

Web-Based Corporate Environmental Reporting in Nigeria: A Study of Listed Companies

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This paper basically examined the utilization of the Internet for communicating corporate environmental information by listed financial and non-financial companies in Nigeria. The sample for the study consists of 30 firms listed on the Nigerian stock exchange. While the content analysis technique was used as a basis for eliciting data from the corporate websites of the selected firms, the student t-test statistics was used to find out whether there is a significant difference in the level of web-based corporate environmental disclosure between financial and non-financial firms in Nigeria. In addition, the linear regression method of data analysis was employed to investigate whether there is a relationship between the financial performance of firms and the level of corporate environmental disclosures of the selected listed firms in Nigeria. The paper as part of its findings observed that there is no significant difference in the level of web-based corporate environmental disclosure between listed financial and non-financial firms in the Nigeria stock exchange

Keywords: *Environmental Disclosures, Corporate Websites, Content Analysis, Listed Companies, Internet, Nigeria*

1 Introduction

Corporate environmental reporting has emerged as a requirement for the firms' usefulness to their society that they operate. It has become crucial in today's corporate reporting. Corporate environmental disclosures have increased globally in both size and complexity over the past two decades, despite some variations among countries in different regions. For example, in the US a number of studies reveal that corporate social and environmental disclosures have increased over time [9]. Similar situations appear in the UK, Australia and New Zealand [24]. Some developed countries have initiated mandatory disclosures in the reporting requirements, however, in most developing countries environmental disclosure still heavily relies on voluntary initiatives of the reporting entities.

[32] defined corporate environmental reporting as a process through which "companies often disclose environmental information to their stakeholders to provide evidence that they are accountable for their activities and the resultant impact on the

environment." Traditionally, companies disclose environmental information through print-media such as annual reports, standalone environmental reports, standalone corporate social responsibility reports, press releases, news media, advertisements, glossy booklets, newsletters, internal magazines and brochures [32]. But with the advent of the internet, companies have started disseminating environmental information on their corporate websites due to the very significant advantages it provides to stakeholders [2].

Over the past decade, with the change in the country's political landscape, the Nigeria economy has witnessed tremendous economic and social changes. As a result, the business environment is also becoming more complex and demanding. One of the emerging issues that confront modern-day businesses is that of corporate environmental responsibility. Due to the heightened interest in the concept of corporate environmental responsibility and what it entails, much research has been done in this area, particularly in the developed countries. In contrast, the developing countries are slower

in responding to the increased concern about the issue of corporate environmental responsibility. Despite some increase in research [25]; [3] and [1] studies in this area in the developing countries are still scarce. More so, to the authors' best knowledge, studies, solely on web-based corporate environmental reporting, do not exist in the context of Nigeria and consequently, a gap exists in literature on CER studies. The present study attempts to address this gap in literature by analyzing the level of website disclosure of corporate environmental information between financial and non-financial listed firms in Nigeria.

The rest of the paper consists of four sections. The following section assesses the existing literature on corporate environmental reporting. The next section describes the methodology of the study. The penultimate section presents and analyzes the findings of the study. The fourth and final section provides a summary of the findings and conclusions.

1.1 Objective of the Study

The following are the objectives of this study:

1. To find out whether there is a significant difference in the level of web-based corporate environmental disclosure between financial and non-financial firms in Nigeria.

2. To investigate whether there is a significant relationship between the financial performance of firms and the level of web-based corporate environmental disclosure of selected listed firms in Nigeria.
3. To ascertain whether there is a significant relationship between the size of firms and the level of web-based corporate environmental disclosure of selected listed firms in Nigeria.

1.2 Scope of Study

The study basically seeks to ascertain whether there is a significant difference in the level of web-based disclosure of corporate environmental information between listed financial and non-financial firms in Nigeria. The study also looked at the relationship between the level of web-based disclosure of corporate environmental information and the financial performance of selected listed firms. However, in order to achieve these objectives, the corporate websites reports for the period 2007-2011 were analyzed. In addition, the study considered a total of 30 listed firms (i.e. both financial and non-financial) in the Nigerian stock exchange market (see table 1). The choice of these firms arises based on their level of market capitalization, nature of production and most importantly the nature of production and industrial operations of the selected firms.

Table 1. List of Selected Listed Firms Used For the Study

S/N	SELECTED LISTED FIRMS	NATURE OF FIRMS
1	ASHAKA CEMENT COMPANY PLC	NON-FINANCIAL FIRMS
2	BENUE CEMENT COMPANY PLC (BCC)	
3	LAFARGE WEST AFRICAN PORTLAND CEMENT PLC	
4	CEMENT COMPANY OF NORTHERN (NIGERIA) PLC	
5	CERAMIC MANUFACTURERS NIGERIA PLC	
6	AFRICAN PAINTS (NIGERIA) PLC	
7	BERGER PAINTS PLC	
8	CHEMICAL & ALLIED PRODUCTS PLC	
9	D N MEYER PLC	
10	NIGERIAN - GERMAN CHEMICAL PLC	
11	OKITIPUPA OIL PALM PLC	
12	PRESCO PLC	
13	OKOMU OIL PALM PLC	
14	ELLAH - LAKES PLC	
15	LIVESTOCK FEEDS PLC	

16	STERLING BANK	FINANCIAL FIRMS
17	IBTC	
18	UNITED BANK FOR AFRICA	
19	UNITY BANK	
20	WEMA BANK	
21	ZENITH BANK	
22	ACCESS BANK	
23	DIAMOND BANK	
24	ECO BANK	
25	FIDELITY BANK	
26	FIRST BANK	
27	FIRST CITY MONIMENTAL BANK	
28	GUARANTEE TRUST BANK	
29	OCEANIC BANK	
30	UNION BANK	

2 Review of Related Literatures

Corporate environmental reporting has been mainly a phenomenon of developed countries and consequently, most corporate environmental reporting studies were confined to the developed countries [3]. A handful of studies concentrated on the newly industrialized countries such as Korea, Hong Kong, Malaysia and Singapore and African countries such as South Africa, and Egypt [3]. Furthermore, majority of corporate environmental reporting literatures primarily focused on conventional print media, especially corporate annual reports, as a disclosure medium [32]. This section however sheds light on prior studies on corporate environmental reporting through corporate annual reports and through corporate websites.

Prior descriptive research reveals that most companies in the US and in Western Europe provide web-based financial reports similar to their printed reports or some sort of fundamental financial information [15]; [29]. Most websites were found to make relatively unsophisticated use of Internet technology, like e-mail contact to the investor relations departments, mailing lists etc. The option to engage in interactive activities with investors, like video/audio recordings and online participation in general meetings was rarely found [12]; [29]. Most of the explanatory studies have found company size to be highly correlated with the level of financial disclosure on the Internet [16]; [5]; [8]; [21]. Some researchers have found other

factors such as the level of technology, foreign listing and fee float statistically significantly correlated with the level of Internet financial disclosure [30]; [8] whereas researchers such as [16] and [26] did not find leverage, profitability, shareholding by institutional investors and industry sector significantly correlated with the level of financial disclosure on the Internet.

Prior studies on web-based environmental communication show that the larger companies and those operating in developed countries are more likely to use the web for environmental communication [6]; [32]. The studies undertaken by [35]; [13]; [29]; [11] and [17] have focused specifically on larger companies operating in the developed world. The common finding to these studies is that companies are not extensively utilizing the web for environmental communication. [19] analyzed the websites of 275 global companies. They also conducted a survey of 100 environmental managers, seeking their views on the use of their website for environmental communication. Their findings suggested that companies were not fully utilizing the web for environmental communication. [4] did a comprehensive study of web-based environmental communication in Australia, United Kingdom (UK) and Germany. They analyzed websites, sent surveys to corporate managers and also held interviews at specific companies. Their findings suggested that there was limited use of websites for environmental communication, companies

did not have strategic considerations for the use of the web as a communication medium and website development was restricted.

In Hong Kong, [34] studied 182 companies and found that only 9 out of these 182 companies (4.9 percent) disclosed environmental information in their annual reports for the year 1991. In Korea, the study of [18] reveals that out of 770 listed companies 64 companies disclosed environmental information in their audited semi-annual financial statements for the year 1997. [14] conducted a longitudinal study of social and environmental reporting practices by the banking, food and beverages and hotel industries over a ten-year period from 1986 to 1995. The researcher found that 17 out of 33 listed companies made social and environmental disclosure in their annual reports. The study observed a steady increase in social and environmental disclosures during the late 1980s and then a stable pattern since 1993. [36] studied only four companies in Uganda and observed that none of them made any environmental disclosure in their annual reports.

Nonetheless, insights provided from prior studies shows clearly that very few studies on environmental disclosure have been undertaken in the Nigeria context. All of these studies focused on environmental disclosure through print-media and more specifically, through corporate annual reports. For example, [20] looked at corporate social responsibility in Nigeria a western mimicry of indigenous practices. They explored four key sectors of the Nigerian economy and came up with the conclusion that firms are socially constructed and their behaviour must reflect on the society in which they are embedded and thus must have to be socially responsible to the environment in which it operates. Also, [10] in his study titled environmental responsibility and firms' performance in Nigeria; investigated the relationship between firms social responsibility practices and their performance. The study while focusing only on the manufacturing industry concluded that a positive relationship exist

between the social responsibility practice of firms and their performance. In addition, prior studies by [1], [33] also reported a similar finding on the state of corporate social responsibility in Nigeria. While prior studies in the context of Nigeria have concentrated only on environmental reporting practices through corporate annual reports but they did not focused on web-based corporate environmental reporting practices. This present study attempts to fill this gap in literature.

2.1 Research Hypothesis

To achieve the objective of this study, the following hypotheses are stated in their null form:

- (i) **H₁**: *there is no significant difference in the level of web-based corporate environmental disclosure between listed financial and non-financial firms in Nigeria.*
- (ii) **H₂**: *there is no significant relationship between firms' financial performance and the level of web-based corporate environmental disclosure of listed firms in Nigeria.*
- (iii) **H₃**: *there is no significant relationship between size of firms and the level of web-based corporate environmental disclosure of selected listed firms in Nigeria.*

3 Research Methodology

This study is empirical in nature and it basically seeks to find out whether there is a significant difference in the level of web-based corporate environmental disclosure between listed financial and non-financial firms in Nigeria. Using the judgmental sampling technique, a total of 30 listed firms have been selected for this study based on their level of market capitalization status, nature of production and pollution impact on the environment. This investigation has adopted the use corporate websites of companies as its data source. The choice of corporate websites arises due to the fact that they are readily available, accessible and also

provides a greater potential for comparability of results. The web-based reports of the selected listed companies for the period 2007-2011 will be used due to heightened interest and increased awareness noticed among stakeholders within these periods (especially within the Niger delta region). To achieve the aforementioned objectives therefore, the content analysis method of data analysis were used. This is due to the fact that the content analysis method is the most commonly used method of measuring a company's environmental responsibility disclosure [23].

However, for the purpose of this study; twenty four (20) content category items within four (4) testable dimensions of corporate environmental disclosure was developed for coding, from other relevant

prior literatures [25], [22]; [23]. They include: theme, evidence, location in corporate websites, news type and time (see Table 2). Nonetheless, using accounting based variables; the size of firms is measured (proxied) by firms' total assets, the return on assets and return on equity. Moreover, a dichotomous procedure known as the Kinder Lydenberg Domini (KLD) social environmental performance rating system was used to measure the total reporting score (TRS). A score of one (1) was awarded if an item was reported; otherwise a score of zero (0) was awarded. Consequently, a firm could score a minimum of 0 and a maximum of twenty (20) points. The formula for calculating the total reporting score by using these 20 attributes are expressed below as:

Table 2. Twenty Testable Environmental Disclosure Index (Source: [25]; [22]; [23])

Environment	Energy	Research & development	Employee health and safety
Environmental pollution	Companies energy policies	Investment in research on renewal technology	Disclosing accident statistics.
Conservation of natural resources	Disclosing energy savings	Environmental education	Reducing or eliminating pollutants, irritants, or hazards in the work environment.
Environmental management	Reduction in energy consumption	Environmental research.	Promoting employee safety and physical or mental health
Recycling plant of waste products	Received awards or penalties.	Waste management /reduction and recycling technology	Disclosing benefits from increased health and safety expenditure.
Air emission information	Disclosing increased energy efficiency products	Research on new method of production	Complying with health and safety standards and regulations.

$$TRS = \sum_{i=1}^{20} d_i$$

where:

- TRS = Total Reporting Score
- d_i = 1, if the item d_i is disclosed and 0 if the item d_i is not disclosed or reported

$$i = 1, 2, 3, \dots, 20$$

However, for us to measure the relationship between the size of firms and the level of corporate social disclosure, a linear regression model was developed as shown below in functional form:

3.1 Model Specification

$$CED_t = f(ROE_t, ROTA_t, SIZE_t) \quad (1)$$

This can be written in explicit form as:

$$CED_t = \beta_0 + \beta_1 ROE_t + \beta_2 ROTA_t + \beta_3 SIZE_t + U_t \quad (2)$$

where:

CED = Corporate environmental disclosure.

SIZE = firms' size is measured in terms of the natural logarithm of total assets.

ROE = Return on equity used here as a proxy for operating performance

ROA = Return on asset is used here as a proxy for financial performance and is defined as the profit before interest and tax divided by total assets as at the end of the fiscal year under consideration.

U = Stochastic or disturbance term.

T = Time dimension of the Variables

β_0 = Constant or Intercept.

β_{1-3} = Coefficients to be estimated or the Coefficients of slope parameters.

The expected signs of the coefficients (a priori expectations) are such that $\beta_{1-3} > 0$.

4 Empirical Findings

Analysis of finding from the t-test as depicted in table 3 shows a t-calculated value that is less than the t-critical value of ($-1.12497 < 2.048407$) at 5% level of significance with a two-tailed test. This result invariably supports the null hypothesis at the expense of the alternate hypothesis which states that there is no significant difference in the level of web-based corporate environmental disclosure between listed financial and non-financial firms in the Nigeria stock exchange. We therefore accept the null hypothesis which state that that there is no significant difference in the level of web-based corporate environmental disclosure between listed financial and non-financial firms in Nigeria.

3.2 A Priori Expectation

Table 3. T-Test: Two-Sample Assuming Equal Variances

	Financial Firms	Non-Financial Firms
Mean	2.311333333	2.782
Variance	1.590369524	1.035274286
Observations	15	15
Pooled Variance	1.312821905	
Hypothesized Mean Difference	0	
Df	28	
t Stat	-1.124970584	
P(T<=t) one-tail	0.135076451	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	0.270152902	
t Critical two-tail	2.048407115	

Furthermore, analysis of the Pearson correlation analysis result as presented in table 4 as it relates to the second hypothesis indicates clearly that a positive association existed between the dependent variable (CED) and the independent variables that is

(ROTA, ROE and SIZE) and they are all significant at 0.01level. This finding further provides an insight to the fact that to a very great extent, the financial performance and the size of firms do plays a very significant role in or has a strong influence on the level

of web-based corporate environmental disclosure among the selected firms in Nigeria. Also, result for the goodness of fit test as presented in table 5 shows a coefficient of determination (i.e. R-squared) of 66%. This result implies that 66% of the variation noticed in CED (dependent variable) can be explained by ROTA, ROE and SIZE (i.e. the independent variable). More so, the adjusted R² results which complements the coefficient of determination result indicates clearly that the value of the dependent variable can be explained or predicted by about 62% of the independent variables. This value can be considered sufficient because corporate environmental disclosure is influenced by other factors besides firms' financial performance and size. However, the F-test results as depicted in table 6 indicates clearly that the fairness and non-biasness of the model specified. It shows simultaneously that the independent variables altogether are significantly associated with the dependent variable. Finally, a marathon review of the of the regression analysis as depicted in table 6 indicates that consistent with our a priori

expectation, a significant positive relationship does exist between the financial performance of firms and the level of web-based corporate environmental disclosure. In addition, the result in table 6 further reveals that there is a significant positive relationship between the SIZE of firms and the level of web-based corporate environmental disclosure. These results further corroborate the findings provided by [29]; [28]; [4]; [31]. The implication of this result is that the larger the size of a firm, the more they can afford to invest their resources into corporate environmental technologies and management that is environmentally friendly since they tend to be more concerned with the companies corporate environmental reputation and corporate image while at the same time being visible to external stakeholders who demand higher corporate social environmental performance. In addition, larger companies are more susceptible to inquiry from stakeholder groups since they are highly visible to external groups and are more vulnerable to adverse reactions among them.

Table 4. Pearson Correlations for Selected Listed Firms in Nigeria

		CED	ROTA	ROE	SIZE
CED	Pearson Correlation	1	.555(**)	.548(**)	.511(**)
	Sig. (2-tailed)		.001	.002	.004
	N	30	30	30	30
ROTA	Pearson Correlation	.555(**)	1	.239	.062
	Sig. (2-tailed)	.001		.203	.747
	N	30	30	30	30
ROE	Pearson Correlation	.548(**)	.239	1	.169
	Sig. (2-tailed)	.002	.203		.371
	N	30	30	30	30
SIZE	Pearson Correlation	.511(**)	.062	.169	1
	Sig. (2-tailed)	.004	.747	.371	
	N	30	30	30	30

** Correlation is significant at the 0.01 level (2-tailed).

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F change	df1	df2	Sig. F Change
1	.814 ^a	.662	.623	.70657	.662	16.986.	3	26	.000

a: Predictors: (Constant), SIZE, ROE, ROTA,

Table 6. ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25.440	3	8.480	16.986	.000 ^a
	Residual	12.980	26	.499		
	Total	38.420	29			

a: Predictors: (Constant), SIZE, ROTA, ROE.

b: Dependent Variable: CED

Table 7. Coefficients^a

MODEL		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.742	.600		-1.237	.227
	ROTA	.613	.164	.440	3.746	.001
	ROE	.987	.316	.371	3.121	.004
	SIZE	.589	.162	.421	3.637	.001

a: Dependent Variable: CED

5 Conclusions

This study investigated the current status of web-based corporate environmental disclosure among selected listed financial and non-financial firms in Nigeria. The findings from this study generally indicate that there is no significant difference in the level of web-based corporate environmental disclosures between listed financial and non-financial firms in Nigeria. However, consistent with the findings provided by [4] and [29] this study revealed that there is a significant positive relationship between the financial performance of firms and the level of web-based corporate environmental disclosure. In addition, findings from this study further revealed that there is a significant positive relationship between size of firms and the level of web-based corporate environmental disclosures. The paper consequently concludes that online environmental reporting in Nigeria is still in its infancy. However, the calls for the need for companies to embrace the culture of web-based environmental disclosure on the internet as a means of improving the quality information disclosed to stakeholders.

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