VALUE RELEVANCE OF ENVIRONMENTAL SUSTAINABILITY REPORTING: EVIDENCE FROM LISTED CONSUMER GOODS FIRMS IN NIGERIA AND GHANA

AKPOVETA Onajite Alexandra¹, Dr. Sunny, I. AGBOR², & Associate Prof. Mary JOSIAH³

¹, ², &³ Department of Accounting, Igbinedion University, Okada Edo State, Nigeria

Corresponding Author: AKPOVETA Onajite Alexandra
Corresponding Author Email: onajite.akpoveta@iuokada.edu.ng

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ABSTRACT

With the continuous rise in global warming, preparers of accounting reports are seeking for more environmentally responsive firms. As such, for such firms to be more value relevant, they must be environmentally responsive. Succinctly, the paper examined the value relevance of environmental sustainability reporting of listed consumer goods firms in Nigeria and Ghana. The various environmental sustainability proxies considered are: Gas flaring emission, energy consumption, and environmental review while value relevance was measured by market value. The study adopted the longitudinal research design. The study sourced data from 13 consumer goods firms in Nigeria out of the 21 consumer goods firms recorded as at 31st of December, 2022 and 7 consumer goods firms in Ghana out of the 10 consumer goods firms recorded as at 31st of December, 2022. The data spanned from 2013 to 2021 as stated in the Global Reporting Initiative (GRI). The study thus reported that, GAS flaring emission (coef. =0.310598 & p-value=0.0000, & energy consumption (Coef=0.450582; & p-value=) 0.0209 both exerted
positive significant effect on market value (MAV). However, environmental review (Coef.=0.011167; & p-value =0.7019) is still not value relevant. Hence, the paper concludes that, GAS flaring emission and energy consumption are value additive. Consequently, adequate laws should be put in place to compel oil firms to invest more on disclosure of the volumes of gas emission into the ozone layer. Lastly, all commitments aimed at preserving the natural environment must be properly documented in the financial statement by way of environmental disclosure.

**Keywords:** Value Relevance, Environmental Sustainability Performance, environmentally Responsive, Gas Flaring Emission.

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**INTRODUCTION**

Over time, there has been a growing concern for corporate entities to be more responsive to the needs of the environment. This is rationalized on the fact that the need for firm to respond to drastic climatic changes, environmental pollution, and emergence socially responsible and ethical investors (Nkwoji, 2021). As a result, companies, especially those that directly cause environmental pollution, e.g., oil and gas firms, manufacturing firms, mining firms, etc., are under enormous pressure to pursue their social and economic objectives in an environmentally responsible manner such that the environment's quality can be maintained with little to no harm and to deliver information concerning their environmental performance (Okudo & Amahalu, 2023).

According to Ehiedu and Eyamu (2023), the huge resources derived from these firms especially oil and gas firms are being controlled and mismanaged by privileged few government officials. This implies that only very small segment of the population benefits whilst vast majority wallows in abject penury as nothing or very little of basic infrastructures that enhance well-being of citizens are produced in the host communities. Most of the time in the pat oil communities had been provoked to embark on negative attitudes that have affected the stability of the oil companies’ production lines. This happened whenever the people felt that their natural endowed resources were being exploited yet neither the oil firms nor government fill concerned to make commensurate rewards. This is why past social unrests and violent protests between the communities and multinational oil companies in the Niger-Delta region were a direct off shoot of environmental degradations and neglect as the people discovered that they have been ripped off the benefits of resources found in their own land (Ogbonna et al., 2020). Over the years, it is no longer news that most people in the region live in squalor and often without basic amenities (Nkwoji., 2021).

The result is upsurge of violence normally orchestrated by community-based organizations aimed at attracting the attention of international communities (Ikpor, Ituma, & Okezie, 2019). At a time, the violence assumed worrisome dimension as the oil companies were reluctant to accept liability in their financial statements of any damages done to the environment. It is in the midst of the controversies that the study of environmental accounting emerged to address the growing concerns of the society in regards to environmental issues with a view to disseminating environmental information (Enekwe, Ugwudioha, & Uyagu, 2023). Thus, environmental accounting is seen as the channel through which the extent of commitment of the firms to the
environment and their stakeholders are made known to the public through their financial statements. This is why KPMG and United Nation Environmental Program Report (2006) cited in Ikpor et al (2019) opined that environmental accounting provides a common framework for firms to identify and account for past, present and future environmental costs so as to support and control public disclosure and management decision-making.

One propelling issue which informed the study is that, the aforementioned intense proposition made by accounting scholars, many business firms (especially those in the African economy) still exhibit high rate of neglect to the needs of the immediate environment. This has a result had led to riot which in turn has questioned the predictive power of the information that are disclosed by firms both in Nigeria and Ghana. Consequently, the paper examined the value relevance of environmental sustainability performance with emphasis on listed consumer goods firms in Nigeria and Ghana.

LITERATURE REVIEW

Conceptual Review

The term “environmental accounting” is a broad term which covers both national- and corporate-level environmental performance activities and associated stakeholder interactions. It includes the processing of both financial and nonfinancial information regarding ecological & environmental impacts (Oshiole, Elamah, Amahalu, 2020). Simply put, environmental suitability reporting is the practice of incorporating principles of environmental management and conservation into reporting practices and cost/benefit analyses (Omojolaibi, Okudo & Ndubuisi, 2021; Ezeokafor & Amahalu, 2019).

According to Attah-Botchwey, Soku, and Awadzie (2022) as stated in the GRI (2013), environmental sustainability standards cover topic-specific Standards used to report information on the extent a firm's material impacts affect the natural environment. This dimension is also called “green sustainability” or better still series 300. Its sub-components are as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Sub-components</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRI 301</td>
<td>Materials 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 302</td>
<td>Energy 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 303</td>
<td>Water and Effluents 2018</td>
<td>1st January, 2021</td>
</tr>
<tr>
<td>GRI 304</td>
<td>Biodiversity 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 305</td>
<td>Emissions 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 306</td>
<td>Effluents and Waste 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 307</td>
<td>Environmental Compliance 2016</td>
<td>1st July, 2018</td>
</tr>
<tr>
<td>GRI 308</td>
<td>Environmental Assessment 2016</td>
<td>1st July, 2018</td>
</tr>
</tbody>
</table>

Source: Attah-Botchwey et’al (2022); & GRI (2013)

Currently, it is widely believed that environmental-protection reporting constitute an effective and efficient way to understand environmental performance and environmental risks(Ighosewe, Uyagu, & Iyere, 2020). Worthy to note is that, the various environmental sustainability proxies are: material and energy consumption (fuel cost), reduction of electricity usage, carbon emission reduction, gallons of water saved, and increased waste diversion.
Meanwhile, accounting information is said to be of value relevant if such accounting information possess high predictive power. Accounting to Ighosewe (2022), accounting information is said to be of high value relevant if it has the capacity to influence the investment decision of the investor. As such, value relevant accounting information responds with changes in the market value (MV) of a firm’s stock. Broadly speaking, Nolan (2007) explains that, an accounting information is termed value relevant if it (1) has high predictive power: it can forecast future stock price; (2) is highly responsiveness to changes in stock prices; (3) it can record above normal market return (4) has the capacity of financial information to provide a summary measure of equity movements. Kothari (2001) stresses that, there are known two ways of measuring value relevance while the first approach is to determine if a corporate restructuring event like mergers, acquisition, earnings disclosure etc. react to movement in the stock prices or not, the other approach involves using the estimated regression model gotten from the association between the share price and the information which the firm discloses. However, the current paper is confined to using the market value of the firm as suggested by Ighosewe (2022)

**Theoretical Underpinning**

Normally, accountability theory, in particular, suggests that an organization has a duty to provide an account of the actions for which it is held responsible. Specifically, the paper hinges on the Gaia theory developed by James Lovelock in 1972. This theory posits that the effect of an organization’s activities upon externalities is the organization’s concern and hence a proper concern for accounting; organizations are accordingly accountable for any environmental and ecological impacts on the society in which they operate. As a critical theory, it thus represents a radical departure from economic-based assumptions (that underlie agency theory for instance).

**Empirical Review and Gaps Established**

Udeagha and Muchapondw (2023) examined the interplay between green finance (GFN) and financial technology in a carbon neutrality economy with specific focus on data from 1990 to 2020. The study controlled for energy innovation, natural resources rent, and economic growth. The study reaffirmed that, green finance initiative improves financial technology especially in a carbon neutral economy.

Wu (2023) studied the impact of renewable energy investment and investment in various renewable energy (geothermal, solar, hydropower, bio-energy, and wind power project) in economic co-operation and development (OECD) economics. The study spanned from 2001 to 2019. The generalized methods of moment (GMM) were adopted. The results confirmed that, green finance and renewable energy investment resources improved the performance of sampled countries.

Numan, Ma, Sadiq, Bedru, and Jiang (2023) studied the effect of green on economic performance of selected thirteen (13) countries from 2006 to 2020. The study Driscoll-Kraay standard error and robustness test models. The study confirmed that, technological innovations and green finance reduced the ecological footprint. The study reaffirmed that, economic complexities and political risk upsurge the ecological footprint.

Ighoreje and Ozigbo (2023) reported that, the more oil and gas firms are more responsible to the needs of the environment, the more the oil and gas companies achieve higher performance from 2011 to 2020.
In China, Bai, Chen, Yan, and Zhang (2022) evidenced that, green finance in Chinese provinces reduce carbon emissions from 2003 to 2019. Again, Alshater, Atayah, and Hamdan (2021) reported that, ‘sustainable finance’ improves financial performance from 2011 to 2020. Similarly, Geerts, Dooms and Stas (2021) evidenced that, institutional pressures are the major determinants sustainability reporting using the multidimensional approach (logistic regression). Again, Dzomonda and Olawale (2021) reported that, water sustainability (water consumption, kilometer saved for that year by the firm, total volume of water reused, total volume of water recycled, reduction in water use and rainwater harvested) improves financial performance of Johannesburg stock exchange (JSE). This is in tandem with the findings of Ifada, Indriastuti, Ibrani, and Setiawanta (2021). This result is in tandem with the findings of Abdul and Maha (2021) conducted among Asian firms from 2005-2017. It is also in line with the findings of Rosdiana (2020) on the influence of environmental performance on environmental disclosure from 2014 – 2017.

Amedu, Iliemena, and Umaigba (2019) studied if the information disclosed by Nigerian manufacturing firms are of high value relevant or not. The study anchored on sustainability reporting. The study sampled 13 manufacturing companies from 2010-2018 using the panel research Approach. The study reported that, both economic and social reporting are value relevant but environmental reporting is not value relevant since most of the sampled manufacturing firms did not disclose their involvement in environmental reporting. The above mixed findings paved way to the current study as it bring to the notice of the researchers that, prior studies are mainly focused on country-country approach with less or no attention on cross-country analysis. This is the crux of the matter. It is on this premise that, the study hypothesize: environmental sustainability performance is not value relevant both in the case of Nigeria and Ghana.

**METHODOLOGY AND DATA**

**Data**

The study adopted the longitudinal research design considering the fact that, the variables under investigation is considered over time. The various environmental sustainability proxies considered are: carbon emission, energy consumption, and environmental review while value relevance was measured by market value. These were sourced from 13 consumer goods firms in Nigeria out of the 21 consumer goods firms recorded as at 31st of December, 2022 and 7 consumer goods firms in Ghana out of the 10 consumer goods firms recorded as at 31st of December, 2022. The data spanned from 2013 to 2021 as stated in the Global Reporting Initiative (GRI). To properly streamline the sample, companies with missing values were excluded from the model and that, delisted companies during the periods were excluded as well, and we arrived at ten consumer goods firms in Nigeria and ten in Ghana.

**Operationalization**

The three (3) environmental sustainability reporting proxies were operationalized using the binary data approach such that if a company disclose either of the item is assume 1 otherwise record 0. Having used that approach, the index for each of the variables was arrived at. The three (3) environmental sustainability performance proxies were sourced from the GRI (2013) with reference to content analysis. Meanwhile, the share price of each company served as the market
value of the share. This was used as a measure of the value relevance of the information disclosed as stated by Ighosewe (2022).

Model Specification
The study adopted the Amedu, Iliemena, and Umaigba (2019) model. Hence, the adopted panel data model is expressed as:

\[ \text{MAV}_t = \beta_0 + \beta_1 \text{GASE}_t + \beta_2 \text{ENVC}_t + \beta_3 \text{ENVR}_t + \epsilon_t \]

Where:
- MAV\(_t\): Market value at time \(t\)
- GASE\(_t\): Gas flaring emission at time \(t\)
- ENVC\(_t\): Energy Consumption at time \(t\)
- ENVR\(_t\): Environmental Review at time \(t\)

RESULTS AND DISCUSSIONS

Preliminary Analysis
This section gives clear presentation of the trends of the variables under investigation. Specifically, before the main result was presented, some preliminary analysis was conducted which are stated thus:

Table 2
Descriptive Statistics and Correlation Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>MAV</th>
<th>GASE</th>
<th>ENVR</th>
<th>ENEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAV</td>
<td>0.4137</td>
<td>0.1799</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GASE</td>
<td>0.6392</td>
<td>0.1686</td>
<td>0.4076</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVR</td>
<td>0.6312</td>
<td>0.1704</td>
<td>0.3193</td>
<td>0.0384</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>ENEC</td>
<td>0.6335</td>
<td>0.1910</td>
<td>0.6726</td>
<td>-0.2096</td>
<td>0.0804</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Source: E-Views version 9.0 (2023)

Table 2 contains the Descriptive statistics on the key environmental sustainability performance variables. On average, the results suggest that, Gas flaring Emissions has the highest average value (mean=0.6392; SD=0.1686) followed by Energy Consumption (mean=0.6335; SD=0.1910). Meanwhile, the least is Environmental Review. By implication, it indicates that, consumer goods firms in both Nigeria and Ghana disclose more information on gas emissions and energy consumptions compared to other environmental sustainability dimensions. Again, the average market value is 0.4137 but varied by 0.1799. This implies that, the information disclosed had high predictive value.

Table 2 contains the correlation analysis on the key environmental sustainability performance. The study confirmed that, Gas flaring Emissions (\(r=0.4076\)), Energy Consumption (\(r=0.6726\)), and Environmental Review (\(r=0.3193\)) are positively related with value relevance proxy (market value). To test for multi-collinearity, the model introduced the Variance Inflation Factors and the Tolerance Value.

Rationalized on the above presentation, the robust result considered is presented herein:
Regression Estimate and Robust Tests

Table 3  
Regression Estimate and Robust Tests

<table>
<thead>
<tr>
<th>Method: Panel Corrected Standard Error Test</th>
<th>Sample (adjusted): 1 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 09/03/23 Time: 20:20</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
</tr>
<tr>
<td>C</td>
<td>1.741722</td>
</tr>
<tr>
<td>GASE</td>
<td>0.310598</td>
</tr>
<tr>
<td>ENVR</td>
<td>0.011167</td>
</tr>
<tr>
<td>ENEC</td>
<td>0.450582</td>
</tr>
<tr>
<td>Model Parameters</td>
<td>R-squared</td>
</tr>
<tr>
<td></td>
<td>F-statistic</td>
</tr>
<tr>
<td>Model Diagnostic Tests</td>
<td>Durbin-Watson statistics</td>
</tr>
<tr>
<td></td>
<td>Hausman Test (P-Value)</td>
</tr>
<tr>
<td></td>
<td>Ramsey Reset Test (P-Value)</td>
</tr>
<tr>
<td>Average VIF</td>
<td>1.8907</td>
</tr>
</tbody>
</table>

Source: E-Views version 9.0 (2023)

From the regression estimate presented in table 2, the R-Squared and Adjusted R-Squared both that, the model is fit while the Durbin-Watson statistics of 2.1192 suggests no serial correlation was recorded. Again, Hausman Test (P-Value) proved that, the Random Effect model is Okay for the analysis but to ensure that, the model is highly predictive, the model was panel corrected. Further, the RRT confirmed that, the model is well-specified.

The study affirmed that, environmental sustainability is value relevant both from the Nigerian perspective and the Ghanaian perspectives. Specifically, GASE (coef. =0.310598 & p-value=0.0000, & ENVC (Coef=0.450582; & p-value=) 0.0209 both exerted positive significant effect on market value (MAV). However, ENVR (Coef.=0.011167; & p-value =0.7019) is still not value relevant. This clearly revealed that, environmental sustainability has the capacity to influence the investment decisions of quoted consumer goods firms in the periods under investigation. This clearly justified that, that, green financing if sustained has the capacity to improve the investment decisions of Nigerian and Ghanaian investors. This further suggests that, the government of Nigeria need to ensure that, the rising gas emission into the ozone must be accounted for. Again, there is need for the African government to ensure that, quoted firms are more environmentally responsive. Lastly, the study confirmed that, the problem is the review. This outstanding finding is in tandem with Udeagha and Muchapondwa (2023); Wu (2023); Numan, Ma, Sadiq, Bedru, and Jiang (2023); Ighoreje and Ozigbo (2023); Bai, Chen, Yan, and Zhang (2022); Amedu, et’al  (2019).

CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

The study affirmed that, with the continuous rise in global warming, management of firms are seeking for more environmentally responsive firms. As such, for such firms to be more value relevant, they must be environmentally responsive. Based on the various outcomes recorded, the study concludes that, GAS flaring emission and energy consumption are both value additive. Consequently, adequate laws should be put in place to compel oil firms to invest more on disclosure of the volumes of gas emission into the ozone layer. This would help to bring in the
cautiousness of Nigerian on the constant oil spillage. Also, all commitments aimed at preserving the natural environment must be properly documented in the financial statement by way of environmental disclosure. The policy makers in government should enforce the inclusion of ESGs reports in the annual reports. This will makes the sustainability reporting a compulsory report rather than a voluntary disclosure.

Despite the outstanding results, this research has limitations. Due to data limitations, only two African countries were considered. As such, future researches are advised to include other African countries like Kenya and South Africa. This would give a more robust view on the matter. Again, future studies may also add CEO personal trait into the model as a mediating variable. This is with a view to determine the extent to which add CEO personal trait mediate between environmental sustainability performance and value relevance of disclosed information.

References


