Effect of Sustainability Environmental Cost Accounting on Financial Performance of Nigerian Corporate Organizations

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Abstract
This paper assesses the effect of sustainability accounting measure on the performance of corporate organizations in Nigeria. Ex post facto research design and time series data were adopted. Data for study was collected from annual reports and accounts of the company in Nigeria. Formulated hypotheses were tested using Regression Analysis with aid of SPSS Version 20.0. Based on the analysis, the study found that environmental cost does not impact positively on revenue of corporate organizations in Nigeria, also that environmental cost impact positively on profit generation of corporate organizations in Nigeria. Based on this the researcher recommends that Indigenous and multi-national firms should ensure that strict policies as regards environmental accounting are adhered to, in order to enable stable organizational performance.
Key words: Sustainability, Environmental cost and corporate financial performance

Introduction

For over three decades many companies have been working hard to ensure transparency, accountability and communication practices that should enhance sustainability. Corporate sustainability reporting seems the most effective means of communication by some companies to their environment. Some have long reporting histories which starts in the field of health, safety and environmental reporting; whereas others have recently produced their first sustainability or 'triple bottom line report', or are considering producing one in the near future. As regards business' efforts to disclose such information, professionals have been making effort to discover new area or direction in which corporate sustainability reporting can be channeled (Okoye, Oraka & Ezejiofor, 2013).

It became one of the foremost issues on the agenda of nations and business earlier in the 1990s and the reasons for this were varied emanating from both within and outside of the firm and particularly at the global level (Okoye & Ngwakwe 2004).

The need for sustainability reporting and financial performance reporting has some practical potential in providing a great exposure of the company's activities and consequently casting light on what is seemed

obscure to both governmental and concerned social groups. Corporate sustainability has grown to be an important concept over the last decades. Even with the effects of the financial crisis, it has remained an important business objective for corporate managers (Deegan and Unerman, 2008). As the number of social and sustainability reports produced by the business community continues to increase, it has been accompanied by growing concern about their value for both companies and their stakeholders. Such reservations have been accentuated by growing associated costs and a surge of reporting standards, guidelines and awards. These initiatives, together with the activities of leading companies, have effectively enhanced the scope and technical quality of public reports.

It is also important to recognize that transparency and performance is not the only possible problem of corporate reporting in this area, but rather its future prospects for sustainability and development. Indeed, it is possible that such reporting can even result to negative effects and further liability consequences between the company and its environmental activities. Also, companies are interested in the possibilities for environmental reporting affording them increased legitimacy and spread in the wider world. The wide range of powerful external forces driving sustainability may soon nudge its evolution into a full-blown revolution. As the development of sustainability programs continues, companies with the structure and intent necessary to integrate sustainability capabilities deeper into their organizations and cultures will be in the driver's seat (Shelly, Fust & Lisa, 2007).

Nowadays, oil companies cause a lot of environmental problems because of profit maximization, the endless needs, rapidly advancing technological developments, unconscious consumption of natural resources, as they execute their operations. At first glance, these efforts in order to remove environmental pollution mean additional cost to companies in the short term nevertheless they can have a chance of cost minimization in medium and long term and even additional income in this process (Hasan & Hakan 2012).

Much research has been done on sustainability accounting and corporate performance in deferent perspectives with different reactions such like Bassey, Oba and Onyah (2013); Okoye, Oraka & Ezejiofor, (2013); Schaltegger and Wagner (2006); Okoye and Ezejiofor (2013); sayedeh, and saudah (2014); Lee, Pati & Roh (2011); Kasum and Osemene (2010) and Mehenna and Vernon (2004). For corporate organizations to develop environmental cost responsiveness and to disclose in annual financial report environmental information has become imperative. The conventional approaches of cost accounting have become inadequate since conventional accounting practices have ignored important environmental costs and activities impacting consequences on the environment. Corporate neglect and avoidance of environmental costing leave gap in financial information reporting (Bassey, Obal & Onyah, 2013).

This however attracted the interest of the researchers to narrow the study to determine the effect of sustainability environmental cost measures of the two selected corporate organizations in Nigeria.

Objective

1. *To determine the effect of sustainability environmental cost on the revenue of the corporate companies in Nigeria.*

2. *To determine the effect of sustainability environmental cost on the profit of the corporate companies in Nigeria.*

Hypotheses (Null)

1. H_O: *sustainability environmental cost does not impact positively on the revenue of the corporate companies in Nigeria.*

2. H_O: *sustainability environmental cost does not impact positively on the profit of the corporate companies in Nigeria.*

Conceptual Framework

Sustainability

Conventional financial reporting has been premised on the notion that, although a number of identifiable user group exist, the primary concerns of financial statements are shareholders, prospective investors and financial intermediaries (FEE, 2000). Friedman (1962) claimed that the only responsibility of business is to make profits and traditional financial statements principally report on shareholders at the detriment of other stakeholders.

Okafor (2010) stated that environmental accounting is a general term which may mean the integration of environmental dimension into the macro or micro level despite that it is more applicable to the latter level. Environmental Accounting which calls to introduce a system that supports Sustainable Development (SD), has many meanings and uses. Environmental Accounting can support national income accounting, ecological accounting at local administration level and at micro level related to financial accounting, cost accounting or internal business managerial accounting (Ahamid, 2002).

However, Environmental Accounting can be used both in accounting and management which can be relates to environmental performance then the information can be forwarded to both internal and external stakeholders in organization. According to Graff et al, (1998), environmental accounting is a broad based term that refers to the incorporation of environmental costs and information into a variety of accounting practices. It is a growing field that identifies measures and communicates costs from a company's actual or potential impact on the environment (Okafor, 2010). Environmental accounting can be considered either as a subset or superset of accounting proper, because it aims to incorporate both economic and environmental information. It provides reports for both internal use, generating environmental information to help make management decisions on pricing, controlling overhead and capital budgeting, and external use, disclosing environmental information of interest to the public and to the financial community. Internal use is better termed environmental management accounting (Bartolomeo et al, 2000).

Hansen and Mowen (2000) defined environmental costs as costs associated with the creation, detection, remediation and prevention of environmental degradation At AT & T, according to the US EPA (1995), Green Accounting or Environmental Accounting is defined as: Identifying and measuring the costs of environmental materials and activities and using this information for environmental management decisions. The purpose is to recognize and seek to mitigate the negative environmental effects of activities and system. Howes (2002) defines Environmental Accounting as: The generation, analysis and use of miniaturized environmentally related information in order to improve corporate Environmental and economic performance. In the opinion of Howes, Environmental Accounting does not only focus on internal and external environmental accounting but links environmental and financial performance more visibly. Environmental accounting assists in getting environmental sustainability embedded within an organization's culture and operations. The aim is to provide decision makers with the information that enable the organization to reduce costs and business risks and to add value (Ibemgbor, 2011).

According to Nagle (1994), on environmental accounting reveals that corporate manager is placing high priority on environmental accounting. Environmental accounting as a prevalent subject in the international community is not yet a priority in Nigeria. Field and Field (2002), explain pertinent aspect of environmental degradation and costs as those including emissions into the air, water and land. Also, aspects of untreated domestic waste outflows into rivers and coastal oceans, quantities of solid waste that must then be disposed of, perhaps through land spreading or incineration. Pollution include Airborne SO_2 emissions from power plants by stack-gas scrubbing which leaves a highly concentrated sludge and degradation which incorporates midnight dumping, illegal dumping along the sides of roads or in remote areas (Ibemgbor, 2011). In Nigeria, some of the sampled companies were seen to seriously pollute the environment in their production process. It was seen that some firms discharge waste into public highways, streams and rivers. Some oil companies and chemical companies in Lagos and Port Harcourt still flare gas into the air. It was also discovered that some of the streams were already contaminated in those areas (Ibemgbor, 2011).

Sustainability measurement

This is the quantitative basis for the informed management of sustainability. The metrics used for the measurement of sustainability (involving the sustainability of environmental, social and economic domains, both individually and in various combinations) are still evolving: they include indicators, benchmarks, audits, indexes and accounting, as well as assessment, appraisal and other reporting systems. They are applied over a wide range of spatial and temporal scales.

Environmental Measures

Environmental variables should represent measurements of natural resources and reflect potential influences to its viability. It could incorporate air and water quality, energy consumption, natural resources, solid and

toxic waste, and land use/land cover. Ideally, having long-range trends available for each of the environmental variables would help organizations identify the impacts a project or policy would have on the area. Specific examples include:

- Sulfur dioxide concentration
- Concentration of nitrogen oxides
- Selected priority pollutants
- Excessive nutrients
- Electricity consumption
- Fossil fuel consumption
- Solid waste management
- Hazardous waste management
- Change in land use/land cover

Theoretical Framework

Stakeholder theory

In summary, stakeholder theory views corporations as part of a social system while focusing on the various stakeholder groups within society (Ratanajongkol, Davey, & Low, 2006). According to Gray et al. (1996), stakeholders are identified by companies to ascertain which groups need to be managed in order to further the interest of the corporation. Stakeholder theory suggests that companies will manage these relationships based on different factors such as the nature of the task environment, the salience of stakeholder groups and the values of decision makers who determine the shareholder ranking process (Donaldson & Preston, 1995).

This study however anchored on this theory, the stakeholders theory states that "those whose relations to the enterprise cannot be completely contracted for, but upon whose cooperation and creativity it depends for its survival and prosperity" (Slinger & Deakin, 1999). Stakeholder theory explains specific corporate actions and activities using a stakeholder-agency approach, and is concerned with how relationships with stakeholders are managed by companies in terms of the acknowledgement of the society where they operates.

Empirical Review

Quite number of studies has been carried out on environmental sustainability accounting on companies in different countries. In a study on Sustainability and Firm Performance: A Case Study of Japanese Electronics Companies by Cortez, et al (2011). This study explores the impact of environmental innovations on financial performance of Japanese electronics companies following the growing literature linking

corporate social performance with profitability. Using sample electronics companies listed in the Tokyo Stock Exchange, this industry case study focuses on the global manufacturing leaders as they play a significant role in advancing environmental reporting due to their supplier networks and subsidiaries. We initially investigate if sustainability performance of electronics companies positively impacts financial performance following the resource-based view perspective. Their findings point to risk minimization efforts of electronics companies in spite of declining profitability.

Bassey, Oba & Onyah (2013). Their study was set out to critically analyze the extent of implementation of environmental cost management and its impact on output of oil and gas companies in Nigeria from 2001 to 2010. The paper was aim at ascertaining the extent to which implantation of environment cost management has impacted on the oil and gas industries in Nigeria. The study used multiple regression analytical technique. Findings revealed that there is a significant relationship between the parameters that influence environmental cost management and output of oil and gas produced in Nigeria. Also, it was discovered that there are no established standards in Nigeria guiding environmental cost management in the oil and gas industries in Nigeria.

In another line of the study by Schaltegger and Wagner (2006) on managing and measuring the business case for sustainability; capturing the Relationship between Sustainability Performance, Business Competitiveness and Economic Performance. This introduction provides an overview of the subject of this book, namely how to manage the business case of sustainability. After providing a basic structure of how environmental and social management link to economic success through a number of pathways, various theoretical, empirical and normative approaches to analyze the subject are introduced. Subsequently, the basic link between sustainability performance, competitiveness and economic success is discussed, introducing an inversely U-shaped relationship as a generic case. The chapter then presents the logical corollary of how to measure sustainability performance, business competitiveness and economic success conceptually and empirically, before introducing a framework for the interaction of factors explaining the relationship of sustainability performance and competitiveness.

In a study by Okoye and Ezejiofor (2013) on "appraisal of sustainability environmental accounting in enhancing corporate productivity and economic performance", their paper assesses the appraisal of Sustainability environmental accounting in enhancing corporate performance and economic growth. This study reviewed various forms including journal papers, articles and other relevant materials. This paper analyzed and tested two hypotheses with Pearson Product Movement Correlation Co-efficient. The study discovered that sustainable environmental accounting has significant impact on corporate productivity in order to enhance corporate growth.

Enahoro (2009) assessed the level of independence of tracking of costs impacting on the environment; level of efficiency and appropriateness of environmental costs and disclosure reporting. The research instruments

utilized in the study were primary data survey and secondary data elucidation. For this purpose, cross-sectional and longitudinal content analyses were carried out. The test statistics applied in the study were the t-test statistics, Pearson Product-Moment correlation tests, ANOVA, and Multivariate Linear Regression Analysis. The study investigated best practice of environmental accounting among companies currently operating in Nigeria. Findings are that environmental operating expenditures are not charged independently of other expenditures. There is also, absence of costing system for tracking of externality costs. Environmental accounting disclosure does not however, take the same pattern among listed companies in Nigeria.

In a study on the Impact of Environmental Accounting and Reporting on Sustainable Development in Nigeria by Beredugo and Mefor, (2012). The study evaluated the relationship between environmental accounting and reporting and sustainable development in Nigeria. Pearson correlation coefficient and OLS were used for data analyses, and was discovered that there is a significant relationship between environmental accounting and reporting and sustainable development; that with environmental accounting encourage organizations to track their GHG emissions and other environmental data against reduction targets, and there are consequences for noncompliance with environmental accounting and reporting.

In a related study by sayedeh, and saudah (2014), a proposed model of the relationship between environmental management accounting and firm performance. Moreover, the experimental findings are quite controversial, and there is no universal agreement about the actual impact of EMA on firm performance. This is because while the positive relationship between EMA and firm performance has been obtained in most studies, some studies have still found a negative or neutral relationship. The third obvious finding is that most studies on environmental management practices have been carried out in developed countries based on European and us data. However, far little attention has been paid to such studies in developing countries.

On the study Mehenna and Vernon (2004). Environmental accounting: an essential component of business strategy. The paper examining the integration of environmental policy with business policy is the focus of this research. The paper found that the business firm's strategy includes responding to capital and operating costs of pollution control equipment. This is caused by increasing public concerns over environmental issues, and by a recent government-led trend to incentive-based regulation.

In another paper by Lee, Pati & Roh (2011) on the relationship between corporate sustainability performance and tangible business performance: evidence from Oil and Gas industry. Hierarchy regression analysis was utilized to study the relationship between a firm's business performance with respect to various dimensions of accounting and marketing based performance as well as the sustained growth rate. Although the focus of this study was on the significant relationships between the CSP measured in terms of PSI and TBP, it also explored how other business strategic factors, such as firm size, manufacturing cost efficiency, capital intensity, debt leverage and labor productivity are linked to the firm's economic performance. The

study concludes that PSI and Research and Development (R&D) Intensity are major determinants of business performance in the Oil and Gas Industries across countries.

Kasum and Osemene (2010) Sustainable Development and Financial Performance of Nigerian Quoted Companies. The study was against the background that sustainable development practices usually involve financial outflows and hence, may be an unattractive investment to managers. They evaluated the impact of corporate compliance to accounting standards that are deemed to enforce sustainable development practices and can, therefore, imply sustainable development practices by companies, on the result of operations of companies. The study discovered that sustainable development practice of companies is rarely associated with financial performance over the years studied.

Summary

quite a few studies have argued in favor of a positive relationship between sustainability and financial performance on the grounds that it improves employee and customer goodwill, creates economic benefit through a firm's improved standing with its constituencies such as government, banks, and other stakeholders (McGuire et al., 1988), and enhanced social image and reputation (Edwards, 1998; Hart and Ahuja, 1996; Waddocks and Graves, 1997) by taking more social responsibility for environmental issues.

In fact, one of the reasons for inconclusive results on the study of corporate sustainability and performance indicators might be due to conflicting proxy of performance measures. This study is being motivated by limited study that carried out on sustainability measures in Nigerian corporate organization with emphasis on their financial statement.

Research design

Due to the nature of the study, ex post facto research design and time series data were adopted. This involves use of financial report for the period, 2009-2013. The researcher used simple sampling technique to select two the manufacturing companies in Nigeria.

Method of Data Analysis

Hypotheses formulated for the study were tested with the regression analysis for opinion differences, using the Statistical Package for Social Sciences (SPSS) version 20.0 software package.

Decision rule:

Using SPSS, 5% is considered a normal significance level. The accept reject criterion was based on the computed F-Value.

If F-value is equal or greater than "Sig" value there is significant interaction effect or significant difference i.e. F-value ≥ sig value we reject Null and accept alternate hypothesis.

Data Analysis
Table 4.1.1 Revenue extracted from the company's annual reports and accounts

	2013	2012	2011	2010	2009
Guinness Plc	122,463,538	116,461,882	123,663,125	109,366,975	89,148,207

Mobil Oil	438,255,000	80,801,947	486,429,000	58,343,069	62,032,058

Source: Annual Report & Account, 2009 to 2013

Table 4.1.2 Profit extracted from company's annual reports and accounts

	2013	2012	2011	2010	2009
Guinness Plc	17,008,875	20,383,158	26,176,966	19,988,735	18,991,762
Mobil Oil	5,771,100	4,076,549	7,325,700	5,721,728	4,066,153

Source: Annual Report & Account, 2009 to 2013

Table 4.1.4 Environmental cost extracted from company's annual reports and accounts

	2013	2012	2011	2010	2009
Guinness Plc	35,079,000	139,133,598	50,000,000	77,900,000	187,068,620
Mobil Oil	6,012,000	5,512,000	4,884,000	4,200,000	3,976,000

Source: Annual Report & Account, 2009 to 2013

Test of Hypotheses

Hypothesis One (Null)

H_O: *Sustainability environmental measure does not impact positively on the revenue of the corporate companies in Nigeria.*

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10042457733933210.000	1	10042457733933210.000	4.998	.111[b]
	Residual	6028132009471290.000	3	2009377336490430.000		
	Total	16070589743404500.000	4			

a. Dependent Variable: Environmentalcost

b. Predictors: (Constant), Revenue

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	177005626.071	38794986.514		4.563	.020
	Revenue	-.220	.098	-.791	-2.236	.111

a. Dependent Variable: Environmentalcost

Decision: If F-value is equal or greater than "Sig" value there is significant interaction effect or i.e. F-value ≥ sig value we reject Null and accept alternate hypothesis. The F-value indicates greater value than the sig-value (4.998<.111), this shows that cost of maintaining environment impact positively on profit realised of these companies in Nigeria, this means that increase or decrease in the environmental cost may not affect negatively the profit incurred by these companies. Therefore we accept alternative hypothesis and reject null hypothesis which uphold that sustainability environmental measure impact positively on the revenue of the corporate organizations in Nigeria.

Hypothesis Two (Null)

H_O: *Sustainability environmental measure does not impact positively on the profit of the corporate companies in Nigeria.*

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29508122981117110.000	1	29508122981117110.000	.675	.472ᵇ
	Residual	13119777445287390.000	3	4373259148429130.000		
	Total	16070589743404500.000	4			

a. Dependent Variable: Environmentalcost
b. Predictors: (Constant), Profits

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	262352749.717	196533953.063		1.335	.274
	Profits	-6.162	7.501	-.429	-.821	.472

a. Dependent Variable: Environmentalcost

Decision: If F-value is equal or greater than "Sig" value there is significant interaction effect or i.e. F-value ≥ sig value we reject Null and accept alternate hypothesis. The F-value indicates greater value than the sig-value (.675<.472), this shows that cost of maintaining environment impact positively on assets of these companies in Nigeria; this means that the increase or decrease in the cost of environment may not affect the profit of the company negatively. Therefore we accept alternative hypothesis and reject null hypothesis which uphold that sustainability environmental measure impact positively on the profit of the corporate companies in Nigeria

Conclusion

This paper assesses the effect of Sustainability Environmental Measure on Performance of corporate organizations. Nevertheless, the present study was able to demonstrate significant effects of sustainability policies, strategies and operations on both sustainability impacts and financial performance. It was observed that there are no standards guiding environmental cost management in the oil and gas industries in Nigeria. However, the study revealed that environmental measure impact positively on revenue and profits of the corporate organizations in Nigeria. Thus, companies take their responsibility vis-à-vis the sustainable development into account by decreasing their negative environmental impacts through the implementation of environmental policies, strategies and operations, as called for by Bazin (2004). This holds also for the social field, suggesting that companies respect the social dimension of the way in which they conduct their business.

This is consistent with the findings of Judge (1998), whose results also showed that it made sense to analyze the non-financial performance of companies based on GRI guidelines. Thus, using analyses similar to those performed, rating systems could be created that rate companies on the basis of their economic, environmental, social and corporate governance performance with these ratings being used to predict their financial performance.

Recommendations

Based on the conclusions above, the researcher made the following suggestions:

1. There is need to enforced sustainability accounting since environmental cost accounting is committed to improving organizational performance and contributed to the development of corporate firms in Nigeria.

2. Indigenous and multi-national firms should ensure that all the strict policies as regards environmental accounting are adhered to in the curse of their operation.

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