Effect of Environmental Accounting on the Quality of Accounting Disclosures of Shipping Firms in Nigeria

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Abstract: We examine the effect of environmental accounting on the quality of accounting disclosure of shipping firms in Nigeria. Accounting reports among shipping firms are found to be deficient over time because they lack the necessary information to enable stakeholders to make informed decisions. We administered questionnaires to the staff of registered shipping firms in Nigeria and analysed data using multiple regression. Findings show that environmental accounting influences the quality of accounting disclosure of shipping firms in Nigeria. We found a significant positive association between environmental accounting and quality of accounting disclosure of shipping firms in Nigeria. Firms need to recognise a liability in the statement of assets and liabilities once it is feasible that the economic benefit of an outflow of resources will offset present obligation. We recommended that firms need to decide by discretion which expenditure or cost should include as environmental expenses or cost. Moreover, environmental costs should be capitalised or expensed as it is considered a contentious cost item for accountants and financial analyst. Firms should consider the extent of current environmental regulations and involvement; existing legal, economic, political and scientific experiences; the complexity of the environmental problem; and existing and availability of technological experience.

Keywords: Environmental Accounting; Quality of Accounting Disclosure; Shipping firms; Environmental Cost; Environmental Liability

JEL Classification: Q56

Introduction

The measurement of environmental performance and setting of targets is a critical component for firms to improve their sustainability performance (Friedman & Miles, 2006). In reducing greenhouse gas (GHG) emissions and improve operational efficiency and cost savings, key metrics such as energy, waste, and water usage needs to be monitored. Environmental accounting (EA) generates environmental information for external reporting through the disclosure of environmental information to stakeholders. EA can also assist management's internal decision-making on pricing, overhead control and capital budgeting (Bartolomeo, Bennett, Bouma, Heydkamp, James & Wolters, 2000), this is known as environmental management accounting (EMA). Advances have been made in the past two decades in EA, moving from a rather difficult beginning to its being embraced in different countries and established in a few. However, integrating economic aspects of environmental performance into mainstream financial accounts has faced some difficulties (Hyršlová & Hájek, 2006). There are growing awareness and concern about the impact of human activity on the ecosystem that needs to be documented for corrective actions (Menon, Choudhury, Khan & Peterson, 2010). These human

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activities impact negatively on the environment calls for efforts to mitigate its effects through the codification of the "soft law" which began with the United Nations Stockholm Conference on Human Environment and the launch of United Nations Environmental Programme (Bailey, 1995).

The accounting profession can no longer overlook the effect of environmental issues. As such, accountants have become involved in protecting the environment (Bobby Banerjee, 2001; Pramanik, Shil & Das, 2007). The use of EA at the strategic level will assist in management decision-making on whether the firm is engaged in sustainable business practice in its operations. Also, EA can assist managers to meet regulatory requirements to enable them to operate more sustainably by promoting employees health and safety and ensuring adequate environmental disclosure (Rezaee & Elam, 2000).

Environmental issues can impact conventional financial statements to recognise, measure and disclose environmentally-related matters by recognising the need to incorporate assets impairment value in financial reports. Environmental and social disclosure and transparency are important factors for a robust corporate governance framework that assist stakeholders in making informed decisions on capital allocation, corporate transactions and financial performance monitoring (Clarkson, Li, Richardson & Vasvari, 2008). Hence, a high-quality environmental disclosure is required to influence investors and lenders who assess corporate risks and returns to decide on the appropriate investment that offers the benefit to reduce the cost of capital.

Environmental accounting reports by shipping firms are considered inadequate because some vital information that will enable stakeholders to make informed decisions are often missing (Nzekwu, 2009). Environmental disclosure in corporate annual reports has attracted considerable attention in developed rather than in developing countries (Akhtaruddin, 2005). The narrow awareness of environmental accounting principles and methodology by the majority of firms in developing countries needs attention. In this regards, nondisclosure of relevant environmentally-related can adversely render the annual reports unreliable.

The lack of compliance with International Accounting Standards in developing countries like Nigeria may hinder transparency of the disclosure in financial statements of firms when they fail to provide timely and useful information. Since the current requirement for reporting on environmental issues in Nigeria is voluntary, most financial statements of firms may have wholly or partially excluded vital environmental issues. Environmental disclosures have become critical to the informed public and financial stakeholders. Hence, this paper examines whether environmental disclosure influences the quality of accounting reports of shipping firms in Nigeria**.** In achieving this objective, we ascertain the effect of identifying environmental cost on the quality of accounting disclosure of shipping firms in Nigeria. First, the study determines the correlation between capitalisation of environmental cost and the quality of accounting disclosure of shipping firms in Nigeria. Second, we establish whether there is a correlation between the identification of environmental liability and the quality of accounting disclosure of shipping firms in Nigeria. Lastly, we determine the correlation between the measurement of environmental liability and the quality of accounting disclosure of shipping firms in Nigeria.

Research Hypotheses

The following research hypothesis guided the above objectives:

H_1: There is no significant association between identification of environmental cost on the quality of accounting disclosure of shipping firms in Nigeria.

H_2: There is no significant association between capitalisation of environmental cost on the quality of accounting disclosure of shipping firms in Nigeria.

H_3: There is no significant association between identification of environmental liability on the quality of accounting disclosure of shipping firms in Nigeria.

H_4: There is no significant association between the measurement of environmental liability on the quality of accounting disclosure of shipping firms in Nigeria.

Theoretical Framework

Voluntary Disclosure Theory

Voluntary disclosure supports the idea of managers who wish to disclose additional information in their annual reports. The voluntary theory relates to the agency theory, which asserts that agency costs are the responsibility of agents (Jensen & Meckling, 1978). Agents will reduce agency costs to maximise wealth. The agency cost results from information asymmetry since agents are privy to have access to private and privileged information about a firm's performance. Other studies have focused on the effect of voluntary information disclosures on capital markets (Healy & Palepu, 2001). Disclosures in accounting literature refer to voluntary and discretionary disclosures. Healy and Palepu (2001) observe that the basic notion about disclosure in literature is that management has access to insider information. The relevance of the voluntary disclosure theory to this study is that accounting disclosure related studies are mostly concerned about the types of disclosure rather than the disclosures made by firms (Healy & Palepu, 2001). Hence, disclosure policies can be influenced when such information is available to competitors.

Legitimacy Theory

The legitimacy theory is most widely used to explain environmental disclosure. For instance, Cho and Patten (2007) argue that the legitimacy theory infers that environmental disclosure arose because of societal and political pressure on firms to improve their environmental performance. As a result, firms are compelled to provide an environmental information. Campbell, Craven and Shrives (2003) observe that voluntary disclosure requirement for social and environmental issues and costs may result in incomplete environmental reporting. The legitimacy theory stipulates that firms need to operate within the restrictions and customs of the societies (Deegan, Rankin & Voght, 2000). As such, legitimacy is "a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchman, 1995). In this regard, firms will attempt to establish a congruence between "the social values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are part" (Dowling & Pfeffer, 1975). This theory is relevant for this study because most firms seek acceptance and approval by the society.

Stakeholder Theory

The stakeholder theory attempts to rationalise the strategic objectives of firms. It places importance on the role of stakeholders in achieving an organisation's objectives. The stakeholder theory articulates the fundamental question about which stakeholders group deserves or requires management focus or not? (Mitchell, Agle & Wood, 1997). The stakeholder theory acknowledges the dynamic and intricate connections between the firm and its stakeholders, which includes responsibility and accountability (Gray, Owen & Adams, 1996). Stakeholders are seen as a critical factor to the survival of the organisation. Friedman and Miles (2002) affirm that the concept involves how the organisation is shaped and conceptualised. Friedman and Miles (2002) argue on the need for the firms to purposively manage and meet the interests and needs of its stakeholders. Managers need to respond to the aspirations of its stakeholders to ensure that their interests are met by allowing their input in the decision-making processes. The stakeholder theory encourages managers to actively consider the interests of its stakeholders on business decisions that affect the environment through coordinated strategies. The relevance of this theory is that accounting studies associated with the types of disclosure rather than the disclosures made by firms.

Identification of environmental cost on quality of accounting disclosure

In their study, Freedman and Stagliano (1992) adopt a conceptual approach to identify and measure environmental and social cost using an efficient management accounting system that employs sustainability accounting concepts to enhance shareholder value. Firms are attempting a new management accounting approaches to improve environmental and social impact costs identification and measurement. An environmental management accounting (EMA) and social management accounting (SMA) conceptual framework has been suggested. In his study, Cohen (2008) found that investors' demands for firm-specific information positively influences financial reporting quality. Cohen (2008) concludes that a higher proprietary cost impacts lower quality of financial information. Hence, it is plausible that there is a correlation between environmental accounting approach and the quality of accounting disclosures in the shipping firms in Nigeria.

Capitalisation of environmental cost on quality of accounting disclosure

In their study, Mohamed and Faouzi (2014) found that firms with improved environmental disclosure can potentially attract cheaper equity financing. Mohamed and Faouzi (2014) findings indicate that firms investing in the corporate environmental disclosure can substantially reduce its cost of equity. This finding suggests a positive long-term economic forecast effect of voluntary corporate environmental disclosure on the cost of equity and financial value of firms. However, Botosan, Plumlee and Xie (2004) found that the quality of public disclosure inversely affects the cost of equity capital. Hence, Easley and O'Hara (2004) predicted that an inverse association would significantly offset the positive correlation between the cost of equity capital and private disclosure quality.

Identification of environmental liability on quality of accounting disclosure

The principle of polluters must pay places a strict liability on the polluting party. A study by Cox (2004) on the Fortune 500 firms show a correlation between the scope of environmental disclosure and

industry classification, firm size and profitability. However, results regarding regulatory influence are mixed. Cox (2004) concludes that for policy implications, the Securities and Exchange Commission (SEC) should improve its monitoring and enforcement function to promote recognition and disclosure of environmental liabilities.

Measurement of environmental liability on quality of accounting disclosure

According to Li and McConomy (1999), firms with a robust environmental responsibility can implement the environmental accounting principles faster than those firms with lesser environmental commitment. As such, these firms have been able to improve their credibility and to reduce litigation risk. Timely identification and appropriate planning for environmental liabilities will enable a company to prevent unanticipated cash flow problems. There is inconclusive proof to support the notion that environmental disclosures improve a firm's market value (Cormier & Magnan, 1997). However, firms that regularly report their environmental activities in their annual reports exude confidence in potential investors and creditors. The practice of regular environmental reporting can improve a firm's market rankings and provide them access to capital on easier terms. However, Hyršlová and Hájek (2006) observe that firms are compelled to report on their environmental activities in annual reports due to external pressures. Notwithstanding, firms report on their environmental activities for various reasons. The next section describes the research method used in this study.

Methodology

The study used the descriptive statistics and correlation analysis to examine the influence of environmental disclosure on the quality of accounting reports. The population of this study are the shipping firms in Nigeria. The sample size consists of the 101 registered shipping firms in Nigeria. A cluster of sampled respondents was divided into strata of staff from the legal, finance, technical and marine departments of the shipping firms in Nigeria. The simple random sampling was used to identify individual respondents within each of the strata to respond to the questionnaire.

For this study, data was collected through the use of questionnaires. Overall, we administered 490 questionnaires to the respondents with 410 questionnaires returned. Descriptive and inferential statistics were used to analyse and interpret the data. In testing and analysing the quantitative data, the multiple regression model was used. The independent variables were regressed against the dependent variable to acquire inferential statistics. Furthermore, the multiple regression model was used to determine the existence of a significant association. A regression coefficient with a *p*-value of less than 0.05 indicates that the variables (identification of environmental cost; capitalisation of environmental cost; identification of environmental liability and measurement of environmental liability) have a significant correlation with the quality of disclosure. As such, the study used the following model to test whether the quality of accounting disclosure is a function of the independent variables.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y = dependent variable –odds of quality of accounting disclosure

X_1 – identification of environmental cost (IEC)

X_2 – capitalisation of environmental cost (CEC)

X_3 – identification of environmental liability (IEL)

X_4- measurement of environmental liability (MEL)

ε = error term (assumed to be normally distributed with mean zero and constant variance)

β =parameters to be estimated, while β_1, β_2, β_3, β_4 are the coefficient of the independent variables.

β_0= constant (intercept)

Results and Discussion

This study's objective is to determine the effect of environmental accounting on the quality of accounting disclosure of shipping firms in Nigeria. The study was guided by four (4) independent variables and one dependent variable. The independent variables are the identification of environmental cost, capitalisation of environmental cost, identification of environmental liability and measurement of the environmental liability. The dependent variable was the quality of accounting disclosure.

Pearson Correlation Matrix for independent and dependent variables

Pearson Correlation Matrix was used to compute the identification of environmental cost, and the quality of accounting disclosure with a probability of 0.648 (*p*-value=0.000) signifying a strong significant and positive association between the variables. Therefore, a positive association exists between the variables above the recommended 30%. From Table 1, the result indicates a positive linear association between the identification of environmental cost and quality of accounting disclosure. This result is similar to the study by Nickie Petcharat and Mula (2012) where they found a significant positive correlation between identification of environmental cost and quality of disclosure, although they examined a different industry (Nickie Petcharat & Mula, 2012).

The Pearson Correlation of capitalisation of environmental cost and quality of accounting disclosure show a probability of 0.678 (p=0.000), an indication of a strong significant and positive linear association between the two variables as shown in Table 1. We can establish from this result that there is a positive linear correlation between capitalisation of environmental cost and quality of accounting disclosure. The result is similar to McElroy (2007) study which found that by comparing the value of an asset before and after the environmental condition arose, for example, before the land was contaminated by the taxpayer's hazardous waste, if the value increases, then the remediation costs must be capitalised.

The Pearson Correlation of the identification of environmental liability versus the quality of accounting disclosure shows a probability of 0.754 (p=0.000) an indication of a strong significant and positive association between the two variables. From Table 1, we establish a strong positive linear correlation between identification of environmental liability and quality of accounting disclosure. In a previous study, Cox (2004) concluded that a comprehensive environmental disclosure index could be used in measuring the extent of firms disclosure of environmental liability information.

The Pearson Correlation measurement of environmental liability and the quality of accounting disclosure was computed as 0.734 (p=0.000). The result shows a highly significant and positive association between the two variables. Table 1 shows a strong positive linear association between the

measurement of environmental liability and quality of accounting disclosure. In a previous study by Li and McConomy (1999), they found that firms with a robust environmental responsibility easily adapt to new environmental accounting principles compared to firms with the lesser environmental obligation to enhance their credibility and reduce the risk of litigation. By making adequate provisions for environmental liabilities, a firm may prevent unanticipated cash flow problem.

Table 1. Pearson Correlation Matrix for Independent and Dependent Variables

		Quality of Accounting Disclosure	Identification of Environmental Cost	Capitalisation of Environmental Cost	Identification of Environmental Liability	Measurement of Environmental Liability
Quality of Accounting Disclosure	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	410				
Identification of Environmental Cost	Pearson Correlation	.648**	1			
	Sig. (2-tailed)	0				
	N	410	410			
Capitalisation of Environmental Cost	Pearson Correlation	.678**	0.246	1		
	Sig. (2-tailed)	0	0			
	N	410	410	410		
Identification of Environmental Liability	Pearson Correlation	.754**	0.059	0.13	1	
	Sig. (2-tailed)	0	0.234	0.009		
	N	410	410	410	410	
Measurement of Environmental Liability	Pearson Correlation	.734**	0.083	0.088	0.094	1
	Sig. (2-tailed)	0	0.093	0.074	0.057	
	N	410	410	410	410	410

*There is a significant correlation at 0.05 level (2-tailed)

Test for Multicollinearity

We did a multicollinearity test to detect if there is an unacceptable high level of intercorrelation among the independent variables (Garson, 2012). The multiple regression variance inflation factor (VIF) was used as an indicator of multicollinearity. The VIF factor is given when the difference in the given partial regression coefficient increases due to the extent of the correlation of the given variables with other predictors in the model. Regarding the VIF, the norm is to accept lower levels of VIF since higher levels of VIF can adversely affect the results associated with multiple regression analysis. VIF is a simple diagnostic of colinearity for each regression coefficient. Additionally, Garson (2012) asserts that based on the rule of thumb, a multicollinearity VIF > 4.0 is adverse while other scholars have used a more tolerant cut off of VIF > 5.0 when multicollinearity is considered adverse. This study adopted a VIF value of 4.0 as the threshold. The identification of environmental cost had a VIF of 3.333, the capitalisation of environmental cost, at 3.436, the identification of environmental liability, at 2.033, and the measurement of environmental liability, at 1.776. Moreover, results indicate that the VIF values of the independent variables were within the threshold of 4.0. These results show no threat of multicollinearity for this study. Hence, we used the linear regression model. The multicollinearity result is shown in Table 2.

Table 2. Multicollinearity Test

Variable	Tolerance	VIF
Identification of Environmental cost	0.300	3.333
Capitalisation of Environmental Cost	0.291	3.436
Identification of Environmental Liability	0.492	2.033
Measurement of Environmental Liability	0.563	1.776

Multiple Regression Analysis

The multiple regression models for the association between the dependent variable quality of disclosure and the independent variables (identification of environmental cost, the capitalisation of environmental cost, the identification of environmental liability and the measurement of environmental liability as shown in Table 3. The results indicate that $R^2 = 0.964$ and R = 0.982. R-value points that a strong association between identification of environmental cost, the capitalisation of environmental cost, the identification of environmental liability and the measurement of environmental liability and the quality of accounting disclosure on shipping firms in Nigeria. R^2 indicates that explanatory power of the independent variables is 0.964. This means that about 96.4% of the disparity in the quality of disclosure is explicated by the model while the 3.6% variation in the quality of accounting disclosure is unexplained. The multiple linear regression model is presented below.

$$Y = \beta_0 + \beta_1 IEC + \beta_2 CEC + \beta_3 IEL + \beta_4 MEL$$

Where Y = dependent variable- odds of quality of accounting disclosure

X_1 = identification of environmental cost (IEC)

X_2 = capitalisation of environmental cost (CEC)

X_3 = identification of environmental liability (IEL)

X_4 = measurement of environmental liability (MEL)

β =parameters to be estimated, while β_1, β_2, β_3, β_4 are coefficients of the independent variable.

The hypothesis for the multiple linear regression model:

H_0: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = 0$

H_1: at least one of $\beta 1, \beta 2, \beta 3, \beta 4 \neq 0$.

Table 3 shows that the association between the independent variables identification of environmental cost, capitalisation of environmental cost, the identification of environmental liability and the measurement of environmental liability and the quality of accounting disclosure is high.

Table 3. Multiple Regression Model on Independent and Dependent Variables

R	R Square
0.982[a]	0.964

Predictors: identification of environmental cost, capitalisation of environmental cost, identification of environmental liability, measurement of environmental liability

ANOVA Results for Multiple Regression Model

Table 4 presents the ANOVA test showing that the independent variables (identification of environmental cost; capitalisation of environmental cost; identification of environmental liability; and measurement of environmental liability) have significant effects on the quality of accounting disclosure since the *p*-value 0.000 < 0.05. Hence, we reject H_0 and accept that there is an association between the independent variables and the quality of accounting disclosure.

Table 4. ANOVA Results for Independent and Dependent Variables

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	279709.587	4	69927.397	2716.832	0.000
Residual	10449.863	406	25.739		
Total	290159.450[a]	410			

Dependent Variable: Quality of Accounting Disclosure

Coefficients of Regression

Further tests on the beta coefficients reveal that the identification of environmental cost, the capitalisation of environmental cost, the identification of environmental liability and the measurement of environmental liability are significant and positively correlated to the quality of accounting disclosure.The variable gradients are 0.303, 0.179, 0.405 and 0.316 respectively and a *p*-value of 0.000 < 0.05.

The regression model is:

$Y = \beta_0 + \beta_1 0.303\ (IEC) + \beta_2 0.179\ (CEC) + \beta_3 0.405(IEL) + \beta_4 0.316(MEL)$.

The implication of the result is that for a unit increase in the identification of environmental cost there is a 0.303 increase in the quality of accounting disclosure.Moreover, for an increase in every unit capitalisation of environmental cost, there is a 0.179 increase in the quality of accounting disclosure. Additionally, for every unit increase in the identification of environmental liability, there is a 0.405 increase in the quality of accounting disclosure. Also, for every unit increase in the measurement of environmental liability, there is a 0.316 increase in the quality of accounting disclosure. Hence, we assert that there are significant associations between all the independent variables and the quality of accounting disclosure of shipping firms in Nigeria.

Table 5. Multiple Regression Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Identification of Environmental Cost	.303	.042	.253	7.288	.000
Capitalisation of Environmental Cost	.179	.040	.156	4.494	.000
Identification of Environmental Liability	.405	.050	.321	8.070	.000
Measurement of Environmental Liability	.316	.044	.270	7.192	.000

[a]Dependent Variable: Quality of Accounting Disclosure

Hypothesis Results

In using the multiple regression model, the study determines the linear statistical association between the independent and dependent variables. Using the linear regression model, the four null hypotheses were tested with the order of the variables entered into a statistical decision, not a theory.

Hypothesis 1: There is no significant effect of identification of environmental cost on the quality of accounting disclosure of shipping firms in Nigeria

In testing the significance of regression association between the identification of environmental cost and the quality of accounting disclosure, the regression equations used the standard beta coefficients to obtain the line of best fit. Also, the *t*-test was performed on each beta coefficients in the fitted regression model. Results in Table 5 indicate that identification of environmental cost positively and significantly influences the quality of accounting disclosure of Shipping firms in Nigeria with β = 0.303 with p-value = 0.000 < 0.05. It implies that for every unit increase in identification of environmental cost there is an increase in quality of accounting disclosure by 0.303. The result is similar to Garson (2012) which found a significant positive association between identification of environmental cost and quality of disclosure. Results suggest that firms are attempting to change to a new management accounting approach while considering techniques to improve the identification and measurement of environmental and social impacts cost.

Hypothesis 2: There is no significant effect of capitalisation of environmental cost on the quality of accounting disclosure of shipping firms in Nigeria

In testing the significance of regression association between the capitalisation of environmental cost and the quality of accounting disclosure, the regression equations used the standard beta coefficients to obtain the line of best fit. Additionally, we performed the *t*-test on each beta coefficients in the fitted regression model. Results in Table 5 indicate that capitalisation of environmental cost positively and significantly influences the quality of accounting disclosure of shipping firms in Nigeria with β = 0.179 with a *p*-value = 0.000 < 0.05. It indicates that for a unit increase in the capitalisation of environmental cost there is a 0.179 increase in the quality of accounting disclosure. The result indicates that by comparing the value of an asset before and after the environmental condition arose, for example, before the land was contaminated by the taxpayer's hazardous waste, if the value increases, then the remediation costs must be capitalised.

Hypothesis 3: There is no significant effect of identification of environmental liability on the quality of accounting disclosure of shipping firms in Nigeria

In testing the significance of regression association between the identification of environmental liability and the quality of accounting disclosure, the regression equations used the standard beta coefficients to obtain the line of best fit. Furthermore, the *t*-test was performed on each beta coefficients in the fitted regression model. The findings in Table 5 indicated that identification of environmental liability positively and significantly influences the quality of accounting disclosure of shipping firms in Nigeria with $\beta = 0.405$ with *p*-value = 0.000 < 0.05. It implies that for a unit increase in the identification of environmental liability there is an increase in the quality of accounting disclosure by 0.405. The result is held by the findings of Cox (2004) that a comprehensive environmental disclosure index is used in measuring the extent to which firms disclose environmental liability information.

Hypothesis 4: There is no significant effect of measurement of environmental liability on the quality of accounting disclosure of shipping firms in Nigeria

In testing the significance of regression association between the measurement of environmental liability and the quality of accounting disclosure, the regression equations were obtained by using the standard beta coefficients' line of best fit. Before applying the multiple regression equations, the *F* statistics test was used to validate the test of significance of the overall regression. Additionally, the *t*-test was performed on each beta coefficients in the fitted regression model. Findings in Table 5 indicated that the measurement of environmental liability positively and significantly influences the quality of accounting disclosure of Shipping firms in Nigeria with $\beta = 0.316$ with a *p*-value = 0.000 < 0.05. The result means that for every unit increase in the measurement of environmental liability, there is a 0.316 increase in quality of accounting disclosure. The result is similar to that of Li and McConomy (1999) which found that firms with a strong environmental responsibility can adapt to a new environmental accounting principle compared to firms with a lesser environmental obligation thereby enhancing its credibility and reduce litigation risk. Hence, firms can prevent severe cash flow problems if adequate provisions are made for environmental liabilities.

Conclusions and Recommendation

From the findings, we conclude that the identification of environmental cost is a critical determinant of quality of accounting disclosure. The regression analysis shows that there is a positive joint association between the identification of environmental cost and the quality of accounting disclosure. As such, we establish a significant positive correlation between the identification of environmental cost and the quality of accounting disclosure of shipping firms in Nigeria. The study finds that capitalisation of environmental cost influences the quality of accounting disclosure of shipping firms in Nigeria. We, therefore, conclude that a positive and significant association exists between capitalisation of environmental cost and the quality of accounting disclosure. This implies that the capitalisation of the environmental cost is statistically significant in explaining the quality of accounting disclosures of shipping firms in Nigeria.

Concerning the identification of environmental liability, we established a strong association between the identification of environmental liability and the quality of accounting disclosure. Additionally, the regression analysis shows a positive association between the identification of environmental liability and the quality of accounting disclosure. This implies that the identification of environmental liability is statistically significant in explaining the quality of accounting disclosures of shipping firms in Nigeria. As such, we conclude that a strong association exists between the measurement of

environmental liability and the quality of accounting disclosure. The regression analysis shows that a positive association exists between the measurement of environmental liability and the quality of accounting disclosure. Moreover, we conclude that there exists a significant positive correlation between the measurement of environmental liability and the quality of accounting disclosure of shipping firms in Nigeria.

The following recommendations were derived from the findings and conclusions of the study. First, firms need to discretionally decide on the type of expenditures or costs that should be included as environmental costs or expenses. Second, an environmental cost that is considered to relate to expected future benefits of the assets regardless of whether there is any increase in economic benefits should be capitalised. Third, firms should recognise environmental liabilities in the statement of assets and liabilities where the benefit of an outflow of economic resources is the consequence of the settlement of a present obligation. Environmental liabilities of material significance should be recognised in the annual financial statements where the actions that result in the liability can be reliably measured. Lastly, firms should consider current environmental regulations; the extent of regulatory involvement, previous legal, economic, political and scientific experience; the complexity of the environmental problem; existing technologies and experience. Further study is suggested to test the effect of environmental accounting on the quality of accounting disclosure in other economic sectors.

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