UNIPORT JOURNAL OF BUSINESS, ACCOUNTING & FINANCE MANAGEMENT
DEPARTMENT OF ACCOUNTING
UNIVERSITY OF PORT HARCOURT, CHOBA
PORT HARCOURT, RIVERS STATE
NIGERIA
VOL. 12 NO. 1 MARCH 2021

ENVIRONMENTAL ACCOUNTING PRACTICES AND FIRM VALUE OF QUOTED MANUFACTURING COMPANIES IN NIGERIA

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Abstract

This study examined the effect of environmental accounting practices on firm value of quoted manufacturing companies in Nigeria. The study adopted ex-post facto research design and considered a population of 34 manufacturing firms listed on Nigerian Stock Exchange as at 31st December, 2019. The study selected a sample size of 11 companies (that is, 9 consumer goods companies and 2 industrial goods companies) with the used of purposive sampling technique. Descriptive and inferential statistics were carried out. The result of pooled OLS was most appropriate to estimate the model and the result reveals that environmental accounting practices with the conyrol effect of company size has significant effect on firm value of manufacturing companies in Nigeria. The study recommends that quoted manufacturing firms should intensify efforts in compliant with requirements of Global Reporting Initiatives (GRI) for environmental accounting practices.
Keywords: Environmental accounting practices, firm value, manufacturing companies.

Introduction

For about two decades now, the relationship between environmental practices and firm performance has been of interest to researchers (Che-Ahmad, Osazuwa, Mgbame, 2015). Likewise, managements of firms are concerned about generating returns on investment for shareholders as their primary responsibility while remaining relevant to the society (Brooks & Oikonomou, 2018). However, the cost of environmental practices should be factored into firm`s cost and not considered as opportunity cost towards profitability. Environmental practices encompass all practices of firm driven towards the reduction of environmental impacts of business activities. The practices involves the use of less natural

resources, less water, less material and less energy which will result to reduction in the waste produced and lower running cost for businesses (Chukwuka & Eboh, 2018).

Among the economies of the world, the emerging economies are faced with higher percentage of environmental problems (Chukwuka & Eboh, 2018). In the past, the environment was taken for granted by many people including the Niger Delta region of Nigeria, and the environment was viewed to be a limitless source of natural resources (Dike & Leyira, 2018). In recent years, people now have a different perception about the environment as limited in natural resources and absorption of waste (Che-Ahmad, Osazuwa & Mgbame, 2015). This awareness about the environment has created demand for more information that highlight the relationship between organizations and the environment.

Many organizations have integrated environmental concerns in making decisions as response to the recent demand for more information. Organizations are expected to prepare annual report to contain information about their operations and performance to be disclosed to their shareholders and stakeholders (Oyedokun, Egberioyinemi, Tonademukaila, 2019). The transparency and disclosure of information in annual reports are critical element of good corporate governance framework and provide the basis for stakeholders` decision making. Potential and existing investors need high quality environmental accounting information to make investment decisions, as well as assess the risks and returns of firms (Oyedokun, Egberioyinemi, Tonademukaila, 2019).

Disclosure of high quality environmental practices indicates the extent to which organizations comply with ethical and legal requirements. In Nigeria, the use of natural resources is indispensable just as its consequences. The value of firm is an economic model that measures the interest of all shareholders and stakeholders of an organisation. The environmental resources used and environmental accounting practices affect the performance and value of firms. According to Global Reporting Initiatives (GRI) and KPMG report, about 80 per cent of the world largest 250 companies now issue sustainability reports to provide information on environmental practices.

However, there`s still debate as to whether investors attach value to the disclosure of environmental and sustainability practices (Chamaiporn, Parichart & Sampan, 2017). This is not farfetched from the costs associated with disclosure of environmental practices including the cost of data collection, compilation of information, cost of writing and publication of reports. The cost of environmental practices could serve as distraction to management in maximizing shareholders wealth. Therefore, this study examined the effect of environmental accounting practice on firm value of quoted companies in Nigeria.

Research Hypothesis

Ho: Environmental accounting practice does not have significant effect on firm value of quoted manufacturing companies in Nigeria.

Literature Review

Environmental Accounting Practices

Environmental accounting practices incorporate measures of natural resources and reflect the influence of organizational activities on them. It includes energy consumption, solid and toxic waste, water and air quality, and compliance with environmental laws (Ezejiofor, John-Akamelu & Eucharia, 2016). According to Morelli (2011), an organization that is environmentally concerned will create a condition of balanced and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of the ecosystem nor diminishing the biological diversity. Activities carried out

by firms in their environment usually result to environmental costs. The environmental costs arise due to use of environmental resources, environmental pollution and protection of the environment (Ezeagba, John-Akamelu & Umeoduagu, 2017).

The issue of accounting for environmental costs has both local and international standards backing it up such as National Environmental Standards and Regulations Enforcement Agency (NESREA) and Global Reporting Initiatives (GRI) respectively (Taiwo & Owolabi, 2019). The performance of companies are no longer measured based on its profitability alone rather accounting for environmental issues are now paramount (Falope, Offor & Ofurum, 2019). Accounting for environmental practices serves the purpose of improving the environmental performance of companies. Also, accounting for environmental practices provides information on environmental resources and their impacts in the performance and value of firms (Ezeagba, John-Akamelu & Umeoduagu, 2017).

Environmental accounting practice is the generation of non-financial information as related tp environmental practices in addition to the conventional financial accounting. Environmental accounting practice is a tool for disclosing environmental costs and practices to the stakeholders (Falope, Offor & Ofurum, 2019). Environmental accounting practices including the disclosure of information about waste treatment, production of quality products, emission reduction, treatment of water, conservation of energy reduction of pollution, reuse of material and compliance with environmental laws (Taiwo & Owolabi, 2019).

Firm Value

Firm value represents the prosperity of business owners. The management of firms has the responsibility of maximizing the wealth of shareholders optimally (Oyedokun, Egberioyinemi & Tonademukaila, 2019). The firm value is an indicator of how successful the shareholders are, thus, high firm value represents wealthy firm and maximization of shareholders` wealth. Investors observe a firm based on its value, hence, firm value is relevant to stock price. Environmental accounting practices can be refer to as one of the strategies to creating firm value in the long run for stakeholders (Haryono, Iskandar, Paminto & Ulfah, 2016). The increasing awareness of the benefits of environmental responsibility has prompt investment institutions to consider environmental responsibility as one of the factors for investments.

According to signaling theory, the disclosure of information on environmental responsibility communicates the environmental impacts of economic activities of firms to stakeholders. The focus on environmental responsibility can enhance the shift from short term costs to be incurred by firms to environmental activities and cost that can bring sustainable benefit to the organization (Ezeagba, John-Akamelu & Umeoduagu, 2017).

Regulations for Environmental Accounting Practices

There are agencies and ministry established in Nigeria to protect and conserve the environment. In 1988, an agency called Federal Environmental Protection Agency (FEPA) was established in Nigeria to oversee the use and protection of environment in Nigeria. However, in 1999, FEPA was merged with some other agencies to Federal Ministry of Environment. The ministry was established without am enabling law, thus, the establishment of National Environmental Standards and Regulations Enforcement Agency (NESREA) to fill the gaps (Acti, Lyndon & Bingilar, 2013). Apart from the local regulation of the environment in Nigeria, Global Reporting Initiative (GRI) guideline is an international guideline that guides firms in the disclosure of sustainability practices including

environmental responsibilities. The guigeline serves as international reference for firms by providing the indicator to be reported under the environmental responsibility (Taiwo & Owolabi, 2019).

Theoretical Framework

Stakeholder Theory

Stakeholder theory was propounded by Freeman (1984).and the theory assumes that a firm has an active role to play in satisfying a range of continents that can influence its outcomes. Stakeholder theory sees organisation as a system that can accommodate the interest of shareholders and stakeholders within the environment. Also, the theory holds that the success of a firm depends on its ability to successfully manage the relationship it has with its stakeholders (Ezeagba, John-Akamelu & Umeoduagu, 2017). The stakeholders include potential and existing shareholders, employees, customers, government agencies, communities and suppliers.

Since an organization cannot exist in isolation, it is not good for a firm to focus on the interest of the shareholders alone and neglect the other stakeholders` interests (Popa, Blidisel & Bogdan, 2009). This implies that it will be beneficial to the firm to engage in practices that will be perceived important by all the stakeholders. The success of a firm as measured by its value can be enhanced by practicing environmental accounting. Companies should carry out environmental accounting practices as a way of fulfilling their ethical and social obligations to stakeholders. The ability of a firm to manage its firm-stakeholders` relationship will ensure its survival and value on the long run.

Empirical Review

Gunathilaka, Gunawardana and Pushpakumari (2015) reviewed 130 qualitative and quantitative existing studies that examined the effect of environmental practices on financial performance of firms. The study observed that there is inconsistency in the results of the studies reviewed as outcomes from the studies ranges from positive, negative, significant, insignificant to inconsistent. Li, Gong, Zhang and Koh (2018) opined that positive relationship exists between disclosure of environmental, social and governance sustainability performance and firm value. This suggests that improved transparency and accountability enhanced value of companies. Similarly, Che-Ahmad, Osazuwa and Mgbame (2015) concluded that the practice of environmental accounting significantly improves the profitability of firms in Nigeria.

Conversely, Deswanto and Siregar (2018) found that negative relationship exist between environmental disclosure and market value ofcompanies listed on Indonesia Stock Exchange. Also, Ezeagba, John-Akamelu and Umeoduagu (2017) examined the effect of environmental accounting disclosure on corporate performance of food and beverage firms in Nigeria. The study that environmental accounting disclosure has significant effect on earnings per share and return on equity but has insignificant effect on return on capital employed and net profit margin. Oyedokun, Egberioyinemi and Tonademukaila (2019) measured environmental accounting disclosure with non-financial indicators, financial indicators and performance indicators. The study examined the effect of the measures on firm value of industrial goods companies in Nigeria. The study suggested that non-financial indicators have positive significant effect on firm value; performance indicators have negative significant effect while financial indicators have insignificant effect on firm value.

Falope, Offor and Ofurum (2019) adopted *ex-post facto* design to examine the effect of environmental cost disclosure on corporate performance. The study found that

environmental recycling cost, environmental prevention cost and environmental protection cost, have significant effect on corporate performance. Lee, Lee and Cho (2019) examined the extent to which Chaebols firms and non-chaebols firms in Korea report their corporate social responsibility (CSR) and the effects on firm value. The study found that Chaebols firms disclose more CSR reports; however, investors may discount the value of the reports.

From the literature review, several studies have been carried out to examine the effect of environmental accounting practices on financial performance of firms. However, there are sxanty studies found to examine the effect of environmental accounting practices on firm value and specifically manufacturing companies.

Methodology

Ex-post *facto* research design and content analysis tool were adopted for the study to examine the effect of environmental accounting practices on firm value. The study used 34 quoted manufacturing companies (consisting of 20 consumer goods and 14 industrial goods companies) listed on Nigerian Stock Exchange (NSE) as at the end of December, 2019 as the population. Manufacturing sector was examined due to the frequent consumption of environmental inputs of material, water and energy as well as frequent release of outputs such as wastes, emissions and effluents. Purposive sampling technique was adopted in selecting the sample size. The technique was used to select the companies that meet up with the following criteria: (1) the company must have been listed on NSE from 2008 to 2019 and (2) the company must have its annual report accessible on its website for the period under study and it must contains report on environmental practices. The sample size is made up of 11 companies (that is, 9 consumer goods companies and 2 industrial goods companies) that were able to meet up with the criteria.

Data were extracted from secondary source such as published annual reports of the sampled companies, Global Reporting Initiatives (GRI) framework. A checklist was developed on environmental accounting practices from the Global Reporting Initiatives (GRI) framework with the use of content analysis. The environmental accounting practice includes: water, waste management, product/service responsibility, emissions, compliance, environmental grievance mechanism and energy. Firm value is proxy with Earnings Per Share (EPS). This is because EPS is a primary measure of firm value Environmental accounting practices was measured by considering guidelines as stated in GRI sustainability framework in relation with the environmental practices disclosed in the annual reports.

The approach of Ching, Gerab and Toste (2017) was adopted for environmental accounting practices where: (a) when all information is disclosed, a score of 1 is given; (b) when almost all information is given, a score of 0.75 is given; (c) when information is partially disclosed a score of 0.50 is given; (d) when information is briefly disclosed a score of 0.25 is given and (e) when there is no information given a score of 0 is given. With this, a final score is obtained for each year of each company by obtaining the average score of the total score for the environmental sustainability indicators adhered to as illustrated in Appendix 2. The control variable for the study is company size which is represented by log of total assets. Earnings Per Share (EPS) is calculated with the formula below:

$$EPS = \frac{\text{Profit After Tax less Preference dividend}}{\text{Average Outstanding Shares}}$$

The model is specified as:

$$EPS_{it} = \beta_0 + \beta_1 EAP_{it} + \beta_2 CSZ_{it} + U_{it}$$

Where:

EPS =Earnings Per Share (Dependent variable)

EAP = Environmental Accounting Practices (Independent Variable)

CSZ = Company Size (Control Variable)

U_{it} = Error Term

Data Analysis and Interpretation

The data obtained from annual reports of 11 sampled firm for 2008-2019 on environmental accounting practices and firm value were analyzed with the results stated below.

Descriptive Statistics

The descriptive statistics indicate the mean, maximum, minimum and standard deviation of the obtained data over 12 years (2008 to 2019) for the 11 sampled firms for the dependent variable (EPS), independent variable (Environmental accounting practices) and control variable (Company's Size).

Table 4.1: Summary of Descriptive Statistics

Variable	Mean	Max.	Min.	Std. Dev.	Obs.
EPS	7.3548	291	-251	47.3991	132
EAP	.4135	.86	.11	.2595	132
CSZ	7.5493	8.99	-.33	1.5643	132

Source: Author`s computation (2020). Stata Output.

For EPS, there`s a mean value of 7.3548 which indicate that the sampled manufacturing companies averagely generate high returns for their shareholders and other stakeholders. Thus, the sampled firms have the capacity to generate high value for their stakeholders. The standard deviation of 47.3991 shows that there is wide dispersion in the capacity of the sampled firms in generating profits. This is evidenced in the wide gap between the maximum and minimum values of 291 and -251 respectively. This implies that while some firms are generating high returns, others are generating losses.

For the EAP, there`s a mean value of 0.4135 which indicates that averagely, the sampled firms complied with the environmental requirements of Global Reporting Initiatives (GRI) to the tune of 41%. The Standard deviation of 25.9% means that there`s low level of disparity in practices of environmental accounting among the manufacturing companies. This is evidenced in the low gap between the maximum and minimum values of 0.86 and 0.11 respectively. This implies that some of the sampled firms complied with the environmental requirements on the high level while others complied at low level.

For CSZ, there`s a mean value of 7.5493. The CSZ is represented by the logarithm of total assets. The mean value indicates that averagely, the assets of the firms are enough to carry on the operation of the firm. The standard deviation of 1.5643 indicates that there is wide dispersion in the volume of assets held by the sampled companies. This is evidenced in the wide gap between the maximum and minimum values of 8.99 and -0.33 respectively.

Regression Analysis

The regression analysis is presented and discussed under this section based on pooled Ordinary Least Square (OLS). The fixed and random effect models were estimated prior to the choice of pooled OLS. Hausman test was conducted to determine the efficient

model from the fixed and random effect models. However, the Hausman test result indicated that the model fitted on these data fails to meet the asymptotic assumptions of the Hausman test. Breusch-Pagan Lagrangian multiplier test was conducted as a confirmatory test for selection of random effect of which if it is significant, random effect will be used for the analysis and if not pooled OLS will be used. The Breusch-Pagan Lagrangian multiplier test shows a Pob>chi2 of 1.0000 which is insignificant; therefore, pooled OLS was used for the analysis.

Table 4.2: Pooled OLS Result

Variable	Co-efficient	Std. Error	t	Prob.
C	-1.3490	4.9563	-0.27	0.786
EAP	3.8895	21.0068	0.19	0.853
CSZ	0.9399	1.2400	0.76	0.450
Prob>F	0.0221*			
Adj. R^2	0.16			

Source: Author`s computation (2020). Stata Output.

*: significant at 5% level

From the pooled OLS result, the model can be written as EPS = -1.3490 + 3.8895EAP + 0.9399CSZ + ϵ_{it}. The result of the pooled OLS provides answer to the the question of the study which seeks to determine the effect of environmental accounting practices on firm value of manufacturing companies. The regression coefficients of 3.8895 and 0.9399 of environmental accounting practices (EAP) and company size (CSZ) respectively. Are positively related to earnings per share (EPS). This implies that an increase in environmental accounting practices will lead to 388.95% increase in earnings per share. The coefficient of company`s size of 0.9399 implies that an increase in firm`s size will leads to 93.99% increase in EPS.

The result also indicates that the explanatory variables are not statistically significant with the dependent variable such that the Prob. of 0.853 and 0.450 are greater than 0.05 level of significant.

Also, the Adj. R^2 of 0.16% indicates that environmental accounting practices and company`s size are responsible for 0.16% variation in EPS while some other factors are responsible for the remaining 99.84%. The insignificant of the explanatory variables and the low level of the Adj. R^2 implies that individually, environmental accounting practices and company size are not significant factors that can drive the value of quoted manufacturing companies in Nigeria. This is in line with the findings of Deswanto and Siregar (2018) and Ezeagba, John-Akamelu and Umeoduagu (2017) that found negative relationship between environmental disclosure and market value of companies.

The Prob>F explains the overall significance of the explanatory variables. The F-statistics is 0.0221 which is significant at 5% level. This implies that the explanatory variables are jointly significant in explaining the dependent variable (EPS). Therefore, the Prob>F implies that environmental accounting practices with the controlling effect of company size has significant effect on firm value of quoted manufacturing companies in Nigeria. This is in line with the findings of Che-Ahmad, Osazuwa and Mgbame (2015). Thus, the study rejects the null hypothesis that environmental accounting practices does not have significant effect on firm value of quoted manufacturing companies in Nigeria and accept

the alternative hypothesis that environmental accounting practices have significant effect on firm value of quoted manufacturing companies in Nigeria.

Conclusion and Recommendation

This study examined the effect of environmental accounting practices on firm value of quoted manufacturing companies in Nigeria. Firm value was proxy with earnings per share (EPS). The result of the study indicated that there is a positive relationship between environmental accounting practices and firm value. The relationship is also statistically significant when the explanatory variables are jointly considered. Therefore, the study concludes that when manufacturing firms carry out environmental accounting practices in line the size of the company, the value of the companies will be maximized.

Therefore, the study recommends that manufacturing companies should intensify efforts in practicing environmental accounting to create more value for the shareholders and other stakeholders.

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