but is regarded as a mean regression, the quantile regression parameter estimates the change in a specified quantile of the response variable. The conditional quantile regression traces the entire distribution of the independent variable, conditional on a set of categories for the dependent variable. In the context of this study, this allows comparing how some percentiles of ED may be more affected by corporate governance than other percentiles. The quantile estimates are generated for different ranges for ED structure that allow us to examine the impact of corporate governance at different points of the distribution of firm's ED. From the quantile regression estimates in table 4.5, we examine more informative insights shielded from the normal OLS regression being essentially a mean-based estimation procedure. Going forward, the quantile process results shows that supports this negative outcome for firms at the lowest level of ED but as firms move up the ED quantile to higher environmental disclosures, we observed that the effect of board independence becomes positive and significant at 5% and hence we fail to accept the H1. The finding is in tandem with Ong and Djajadikarta (2017) and Lone, Ali and Khan (2016) but does not agree with findings of Haziwan and Taha (2014).

The quantile process estimates for BSIZE maintained its negative sign and did not show up as significance across the quantile from Q1-Q7. Hence for both firms in the low, middle and slightly high levels of ED, we do not find evidence that the size of the board plays any significant role except for firms in the highest levels of ED where the negative sign is still maintained though turned out

significant and hence we reject H2. The negative effect of board size is most felt for firms in the highest ED category and the quantile results showing the BSIZE has a negative effect on ED. The debates regarding the value of either larger or smaller boards is still on going as there is yet no consensus regarding what an optimal board size should be. The significance of board size with a negative coefficient thus suggest that firms in the highest environmental disclosure quartile exhibits a situation where lesser board size improves environmental disclosures. There are arguments favoring the presence of a smaller board size ranging from timely decision making advantages and more in-depth board interaction that may appear challenging given a large board. The finding is in tandem with Byard, Li and Weintrop (2006) which reported a negative relationship between board size and environmental disclosure while Cheng and Courtenay (2006) indicated that board size has no relationship with environmental disclosure. However, the finding is in contrast with Buniamin, Alrazi, Johari and Rahman (2008) using the content analysis for 243 Malaysian quoted companies provided evidence that board size has a significant influence on the level of environmental reporting. The study is also at variance with Akhtaruddin, Hossain, Hossain and Yao (2009) which suggested a positive association between the size of the board and the reporting of environmental information.

The effect of FOROWN on environmental disclosure significant but just at the moderate levels of disclosure (3rd-5th quartile) with a negative coefficient and hence we reject H3. However, for disclosure levels at higher quartiles, foreign ownership does not show up as a determinant factor and this is quite at variance with

theoretical expectations as more foreign presence may not necessarily increase environmental disclosures. This may hold especially in the context of several peculiarities such as voluntary nature of environmental disclosure, low apathy to disclosure, weak state and regulatory enforcement and sanctions. The study is in tandem with Bouaziz (2014).

5. CONCLUSION AND RECOMMENDATION

Corporate environmental disclosure is generally seen, as an extension of firms' efforts to foster effective corporate governance, ensuring the sustainability of firms through sound business practices that promote accountability and transparency. Thus, the broad objective of this study is to examine the impact of corporate governance mechanisms on the level of environmental disclosure in Nigeria. Using the Quantile process we observe that for firms at the lowest ED quantile, board independence has a negative effect but as firms move up the ED quantile to higher environmental disclosures, we observed that the effect of board independence becomes positive and significant at 5%. The results thus supports that the presence of more independent boards is significant in influencing higher levels of environmental disclosures. For both firms in the low, middle and slightly high levels of ED, we do not find evidence that the size of the board plays any significant role except for firms in the highest levels of ED. The effect of foreign ownership on environmental disclosure significant but just at the moderate levels of disclosure (3rd-5th quartile) with a negative coefficient. For disclosure levels at higher quartiles, foreign ownership does not show up as a determinant factor. Based on the study findings, the recommendations are as follows; Firstly, the study recommends the need for more independent directors to be brought into corporate boards and those directors should be such that hold fewer multiple directorship and are devoted to effective monitoring. Secondly, the study recommends that increasing or reducing the presence of foreign ownership will not still be effective if these contextual challenges are not addressed. Thirdly, the study recommends that companies should adopt the optimal board size that ensures that environmental issues are addressed.

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