

ENVIRONMENTAL ACCOUNTING REPORTING AND MANAGEMENT OF FRAUD OF LISTED AGRICULTURAL FIRMS IN NIGERIA

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Abstract

This study examined environmental accounting reporting and management fraud of listed agricultural firms in Nigeria. The objective of the study was to investigate whether emission reporting, effluent and waste reporting, compliance to environmental laws and biodiversity reporting have significant effect on management fraud. The secondary source of data collection was adopted in the study where the purposive sampling technique was used to select a sample size of four (4) listed agricultural firms for the study. Least Square regression analysis was used in this study and the findings revealed that emission reporting, effluent and waste reporting, compliance to environmental laws and biodiversity reporting has significant effect on management fraud. Finally, it recommended that priority should be given to policies regarding emission and energy management to promote optimal energy consumption. A careful mix of such policies should be considered as over-appropriation or under appropriation may lead financial misappropriation.

Keywords: Management fraud, emission reporting, effluents and waste reporting, biodiversity reporting.

1. Introduction

Major corporations worldwide are adopting the practice of disclosing their company's carbon footprint as climate change becomes an increasingly prevalent environmental concern, especially in the fields of management and sciences (Majekobaje, 2023; Arumona, Oyewobi & Sunday, 2024). Because of the risks associated with climate change, a lot of researchers have focused on greenhouse gas (GHG) emissions, and the study of business voluntary carbon disclosure information is closely related to this interest in GHG emissions (Böhling, Murgua, Godfrid, 2019). Managers have social responsibilities, most notably to protect the environment, even though their

main responsibility is to maximize profits for their shareholders (Sun, Wang, & Li, 2022). The work states that market participants define environmental performance as a company's disclosure of its environmental responsibilities. Environmental accounting reporting, according to Onyebuanyi (2023), is the communication to stakeholders of an organization's ecological and sustainable development contributions, performance in managing those impacts, and impacts on the environment. It includes the processing of data related to ecological and environmental effects that is both financial and non-financial (Oyedokun, Umoh, Haruna & Zakaria, 2019). According to Amahalu and Okudo (2023), it delineates and characterizes the factual expenses associated with the environment, including liability and waste disposal costs.

The International Financial Reporting Standard recognizes voluntary disclosure as a technique used by managers to close any knowledge gaps with their investors and provide information to the market. Due to an information imbalance, it is assumed that management has access to more valuable information than either present or potential investors. Transparency therefore lessens the inefficient use of resources and the unfavourable selection of low-quality investments (Onyebuanyi, 2023).

Growing public awareness of this issue has put managers under pressure to disclose information on carbon emissions in an attempt to look into the factors that contribute to business value (Ikponmwosa & Bamidele, 2023). A number of organizations, including NGOs, academics, consumers, investors, regulators, and standard-setters, have expressed interest in carbon emission reporting in recent years. The UN Framework Convention on Climate Change and the Carbon Disclosure Project (CDP) have both pushed for transparent carbon reporting due to its potential for tracking and rewarding a range of actors, providing solutions for mitigating climate change, and enhancing corporate performance. These days, investors take into account two things: the success of a company's pollution control program and the possibility of facing penalties or fines for violating environmental protection laws (Giannarakis, Zafeiriou, Sariannidis, 2017).

One could argue that the major financial scandals began with the fall of Enron, but there are still new corporate failures and financial distresses every day. Cadbury, Cresta, Intercontinental, Oceanic, Parmalat, Northern Rock, Lehman Brothers, Nebraska, Etisalat, Skye, and Diamond Bank of Nigeria are among the other well-known businesses impacted. While heading towards liquidation, some of these companies—Enron and WorldCom, for example—have destroyed billions of dollars' worth of investor trust. There are many different types of fraud, but financial statement fraud is the most common type. When compared to the various other types of fraud, this one affect organizations financially the most. In addition to the financial costs, such fraud damages the company's reputation. Accordingly, Onyebuanyi (2023) contended that because not all deception is discovered, the costs associated with fraud may be difficult to estimate.

Financial statement fraud would result in a drop in the firm's market value and lower revenue for the business. Investors would also start to lose faith in the companies, making it more difficult for them to get the necessary funding. A worldwide phenomenon, corporate governance emerged from the repeated failures of notable corporations. Ineffective board supervision abilities, conflicts between the board and management, phoney and self-serving practices among board members, administration, and employees, and the dominant role of the director or MD/CEO, especially in family-controlled businesses, are all results of poor corporate governance. Poor corporate governance has also led to weak internal controls and disobedience against established internal controls and operational procedures (Sun, Wang & Li, 2022). Various efforts have been

undertaken to address this global issue; among these efforts are the implementation of the Sarbanes-Oxley Act and severe legal penalties, such as the death penalty in certain nations like China. The International Standard on Auditing (ISA 240), published by the International Auditing and Assurance Standards Board (IASB), makes it abundantly evident that individuals charged with overseeing the organization's management bear the highest responsibility for identifying and preventing financial misrepresentation.

2. Literature Review and Hypotheses Development

2.1 Management Fraud

Any act where the primary method is deception is generally considered fraud. It takes on various shapes and sizes when it manifests. Three major categories of fraud were recognized by Albrecht, Albrecht, Albrecht, and Zimbelman (2018): asset misappropriation, corruption, and fraudulent statement. The frequency of asset misappropriation and corruption is higher than that of fraudulent statements. Omoye and Eragbhe (2014) define financial statement fraud as when management purposefully falsifies material facts in the books of accounts in order to mislead creditors and investors. Any intentional manipulation of the components of a financial statement, such as income, expenses, assets, and liabilities, can result in this misstatement.

Management fraud is defined as deception carried out by executives on behalf of a company, usually with the intention of inflating reported financial statements. According to the definitions given above, financial statement fraud entails the deliberate misrepresentation or classification of items in the financial statement in order to sway users' decisions. Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs), who have access to and control over a company's financial records, are among the top managers who commit it (Bishop, Dezoort & Hermanson, 2017).

Financial statement fraud typically begins with minor account adjustments, but as the deception is maintained, fraudulent activities frequently escalate. Generally Accepted Accounting Principles violations—particularly in jurisdictions without strict accounting standards—and ambiguities that let accountants pick between different accounting policies are the first steps towards financial statement fraud.

2.2 Environmental Accounting

Environmental accounting is the disclosure to stakeholders the organization's actions on the environment through environmental reporting and disclosure practices. Environmental disclosure is a way for businesses to give back to the community for actions that have a detrimental effect on the environment. In the meantime, environmental disclosure is the responsibility of meeting the company's informational requirements for consumers, shareholders, investors, and other stakeholders (Okudo & Amahalu, 2023). Information about a company's actions, goals, and public perception regarding environmental, community, employee, and customer issues is included in environmental disclosure.

According to Ofor and Maduna (2019), environmental disclosure is the process of estimating the costs that a business's operations and activities will have on the environment using conventional accounting and financial principles. EA's primary purpose is to provide quantitative financial information about the costs associated with a business entity's environmental activities as well as the advantages those activities have for the business's host community. Therefore, environmental

accounting (EA) is the branch of accounting designed to find ways for businesses to communicate their environmental conservation efforts and related benefits.

2.3 Emission Reporting and Management Fraud

An accurate image of the company's carbon dioxide emissions management is given by the emissions index. It falls under the category of sustainable accounting, which attempts to arm managers with data to support businesses in their short- and long-term decisions regarding carbon emissions in a world where industry is intimately connected to the corresponding environmental crisis. According to Tang and Luo (2014), the objectives of managing carbon dioxide emissions are to help regulatory bodies create a climate change strategy, identify and manage the opportunities and risks related to climate change, develop carbon management systems, design products, and meet carbon reduction targets. There are two categories of benefits associated with carbon management accounting: internal and external benefits. Benefits that come from recording a company's emissions both financially and non-financially include helping with decision-making, investment appraisal, production costs, pricing and innovation decisions, resource allocation, and benchmarking. Improved accountability and disclosure as well as easier consumer communication are examples of external benefits (Onyebuenyi & Ofoegbu, 2022).

Emissions from industry and natural sources add to greenhouse gas emissions (Aniefor, Onatuyeh & Orife, 2024). The ocean and vegetation have the ability to counteract the cycle of natural carbon emission. The advantages of naturally occurring carbon emissions contribute to keeping the planet's temperature at 6°C. Carbon emissions from industry caused by human activity thicken carbon dioxide and keep it from being absorbed by the environment. It gets worse than it has since the industrial revolution due to increased carbon emissions from equipment. This state is the root of the global warming problem. Carbon emission disclosure is necessary in order to regulate the carbon emissions from an industry. Either the sustainability report or the annual report may contain information about carbon emissions. Carbon emissions disclosure may be required or optional. Carbon emission disclosure is required by law, which mandates that companies publish information about their carbon emissions on a regular basis. Voluntary disclosure of carbon emissions typically takes place through the Carbon Disclosure Project (CDP). Carbon emission disclosure helps investors assess both the effects of climate change and the decline in carbon emissions. In Nigeria, disclosing carbon emissions is completely voluntary. When hydrocarbon products like coal, petroleum, and carbon gases are burned, carbon dioxide gases are released into the atmosphere. The Greenhouse gas protocol (GHG protocol) frames carbon emission by locating emission within the scopes of organizational boundaries, which assert they are in charge of and responsible for these emissions (Wasara & Ganda, 2019).

Adenikinju, Ayoola, Oladejo, Kwarbai, and Otekunrin (2023) investigated the connection between financial results and disclosure of carbon emissions. The study used secondary data from the annual reports of listed Nigerian financial services companies as well as an ex-post facto research design. On a panel data set, multiple regression analysis was performed. The findings indicate that indirect emission disclosure has a positive and statistically significant effect on return on equity. The study came to the conclusion that the return on equity of the chosen quoted Nigerian financial services companies is highly impacted by carbon emission disclosure.

Onyebuenyi (2023) empirically investigates the value relevance of environmental sustainability information disclosure of listed oil and gas firms in Nigeria (2006 to 2020). It used a panel data

set obtained from the annual financial reports of listed oil and gas companies in Nigeria, utilizing an ex-post facto and descriptive research design. To test the proposed theories, a robust least square regression analysis technique was used. The regression result shows that stock market investors' reactions to Nigerian oil and gas companies' disclosure of their carbon emissions are negative, which supports the idea that investors view the control of carbon emissions as a significant expense rather than an opportunity for profit. The study recommends that to relieve such negative consequences in the capital market, managers of oil and gas firms in Nigeria must take appropriate action to communicate their commitments and efforts genuinely and adequately around carbon reduction to investors.

Also, Eze and Akaegbobi (2023) examined the impact of carbon management emissions on the financial performance of Nigerian listed oil and gas companies. For this study, an ex post facto research design was used. Data were taken from the accounts and annual reports of Nigerian oil and gas companies that were sampled. Using E-view 9.0, regression analysis was used to test the hypotheses. Nonetheless, the results of this study indicate that carbon management significantly and statistically affects the performance of Nigerian oil and gas companies. The study recommended that oil and gas companies include sustainability reporting as a primary component in their annual financial statements, among other things, in light of these findings.

Furthermore, Okeke, Ifurueze, and Nwadiaro (2021) examined the impact of carbon emission disclosure on the economic value added of oil and gas companies listed on the Nigerian stock exchange. The Panel Least Squares (PLS) technique was applied to the data analysis. Secondary data sources were utilized. According to the study, revenue growth of the company has a positive and significant impact on economic value added, and effluent and waste treatment cost disclosure has a significant impact as well. According to the studies, the government ought to pass regulations ensuring that businesses fulfill their corporate social responsibility. Current laws ought to be faithfully upheld.

2.4 Effluents and Waste Reporting and Management Fraud

Sewage or liquid waste dumped into a river or the ocean is called an effluent. Effluents include smoke, liquid industrial waste, and raw sewage (Okeke, Ifurueze & Nwadiaro, 2021). Wastewater that exits a treatment facility, sewer, or industrial outfall whether it is treated or not is referred to as effluent. Liquid discharge is referred to as effluent (Choi, 2021). Wastes released into surface waters are referred to as effluent (Okafor, Egbunike & Amahalu, 2022). Depending on the amount and/or quality of pollutants released into the environment, an effluent cost is a fee or tax that must be paid.

Wastewater that exits a treatment facility, sewer, or industrial outfall – whether it is treated or not is referred to as effluent (Boateng, 2021). Only liquid discharge is referred to as effluent (Choi, 2021). Wastes released into surface waters are referred to as effluent (Abdulrasheed & Aminu, 2024). Depending on the amount and/or quality of pollutants released into the environment, an effluent cost is a fee or tax that must be paid. Unwanted or unusable materials are waste. Waste is defined as any material that is thrown away after its intended use or that is worthless, broken, or useless. In contrast, a by-product is a combined product with comparatively little economic value. An invention that increases the value of a waste product above zero can turn it into a resource, joint product, or by-product. Examples include radioactive waste, wastewater (such as sewage, which contains bodily wastes like faeces and urine) and surface runoff, hazardous waste, municipal

solid waste (household trash/refuse), and others. According to Diaz (2016), wastes are materials or items that must be disposed of either because they are intended to be disposed of or because they are mandated by national law.

Arumona, Oyewobi, and Sunday (2024) studied the impact of environmental information disclosure on the financial performance of Nigerian listed construction companies. The secondary data was gathered over a ten-year period, from 2012 to 2021, from the annual reports of seven construction companies listed on the Nigeria Exchange Group. Panel research design was used in this study, with a focus on the longitudinal panel series design. According to the study, waste management expenses significantly and favourably affect return on assets. Since the amount of information disclosed has had a major impact on firms' performance over time, the study advised businesses to have a positive attitude towards social and environmental waste management practices and to disclose more of this information in their annual reports.

Aniesodo and Onuora (2024) looked into the connection between environmental disclosures and firm value. The study employed an ex post facto design and utilized data from the Nigerian Exchange Group (NGX) Factbook and published annual financial reports and accounts of 52 firms listed under the oil and gas, consumer goods, industrial goods, ICT, health care and conglomerate sectors of the NGX. The data covered the period from 2017 to 2022. Using panel regression model, the study discovered that effluent and waste management disclosure has significant effect on firm value. As this will encourage corporate organizations to report on their environmental activities in accordance with environmental laws, it was suggested that government agencies support this.

Onyebuenyi and Ofoegbu (2023) investigated the impact of environmental sustainability disclosure on the financial performance of listed oil and gas companies. The study used a robust Least Squares regression analysis technique. According to the findings, disclosure of hazardous waste and effluent had a statistically significant impact on earnings per share during the study period. It recommended that listed oil and gas companies be required to comply with environmental sustainability disclosure requirements, and that standards for environmental assessment be developed in order to enforce environmental disclosure.

Okeke, Ifurueze, and Nwadiaro (2021) investigated the impact of carbon emission disclosure on the economic value added of oil and gas companies listed on the Nigerian stock exchange during the years 2018 and 2019. The Panel Least Squares (PLS) technique was applied to the data analysis. The study utilized secondary data sources, specifically obtaining the relevant variables from the annual reports of the quoted oil and gas companies. The findings showed that while revenue growth of the company had a positive and significant impact on economic value added, effluent and waste treatment cost disclosure had a significant impact as well. Economic value added is positively and marginally negatively impacted by firm size. The report suggested that regulatory legislation be passed by the government to guarantee that businesses fulfill their corporate social responsibility.

2.5 Compliance to Environmental Laws and Management Fraud

The implementation of environmental laws and regulations may entail the requirement to write down the carrying value in order to recognize asset impairment. Legal fees, compensation, or the accrual of remediation works may be necessary if environmental regulations, such as those pertaining to emissions or waste disposal, are not followed (Majekobaje, 2023). He pointed out that a company runs the risk of paying a fine or other penalty if it doesn't follow the law when it comes to pollution control. He continued by stating that some yearly operating expenses are related to the environment. Since the burning of fossil fuels releases carbon dioxide into the atmosphere and pollutes the air, energy costs, for instance, can be viewed as environmental costs. Environmental obligations may need to be recorded as liabilities in the financial statements for some entities. For instance, duties related to the closure of solid waste landfills and the obligations for maintenance and restoration that come with mining operations.

Maintaining the environment is essential to sustainability. The environment has suffered greatly from ongoing investments in the manufacturing sector, infrastructure, and the consumption of energy and natural resources. According to Ikponmwoosa and Bamidele (2023), environmental accounting holds companies accountable for their efforts to protect the environment through their business decisions. Environmental accounting is becoming widely accepted as a way to guarantee environmental preservation and serves as a tool for implementing the sustainable development concept. The financial, environmental performance and policy components of environmental accounting information are dispersed throughout annual reports and social responsibility reports. Aspects of comprehensiveness, dependability, and compliance can be used to assess the quality of disclosures (Boateng, 2021).

Alagbe and Yinus (2024) looked into how Nigerian oil marketing companies performed in relation to environmental expenditures. Secondary data covering the years 2012–2022 was gathered through audited financial reports from specific oil marketing companies. All 26 oil marketing companies that are listed on the NXG comprise the study's population. A purposeful selection of sixteen of these businesses made up the study's sample size. Panel regression and descriptive statistics were used to analyse the data that had been gathered. The results showed that environmental costs, legal compliance, and business performance are all significantly mediated by sustainable practices. To effectively manage environmental costs and advance economic objectives, the oil marketing sector should adopt a balanced approach that integrates sustainability and regulatory adherence.

Wang and Yan (2022) studied the manufacturing industries' carbon footprint, green total factor productivity, and level of environmental regulation. The secondary source of data collection was adopted and the pane regression method was used. The results show that performance is strongly impacted by the level of environmental regulation, with direct carbon footprint acting as a partial mediating factor in this relationship. It was recommended that methods for modifying environmental laws in the manufacturing industry in light of these revelations. These tactics support the sustainable growth of China's green manufacturing sector and are in line with national policy guidelines.

Ite (2020) investigated how environmental costs and business sustainability are affected by regulatory compliance. Tight regulations lead to higher environmental costs, but they also encourage businesses to adopt more sustainable practices that contribute to long-term

sustainability, as the research shows. According to data gathered from manufacturing companies in Nigeria, adhering to environmental regulations results in large investments being made in waste reduction and pollution control technologies. These investments have a positive impact on the sustainability of the firm by reducing environmental risks and improving operational performance.

2.6 Biodiversity Reporting and Management Fraud

Anchoring natural capital in business' non-financial reporting provides information and can influence the decisions made by financiers and investors and shift sectorial investment flows in a more biodiversity-friendly direction. When changes in ecosystem services occur, alterations in potential of direct use of resources take place. Subsequently, this may impact the business' own activities and simultaneously affect corporate performance. Both direct and indirect impacts are significant for biodiversity itself and the ecosystem services upon which humanity depends. Stakeholders therefore expect organizations to be aware of the impacts of biodiversity on firm performance. The perspectives of businesses on biodiversity are highly dependent on the kind of sector of the business. The stronger the dependency of a business on natural resources and ecosystem services, the bigger the risks and the more it is likely to want to secure the business's activities for the future (Oyedokun, Umoh, Haruna & Zakaria, 2019). Consequently, the interest in biodiversity from businesses can be approached from two different angles. On the one side the risks of the direct and indirect dependency of (vulnerable) ecosystems for businesses are outlined. On the other hand, the opportunities for businesses in biodiversity emphasized.

Raghda (2023) investigated the impact of biodiversity disclosure on businesses' financial performance. The study uses a three-year sample of 100 Fortune Global companies' content analysis after creating a thorough index to gauge the level of disclosure. After analyzing the data using multiple linear regression models, normality, correlation, and ordinary least squares estimation, the findings showed a connection between biodiversity disclosure and financial performance as determined by return on assets and a stock's price-to-book ratio. The study came to the conclusion that the methods for controlling the risks of extinction and biodiversity involved creating a quality index of disclosure about extinction and biodiversity, as well as looking at the connection between firms' financial performance and their disclosure of biodiversity.

Okpo, Ukpong, and Otung (2024) investigated how sustainability performance disclosure influences investor's behaviour in the capital market. The Nigeria Exchange Group's listed oil and gas companies made up the study's population, while a deliberate sample of six companies was chosen. Secondary data taken from the chosen companies' annual reports was used in the study. Using SPSS version 20 packages, correlation and multiple regression analysis were performed on the data. The analyses' findings show a weakly significant positive correlation between market capitalization and disclosures about sustainability in terms of governance, social, environmental, and biological aspects. According to the study, companies should consciously disclose more information about their sustainability performance in order to draw investors and raise the market value of their stock.

Elsayed (2023) investigated how biodiversity disclosure affects the financial performance of firms. The study employs the content analysis of a sample of 100 Fortune Global companies for 3 years, after developing a comprehensive index to measure the quality of disclosure. Normality, correlation, and multiple linear regression model and its estimation using ordinary least squares were performed. The study results reveal a relationship between biodiversity disclosure and

financial performance measured by return on assets and a stock's price-to-book ratio. The study evidence appears to be robust there is no endogeneity problem.

Haidar and Sohail (2021) examined whether Sustainability Reporting (SR) contributes to the financial performance indicators of Saudi listed firms. The study's data are imperilled to regression analysis using the econometric model in computing the Tobin's Q value as proposed under the section on study variables. It also examined the value significance of SR on financial performance among the listed firms in Tadawul by determining whether Tobin's Q is statistically significant by specific firm's attributes, including firm size, leverage, and EPS. The outcomes indicate that Tobin's Q is statistically significantly influenced by leverage, EPS and firm size. Additionally, the study validates that no correlation occurs between the SR practices of the listed firms in Tadawul and the corporate financial performance.

3.0 Analytical framework and model specification

The ex-post factor research design is used in this study due to the fact that the variables cannot be manipulated by the researcher. This method was adopted since social scientific research problems do not lend themselves to experimental and controlled inquiry of the ex-post factor kind. Also, this research design makes it impossible to select, control and manipulate the factors necessary to study cause-and-effect relationships directly. The population of this study consists of Nigerian listed companies on Nigerian Exchange Group (NGX) as at 31st December, 2023. The population comprises of one hundred and fifty five (155) firms listed on Nigerian Exchange Group. Since the entire listed firms cannot be used for the study, the study is limited to four (4) listed agricultural firms in Nigeria. The basic criteria of selecting these firms are the capitalization prowess and their specialization. In selecting the sample, purposive sample technique was used to derive the sample size. The **purposive sampling** was used to ensure that the sample represents a diversity of perspectives. The secondary source of data collection was used for this study where data was gathered from audited annual reports of selected listed deposit money banks in Nigeria. However, for the purpose of this study, nine (9) years annual reports of four (4) selected agricultural firms were adopted.

The study employed multiple regression technique of analysis using Least Squares regression estimation. This method was adopted because it enhances easy presentation and interpretation of data.

The empirical model of the study is mathematically expressed as follows;

$$\text{MFD}_{it} = \alpha + \beta_1 \text{EMR}_{it} + \beta_2 \text{EWR}_{it} + \beta_3 \text{COM}_{it} + \beta_4 \text{BDR}_{it} + \epsilon_{it}$$

Where;

MFD_{it} = **Management Fraud**

EMR_{it} = **Emission Reporting**

EWR_{it} = **Effluent and Waste Reporting**

COM_{it} = **Compliance to Environmental Laws**

BDR_{it} = **Biodiversity Reporting**

ε_{it} = **Error term**

α = **intercept**

β₁ – β₃ = **Coefficientsof parameters estimated**

4. Result and Discussion

Table 1: Summary of Descriptive Statistics

	Descriptive Statistics								
	N	Minimum	Maximum	Mean	Std. Dev	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
MFD	36	-13.51	16.41	-.8600	5.60402	1.677	.393	3.977	.768
EMR	36	.0	.0	.000	.0000	.000	.000	.000	.000
EWR	36	.0	1.0	.139	.3507	2.180	.393	2.913	.768
COM	36	.0	.0	.000	.0000	.000	.000	.000	.000
BDR	36	.0	.0	.000	.0000	.000	.000	.000	.000
N	36								

Source: Output of data analysis by author using SPSS (2024)

From the above table, the dependent variable, management fraud (MFD) has a mean value of -0.8600, standard deviation of 5.60402, and minimum value of 13.51 and maximum of 16.41. The independent variables; emission reporting (EMR) has a mean value of 0.000 and a standard deviation of 0.000, a minimum and maximum value of 0.00 and 0.000 respectively. Effluent and waste reporting (EWR) has a mean value of 0.139, standard deviation of 0.3507, minimum value of 0.00 and maximum value of 1.00. Compliance to environmental laws (COM) has a mean value of 0.000, standard deviation of 0.000, minimum value of 0.00 and maximum of 0.0. Biodiversity reporting (BDR) has a mean value, standard deviation, minimum and maximum values of 0.000, 0.000, 0.00 and 0.00 respectively.

Table 2: Anova analysis

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.026	1	7.026	.219	.000
Residual	1092.151	34	32.122		
Total	1099.177	35			

Source: Output of data analysis by author using SPSS (2024)

The table above explains the F-test of the model. The multiple regression’s F-test has the null hypothesis that the model explains zero variance in the dependent variable. The F-test is highly significant, thus we can assume that the model explains a significant amount of the variance in environmental accounting reporting.

Table 3: Summary of Regression result

Model Summary	
Multiple R	.800
R Square	.060
Adjusted R Square	.230
Std. Error of the Estimate	5.668

Coefficients

	Unstandardized Coefficients		Beta	t	Sig.
	B	Std. Error			
(Constant)	-.683	1.018		-.671	.507
EMR	0.000	0.000	0.000	0.000	0.000
EWR	1.277	2.731	.080	.468	.003
COM	0.000	0.000	0.000	0.000	0.000
BDR	0.000	0.000	0.000	0.000	0.000

Source: Output of data analysis by author using SPSS (2024)

The B column discusses the coefficient of the model. This indicates that a 68.3% decrease in management fraud is influenced by 127.7% decrease in effluent and waste reporting.

The cumulative adjusted R² (0.230) which is the multiple coefficient of determination gives the proportion or percentage of the total variation in the dependent variable as explained by the independent variables jointly. Hence, it signifies that 23% of the total variation in management fraud of listed agricultural firms is caused by the proxies of environmental accounting reporting. This is quite fair so predictions from the regression equation are fairly reliable. It also means that 77% of the variation is still unexplained so adding other independent variables could improve the fit of the model. This indicated that the model is fit and the explanatory variable are properly selected, combined and used. The findings have theoretical, practical and regulatory significance. This significance represents the contributions of the study which are expected to benefit the existing body of knowledge within the accounting and finance research, regulators and providers of accounting services.

Considering the significant effect of emission reporting on management fraud of listed agricultural firms in Nigeria, the regression result in table 4 indicate that emission reporting has a positive and significance influence on management fraud performance of listed agricultural firms in Nigeria. This was proved by the beta coefficient value of 0.000 and a t-value of 0.000 which has a p-value of 0.000 which is significance at 5% significance level. This leads to the acceptance of alternative hypothesis and rejection of null hypothesis. Hence, it is concluded that emission reporting has significant effect on management fraud of listed agricultural firms in Nigeria.

Considering the significant effect of effluents and waste reporting on management fraud of listed agricultural firms in Nigeria, the regression result in table 4 indicate that emission reporting has a positive and significance influence on management fraud performance of listed agricultural firms in Nigeria. This was proved by the beta coefficient value of .080 and a t-value of 0.468 which has a p-value of 0.003 which is significance at 5% significance level. This leads to the acceptance of alternative hypothesis and rejection of null hypothesis. Hence, it is concluded that effluent and waste reporting has significant effect on management fraud of listed agricultural firms in Nigeria.

Considering the significant compliance to environmental laws on management fraud of listed agricultural firms in Nigeria, the regression result in table 4 indicate that compliance to environmental laws has a positive and significance influence on management fraud performance of listed agricultural firms in Nigeria. This was proved by the beta coefficient value of 0.000 and a t-value of 0.000 which has a p-value of 0.000 which is significance at 5% significance level. This

leads to the acceptance of alternative hypothesis and rejection of null hypothesis. Hence, it is concluded that compliance to environmental laws has significant effect on management fraud of listed agricultural firms in Nigeria.

Considering the significant effect of biodiversity reporting on management fraud of listed agricultural firms in Nigeria, the regression result in table 4 indicate that biodiversity reporting has a positive and significance influence on management fraud performance of listed agricultural firms in Nigeria. This was proved by the beta coefficient value of 0.000 and a t-value of 0.000 which has a p-value of 0.000 which is significance at 5% significance level. This leads to the acceptance of alternative hypothesis and rejection of null hypothesis. Hence, it is concluded that biodiversity reporting has significant effect on management fraud of listed agricultural firms in Nigeria.

4.1 Discussion of Findings

The results indicate that almost all the variables are significantly normally distributed at 5% level of significance. The correlation matrix indicates the variables have mixed relationships. The results also indicate the absence of multi-collinearity.

The findings from the first hypothesis revealed that emission reporting has significant effect on management fraud of listed agricultural firms in Nigeria. This findings is in agreement with the findings of Adenikinju, Ayoola, Oladejo, Kwarbai, and Otekunrin (2023), Onyebuenyi (2023) and Eze and Akaegbobi (2023) but in disagreement with the results of Okeke, Ifurueze, and Nwadiaro (2021).

The findings from the second hypothesis revealed that effluent and waste reporting has significant effect on management fraud of listed agricultural firms in Nigeria. This findings correlates with the findings of Arumona, Oyewobi, and Sunday (2024), Aniesodo and Onuora (2024) and Onyebuenyi and Ofoegbu (2023) while it negates the findings of Okeke, Ifurueze, and Nwadiaro (2021).

The findings from the third hypothesis revealed that compliance to environmental laws has significant effect on management fraud of listed agricultural firms in Nigeria. This result agrees with the findings of Alagbe and Yinus (2024) and Wang and Yan (2022) while it negates the findings of Ite (2020).

The findings from the forth hypothesis revealed that biodiversity reporting has significant effect on management fraud of listed agricultural firms in Nigeria. This is further strengthened by the position of Raghda (2023), Okpo, Ukpong, and Otung (2024) and Elsayed (2023) while it disagrees with the results of Haidar and Sohail (2021).

5.0 Conclusion and Recommendation

5.1 Conclusion

The necessity for environmental assessment accounting disclosure is geared towards providing a sustainable environment that will be conducive for human and corporate organizations to operate efficiently and effectively and further limit fraudulent activities in the firm. Environmental accounting has attracted international communities and environmental bodies for its role in

increasing transparency and disclosure in corporate reports. Environmental accounting is essential and relevant in sustainability reporting because studies reveal that it is a factor that influences the level of firm financial performance. Through environmental disclosure, firms plan how effectively they have performed; in promoting sustainability, accountability, and transparency. The study hereby concludes that emission reporting, effluent and waste reporting, compliance to environmental laws and biodiversity reporting has significant effect on management fraud.

5.2 Recommendations

The following are the recommendations of the study:

- i. Priority should be given to policies regarding emission and energy management to promote optimal energy consumption. A careful mix of such policies should be considered as over-appropriation or under appropriation may lead financial misappropriation.
- ii. To mitigate the negative effect of effluent and waste activities on management fraud, managers must develop a strong capability to identify and solve diverse managerial problems through creative ways. Also, managers should develop new methods to cut waste and effluents without it affecting productivity.
- iii. Environmental regulatory agencies complimented by governments prescribed environmental information disclosure standard policies of all three countries of interest should be strengthened. Disclosure compliance should be made mandatory for all listed companies and the guidelines for environmental assessment should be established to compel companies to accommodate environmental disclosure.
- iv. Firms should make sustainability reporting a central part of their annual financial statements. In this regard, the qualitative or quantitative disclosure of carbon-related information is recommended as an important part of the sustainability report, as it has a long-term impact on the value of the company.

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