Corporate Attributes and Environmental Disclosures of Nigerian Quoted Firms: An Empirical Analysis

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Abstract
The main objective of this paper is to examine the impact of corporate attributes on environmental disclosure among quoted firms in Nigeria. The study reports the result from an empirical investigation using a sample of one hundred randomly selected firms on the Nigerian Stock Exchange. Data were extracted from the financial statements of the company and Nigerian Stock Exchange Factbook. The data was analyzed out using descriptive statistics, and Binary probit regression analysis. It was observed that performance of the firm and the industry type had a significant influence on environmental disclosure. Hence it is recommended that companies should disclose environmental reporting in line with the international trend as these make them more competitive globally.

Keywords: Environmental Disclosure, Environmental Reporting, Corporate Attributes

1. Introduction
The growing rate in insecurity of life and properties of oil producing companies in the Niger Delta region of Nigeria is now a norm which has spread sporadically through all sectors of the Nigerian business environment. Myers (1994) describes Nigeria as one of the developing countries that is experiencing massive degradation and destruction of the environmental systems and natural resources. On the same note Olorode (2000) opined that the Nigerian Civil war of 1967 to 1970 was originated by socio-political factors militating in the petroleum industry.

. It is expected that managers of economic entities in Nigeria should take a cue and remedy the consequent negative effects of the operations of the oil and gas industry especially by those firms that fail to take or pay no attention or no serious account to those issues relating to social and economic dimensions of their operations and relationships with the society where they operate.

Chokor (1988) argues that the first step in the effective control and management of the environment is in the creating of public environmental awareness because it is regarded as a synthesis of people’s conception, interpretation and perception of environmental issues.

Gray (2000) also paints the essential desirability of social, environmental and sustainability reporting as a crucial element in any well-functioning democracy as given. A converse view to this position possibly provides an explanation among others for the not so well-functioning democracy being experienced in Nigeria.

Most of the studies recently carried out in Nigeria such as Owolabi (2008), Uwalomwa and Uadiaye (2011) used mostly content analysis and other descriptive analysis. They concentrated only on environmental reporting practices through corporate annual reports. They did not focus on the relationship between corporate attributes and environmental disclosure among companies in Nigeria. It is in light of this gap that this study comes in by empirically examining corporate attributes as determinants of environmental disclosure in Nigeria.
The rest of the paper is divided into four sections: Section II deals with the theoretical framework/ literature review, while Section III deals with methodology. Section IV deals with the analysis of the data, and Section V presents the conclusion and recommendations.

2. Literature Review

2.1 Conceptual Framework
According to Kuasirikun and Sherer (2004) environmental reporting acts as the vehicle in providing environmental data for the benefits of stakeholders in the sense of satisfying the accountability relationships and corporate consciousness besides making known its function as a moral discourse towards environmental issues. Indeed environmental awareness in entities activities has risen with more vigour in recent years. Therefore the importance of environmental information dissemination and social accountability, which promote active and voluntary disclosure of environmental information about their environmental activities and considerations for environment matters in their activities and improve their reputation for their environmental efforts and performances, has been widely recognized. Campbell (2004) opines that environmental disclosure refers to those disclosures relating to the impact that an organizational activity or operation may have on the natural environment. Environmental disclosure comprises or entails disclosures relating to the company’s attitude, policy or behaviour towards its environmental impact, emissions, pollution, contamination, cleaning up (after pollution), re-landscaping or energy efficiency and effective utilization (that was not intended as an explicit economic message). The concept of environmental reporting received greater publicity since the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. Following that initiative, many studies (Such as Adams and Whelan, 2009; Belal and Owen, 2007; Tregidga and Milne, 2006) have highlighted the growing popularity and importance of environmental reporting.

2.2 Theoretical Framework
Gray (2000) posits that there has been an enormous growth in environmental and social auditing and reporting since the 1990s. Possible explanation for this trend is not unconnected with business firms’ desire to create, maintain or repair their societal legitimacy. A number of related theories in respect of the study is discussed below.

For instance, *Legitimacy theory* seeks to explain attempts by corporate entities to narrow any perceived legitimacy gap as an effort to avoid sanctions or threats to their survival. Legitimacy theory suggests that businesses operate in society via an expressed or implicit social contract upon which their survival and growth are dependent. Cormier, Magnan and Velthoven, (2005) point to the fact that the social contract terms ensuing between business and society are to a large extent articulated through laws, regulations, and shared understandings.

*Resource dependence theory* concerns itself with the strategy organisations adopt in drawing resources from the environment. This position is imperative because organisations activities are aligned with the environment. The resolution by organisations of different and conflicting expectations of different stakeholders is what stakeholder theory engages in. This is more necessary because of divergent impacts different stakeholders have on organisations.

*Political economy theory* posits that “accounting systems act as mechanisms used to create, distribute and mystify power” (Buhr, 1998,:165). This theory is based upon economic theories of self-interest. Political economy suggests that environmental (and social) disclosures are “pre-emptive and used to enforce an agenda to stave-off intervention” (Frost, 2000:668).

*Stakeholder theory* posits that the firm’s success is dependent upon the successful management of all the relationships that a firm has with its stakeholders. When viewed as such, the conventional view that the success of the firm is dependent solely upon maximizing shareholders’ wealth is not sufficient because the entity is perceived to be a nexus of explicit and implicit contracts (Jensen and Meckling, 1976) between the firm and its various stakeholders.
2.2 Prior Studies on the Determinants of Environmental Disclosure

In the following subsection we discuss the various determinants of environmental disclosure.

2.2.1 Firm Size and Environmental Disclosure

Advocates of stakeholder theory state that larger companies come under more scrutiny than smaller companies, thus they feel the pressure to disclose more social information to obtain approval from the stakeholders for continued survival (O’Donovan, 1997). Larger firms are also perceived to be important economic entities and therefore have greater demands placed on them to provide more information for customers, suppliers, analysts and government bodies (Cooke, 1991). A positive association between size of a corporation and the amount of environmental disclosure has been consistently found by prior studies such as (Prado-Lorenzo, Gallego-Alvarez and Garcia-Sanchez, 2009; Stanny and Ely, 2008; Ho and Taylor, 2007). Roberts (1992) however found a negative relationship between the size of the company and the level of CSR disclosure.

2.2.2 Profitability and Environmental Disclosure

Ali, Durtschi, Lev & Trombley (2004) argue that management of profitable organisations may disclose detailed information in the annual report because they feel comfortable communicating this good news to the stock market in order to improve the firms’ valuation. However mixed empirical results were found in both emerging and developed countries. For instance, Ali, et al., (2004), Roberts (1992) and Stanwick and Stanwick (1998) provide results which support a profit-environmental reporting relationship. Roberts (1992) provide evidence for a positive relationship between lagged profit and environmental disclosure. Gray, Kouhy, & Lavers, (1995) and Hackston and Milne (1996) found no association between amount of disclosure and profitability. Hackston and Milne (1996:46) conclude that both size of the organisation and industry are significantly associated with amount of disclosure, whilst profitability is not. It is consistent with other studies as neither Davey (1982) nor Ng (1985) could find evidence of a relationship between environmental disclosure and profitability for New Zealand companies.

2.2.3 Auditor and Environmental Disclosure

The primary responsibility for preparing the annual report lies with company management; external auditors play a major role in the disclosure policies and practices of their clients. Ali, et. al. (2004) argue that large auditors exert a monitoring role in limiting the opportunistic behaviour by management. Fama and Jensen (1983) suggest that large audit firms have a greater incentive to report. If the client issues inadequate disclosure, this is likely to diminish the reputation of large audit firms more than small audit firms, which causes large audit firms to be more diligent. Previous research suggests that auditing firms that belong to the Big 4, Big 5 or Big6 (Big N) are more sophisticated or have better audit quality (Gupta & Nayar, 2007; Qiu, 2004) than non-Big N auditing firms. Higher quality auditor may help clients prepare more sophisticated annual reports with advanced financial and non-financial information, including environmental disclosures.

3. Methodology

This section is concerned with the research design, sources of data, instrument of data collection, population and sample of the study and method of data analysis. The population of this paper consists of all firms quoted on the Nigerian Stock Exchange as at 2011. These firms were chosen because the business activities of companies here impact negatively on the environment. For the purpose of our study the sample includes twelve randomly selected firms. For this study the Binary Probit technique was adopted due to its cherished properties of unbiasedness, inefficiency and consistency. Binary Probit regression is a technique for making predictions when the dependent variable is a dichotomy, and the independent variables are continuous or discrete. In order to determine the relationship among the variables, a model was specified. The model was adapted from (Jaggi and Zhao, 1996).

The model in its econometric form is presented below:

\[
EDSC = B_0 + B_1LEV + B_2ROE + B_3AUDIT + B_4SIZE + B_5IND + B_6OWN + Ut
\]
### Table 1: Operationalization of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>CODE</th>
<th>PROXIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Disclosure</td>
<td>EDSC</td>
<td>Environmental disclosure was measured using Short qualitative discussion (in the director’s report). Total quantity of environmental disclosure (number of sentences) for firm i at period t. Dummy variable was used. If the firm discloses any qualitative discussion we assign 1, otherwise 0.</td>
</tr>
<tr>
<td>Auditor</td>
<td>AUDIT</td>
<td>Big-4 audit firms (Dummy variable was used in measuring the external auditor. 1 was assigned if the external auditor is Big4 (KPMG, AWD, PWC, Ernst&amp;Young), or 0 for otherwise).</td>
</tr>
<tr>
<td>Firms Performance</td>
<td>ROE</td>
<td>Performance of the firms was measured using the returns on Equity (ROE)</td>
</tr>
<tr>
<td>Concentrated Ownership</td>
<td>OWN</td>
<td>The percentage of shares held by officers or directors within the company</td>
</tr>
<tr>
<td>Company Size</td>
<td>SIZE</td>
<td>Natural logarithm of total assets</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>LEV</td>
<td>Total debt to total assets</td>
</tr>
<tr>
<td>Industry</td>
<td>INDUST</td>
<td>The industry variable measured using a dichotomous variable equal to 1 if the firms is listed in industrial sector and 0 for service sector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$U_1$</td>
</tr>
</tbody>
</table>

### 4. Data Analysis

The descriptive statistics of the variables used in the study is presented below:

#### Table 2: Binary Logistic Regression Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>z-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-1.792421</td>
<td>0.455520</td>
<td>-3.934892</td>
<td>0.0001</td>
</tr>
<tr>
<td>LEV</td>
<td>0.014196</td>
<td>0.033532</td>
<td>0.423371</td>
<td>0.6720</td>
</tr>
<tr>
<td>ROE</td>
<td>0.100221</td>
<td>0.047406</td>
<td>2.114098</td>
<td>0.0345*</td>
</tr>
<tr>
<td>AUDIT</td>
<td>0.195075</td>
<td>0.302039</td>
<td>0.645860</td>
<td>0.5184</td>
</tr>
<tr>
<td>SIZE</td>
<td>3.85E-09</td>
<td>7.04E-09</td>
<td>0.547044</td>
<td>0.5843</td>
</tr>
<tr>
<td>IND</td>
<td>1.880907</td>
<td>0.426019</td>
<td>4.415079</td>
<td>0.0000**</td>
</tr>
<tr>
<td>OWNER</td>
<td>-0.001795</td>
<td>0.004968</td>
<td>-0.361411</td>
<td>0.7178</td>
</tr>
</tbody>
</table>

| McFadden R-squared | 0.301436 | Mean dependent var | 0.490000 |
| LR statistic       | 41.77585 | Avg. log likelihood | -0.484068|
| Prob(LR statistic)  | 0.000000 |

| Obs with Dep=0 | 51 | Total obs | 100 |
| Obs with Dep=1 | 49 |

Source: Researcher’s computation using Eviews 7.0

**significant at 1% level    * significant at 5% level
4.4 Discussion of Regression Result

From the results above the McFadden R-squared value from the binary logistic regression results shows that about 30 percent of the outcome of the dependent variable is explained by jointly by all the independent variables. LR statistic for the model revealed that it is statistically significant and valid in explaining the outcome of the dependent variable. The reported binary logistic regression model was based on Maximum Likelihood Huber/White Heteroskedasticity-consistent standard errors and covariance. This means that the regression results reported adjusted for any form of Heteroskedasticity problem which is commonly associated with cross sectional data. The Log likelihood Ratio with a value of 41.77 (with a P-value of 0.000) indicates that the overall model is statistically significant.

Financial leverage (LEV) was found to be statistically insignificant since the calculated Z-value of 0.42 is less than the critical z-value of 1.96 at 5% level of significance. The result showed a positive relationship with the probability for firm’s to disclose environmental audit information in it’s for stakeholders. This means increases in the debt of Nigerian firm decreases the likelihood for them to disclose environmental audit information. Firm’s Profitability (ROE) also appears to be a statistically significant since the calculated Z-value of 2.1 is greater than the critical z-value of 1.96 at 5% level of significance. The result showed a positive relationship with the probability for firm’s to disclose environmental audit information. This means that if the profitability of Nigerian firm increased they are likely to disclose more information which environmental items are inclusive. Firm Auditors Type (AUDIT) appears to be consistent with apriori expectation and but was statistically insignificant in explaining firm’s decision to disclose environmental audit information to stakeholders since the calculated Z-value of 0.64 is less than the critical z-value of 1.96 at 5% level of significance. The statistical insignificant relationship between the Big-4 auditing firms and the likelihood of Nigerian firms to disclose environmental information supported the views of Singvi and Desai (1971), Raffournier (1995) and Ginner (1997) that Big 4 or large auditing firms does not have any influence on firms’ disclosure decisions.

Firm Size (SIZE) was also found to be a statistically insignificant determinant of firm’s decision to disclose audit environmental information since the calculated Z-value of 0.54 is less than the critical z-value of 1.96 at 5% level of significance. The slope coefficients value which is consistent with apriori expectation suggests that holding other things constant, firms with large size are more likely to disclose environmental information to stakeholders. Industry Type dummy (INDT) appears to be consistent with apriori expectation and is also a statistically significant determinant of firm’s decision to disclose environmental information since the calculated Z-value of 4.4 is greater than the critical z-value of 1.96 at 5% level of significance. The slope coefficient of this variable suggest that Nigerian companies in industry were environmental pollution occurrence is high are more likely to disclose environmental information for it stakeholders.

Firm ownership concentration (OWNER) appears to be statistically insignificant in explaining the probability for Nigerian firms to disclose environmental information since the calculated Z-value of 0.36 is less than the critical z-value of 1.96 at 5% level of significance. The slope coefficients of firms ownership concentration suggests that increase in ownership concentration in Nigerian firms are likely to decrease the probability for firms to disclose environmental information. This means that most Nigerian firm’s owners do not encourage their firms to pay attention to social and environmental accountability. The result shows a negative association between size of a corporation and the amount of environmental disclosure which goes against the findings of (Prado-Lorenzo, Gallego-Alvarez and Garcia-Sanchez, 2009; Stanny and Ely, 2008; Ho and Taylor, 2007).
4.5 Diagnostic Tests

Diagnostic Tests
In order to ensure validity and reliability of the results we conducted some diagnostic test.

Serial Correlation Test
Table 3: Breusch-Godfrey Serial Correlation LM Test:

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>6.370695</td>
<td>Prob. F(2,91)</td>
<td>.5436</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>12.15866</td>
<td>Prob. Chi-Square(2)</td>
<td>.7423</td>
</tr>
</tbody>
</table>

The table above shows that the F-statistic and Obs*R-square values of 6.37 and 12.15 with p-values of 0.54 and 0.74 respectively indicates the absence of autocorrelation in model since the F-statistic and Obs*R-square with p-values of 0.54 and 0.74 are greater than the critical values at 5% level of significance. Thus, we can conclude that there is no presence of autocorrelation in the model.

Heteroskedasticity test
Table 4: Heteroskedasticity Test: ARCH

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>4.984948</td>
<td>Prob. F(1,95)</td>
<td>0.5279</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>4.836127</td>
<td>Prob. Chi-Square(1)</td>
<td>0.5639</td>
</tr>
</tbody>
</table>

Source: Researcher’s Computation (2013)
The table above shows that the F-statistic and Obs*R-square values of 4.98 and 4.83 with p-values of 0.52 and 0.56 respectively indicates the absence of heteroskedasticity in model since the F-statistic and Obs*R-square with p-values of 0.52 and 0.56 are greater than the critical values at 5% level of significance. Thus, we can conclude that there is no presence of heteroskedasticity in the model.

Ramsey Test
Table 5: Ramsey Test

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-statistic</td>
<td>0.864910</td>
<td>92</td>
<td>0.3893</td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.748070</td>
<td>(1, 92)</td>
<td>0.3893</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>0.801733</td>
<td>1</td>
<td>0.3706</td>
</tr>
</tbody>
</table>

Source: Researcher’s Computation (2013)
The table above shows that the F-statistic of 0.74 with p-values of 0.38 indicates that the model is correctly specified since the F-statistic with p-values of 0.38 is greater than the critical values at P > 0.05 level of significance. Thus, we can conclude that there is no misspecification of the model.

5. Conclusion and Recommendations
This study investigated the extent and content of environmental information disclosure provided in the annual reports of Nigerian quoted companies, and tested whether there was any
relationship between the amount of environmental disclosure and a corporate attributes. Environmental disclosures and reporting are improvements that have attracted much attention in corporate reporting around the world. A major challenge to reporting especially for firms in Nigeria whose activities have an impact on the environment is catching up with the global trend in corporate reporting. Most of the annual reports and accounts reviewed did not provide any environmental information as only qualitative information about the activities of the company were shown. Nigerian companies should identify and incorporate environmental information in their financial statements as this will be a valuable means of engaging stakeholders and enhancing mutual interest and priorities. We thus conclude that profitability and the industry type are the major determinants of environmental disclosure of firms quoted on the Nigerian Stock Exchange. This study therefore also supports the legitimacy theory because the results indicate that larger companies with more community concerns make more environmental disclosure than smaller companies. Hence it is recommended that there should be strict regulation since firms will only be compelled to comply if a penalty would arise due to non compliance. It is also recommended that it is necessary for companies to disclose environmental reporting in line with the international trend as these make them more competitive globally.

References


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