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Green accounting practices and financial performance of natural resources companies in Nigeria (2015 - 2024)

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***Abstract*---**The study examined Green Accounting practices and the Financial Performance of Natural Resources in Nigeria. Specifically, the study ascertained the effect of Environmental cost on the following financial performance indices of quoted natural resources companies in Nigeria; Earnings per Share (EPS) and Return on Equity (ROE). The research was conducted using the *ex-post facto* research design. Secondary data were collected from the annual reports of four natural resources companies quoted on the floor of the Nigeria Exchange Group (NGX) between 2015 to 2024. The population of the study remained the sample because they are few and known. Using Unit root tests, and Panel Least Squares (PLS) regression analysis to analyze the data, the result revealed a negative relationship between environmental cost and earnings per share with $\beta = -0.706823$; p-value of 0.0377 for EPS, indicating that green accounting practices may impose short-term financial burden on natural resources companies. The study also showed that environmental cost had a positive but non-significant effect on ROE at a $\beta = 0.019760$ and p-value of 0.9169. The study therefore concludes by suggesting that management of quoted natural resources companies should adopt cost-efficient environmental management practices that minimize

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environmental expenses without compromising sustainability objectives. The study recommended that firms should balance environmental expenditures with revenue-generating and operational efficiency strategies in order to protect shareholders' returns and integrate green accounting practices with effective investment and corporate governance policies to improve shareholders' value.

***Keywords*---**Green Accounting, Green Accounting Practices, Environmental Cost, Financial Performance

1. INTRODUCTION

The impact of business activities on the environment cannot be overemphasized. The negative aftermath of the environmental degradation from the business operations of manufacturing firms especially natural resources companies whose activities are highly environmentally sensitive. This is due to the fact such companies rely majorly on use of natural resources from the environment and also their activities are highly pollutant, such as timber usage, aluminium extrusion and the likes. In order to ensure that businesses do not only benefit from the environment and then leave the environment unattended and continue to cause its attendant effect on the environment, there is need for businesses to be accountable to the environment and the various habitats in the environment. At present, environmental protection and the potential involvement of accountants is a popular issue among accountants throughout the world (Riyadh, Al-Shmam, Huang, Gunawan & Alfaiza 2020). Thus, accountants for now and in the future are predicted to take on the cost function of environmental safety technique (Riyadh, et al. 2020). It becomes imperative therefore that the environmental degradation costs are due to industry matters that must be internalized in the company's account as far as possible. For this reason, the reporting and accounting of the environment are critical at this time.

2. THEORETICAL REVIEW AND EMPIRICAL REVIEW

2.1 Theoretical Review

2.1.1 Stakeholder Theory

The stakeholder theory was propounded by Edward Freeman in the year 1984. Stakeholder theory states that: "a company's sole purpose is to maximize economic values for stakeholders" (Freeman, 2008b). The value created by a company should not be of just one type but several types so that a better way of creating both economic and non-economic value in a sustained way may be found so that all the stakeholders who helped in creating the value may also share or benefit from it. In recent years, the concept of stakeholder has achieved widespread popularity among academics, the media, corporate managers and government. Stakeholder theory suggests multiple stages of environmental recognition that causes the group's need to extend their company planning to comprise non-traditional stakeholders, such as business hostility regulations to alter the social needs changes(Trotman, 1999) cited in (Bassey et al., 2013). The core worry of stakeholder theory in accounting establishing is to look at the components of environmental values and valuations, and include them in the money statements (Riyadh, et al. 2020).

2.1.2 Sustainable Development Theory

The concept of sustainable development was popularized by the World Commission on Environment and Development (WCED) - commonly known as the Brundtland Commission - led by former Norwegian Prime Minister Gro Harlem Brundtland, in their 1987 report; 'Our Common Future'. Sustainable development theory holds that current societal, economic, and environmental needs must be met without compromising the ability of future generations to meet their own needs. It advocates for a balanced, long-term approach, integrating environmental protection, social equity, and economic growth. This framework promotes responsible resource management to ensure sustainability for future generations. Based on meeting present needs without compromising future generations, this theory provides the macro-level justification for integrating ecological costs into business operations.

Sustainability accounting (which can also be referred to as social accounting, social and environmental accounting, corporate social reporting, corporate social responsibility reporting as well as non-financial reporting) originated in the 1970s and is considered a sub division of financial accounting that focuses on the disclosure of non-financial information about a firm's performance to external stakeholders. The need for businesses to ensure the environment is sustained for the future generation (which in turn ensure the business' sustainability), makes this theory apt for consideration in this study.

2.2 Empirical Review

2.3 Green Accounting Practices and Financial Performance

Green Accounting or Environmental accounting in the broader term aims to provide environmental information to both external and internal stakeholders (Ditz et al.,1995). Environmental accounting could be employed to reveal the potential benefits of environmental investments to generate profits, and avoid environmental liabilities (Beer and Friend, 2006). Environmental accounting could be employed to reveal the potential benefits of environmental investments to generate profits, and avoid environmental liabilities (Beer and Friend, 2006).

The main aim of green accounting is providing information about environment-related activities in addition to information relating to conventional accounting. There are several studies on green accounting and financial performance of various industries and companies.

Agba, Ugwu, and Nwabuisi, (2026) investigated the effect of green accounting reporting on the financial performance of manufacturing firms in Nigeria, with emphasis on environmental protection expenditure, energy consumption cost, and waste management cost. Secondary data from audited financial statements of selected manufacturing firms listed on the Nigerian Exchange Group between 2014 and 2024. Panel Least Squares (PLS) regression was applied for data analysis. The findings revealed that environmental protection expenditure has a positive but non-significant effect on profit for the year (coefficient = 0.001160; p-value = 0.1209 > 0.05), suggesting that while such expenditure supports long-term sustainability, it does not significantly improve immediate profitability.

Another study by Endiana, Dicriyani, Adiyadnya and Putra, (2020), focused on the allocation of environmental costs in green accounting through the implementation of the Corporate Sustainability Management System (CSMS) as one of the strategic policies for manufacturing companies in Indonesia and improvement in financial performance. The analysis result shows that the significance is 0.01 with a coefficient of 0.15. This indicates that the increasing implementation of green accounting in manufacturing companies in Indonesia is able to increase the implementation of corporate sustainability management systems (CSMS). The study also revealed that increased implementation of green accounting in manufacturing companies in Indonesia can maximize revenue potential and increase efficiency in terms of costs which improves profitability with the analysis results showing a significance of 0.01 with a coefficient of 0.27.

The study of Adelabu and Salaudeen, (2025) examined the effects of green accounting on the financial performance of listed consumer goods companies in Nigeria. The study was guided by two specific objectives which include: to determine the effect of environmental protection disclosure on earnings per share of listed consumer goods firms in Nigeria and to ascertain the effect of corporate donations disclosure on earnings per share of listed consumer goods firms in Nigeria. Ex post facto research design was adopted. The study sampled 30 listed firms on the Nigerian Exchange Group (NGX) under the environmentally sensitive industries. The result of the analysis shows that there is a positive correlation between green accounting variables and financial performance. The study concludes that green accounting practices positively impact firm performance in Nigeria.

Olaoye and Alao, (2023) worked on green accounting practices and business health of listed oil and gas firms in Nigeria. The major objective of the study was to examine the effect of green accounting practice on business health of listed oil and gas firms in Nigeria. The study covered oil and gas firms listed on the floor of NGX from 2012 to 2021. The study adopted *ex-post facto* research design. The study used d**escriptive statistics:** Used to summarize the data, i**nferential statistics** to analyze the relationship between variables and m**ultiple regression analysis** to assess the impact of green accounting practices (such as waste management and safety regulation disclosure) on business health proxies. It was discovered that waste management practices disclosure had a negative and insignificant effect on earnings per share to the tune of -0.0155705 (p=0.964 > 0.05).

Emmanuel, (2021) worked on green accounting reporting and financial performance of manufacturing firms in Nigeria. This study examined green accounting disclosure and its effect on financial performance of listed manufacturing firms in Nigeria. Particularly, the study examined the effect of green accounting disclosure on return on asset (ROA), return on equity (ROE) and share price of 40 manufacturing firms in listed in the Nigerian Stock Exchange as at 31st December 2019 for the period spanning 2010–2019. The descriptive statistics and the panel regression methods were employed for the data analysis.

The study findings revealed that green accounting disclosure had a positive significant effect each on ROA and ROE. However, a negative effect subsists between green accounting disclosure and share price of manufacturing firms in Nigeria.

Samuel, Umoren and Ukpong, (2025) did a research on green accounting and financial performance of listed oil and gas companies in Nigeria. The study sought to ascertain the effect of green accounting on the financial performance of Nigerian listed oil companies using an experimental research design, ex-post facto data extracted from the Nigerian Exchange Group and the annual published financial statement of Nigerian oil companies. A sample size of eight, and a time span of ten (10) years from 2014 to 2023. The study employed unit root testing and descriptive statistics, and it used Panel data regression for the test of hypothesis with the help of E-view statistical software version 9. The study's conclusions showed that there is no substantial correlation between the costs of environmental sustainability, environmental cleanup, and waste management and return on capital invested, earnings per share, and net profit margin.

Emmanuel, (2021) worked on green accounting reporting and financial performance of manufacturing firms in Nigeria. This study examined green accounting disclosure and its effect on financial performance of listed manufacturing firms in Nigeria. Particularly, the study examined the effect of green accounting disclosure on return on asset (ROA), return on equity (ROE) and share price of manufacturing firms in Nigeria. The ex-post facto research design was employed. Data from the annual reports of forty out of the sixty-six manufacturing companies listed in the Nigerian Stock Exchange as at 31st December 2019 for the period spanning 2010–2019 were used. The descriptive statistics and the panel regression methods were employed for the data analysis. The study findings revealed that green accounting disclosure had a positive significant effect each on ROA and ROE. However, a negative effect subsists between green accounting disclosure and share price of manufacturing firms in Nigeria. The study recommend that manufacturing firms are encouraged to increase the extent of their green accounting activities for ease of assessment by stakeholders for investment decision making. Furthermore, the government should strictly enforce green accounting disclosure practice by ensuring that firms that are going public comply.

According to the study done by Fina, Maulidia, and Mustika, (2024) on the effect of green accounting, carbon emission disclosure and profitability on company value. *The study aims to analyze the impact of green accounting, carbon emission disclosure, and profitability on the value of companies in the mining sector listed on the Indonesian Stock Exchange period between 2021-2023. Purposive sampling technique was used to select a sample of 32 companies. Descriptive statistical tests, classical assumption tests, and double linear regression were used to analyze the study data. The results show that green accounting and carbon emission disclosure have no significant impact on the value of a company, while profitability has a significant impact.*

Emmanuel and Ali, (2021) examined corporate environmental accounting disclosure and financial performance of selected manufacturing firms in Nigeria.

Precisely, the study examined the effect of environmental accounting disclosures on Share Price, Return on Asset and Return on equity of selected manufacturing firms in Nigeria. The ex-post-facto research design was engaged in this study, using a sample of 40 manufacturing firms. The secondary source of data collection method was employed using the convenience sampling technique. Data were extracted from the content analysis disclosure index and corporate annual reports of the sampled manufacturing firms listed on the Nigerian Stock Exchange for the period 2010-2019 financial years. The descriptive statistics, correlation matrix and regression analysis were the statistical tools used in the study. Data were analyzed with the aid of the panel data regression technique. Our findings revealed that environmental accounting disclosures had a significant effect each on Share Price, Return on Asset and Return on equity of manufacturing firms in Nigeria. The study recommends that companies should increase the extent to which they disclose the environmental impacts of their firms' activity in the annual report for stakeholders' assessment of their performance. Similarly, government effective supervision is important in ensuring the implementation of environmental disclosure that aligns with applicable regulations.

According to the study of Gunardi, Widianingsih and Ismawati, (2021) which aimed to examine the value relevance of green accounting practice measured by environmental rating through PROPER which is assessed by the Ministry of Environment and Forestry (KLHK) and environmental disclosure activities from an internal party, called sustainability report, of listed mining and agriculture companies on the Indonesian Stock Exchange. This study also tests whether return on equity can strengthen the value relevance of environmental performance and Corporate Social Responsibility (CSR) Disclosure. The sample consists of 63 firm-year observations. The empirical results showed that the effect of book value of equity and earnings on share price are significant. The study reveals book value of equity exhibits a negative relationship in stock price, while earnings exhibit a negative relationship. However, environmental performance and CSR disclosure are found not statistically significant impact in terms of share price, which conclude they don't have value relevance. The study also found that Return on Equity was unable to improve the value relevance of environmental performance and CSR disclosure.

The study of Susanti, Hertati and Putri, (2023) aims to analyze the effect of green accounting and environmental performance on company profitability with particular of mining companies listed on the Indonesian Exchange Group for the 2018-2021 period. Purposive sampling was utilized to choose 12 mining companies trading on the Indonesia Stock Exchange as the data source for this study. Secondary data were gathered from the annual reports of mining companies traded on the Indonesia Stock Exchange. Descriptive statistics, tests for normality and multicollinearity and heteroscedasticity and autocorrelation, as well as multiple linear regression analysis, followed by the F test, and t tests, were all utilized to analyze the data for this study. The study found that mining companies listed on the Indonesia Stock Exchange benefited financially from Green Accounting and Return on Equity between 2018 and 2021.

RESEARCH METHODS

3.1 Research Design

The study adopted the ex-post facto research design. The design for this study is the *ex-post facto* research design. The rationale for choosing this design is that it is used to evaluate the value condition of the companies who implement green accounting practices and reporting in order to make valid conclusions from the results of the evaluation about how the independent variable (green accounting practices and disclosure) affects the dependent variable (firm's performance). Ex-post facto research design is suitable when the data of interest already exist and cannot be manipulated by the researcher (Onwudinwe, 2022 as cited in Agba, Ugwu and Nwabuisi 2026).

3.2 Research Variables and Measurement

The research adopted various indices for the measurement of the study variables (both the dependent and independent). Green accounting was proxied by Environmental Cost while Financial accounting was proxied by Earnings per Share and Return on Equity. Furthermore, Inflation rates of the entire country for the various years were equally employed as a control variable for the study to account for any change in financial performance other than the applied indices. The variable indices and their measurement models are presented in the table below.

Table 1: Variable Name, Indicators and Measurement

Variables	**Indicators**	**Measurements**
Green Accounting	Environmental Cost	Amount of money by Naira spent on environmental protection
Financial Performance Outstanding	Earnings Per Share	Net Income - Preferred Dividend Weighted Average Shares
	Return on Equity	Net Income Shareholders Equity
Control Variable	Inflation Rate	Annual inflation rates of the country

3.2.3 Data Collection

The secondary data for this research were obtained from annual reports of the 4 selected companies and the statistical bulletin of the Nigerian national bureau of statistics from 2015 to 2024.

3.2.4 Data Analysis

Data analysis in this study employed statistics to describe and identify the relationship among variables. Also, panel unit root test was conducted to examine the stationary properties of the variables, while correlation analysis was used to determine the strength and direction of the relationship among the variables. The study adopted Panel Least Squares (PLS) regression analysis to examine the effect of green accounting practices on the financial performance of the selected firms.

3.2.4.1 Empirical Analysis

The following section presents the results of the measure of green accounting and company performance, such as earnings per share and return on equity. Table 2 and 3 presents the data collected and the outcome of the analysed data.

Table 2: The Result of Regression Analysis for EPS

Variable	Coefficient	Std. Error	t-statistic	Prob.
ENVC	-0.706823	0.327926	-2.155437	0.0377
INF	-0.479343	0.941618	-0.509063	0.6137
C	8.480982	3.848327	2.20381	0.0338
R-squared	0.512373	Mean dependent var		1.871317
Adjusted R-squared	0.414393	S.D. dependent var		2.207222
S.E of regression	2.134974	Akaike info criterion		4.426825
Sum squared resid	168.6503	Schwarz criterion		4.553491
Log likelihood	-85.5365	Hannan-Quinn criter.		4.472623
F-statistic	2.342093	Durbin-Watson stat		2.324105
Prob(F-statistic)	0.110221			

Table 3: The Result of Regression Analysis for ROE

Variable	Coefficient	Std. Error	t-statistic	Prob.
ENVC	0.01976	0.188154	0.105018	0.9169
INF	0.724392	0.540273	1.340788	0.1882
C	-3.823295	2.20806	-1.731518	0.0917
R-squared	0.46545	Mean dependent var		-1.66639
Adjusted R-squared	0.34993	S.D. dependent var		1.22194
S.E of regression	1.224987	Akaike info criterion		3.315776
Sum squared resid	55.52195	Schwarz criterion		3.442442
Log likelihood	-63.31552	Hannan-Quinn criter.		3.361574
F-Statistic	0.903111	Durbin-Watson stat		1.96576
Prob(F-statistic)	0.414054			

3. RESULTS AND DISCUSSION

The result indicated that environmental cost had a negative and statistically significant effect on earnings per share (EPS) ($\beta = -0.706823$; $p = 0.0377$). This finding implied that increased environmental spending reduced the earnings attributable to shareholders. The outcome suggested that environmental cost negatively affected shareholder returns in the short run.

The study also found that environmental cost had a positive but statistically non-significant effect on return on equity (ROE) ($\beta = 0.019760$; $p = 0.9169$). This indicated that although environmental cost slightly improved shareholders' return, the effect was too weak to be statistically meaningful. The result suggested that environmental accounting practices alone were insufficient to significantly influence equity performance.

4. CONCLUSION

Green accounting practices include all activity-expenses related to environmental protection such as waste management, pollution management, carbon emission management and others. Based on the empirical findings of this study, it was concluded that green accounting practices exerted mixed effects on the financial performance of quoted natural resources companies in Nigeria. The findings revealed that environmental cost significantly reduced earnings per share, indicating that environmental and sustainability-related expenditures imposed short-term financial pressures on the sampled firms.

However, environmental cost exerted positive but statistically non-significant effects on return on equity. This suggested that while green accounting practices may contribute to improved efficiency in the utilization of shareholders' funds, the effects were not sufficiently strong to significantly influence financial performance during the study period.

Overall, the study concluded that green accounting practices played a sustainability and compliance role rather than a direct profitability-enhancing role among quoted natural resources companies in Nigeria. Although environmental expenditures may reduce profitability in the short run, they could enhance corporate responsibility, regulatory compliance, and long-term business sustainability.

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