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Corporate Environmental Reporting and Financial Performance: Evidence from Quoted Nigerian Companies

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Abstract
This study investigates corporate environmental reporting and financial performance in Nigeria. Quantitative research design was adopted and secondary data were obtained from annual reports and accounts of some selected quoted companies on the Nigerian Stock Exchange. The data so obtained were analyzed using the ordinary least square estimation technique. Based on the analysis, we found that there is no significant relationship between environmental reporting, operating performance and firm size among the selected quoted companies in Nigeria. Also, corporate environmental reporting does not affect the financial leverage of quoted companies. On the basis of the findings, it was recommended among others that environmental reporting themes and evidence must be established to provide foundation for improving financial performance of quoted

companies. The study calls for standard-setting bodies to set up guiding principles or accounting standards in order to improve the financial and non-financial environmental reporting of quoted companies. Besides, quoted companies are encouraged to imbibe the culture of corporate environmental audit as this process will help them systematically assess how well their environmental management practices conforms to green production goals and help diffuse green production practices throughout the organization

Keywords: Corporate Environmental Reporting; Financial Performance; Firm Size; Financial Leverage; Operating Performance.

Introduction

In recent times, corporate environmental reporting issues have emerged as a fundamental aspect of debate among academic scholars, management, government and the general public. This is true because both corporations and individuals often ignore the social and environmental aspect of the organization. As noted by Dutta and Bose (2008), these environmental issues have manifested in the form of global warming, atmospheric, soil and water pollution caused by industrial activities, decline of forest areas and chemical wastes being dumped into oceans and rivers. In an attempt to remedy these environmental problems caused by organizations, governments of different nations have long setup regulatory, voluntary, incentive-based, informational and cooperative policy measures aimed at improving performance (Jasch, 2013; Li, 2011). This policy trend has in no doubt, heightened concerns about environmental accounting theory and practices worldwide in realizing the effects of waste product as a potential source of damage to the environment (Maunders and Burritt, 2001). Thus, many organizations all over the world are now interested in being green while investors place a high value on social and environmental responsibility (Boyd, 2009; United Nations Environmental Programme, 1995).

On the global scene, Australia, Bangladesh, China, Japan, Malaysia, Netherlands, New Zealand, Norway and Turkey are on the lead on environmental accounting practices, in order to enhance their eco-efficiency and performance (Banerjee, 2012). In line with this trend, the rapid increases in environmental costs have now caused organizations to begin to integrate social and environmental aspects into managerial decisions at all levels (Dorweiler and Yakhou, 2012; Fryxell and Vryza, 2011). Corporate environmental reporting is an accounting technique which focuses on reporting the cost of environmental liabilities and other significant environmental costs, by providing environmental-related financial and non-financial information to external stakeholders (Belal, 2011). One of the underlying philosophies is that environmental reporting drives improvement in financial performance and also assists organizations in visualizing an image as having a moral obligation to account for its stakeholders (Ahmad, Salah and Lutz, 2009).

The movement towards corporate environmental reporting has therefore become particularly apparent for developed and developing countries due to the pressing demands from stakeholders and other interested parties for information regarding corporate social environmental responsibility (Gray, Bebbington and Walters, 1993; Elkington, 1997; Guthrie, Suresh and Leanne, 2006). Though studies on corporate environmental reporting in developed countries is abundant (see Horngren and Foster, 1987; Collison, 1996; Frost and Wilmhurst, 1996; Guilding and Kirman 1998; Bewley and Li, 2000; Deegan, Rankin and Voght, 2000; DeVilliers, 2000; Antonites and DeVilliers, 2003). In developing countries like Nigeria, industrial activities of some organizations pose hazard to the environment without adequate treatment that meets the basic international standards (Abu-baker and Naser, 2000; Ite, 2004). To this end, this study aimed at extending the body of existing literature by conducting a performance evaluation of corporate environmental reporting in Nigeria.

Methodology and Purpose of the Study

The extent of corporate environmental reporting on the financial performance was analyzed using the quantitative research design by obtaining data from annual reports and accounts of the selected quoted companies in Nigeria. Data of operating performance, financial leverage and firm size were obtained from the annual reports and accounts of ten

quoted manufacturing companies during the period 2006-2016 so as to establish the influence of corporate environmental reporting on the level of performance among the selected companies. Thus, the population of the study encompassed all quoted manufacturing companies on the Nigerian Stock Exchange at 31st December, 2016.

In order to proxy corporate environmental reporting, we employed a dichotomous modus operandi known as the Kinder Lydenberg Domini (KLD) environmental performance rating system. A score of one (1) was given if an item was reported in the annual reports and accounts; otherwise zero (0). To find out the strength of the relationship between the operating performance, financial leverage, firm size and extent of corporate environmental reporting among the selected quoted companies, a simple regression model was adopted as shown below:

$CER = f(ROTA) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$
$CER = f(DER) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$
$CER = f(FSIZE) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$

This can be written in an explicit form as:

$CER_t = \beta_0 + \beta_1 ROTA_{it} + U_t \ldots\ldots\ldots\ldots\ldots\ldots (4)$
$CER_t = \beta_0 + \beta_1 DER_{it} + U_t \ldots\ldots\ldots\ldots\ldots\ldots (5)$
$CER_t = \beta_0 + \beta_1 FSIZE_{it} + Ut \ldots\ldots\ldots\ldots\ldots\ldots (6)$

Operationalization of Variables:

CER = Corporate Environmental Reporting (measured by costs incurred for environmental pollution)
FSIZE = A measure of firm size (i.e. natural logarithm of turnover)
ROTA = Return on total assets (a proxy for financial performance)
DER = Debt-to-equity ratio (a measure of operating performance; defined as the logarithm of total debt divided by the total equity)
U = Disturbance term
t = Time dimension of the variables
β_0 = Constant or Intercept
$\beta_{1\text{-}3}$ = Coefficients of slope parameters

The expected signs of the coefficients (a priori expectations) are: β_1 & $\beta_3 > 0$, while $\beta_2 < 0$.

Theoretical Framework

The theoretical framework of this paper is premised on the Stakeholders Theory. The stakeholder theory is one of the most famous theories with the most influential debate that there are wider groups of stakeholders in an entity than merely shareholders and investors (Stemberg, 1997). Stakeholders are seen as any group or individual who can affect or be affected by the economic activities of an entity. The underlying philosophy of this theory is that the economic activities can affect or be affected by a number of groups within a society and how their actions affect entities (or how they may be affected by the actions taken by the organization).

Stemberg (1997) argues that the relationship between the firm and the various groups is defined by all sorts of contracts and it is simply not true that shareholders have the only legitimate interest in firms' activities. For instance, the relationship between a firm and its shareholders is not only legal, but also with its employees, suppliers and customers who also have legitimate interests in the entity's activities. Thus, all stakeholders and even the natural environment have legitimate rights on the entity's activities as they are also affected by the economic activities of the entity. A simple synopsis is that stakeholder theory rests upon an entity's duty to varied groups rather than just shareholders and equally the right of varied groups to take part in entity's decision making. Thus, the theory suggests that business entities should as a matter of fact take into account the interests of stakeholders beyond the narrowly defined interest of shareholders (Gray, 1997).

Conceptual Review on Environmental Reporting

Environmental reporting refers to the process of communicating the environmental effects of organizations' activities in terms of costs as they affect the environment in which they are domiciled to particular interest groups within society and to the society in general (Gray, 2007). According to Matar (2010), it is an approach to reporting an organization's activities which stresses the need for the identification of socially relevant behavior, determination of those to whom the organization is accountable for its social performance and development of appropriate measures and reporting techniques. Environmental reporting is commonly used in the context of business or corporate social responsibility, although organizations such as non-government

organizations (NGOs), charities and government agencies may engage in environmental reporting.

Environmental accounting emphasizes the notion of corporate accountability and it is often used as an umbrella term to describe a broad field of research and practice. Environmental reporting as noted by Elkington (1999) is directly connected with expressing the environmental impact of organizations. Environmental reporting further seeks to address the trade-off between economic pursuit and environmental related matters. In this way, environmental reporting tends to focus more on the pursuit of sustainability. The general objectives of environmental reporting as observed by Gray (1997) are to, first, determine and measure the net social contribution of the organization on a periodic basis. This does not necessarily include the elements of internal costs and specific benefits of the organization, but also entails the elements of cost and external social benefits that influence segments of the community.

Second, it evaluates the social performance of organizations by identifying whether the organization's strategies and objectives are consistent with the social priorities and the organization's ambition to ensure a reasonable percentage of profits. The relationship between the performance of organizations and social welfare lies at the core of environmental or social responsibility reporting. Environmental reporting focuses on the cost structure and environmental performance of an entity by describing the preparation, presentation and communication of information related to an organization’s interaction with the natural environment (Crowther, 2012).

Prior Studies

Quite a number of studies have been conducted on corporate environmental reporting in developed and developing countries of the world. However, some of these studies were majorly within the platform of developed economies. Within this context, we have specifically concentrated on some studies from both developed and developing countries so as to have a detailed picture of existing literatures. For instance, Gray (1997) employing the content analysis method, investigated the association between financial performance and the extent of corporate environmental disclosure. The study revealed that financial performance is not correlated with corporate environmental disclosure in the same period, but may be correlated to lag-profits.

In a similar study, Ingram and Frazier (2010) assessed the connection between the content of corporate environmental disclosure and financial performance. Using environmental disclosures in 20 pre-selected content categories along four dimensions (evidence, time, specificity and theme), the study found no association between environmental disclosure and firm performance. Freedman and Jaggi (2012) studied the relationship between environmental disclosures and the financial performance for firms in four highly polluting industries and found that there is no relationship between environmental disclosures and financial performance.

Wiseman (2013) studied the relationship between the annual report disclosures of 26 firms in 3 industries with their financial and environmental performances using the ISO 14031 environmental reporting guideline. The content analysis was utilized to gauge the extent of disclosures using 18-itemed and 2-categories to evaluate the quality and accuracy of environmental disclosures. The financial performance indicators employed comprised of earnings per share, price-earnings ratio and dividend yield. The regression statistical technique was used in the analysis of data and findings indicated that the voluntary environmental reports were incomplete, providing inadequate disclosure for most of the environmental performance indicators analyzed. In addition, the study revealed that no relationship exists between the contents of environmental disclosures and the financial performance of the firm.

Gamble, Hsu, Kite and Radtke (2015) investigated the quality of environmental reporting practices among 234 companies in twelve industries in the United States of America during the period 1986-1991 and found that there had been a significant increase in environmental reporting in annual reports in 1989. However, certain industries (e.g. petroleum refining, hazardous waste management and steel manufacturing) were judged to have provided the highest quality of disclosures in their annual reports while the period 1989-1991 produced a significant increase in environmental disclosures. To this end therefore, this study was carried out in an attempt to extend the existing body of literature in developing economies by exploring corporate environmental reporting and the financial performance of companies in Nigeria.

Results

The results of the study were presented in order of precedence. First, we reported the descriptive of the variables, second, the correlation matrix, goodness of fit test for each models and finally, the regression results.

Table no. 1. Descriptive statistics of Corporate Environmental Reporting (CER), Firm Size (FSIZE), Return on Assets (ROTA) and Debt-to-Equity Ratio (DER)

Variables	Mean	Std. Dev.	Min. Value	Max. Value
CER	33.1300	12.45954	11.2	41.3
FSIZE	6.2235	.89077	5.6	8.5
ROTA	.2617	.13201	0.12	0.52
DER	.3957	.19556	0.18	0.73

Source: Author's calculation via SPSS software, 22.0 version

Table no. 1 presents the descriptive statistics result for the dependent variable (Corporate Environmental Reporting: CER) and independent variables (Firm Size: FSIZE; Return on Assets: ROTA and Debt-to-Equity Ratio: DER). As observed, the mean for CER is positive with a high standard deviation which suggests that most of the companies in the sample may engage in environmental reporting. This implies, ensuring compliance with the provision of environmental disclosure. The minimum and maximum values are 11.2 and 41.3 respectively. In addition, the mean for FSIZE is positive 6.2235 with a low standard deviation of .89077 which implies that 89% in corporate environmental reporting by companies has been explained by firm size. The minimum and maximum value 5.6 and 8.5 respectively suggest that the lowest firm size is approximately 6.

The mean for ROTA is positive .2617 with a low standard deviation of .13201 which implies that 13% in environmental reporting by companies has been explained by ROTA. The low value of the mean suggests that environmental reporting has not affected ROTA of the sampled companies under investigation. The minimum and maximum values 0.12 and 0.52 respectively suggest that the lowest ROTA is approximately 0.12. Furthermore, the mean for DER is positive .3957 with a low standard deviation of .19556 which implies that 19% in environmental reporting by firm has been explained by DER. The low

value of the mean suggests that environmental reporting has not affected DER of the sampled companies under investigation. The minimum and maximum value 0.18 and 0.73 respectively, suggest that the lowest DER is approximately 0.18.

Table no. 2. Correlation Matrix for all the variables

Variables	CER	FSIZE	ROTA	DER
CER	1.000	.351	-.267	-.400
FSIZE	.351	1.000	-.267	-.400
ROTA	.228	.160	1.000	.126
DER	.126	.160	.228	1.000

Source: Author's calculation via SPSS software, 22.0 version

The highest correlation as disclosed in the table is between FSIZE and DER with a value of .400. This confirms that there is no multicollinearity among the variables.

Table no. 3. Goodness of Fit Tests for FSIZE, ROTA and DER

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
[1]**FSIZE**	.351[a]	.123	.014	12.37443
[2]**ROTA**	.267[a]	.071	-.045	12.73491
[3]**DER**	.400[a]	.160	.055	12.11208

Source: Author's calculation via SPSS software, 22.0 version

a. Predictors: (Constant), FSIZE, ROTA & DER

As shown above, the value of adjusted R^2 is .014 for FSIZE, indicating that FSIZE is explaining 14% variation on CER, while the unexplained variation is 86%. In the case of ROTA, the value of adjusted R^2 is -.045; indicating that ROTA is explaining 45% variation on CER, while the unexplained variation is 55%. Also, the value of adjusted R^2 is .055 for DER; indicating that DER is explaining 55% variation on CER, while the unexplained variation is 45%. Thus, we can understand that the model of the study is not providing a good fit to the data.

Table no. 4. Regression result for Corporate Environmental Reporting (CER) and Firm Size (FSIZE)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	2.573	29.083	.088	.932
FSIZE	4.910	4.631	1.060	.320
F-statistic	1.124	Durbin-Watson stat		1.420

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (FSIZE) reveals the existence of positive relationship between corporate environmental reporting and firm size (FSIZE) as depicted by the slope coefficient of 4.910. FSIZE appears to exert a positive effect on corporate environmental reporting which is not also statistically significant at 5% level. Furthermore, the F-stat (1.124) when compared with f-tabulated (3.09) implies that there is no significant relationship between corporate environmental reporting and the operating performance among Nigerian companies. The D.W statistics of 1.420 suggest the absence of first order serial correlation in the model.

Table no. 5. Regression result for Corporate Environmental Reporting (CER) and Return on Total Assets (ROTA)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	39.729	9.329	4.259	.003
ROTA	-25.217	32.156	-.784	.456
F-statistic	.615	Durbin-Watson stat		1.692

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (ROTA) reveals the existence of negative relationship between corporate environmental reporting and return on asset (ROTA) as depicted by the slope coefficient of -25.217. ROTA appears to exert a negative effect on environmental reporting which is not also statistically

significant at 5% level. Furthermore, the F-stat (0.615) when compared with f-tabulated (3.09) implies that corporate environmental reporting does not affect financial leverage of Nigerian companies. The D.W statistics of 1.692 suggest the absence of first order serial correlation in the model.

Table no. 6. Regression results for Corporate Environmental Reporting (CER) and Debt to Equity Ratio (DER)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	43.214	9.023	4.790	.001
DE	-25.485	20.645	-1.234	.252
F-statistic	1.524	Durbin-Watson stat		1.955

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (DER) reveals the existence of negative relationship between corporate environmental reporting and Debt-to-Equity Ratio (DER) as depicted by the slope coefficient of -25.485. DER appears to exert a negative effect on environmental reporting which is not also statistically significant at 5% level. Furthermore, the F-stat (1.524) when compared with f-tabulated (3.09) implies that there is no significant relationship between corporate environmental reporting and debt to equity ratio among Nigerian companies. The D.W statistics of 1.955 suggest the absence of first order serial correlation in the model.

Discussion

Empirical research on the relationship between corporate environmental reporting and financial performance indicates an avalanche of varied and heterogeneous results. However, this study examined corporate environmental reporting and the financial performance of companies in Nigeria. Data of operating performance, financial leverage and firm size were obtained from the annual reports and accounts of ten quoted manufacturing companies in Nigeria during the period 2006-2016, so as to establish the influence of corporate environmental reporting on the level of performance among the selected companies. To find out the strength of the relationship between the

operating performance (ROTA), financial leverage (DER), firm size (FSIZE) and extent of corporate environmental reporting among the selected quoted companies, a simple regression model was employed.

The findings revealed that although the level of corporate environmental reporting among Nigerian companies is relatively low; however, it is observed that the corporate environmental reporting pattern appeared to be inconsistent and unregulated for the content-category theme of disclosure among firms. Based on the quantitative analysis, we found a positive relationship between FSIZE and the extent of corporate environmental reporting, while a negative relationship exists between ROTA, DER and corporate environmental reporting.

Conclusion

This study contributes to knowledge by showing the relationship between corporate environmental reporting and financial performance: with evidence from quoted Nigerian companies. Findings of the study revealed that corporate environmental reporting is positively correlated with firm size, with a negative relationship with return on asset and debt to equity ratio. Based on the findings of this study, it was recommended among others that environmental reporting themes and evidence must be established to provide foundation for improving financial performance of quoted companies.

Furthermore, the study calls for standard-setting bodies to set up guiding principles or accounting standards in order to improve the financial and non-financial environmental reporting of quoted companies in Nigeria. Besides, quoted companies are encourage to imbibe the culture of corporate environmental audit as this process will help them systematically assess how well their environmental management practices conforms to green production goals and help diffuse green production practices throughout the organization.

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