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Environmental Accounting and Value Relevance of Accounting Information: Time Series Evidence from Nigeria Commercial Banks

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Abstract

This paper examined the relationship between environmental accounting and value relevance of accounting information of commercial banks in Nigeria.Time series data of the variables used in the research was collected from financial statement of the commercial banks. The study had equity prices and earnings per share as the function of cost of donations, cost of wages and salaries, cost of environmental expenditure and cost of human resource development. The Ordinary Least Square (OLS) method of data analysis with multiple regressions was used in the study. In determining the long-run relationship, stationary and causal relationship that exists among the variables, cointegration, Augmented Fuller Unit Root and Pair wise Causality was used. The static regression result found that the independents variables have positive relationship with the dependent variables excerpt cost of human capital development. The cointegration test revealed at least two cointegrating equation, the stationarity test revealed that the variables are stationary at level while the granger causality test proved no directional relationship. The study conclude that environmental accounting have significant relationship with value relevance of accounting information in Nigeria commercial banks. We recommend that all environmental cost should properly be reported and accountants should ensure well accountability of human capital development.

Keywords: Environmental Accounting, Value Relevance of Accounting Information, Commercial Bank.

1. Introduction

Every corporate organization operates in an environment where it takes input from processed to produce finished or semi- finish product to the environment. This process results in externalities which is the cost and benefit of the corporate organization to the environment. Environmental accounting involves the identification, measurement and allocation of environmental costs and the integration of these costs into the business and encompasses the way of communicating such information to the stakeholders (Horvathora, 2010). The approach involves the physical and the monetary approach. Historically the concept of environmental accounting can be traced to 1970s when several empower countries indicated work independently of each other (Hecht, 2005). The awareness of the environment and man's ability to cause damage stated from the fifties of the 19th century. The adverse environmental effect of economic development has become a matter of great public concern all over the world. The environmental cost associated with include, conservation cost, Pollutions control cost, resource

circulation cost, Cost for efficient utilization of resources, Administrative cost, Social activities cost, Environmental remediation cost and other costs.

Environmental Accounting can be used both in accounting and management which can relate to environmental performance then the information can be forwarded to both internal and external stakeholders in organization. Graff *et al*, (1998) noted that 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).

The qualitative management of environmental conservation activities is a component of corporate social responsibility and an effective way of achieving and maintaining sound business management. The process of environmental conservation activities, a company or other organizations can accurately identify and measure investments and costs related to environmental activities. By having better insight into the potential benefit of these investments and costs, the company can not only improve the efficiency of its activities but have leverage over factors that affect negatively performance of corporate organizations. Environmental accounting also plays a very important role in supporting rational decision making. Companies and other organizations are required to have accountability to stakeholders, such as consumers, business partners, investors and employees, when utilizing environmental resources such as public goods, for their business activities. Disclosure of environmental accounting information is a key process in performing accountability. Consequently, environmental accounting helps companies and other organizations boost their public trust and confidence and are associated with receiving a fair assessment.

Value relevance of accounting information addresses the degree to which accounting information summarizes the information that is impounded in share prices. Accounting information is considered relevant if the information disclosed by financial statements to capture and summaries firm value. It is a statistical measure of information presented in the financial statement and stock market value or return. The protection of the environment and the potential involvement of accountant is becoming a common subject of discussion among accountants all over the world. Environmental accounting have significant effect on financial statement such as cash accounting prepares on cash basis of accounting, accrual accounting prepare in accrual bases that can affect the value relevance of accounting information such as equity price and earnings per share of quoted firms, it therefore imperative to examine how it affects the value relevance of commercial banks in Nigeria.

2. Statement of the Problem

The financial market is characterized with information that can affect the value of the corporate organizations; this led to the formulation of theory of information known as information asymmetric. The efficient market hypothesis recognizes the affect of past, private, environmental and public information on the stock prices of historical forms. The traditional accounting system of corporate organization does not recognize environmental accounting,this means that accounting does take into consideration the cost of business activate on the environment. The neglect of environmental accounting has resulted incorrect treatment of fixed capital and natural capital as the former depreciates when use in production while the later does not (Sayedeh and Saudah, 2014). The disclosure of environmental accounting information as one of the key element in an environmental

reports enable those parties realizing this information to get understanding of the company's stance on environmental conservation and how it specifically deals with environmental issues (Mehanna and Vernon, 2004).

The social and environmental indicators can add qualitative value to a company and consequently impact the financial performance (Horvathova, 2010). Without environmental accounting, the performance of corporate firms can only be established in the short run. Though there are many studies on environmental accounting but the studies examined the relationship between environmental accounting and corporate profitability (Okoye and Ezefiofor, 2013; Bassey et al, 2014; Magana et al, 2014). Therefore this study examined the effect of environmental accounting on value relevance of accounting information in Nigeria commercial banks.

From the above research problem, the following research objectives are formulated:

- To examine the effect of tax cost on the value relevance of accounting information
- To examine the effect of environmental expenditure cost on the value relevance of accounting information
- To examine the effect of wages and salaries of staff on the value relevance of accounting information
- To examine the effect of cost of human capital development on the value relevance of accounting information
- To examine the effect of cost of donation on the value relevance of accounting information

3. Research Questions

- What is the effect of tax cost on the value relevance of accounting information?
- What is the effect of environmental expenditure cost on the value relevance of accounting information?
- What is the effect of wages and salaries of staff on the value relevance of accounting information?
- What is the effect of cost of human capital development on the value relevance of accounting information?
- What is the effect of cost of donation on the value relevance of accounting information?

4. Research Hypothesis

H_{01}.There is no significant relationship between tax cost and the value relevance of accounting information

H_{02}.There is no significant relationship between environmental expenditure cost and the value relevance of accounting information

H_{03}.There is no significant relationship between wages and salaries of staff and the value relevance of accounting information

H_{04}.There is no significant relationship between cost of human capital development and the value relevance of accounting information

H_{05}.There is no significant relationship between cost of donation and the value relevance of accounting information.

5. Literature Review

5.1 Conceptual Framework

- Environmental Accounting

The concept of environmental accounting relate to a system that intends to make the best possible quantitative assessment of the costs and benefits to an enterprise due to the environmental preservation activities that it undertakes. Various authors refers to the concept of environmental accounting in difference ways such as environmental management accounting, corporate social accounts, social accounting, social and environmental accounting, Social and environmental report, social and environmental accounting (Okoye et al, 2013). It can more accurately be identify as the true costs by clarifying the

environmental impacts caused by material acquisition and processing, manufacturing, sales, distribution, use, maintenance, and disposal. It is the guidelines that aim at achieving sustainable development, maintaining a favorable relationship with the community, and pursuing effective and efficient environmental conservation activities which are prerequisite for corporate performance. These accounting procedures allow a company to identify the cost of environmental conservation during the normal course of business, identify benefit gained from such activities, and provide the best possible means of quantitative measurement and support the communication of its results.

It provides a common framework for organizations to identify and account for past, present and future environmental costs to support managerial decision-making, control and public disclosure (KPMG and UNEP, 2006).

5.1.1 Component of Cost in Environmental Accounting

- **Environmental Conservation Cost**

Environmental conservation cost refers to the investment and costs, measured in monetary value, allocated for the prevention, reduction, and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities. Investments and expense related to the prevention, reduction, and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities are measured in monetary value. Investment amounts are expenditures allocated during a target period for the purpose of environmental conservation (EAG, 2002). The benefits from these investments are seen over several periods and are recorded as expense during the depreciation period. Expense amounts refer to the expense or losses recorded under financial accounting standards resulting from the consumption of goods or services for the purpose of environmental conservation.

Based on the relationship between business activities and environmental impact, these guidelines categorize information based on key business operations, administrative, research and development, social and other activities. Key business operations are the series of activities covering the purchase of materials and services, manufacturing and distribution, sales and supply, but exclude administrative, research and development and social activities. Business area cost Environmental conservation cost to control environmental impacts which result from key business operations within the business area upstream/downstream cost environmental conservation cost to control environmental impacts which result from key business operations upstream or downstream administration cost environmental conservation cost stemming from administrative activities research and development cost environmental conservation cost stemming from research and development activities social activity cost environmental conservation cost stemming from social activities environmental remediation. Cost incurred for dealing with environmental degradation other costs related to environmental conservation

- Business Area Cost

This cost is for activities to reduce environmental impact which occurs within the business area due to key business operations. The business area is the region where the company can directly manage environmental impacts. Business area cost associated with environmental conservation is divided into three categories, pollution prevention cost, global environmental conservation cost and resource recycling cost.

- Pollution Prevention Cost

Pollution is defined as the creation of harmful impacts by business or other activities which damage public health or degradation of the living environment. Specific types of pollution include air, water, ground, noise, vibration, odor, and ground sinkage. Pollution prevention costs are those costs related to the reduction of a production facility's environmental impact or spending for end-of-pipe solutions, facilities or equipment attached to the end

of production facilities.

- ✓ Cost for preventing air pollution (including acid rain)
- ✓ Cost for preventing water pollution
- ✓ Cost for preventing ground contamination
- ✓ Cost for preventing noise pollution
- ✓ Cost for preventing vibration pollution
- ✓ Cost for preventing odor pollution
- ✓ Cost for preventing ground sinkage
- ✓ Cost for preventing other types of pollution

- Resource Circulation Cost

Resource circulation refers to the circulating use of reusable resources, whether valuable or not. Resource circulation cost is the cost incurred for sustainable resource recycling.

- ✓ Cost for the efficient utilization of resources
- ✓ Cost for recycling industrial waste
- ✓ Cost for recycling municipal waste
- ✓ Cost for disposal of industrial waste
- ✓ Cost for disposal of municipal waste
- ✓ Cost contributing to resource circulation

- Administration Cost

These costs are defined as those costs spent for administering environmental conservation activities and which indirectly contribute to curtailing environmental impacts stemming from business operations and also spending for external communications, such as disclosure of environmental information.

- ✓ Cost for the implementation of an environmental management system
- ✓ Cost for disclosing environmental information and environmental advertising
- ✓ Cost for monitoring environmental impacts
- ✓ Cost for training employees on environmental issues
- ✓ Cost for environmental improvement activities, including nature conservation, planting of greenery, beautification, and landscape preservation, at or in the vicinity of the business site

- Social Activity Cost

These are costs which are related to environmental conservation activities that a company may carry out as a part of its social activities but not directly related to its business activities.

- ✓ Cost for environmental improvement activities, including nature conservation, planting of greenery, beautification and landscape preservation, with the exception of the business site or surrounding vicinity
- ✓ Cost related to donation or financial support of environmental groups
- ✓ Cost associated with various social activities, such as the financial support of a local community's environmental conservation activities and the disclosure of information to the local community

- Environmental Remediation Cost

These contingent costs are allocated for recovery of the environmental degradation due to business activities.

- ✓ Cost to restore the natural environment back to its original state
- ✓ Cost to cover degradation suits connected with environmental conservation
- ✓ Provisions or insurance fees to cover degradation to the environment
- ✓

5.2 Theoretical framework

- Stakeholder Theory

Freeman (1984) defines a stakeholder as any group or individual who can affect or is affected by the achievement of the firm's objectives. Stakeholders of the firm include stockholders, creditors, employees, customers, suppliers, public interest groups and governmental bodies. The major objective of the firm is to attain the ability to balance the conflicting demands of the various stakeholders in the firm. The stakeholder approach to analysis is well established in the management (and accounting) literature (Roberts, 1992). Its essence is the definitions of all those groups or parties who are influenced by the organization. From this point on, stakeholder theory struggles to maintain anything other than an organization centered legitimacy because while the groups may be defined with a fair degree of objectivity. Stakeholder theory, therefore, is concerned typically with how the organization manages its stakeholders. Thus the information disclosed to the stakeholders may be assumed more properly by the organization to be part of a legitimacy and/or social process.

- Legitimacy Theory

Legitimacy theory, like a number of other theories such as political economy theory and stakeholder theory, is considered to be a systems- oriented theory. Within a systems- oriented perspective, the entity is assumed to be influenced by, and in turn to have influence upon the society in which it operates (Watts *et al*., 1986). Corporate disclosure policies and practices are considered to represent one important means by which the management can influence external perceptions about their organizations. The idea of legitimacy can be directly related to the concept of a social contract, consistent with the view that organizations are part of a broader social system, legitimacy theory assumes that organizations are not considered to have any inherent right to resources, or in fact, to exist. Organizations exist to the extent that the particular society considers that they are legitimate, and if this is the case, the society confers upon the organization the state of legitimacy. Social contract exists between corporations and individual members of society (Mathews, 1993).

- Accountability Theory

Accountability theory is concerned with the relationship between groups, individuals, organizations and the rights to information that such relationships bring about. Accountability is an act of being responsible or answerable for one's own decisions or actions with the expectation of explaining and justifying them when asked to do so. Simply stated, accountability is the duty to provide an account of the actions for which one is held responsible (Gray *et al.*, 1991). The natures of the relationships and the attendant rights to information are contextually determined by the society in which the relationship occurs. It is absolutely true that some sort of relationship will exist between an organization and each of its stakeholders. Part of this relationship may be economic in nature and the terms determined by the parties as reflecting their relative powers in the relationship. The information flowing through the relationship will be determined by the power of the parties to demand it and the willingness of the organization to provide it (Gray *et al.*, 1997).

- Political Economy Theory

Political economy theory explicitly recognizes the power conflicts that exist within society and the various struggles that occur between various groups within the society. The political economy is defined as the social, political and economic framework within which human life takes place (Gray et al., 1996a). The political economy perspective perceives accounting disclosures as social, political and economic documents (Guthrie *et al.*, 1990). They serve as a tool for constructing, sustaining and legitimizing economic and political arrangements, institutions and ideological themes which contribute to the corporation's private interests. Disclosures have the capacity to transmit social, political and economic meanings for a pluralistic set of report recipients. Political economy theory

and legitimacy theory seem to be more appropriate for analysis of exiting practices than as normative bases from which to deduce proper accountability relationships.

5.3 Empirical Literature

Magara, Aminga and Momanyi (2015) focused on the impact of environmental accounting on financial performance of corporate organizations in Kisii County. The study adopted a stratified sampling design where simple random sampling technique was used to identify a sample size of 49 employees drawn from all the 16 corporations. Both qualitative and quantitative data were collected using questionnaire, and secondary data and descriptive statistics were used to analyze the responses. The findings were presented in form of tables, charts and graphs. Findings revealed that the perceived financial performance of the corporate organization in general was in good status as perceived by the employees. Analysis of individual perceived financial performance parameters shows that revenue generation has been improving, cash flows are seen to be in a good state and profitability has been on the increase. Constructs of EA application are significantly positively related to perceived financial performance of the corporate organizations

Bassey, Effiok and Eton (2013) examined the impact of environmental accounting and reporting an organizational performance with particular reference to oil and gas companies operating in the Niger Delta Region of Nigeria. The study was conducted using the Pearson's product moment correlation coefficient. The elements were selected by means of random and stratified sampling technique. Data were gathered from primary and secondary sources. Data collected were presented using tables and analyzed using the Pearson's product moment correlation analysis. It was found from the study that environmental cost has satisfied relationship with firm's profitability. It was concluded that environmentally friendly firms will significantly disclose environmental related information in financial statements and reports.

Ezejiofor, Akamelu and Chigbo (2016) examined 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.

Cortez, et al (2011) explored 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, industry case study focused on the global manufacturing leaders as they play a significant role in advancing environmental reporting due to their supplier networks and subsidiaries. The findings pointed to risk minimization efforts of electronics companies in spite of declining profitability.

Bassey, Oba and Onyah (2013) analyzed 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 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.

Okoye and Ezejiofor (2013) examined the sustainability environmental accounting in enhancing corporate performance and economic growth. This paper analyzed and tested two hypotheses with Pearson Product Movement Correlation Coefficient. 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. 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. 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.

Beredugo and Mefor (2012) 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.

sayedeh, and saudah (2014) proposed model of the relationship between environmental management accounting and firm performance. The experimental findings are quite controversial, and there is no universal agreement about the actual impact of environmental accounting on firm performance. Finding also proved that most studies on environmental management practices have been carried out in developed countries based on European and us data.

Mehenna and Vernon (2004) examined environmental accounting as an essential component of business strategy. The paper found that the business firm 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.

Lee, Pati & Roh (2011) examined the relationship between corporate sustainability performance and tangible business performance 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. 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) examined sustainable development and Financial Performance of Nigerian Quoted Companies. The study discovered that sustainable development practice of companies is rarely associated with financial performance over the years studied.

6. Research Methodology

This study intends to examine the impact of environmental accounting and value relevance of accounting information of commercial banks in Nigeria. The relevant data were sourced from financial statement of commercial banks from 1990-2016. Time series data were used and econometric method of data analyses which involves Ordinary Least Square (OLS) were employed. The multiple regressions formulated in this study are based on the various schools of thought on the effect of environmental accounting and value relevance. The following models as specify in this study:

EPCB= f(DN,CWS,CENE,CCHD) …… (1)

Transforming equation 1 above to econometric method, we have:

$EPCB = \beta_0 + \beta_1 DN + \beta_2 CWS + \beta_3 CENE + \beta_4 CCHD + \mu$ …… (2)

EPS= f(DN,CWS,CENE,CCHD) …… (1)

Transforming equation 1 above to econometric method, we have:

$EPS = \beta_0 + \beta_1 DN + \beta_2 CWS + \beta_3 CENE + \beta_4 CCHD + \mu$ …… (2)

Where:

EPCB = Equity prices of commercial banks listed on the floor of Nigeria stock of exchange

EPS = Earnings per share of commercial banks listed on the floor of Nigeria stock of exchange

DN = Cost of donations proxy by amount of donation to profit after tax

CWS = Cost of wages and salaries paid to staff to profit after tax

CENE = Cost of environmental expenditure measured as cost of environmental sanitation to profit after tax

CCHD = Cost on human capital development to profit after tax

μ = Error Term

$\beta_1 - \beta_4$ = Coefficient of Independent Variables to the Dependent Variable

β_0 = Regression Intercept.

Estimation Techniques

Stationarity Test:

Time series data are assumed to be non-stationary and this implies that the result obtained from Ordinary Least Square (OLS) may be misleading. It is therefore necessary to test the stationarity of the variables using the Augmented Dickey Fuller 1979 test to both level and first difference. The ADF test constructs a parameter correction for higher order correlation by assuming the times series follows an auto regressive process. Mathematically expressed as

$$\Delta y_t = c + \beta_t + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad \text{.....3}$$

$$\Delta y_t = c + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad \text{.....4}$$

Equation 1 is used to test for the null hypotheses of non stationarity of unit root against trend stationaerity alternative in Y_t where y refers to the examined time series. Equation 3 tests the null hypotheses of a unit root against a mean stationarity alternative.

Johansen Cointegration Test

The cointegration test established whether a long run equilibrium relationship exist among the variables. It is generally accepted that to establish a cointegration, the likelihood ratio must be greater than the Mackinnon critical values. The model can be stated as

$$\Delta X_t = \mu + \Psi_1 \Delta X_{t-1} + \Psi_2 \Delta X_{t2} + \ldots + \Psi_{p-1} \Delta X_t - p + 1 \quad \text{.....5}$$

Where μ is a constant term.

ΔX_t Represents the first cointegrating difference

Granger Causality

To determine the direction of causality between the variables, the study employed the standard Granger causality test (Granger, 1969). The test is based on Vector Error Correction Model (VECM) which suggests that while the past can cause or predict the future, the future cannot predict or cause the past. Thus, according to Granger (1969) X Granger cause Y if past value of X can be used to the past value of Y, the test is based on the following

regression model.

Vector Error Correction Model

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model. The VECM is of this form:

$$\Delta y_t = \alpha\beta y_{t-1} + \sum_{i=1}^{j=1} \Gamma_j \Delta y_{t-1} + \pi + \varsigma_t, t = 1,\ldots,T \quad \ldots\ldots\ldots\ldots\ldots\ldots 6$$

Where Y_t is a vector of indigenous variables in the model. α is the parameter which measures the speed of adjustment through which the variables adjust to the long run values and the β is the vectors which estimates the long run cointegrating relationship among the variables in the model. π is the draft parameter and is the matrix of the parameters associated with the exogenous variables and the stochastic error term.

7. Results and Discussion of Findings

The following tables show the dynamic relationship between the dependent and independent variables as formulated in the regression models.

Table 1: Presentation of Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MODEL I				
DN	2.499648	1.753771	1.425299	0.1796
CWS	4.605562	3.356466	1.372146	0.1951
CENE	0.435854	1.803053	0.241731	0.8131
CCHD	-2.143741	2.577364	-0.831757	0.4218
C	136.9029	123.9381	1.104607	0.2910
R-squared	0.740353	Adjusted R-squared		0.512862
F-statistic	9.949200	Prob(F-statistic)		0.000286
Durbin-Watson stat	2.272192			
Model II				
N	1.898127	0.756255	2.509903	0.0274
CWS	2.218251	1.447363	1.532615	0.1513
CENE	0.086511	0.777506	0.111268	0.9132
CCHD	-2.714856	1.111402	-2.442731	0.0310
C	55.11189	53.44417	1.031205	0.3228
R-squared	0.603194	Adjusted R-squared		0.504258
F-statistic	8.026758	Prob(F-statistic)		0.002497
Durbin-Watson stat	1.611080			

Source: Extract from E-view 9.0

The result in the above table indicates the direction and nature of relationship that exist between the dependent and the independent variable as formulated in the model. It prove that 74.0% and 51.2% variation in equity prices of Nigeria commercial banks can be explain by factors of environmental accounting such as cost of donation, cost of wages and salaries of staffs cost of environment expenditure and cost of human resource development. The f-statistics and the f-probability justifies that the model is significant and can predict variation on the dependent variable. The β coefficient of the variables prove that all the independent variable have positive relationship with the dependent variable (stock prices) of commercial banks.

Model II proved that the independent variables can explain 60.3% and 50.4% on earnings per share of the quoted commercial banks; this is justified by the significant value of f-statistic and f-probability. Again, the β coefficient indicates that all the independent variables have positive impact on the dependent variable except cost of human capital development. However the T-statistics indicate that the independent variable are statistically not significant except cost of donation and cost of human capital development which is statistically significant with earning s per share in model II. The insignificant effect of the variables can be trace to poor accounting method for environmental cost, poor discharge of environmental responsibilities and environmental factors that affect environment accounting and value relevance of accounting information such as asymmetric information surrounding the stock market.

Table 2: Unit Root Test Summary Results at First Difference

VARIABLE	ADF STATISTICS	MACKINNON			PROB.	ORDER OF INTR.
		1%	5%	10%		
ADF AT LEVEL						
EPCB	-3.42125	-3.920350	-3.065585	-2.673459	0.0257	1(0)
EPS	-2.000353	-3.920350	-3.065585	-2.673459	0.2836	1(0)
DN	-0.260159	-3.920350	-3.065585	-2.673459	0.94114	1(0)
CWS	-3.439458	-3.920350	-3.065585	-2.673459	0.0250	1(0)
CENE	-3.216208	-3.959148	-3.081002	-2.681330	0.0393	1(0)
CCHD	-0.546084	-3.920350	-3.065585	-2.673459	0.8572	1(0)
ADF AT FIRST DIFFERENCE						
EPCB	-5.700206	-3.959148	-3.081002	-2.681330	0.0004	1(0)
EPS	-5.484886	-4.004425	-3.098896	-2.690439	0.0008	1(1)
DN	-5.548685	-4.200056	-3.175352	-2.728985	0.0014	1(1)
CWS	-7.237999	-3.959148	-3.081002	-2.681330	0.0000	1(1)
CENE	-4.068789	-4.121990	-3.144920	-2.713751	0.0109	1(1)
CCHD	-4.305469	-3.659148	-3.081002	-2.681330	0.0053	1(1)

Source: Extracts from E-view print out and author's computation.

In testing the stationarity of the variable we adopt the augmented Dickey Fuller test, from the table above it is deduced that the variables are not stationary at level but stationary at first difference. This means that the null hypothesis is accepted at level but rejected at first difference. This enables us to test us to test for the Johansson co-integration test.

Table 3: Johanson Co-Integration

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
Rank Test (Trace): Model I				
None *	0.903537	55.30614	47.85613	0.0085
At most 1*	0.638405	29.22717	20.79707	0.0076
At most 2*	0.276460	15.96869	4.494710	0.0021
At most 3	0.007618	0.114701	3.841466	0.7348

Maximum Eigen value model I				
Hypothesized		Max-Eigen	0.05	
None *	0.903537	35.07897	27.58434	0.0045
At most 1*	0.638405	21.25847	15.13162	0.0012
At most 2*	0.276460	14.85399	4.264603	0.0002
At most 3	0.007618	0.114701	3.841466	0.7348
Rank Test (Trace): Model II				
None *	0.982716	85.08459	47.85613	0.0000
At most 1*	0.717300	29.21462	24.79707	0.0015
At most 2*	0.289871	15.264087	5.494710	0.0002
At most 3	0.008593	0.129449	3.841466	0.7190
Maximum Eigenvalue: Model II				
None *	0.982716	60.86996	27.58434	0.0000
At most 1*	0.717300	21.95054	14.13162	0.0003
At most 2*	0.289871	14.13463	5.264603	0.0047
At most 3	0.008593	0.129449	3.841466	0.7190

Source: Extracts from E-view.

The co-integration test as presented in the above table indicate at least two co-integrating equation from the trace statistics and the maximum Eigen value, therefore we reject null hypothesis of no co-integration and accept the alternate that there is co-integrating equation and conclude the presence of long-run relationship among the variables, therefore we test the nature of long-run relationship between the dependent and the independent variable using the normalize co-integrating equation.

Table 4: Normalized Co-Integrating Equation

1 Cointegrating Equation(s):		**Log likelihood**	**-170.4350**
Model I			
EPCB	DN	CWS	CENE
1.000000	-3.393165	-29.65337	-28.97444
	(2.85334)	(7.41313)	(3.28484)
Model II			
EPS	DN	CWS	CENE
1.000000	0.000000	0.000000	-26.68494
			(6.99175)

Source: Extracts from E-view print out and author's computation.

From the normalized co-integrating equation presented above all the independent variable proved negative long-run relationship with the dependent variables. This is contrary to the expectation of the result and could be trace to poor environmental accounting method for the commercial banks that have affected negatively the value relevance of accounting information.

Table 5: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
MODEL I			
DN does not Granger Cause EPCB	15	2.13274	0.1693
EPCB does not Granger Cause DN		0.12578	0.8832
CWS does not Granger Cause EPCB	15	0.27943	0.7619
EPCB does not Granger Cause CWS		0.19525	0.8257
CENE does not Granger Cause EPCB	15	1.22553	0.3342
EPCB does not Granger Cause CENE		0.21682	0.8088
CCHD does not Granger Cause EPCB	15	0.01580	0.9843
EPCB does not Granger Cause CCHD		0.73687	0.5029
MODEL II			
DN does not Granger Cause EPS	15	0.13731	0.8733
EPS does not Granger Cause DN		0.15301	0.8601
CWS does not Granger Cause EPS	15	0.37272	0.6980
EPS does not Granger Cause CWS		1.76827	0.2200
CENE does not Granger Cause EPS	15	0.44605	0.6523
EPS does not Granger Cause CENE		0.29718	0.7492
CCHD does not Granger Cause EPS	15	3.58701	0.0669
EPS does not Granger Cause CCHD		0.02588	0.9745

Source: Extracts from E-view

The causality test presented in the above table reveals that there is no causality from the independent to the dependent and from the dependent to the independent variables. Again this is contrary to our expectation and can be trace to information asymmetric surrounding the value relevance of accounting information in the commercial banks.

Table 6: Parsimonious Error Correction Model

Model I				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	2.991700	7.925727	0.377467	0.7188
D(DN(-1))	0.299901	2.469370	0.121448	0.9073
D(DN(-2))	-0.210013	2.312681	-0.090809	0.9306
D(CWS(-3))	-0.407759	2.670707	-0.152678	0.8837
D(CENE(-1))	-1.949920	1.452527	-1.342433	0.2280
D(CENE(-2))	0.130418	1.775794	0.073442	0.9438
ECM(-1)	-1.118769	0.398647	-2.806415	0.0309
R-squared	0.737793	Adjusted R-squared		0.475585
F-statistic	2.813776	Prob(F-statistic)		0.116807
Durbin-Watson stat	1.902529			

Model II				
C	-0.419716	2.548793	-0.164673	0.8728
D(DN)	0.693344	0.686838	1.009473	0.3391
D(CWS(-1))	-0.090985	0.855457	-0.106358	0.9176
D(CENE)	-0.027393	0.451582	-0.060659	0.9530
D(CCHD(-1))	-0.836715	0.993330	-0.842333	0.4214
ECM(-1)	-0.734341	0.294009	-2.497683	0.0340
R-squared	0.643573	Adjusted R-squared		0.445558
F-statistic	3.250121	Prob(F-statistic)		0.059571
Durbin-Watson stat				

Source: Extracts from E-view print out and author's computation.

An examination of the result above proved that ECM coefficient is well signed with negative sign. This proves that the model can adjust by 111.8% and 73.4% speed of adjustment. However the R^2 and the adjusted R^2 of the models shows 73.7%, 47.5%, 64.4% and 44.5% from the two models the coefficient of the variables also confirm and prove negative relationship with the dependent variable. Model I dropped cost of human capital development due to the insignificant effect on the dependent variable while model II proved that the model can significantly affect the depend variable which is earnings per share.

Table 7: Test of Hypotheses Model I

H_{0s}	**HYPOTHESES**	**T-TEST**	**PROB.**	**REMARK**	**DECISION**
H_{01}	DN and EQP	1.425299	0.1796	Not significant	Accept H_0
H_{02}	CWS and EQP	1.372146	0.1951	Not significant	Accept H_0
H_{03}	CENE and EQP	0.241731	0.8131	Not significant	Accept H_0
H_{04}	CCHD and EQP	-0.831757	0.4218	Not significant	Accept H_0

Source: Computed by the researcher from E-view Windows 9.0

Table 8: Test of Hypotheses Model II

H0s	**HYPOTHESES**	**T-TEST**	**PROB.**	**REMARK**	**DECISION**
H_{01}	DN and EPS	2.509903	0.0274	significant	Reject H_0
H_{02}	CWS and EPS	1.532615	0.1513	Not significant	Accept H_0
H_{03}	CENE and EPS	0.111268	0.9132	Not significant	Accept H_0
H_{04}	CCHD and EPS	-2.442731	0.0310	significant	reject H_0

Source: Computed by the researcher from E-view Windows 9.0

8. Discussion of Findings

The value relevance of accounting information is important to both internal and external user of accounting information. It is determine by factors within the operation of the firm and out the operation of the firm. One of the challenges of the environmental accounting on value accounting information is the neglect of environmental

accounting in financial reporting, for instance, the neglect of human resource accounting in financial reporting or the recognition of human resource accounting as an expenses rather than an investment can affect the value relevant of accounting information. The findings of this study indicate that environmental accounting significantly affects the value relevance of accounting information in the commercial banks. The β coefficient of the variable shows that the positive coefficient of 2.499DN, 4.605CWS, 0.435CENE proved that an increase of the independent variables will add positively to equity prices of the commercials banks while the negative value of -2.413 shows that an increase will add negatively to the equity price. The positive value of 1.898DN, 2.218CWS, 0.086CEN reveal that an increase on the independent variables will affect positively earnings per share of the commercial banks while the negative value of 2.714 will affect negatively the earnings per share.

The positive impact of the independent variables on the dependent variables confirm the a-priori expectation of the result and justify the objective of implementing environmental accounting policies such as human resource accounting. It is in line with the findings of (Bassey *et al*, 2014) on the effect of corporate social responsibility on the profitability performance quoted commercial banks in Nigeria. It is also in line with the findings of (Magara *et al*, 2016) on the positive impact of environmental accounting on the performance on Nigeria oil and gas industry. It validates the stakeholders' theory and further justifies the implementation of environmental accounting guidelines. However the negative impact of cost of human capital development is contrary to the expectation of the result and could be trace to the fact that some of the banks have no implementable human resource development strategies such as educational tanning or on the job and off the job tanning of employees. The insignificant impact of independent variable can be trace to information asymmetric surrounding the value relevance of accounting information such as the imperfection in the capital market as oppose to the classical assumption of perfect market.

9. Conclusion and Recommendation

9.1 Conclusion

The relationship between the dependent and the independent variables are presented in the above tables. From the static regression result, donations, wages and salaries and cost of environmental expenditure have positive effect on value relevance of accounting information which is proxy by equity prices of the commercial banks and earnings per share. The model summary proved 74.0%, 51.2%, 60.3% and 50.4% explained variation. The stationrity test proved the presence of stationarirty at first difference, the cointegration test shows the presence of long run relationship, therefore this study conclude that environmental accounting have significant effect on value relevance of accounting information in Nigeria commercial banks.

9.2 Recommendation

From the findings, we draw the following recommendations:

- All cost inured in the process of business transaction should be properly reported in the financial statement and accounted for to enhanced the value relevance of accounting information.
- All cost relate to human resource development should be integrated in the financial reporting as an assets and deducted from income as cost.
- Effective measures should be devising by management to enhance environmental accounting management that will impact positively on value relevance of accounting information.
- Policies should be formulated to encourage environmental accounting in corporate organizations.

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