

Waste Accounting and Market Value of Listed Manufacturing Companies in Nigeria: The Moderating Effect of CEO Academic Qualification

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Abstract: *Unsustainable business practices and inefficient waste management and disclosure practices have made investors to lose confidence which leads to dwindling market prices of these companies. The main objective of this study was to examine the moderating role of CEO academic qualification on the effect of waste accounting on market value of listed manufacturing companies in Nigeria. The research design adopted for the study was ex post facto, secondary data were employed and purposive sampling technique was adopted to select 29 out of 62 listed manufacturing companies. The panel least square regression analysis was used to analyse the data and the statistical package employed was STATA version 17. The results from the analysis revealed that carbon disclosures (coeff. = 10.544[0.042]) have significant positive effect on earnings multiple; effluent and water disclosures (coeff. = -2.488[0.621]) have no significant effect on earnings multiple; waste recycling disclosures (coeff. = 7.730[0.129]) have no significant effect on earnings multiple; CEO academic qualification strengthens the relationship between waste accounting disclosures and market value of listed manufacturing companies in Nigeria. It was thus concluded that investors value*

firms that are environmentally responsible in terms of their waste management and disclosure practices with CEO academic qualification significantly strengthening this effect. Based on these findings it was recommended among others that manufacturing companies should integrate waste recycling disclosures into annual reports or sustainability reports with verifiable metrics as this may help attract environmentally conscious investors and further boost their market values.

Keywords: waste accounting, market value, earnings yield, CEO qualification, waste recycling disclosure, carbon emission disclosure

INTRODUCTION

The growing emphasis on sustainability, environmental stewardship and corporate accountability has made waste management and disclosure practices of firms to be one of the benchmarks guiding investors decision making. Waste accounting, a specialized aspect of environmental accounting, provides a comprehensive framework for tracking, managing and reporting the costs and impacts associated with waste generation and disposal. By tracking and analysing waste generation, companies can implement strategies to reduce waste production, minimize resource consumption and optimize operational processes. According to Nkanga et al. (2023), as consumer and investors awareness of environmental issues increases, firms are under pressure to adopt more sustainable practices, including waste accounting. Firms' environmental initiatives transmit the idea that they are "doing the right thing" without external pressure, and they act as firms' acknowledgment that these firms can coexist with society and operate within the sphere of ethical behavior (Meng & Zhan, 2023). By implementing such initiatives, firms do not only avoid the legal consequences of environmental irresponsibility, but they also attain higher levels of trust from society. Consequently, the focus on good ethical practices can lead to good firms' performance and improved valuation by the investors. (Tang, 2024). The capital market has also become more responsive to nonfinancial disclosures, especially those that aligns with sustainability and environmental responsibility. Investors are paying closer attention to how companies manage waste, reduce environmental risks and implement sustainable practices (Fandella., 2023). Thus, waste accounting serves as a strategic communication tool that enhance investors confidence and firm valuation.

In response to the increased attention on environmental protection by societies, firms now take proactive actions to reduce waste by producing environmentally friendly products and implementing new business processes in order to pursue long-term sustainability (Mishra & Suar, 2020). It has also been found that firms' irresponsible business practices can agitate stakeholders. For instance, a higher level of waste generation, with minimal recycling at the firm level, can offend stakeholders. In this regard, some firms may have to face the wrath of stakeholders, including boycotts of or reductions in purchases of the firms' products and legal actions against the firm (Hayes & Pereira, 2020). The market value of a firm is a collection of non-financial and financial measures that give information on the level of attainment of objectives as well as outcomes (Nkanga et al. 2023). Earnings multiple, often represented as the price-to-earnings (P/E) ratio, is a measure of investors' confidence in a company's future earnings and growth prospects. Changes in the earnings multiple can provide valuable insights into investors' sentiment and confidence in a company's earnings potential and overall

prospects. According to Ozioko and Onah (2022), a higher earnings multiple implies that investors are willing to pay a premium for the company's current earnings, anticipating strong future earnings growth.

As key drivers of corporate sustainability reporting, CEOs bear the mantle of steering all facets of a company's operations, encompassing strategic, operational, and financial reporting (Akpan & Nkpodot, 2025). Moreover, CEOs are tasked with identifying and capitalizing on new business opportunities; and their decisions directly shape the company's trajectory and outcomes (Al-Dhamari et al., 2022). The role of education in decision-making, is broadly acknowledged as a critical determinant in shaping an individual's perspectives and values (Fandella., 2023). CEO with higher education or specialized training are better equipped to understand complex waste accounting practices and translate disclosures into strategic communication that boost investors' confidence. Highly educated CEOs are more likely to integrate waste accounting disclosures into long term sustainability strategy and this strengthen the signals to the market (Ramón-Llorens et al., 2017).

Moreso, there have been serious environmental degradation, pollution, terminal sicknesses, climate change, loss of lives in the ecosystem as a result of unsustainable business practices and inefficient waste management strategies. Also, despites the growing importance of environmental sustainability, many manufacturing firms fail to provide adequate information about their waste management practices and this affect their market valuation. This is evidenced in the continuous decline in the market price per share of manufacturing companies in the Nigerian Exchange Group as against the market price per share of banks and other financial institution (Nkanga et al. 2023). Without transparent disclosures of waste management practices, firms might be perceived as lacking commitment to environmental sustainability, thus reducing their attractiveness and investors' confidence. The empirical reviews revealed some literature gaps. Firstly, most of the studies reviewed focused on environmental accounting and waste accounting was only mentioned as a proxy (Etuk et al. 2024; Etim et al. 2024; Akpan & Nkanta, 2023; Bankole & Oluwayomi, 2023). Also, most of the studies on waste accounting focused on other performance measures other than earnings yield such as return on equity, market capitalization, and earnings per share((Kurnia et al., 2020; Mohammad & Aisa, 2020; Akpan & Nkanta, 2023). Worst still most of the studies on waste accounting were conducted outside the shores of Nigeria. In all these there was no unanimous agreement on the effect of waste accounting on market value or financial performance because of different findings. Therefore, it is paramount to ascertain the moderating role of CEO academic qualification on waste accounting and market value of listed manufacturing companies in Nigeria.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical framework

This study was supported by three fundamental theories which were legitimacy theory, agency theory and stakeholders' theory. Legitimacy theory is derived from the concept of organizational legitimacy and was propounded by Dowling and Pfeffer in 1975. Legitimacy theory posits that organization operate within a social contract, where they are expected to

conform to societal norms, values and expectations. To maintain legitimacy, organizations must demonstrate their commitment to societal and environmental responsibility (Nkanga et al. 2023). The agency theory was first propounded by Ross and Mitnick in 1932 and was promoted by Jensen and Meckling in 1976. This theory explains the relationship between principals (shareholders) and agents (managers) in an organization. The theory posits that agents may not always act in the best interest of the principals, due to conflicting goals, information asymmetry or differing risk preferences (Jensen & Meckling, 1976). Agency theory suggests that waste accounting practices can help mitigate agency problems by providing shareholders with more information about waste management practices. Stakeholder theory as propounded by Freeman in 1984 emphasized that companies should consider the interests of all stakeholders, including shareholders, employees, customers, communities, and the environment, when making business decisions. Companies that engage in non-mandatory information disclosures demonstrate their awareness of and responsiveness to the diverse needs and concerns of stakeholders. According to Harrison et al. (2015), in order to succeed and be sustainable overtime, business executives must keep the interest of customers, suppliers, employees, communities and shareholders aligned and go in the same direction. For this research, stakeholder theory is essential since it identifies many parties other than shareholders who should be satisfied by organizational behaviour.

Carbon disclosures and earnings multiple

Carbon disclosure refers to the disclosure of greenhouse gas emissions and other equivalent gases to stakeholders and the effort the company has made to reduce carbon footprints. According to Okeke et al. (2021) carbon disclosure refers to a proven method of communicating information about a company's carbon emissions, carbon assets, carbon management strategy, and potential opportunities and challenges related to carbon emissions to stakeholders, ensuring that investment decision makers, business managers, and external regulators have access to useful information for decision making. A carbon disclosure rating is a measure of the environmental sustainability of a company, based on voluntary disclosures by the company itself. The earnings multiple reflects a firm's valuation based on its earnings potential. Carbon disclosures can influence this metric through operational and reputational factors. Ilelaboye and Alade (2022) noted that companies with lower carbon emissions and effective mitigation strategies may be perceived as more resilient and attractive investments, leading to higher earnings multiple. Firms with robust carbon disclosures often experience higher earnings multiples due to reduced regulatory risks and improved market perception (Benson et al., 2021). In industries where environmental compliance is perceived as a standard requirement, the disclosures may have minimal incremental benefit. Positive impacts arise from enhanced investor confidence, risk mitigation, and alignment with global sustainability trends. Negative impacts may result from perceived costs, highlighted risks, or reputational concern. Transparent disclosures can attract these investors, increasing demand for the company's stock and driving up valuation multiples (Ilelaboye & Alade, 2022). Previous studies have shown varying relationship between carbon emission disclosures and firm performance. For instance, Eniefiok et al. (2024) concluded that carbon emissions disclosure and renewable energy consumption disclosure each had a significant positive relationship with market capitalization. Ilelaboye and Alade (2022) in their studies concluded that carbon emission cost disclosures exerted a direct and insignificant influence on financial performance.

Ojiakor et al. (2022) revealed that the degree of carbon emission disclosure and effluent disclosures in the financial statements of motor vehicle manufacturing firms in the South East, Nigeria significantly affects firms' performance. Akpan and Nkanta (2023) investigated the effect of green accounting practices on shareholders' value in Nigeria and found out that biodiversity disclosure and compliance to environmental laws disclosures have a positive significant effect on shareholders' value added; Kurnia et al. (2020) found that carbon emission disclosure and good corporate governance have no direct effect on firm value. Li et al. (2020) found in Malaysia that carbon emission disclosures have positive effect on corporate financial performance with its impact weakening under stringent environmental regulations and reversing under low media favorability. Based on the foregoing, it was hypothesized that;

Ho1: Carbon disclosures have no significant effect on earnings multiple of listed manufacturing companies in Nigeria.

Water and effluent disclosures and earnings multiple

Water and effluent disclosures refer to the communication of water usage, consumption, discharge and the quality of effluent discharge to the companies' stakeholders. According to Naddeo and Liu (2020), effluent disclosures provide transparency regarding the quantity and quality of wastewater generated by a company's operations. This information is essential for assessing environmental impacts, compliance with regulations, and potential risks to water resources. Water and effluent disclosures can also influence a firm's earnings multiple by highlighting cost efficiency and long-term sustainability. According to Ojiakor et al. (2022), disclosures related to water management and effluent discharges can affect a company's earnings multiple. Positive water stewardship practices and transparency in reporting water-related risks and opportunities may be associated with a higher valuation by investors. Enhanced operational efficiency through water and effluent management contributes to cost savings, leading to higher earnings multiples (De Villiers & Van Staden, 2011). Previous studies have shown that water and effluent management practices and their disclosures can significantly impact on firms' performance. For instance, Dwi et al. (2024) found that effluent disclosures positively affects environmental performance. Sumiati et al. (2021) water and effluent disclosures have a greater impact in profitability compared to environmental performance. Nwokeji (2020) found out that disclosure on effluence has significant negative effect on firm value. Akpan and Nkanta (2023) investigated the effect of green accounting practices on shareholders' value in Nigeria and found out that effluent and water disclosures have positive significant effect on shareholders' value added; Oyedokun et al. (2019) found that effluent accounting disclosures have a positive significant effect on firm value. It was based on the foregoing discourse that this study hypothesized that;

Ho2: Water and effluent disclosures have no significant effect on earnings multiple of listed manufacturing companies in Nigeria.

Waste recycling disclosures and earnings multiple

According to Elsayed (2023) the purpose of waste recycling disclosure is to increase transparency and accountability regarding a company's environmental impact, particularly its waste footprint. By disclosing their waste recycling efforts, companies demonstrate their

commitment to sustainability and responsible resource management, and provide stakeholders with valuable information to assess their environmental performance. Disclosing waste recycling efforts can signal operational efficiency and innovation, which are critical for boosting earnings multiples (Feze et al., 2020). However, Nwokeji (2020) construed that it is crucial for organizations to integrate waste recycling strategies into their overall sustainability framework, ensure transparency in reporting practices, and align environmental initiatives with long-term value creation to maximize the positive impact on market value. Effective waste recycling practices lower production costs, improve profitability, and enhance earnings multiples ((Dewi et al., 2024). Previous studies have shown that waste recycling practices and their disclosures can significantly impact on firms' performance. For instance, Dewi et al. (2024) revealed that waste recycling disclosure has no significant effect on firm value. Ilelaboye and Alade (2022) found out that waste recycling cost had adverse and material influence on financial performance; Ekolm and Vuetma (2021) found that waste recycling disclosures have a positive and significant influence on the earnings multiple. Carandang and Ferrer (2020) found that waste recycling disclosures has significant influence on profitability (ROE) with the moderating effect of location, firm size, board size and firm value (Tobin's Q). Nwokeji (2020) found out that waste recycling disclosures have significant positive effect on firm value. Oyedokun et al. (2019) found that waste recycling disclosures have a negative significant effect on firm value of industrial goods companies in Nigeria. Thus, based on these mixed findings, this study hypothesized that;

Ho3: Waste recycling disclosures have no significant effect on earnings multiple of listed manufacturing companies in Nigeria.

CEO academic qualification as a moderator

The CEO's academic qualification can play a moderating role in the relationship between waste accounting disclosures and market value. CEOs with relevant educational backgrounds are more likely to produce high-quality environmental disclosures, which can enhance firm value by improving stakeholder trust and meeting regulatory expectations. According to Igbinoia and Ekwueme (2024), a well-educated CEO is more likely to adopt and effectively communicate sustainability initiatives, strengthening the positive impact of disclosures on market value. CEOs with advanced academic qualifications often have better insights into the financial implications of environmental practices, ensuring alignment with shareholder interests (Etim et al., 2024). Studies suggest that firms with CEOs holding advanced degrees (e.g., Ph.D., MBA) are more likely to achieve higher market valuations when they disclose environmental information (Bertrand & Schoar, 2003; Igbinoia & Ekwueme, 2024). Dwi et al. (2024) found out that CEO academic qualification positively moderate the relationship between green accounting disclosure and firm performance. Igbinoia and Ekwueme (2024) found that CEO attribute significantly mediate the effect of environmental disclosures on the firm value of sampled firms in Nigeria. Elmghaamez et al. (2023) found that the association between market-based performance outcomes and ESG disclosure was positively moderated by CEO qualification. Akpan and Nkpodot, (2025) examined the effect of board diversity on the sustainability disclosure of industrial goods companies listed on the floor of the Nigeria Exchange Group and found that board nationality diversity, board age diversity and board experience diversity have significant effect on sustainability disclosures of these

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companies. Pedron et al. (2021) found out that highly educated CEO especially those with professional certificates and background in accounting significantly influence strategic decision on corporate disclosures. Kurnia et al. (2020) found out in their study that CEO financial expertise mediates the effect of carbon emission disclosure and corporate governance on firm value. Li et al. (2020) found in Malaysia that CEO academic qualification does not significantly moderate the relationship between waste accounting and corporate financial performance. Based on the foregoing, it was hypothesized that;

H₀₄: CEO academic qualification significantly moderate the relationship between waste accounting and earnings yield of listed manufacturing companies in Nigeria.

METHODS

The research design adopted for this study was ex post facto as data used were historical data. The population of this study consisted of 62 manufacturing companies listed on the floor of the Nigerian Exchange Group from 2014-2023. The sample size of this study were 18 (out of 21) listed consumer goods firms and 11 (out of 13) industrial goods firms giving a total of 29 purposively selecting manufacturing companies. Secondary data sourced from the studied firms annual reports were used. The data for wasting accounting were derived using content analysis. The disclosure checklist was developed based on Global Reporting Initiatives disclosure guidelines and theoretical developments by previous researchers. The score or disclosure index for each disclosure parameter was the ratio of aggregate actual disclosure to the expected disclosure. This is given thus;

$$\text{The disclosure index} = \frac{\text{Aggrgate actual disclosure score}}{\text{Total Expected disclosure}} \times 100$$

Panel regression analysis was used in analyzing the data since the data had both time series (2014 to 2023) and cross-sectional properties (listed manufacturing firms in Nigeria). The statistical software package that was employed in analysing the data was STATA version 17. In line with the previous researches, the researcher adapted and modified the Model of Igbinovia & Ekwueme, (2024) in determining the effect of waste accounting disclosures on market value of manufacturing companies in Nigeria. This is given below:

$$\text{Earnings multiple} = f(\text{Carbon disclosures, effluent and water disclosures and waste recycling disclosures}) \quad (\text{i})$$

Unmoderated regression model

$$\text{EAMU}_{it} = \beta_0 + \beta_1 \text{CABD}_{it} + \beta_2 \text{EWAD}_{it} + \beta_3 \text{WARD}_{it} + \epsilon_{it} \quad (\text{ii})$$

Moderated regression model

$$\text{EAMU}_{it} = \beta_0 + \beta_1 \text{CABD} * \text{CEOQ}_{it} + \beta_2 \text{EWAD} * \text{CEOQ}_{it} + \beta_3 \text{WARD} * \text{CEOQ}_{it} + \epsilon_{it} \quad (\text{iii})$$

Where;

EAMU	=	Earnings multiple
CABD	=	Carbon disclosures
EWAD	=	Effluent disclosures
WARD	=	Waste recycling disclosure
CEOQ	=	CEO qualification

β_0	=	Model intercept
β_1, β_3	=	Coefficient to be derived from results of data analysis
it	=	Cross section of listed manufacturing companies with time variant
ϵ_{it}	=	Stochastic error term

4.0 Results and discussion

Results

Table 4.1 Descriptive statistics of waste accounting and market value of listed manufacturing companies in Nigeria

Variable	Obs	Mean	Std. Dev.	Min	Max
General sample					
Eamu	290	8.199	46.548	-450.228	256.809
Cabd	290	.523	.19	0	1
Ewad	290	.516	.195	0	1
Ward	290	.541	.195	.125	1
Ceoq	290	.9	.301	0	1

Source: Author's computation (2025)

Table 4.1 presents the descriptive statistics of this study. The results indicates that the average firm in the manufacturing sector between the period of 2014 to 2023 had about 8.2 as earnings multiple. This implies that investors are willing to pay 8.2 times average manufacturing company's earnings per share to buy its stock. The highest recorded earnings multiple was 256.81. For the first independent variable; carbon disclosures (cabd), on average, firms in the manufacturing sector between 2014 and 2023 had disclosure score of 0.523 (about 4 out of 8 items on the checklist) with a standard deviation of 0.19: a moderate level of variability. For effluent and water disclosures (ewad), the lowest score was 0 (0 out of 8 items on the checklist). In contrast, the highest score was 1 (8 out of 8 items). This depicts a scenario where firm(s) had taken their effluent and water issue seriously. The average firm in the manufacturing sector have 0.516 as effluent and water disclosure score. From table 4.1 also, waste recycling disclosure (ward) had an average score of 0.541 (about 4 out of 8 items on the checklist) with a standard deviation of 0.195 showing similar scenario of moderate variability as in the previously examined disclosures. For the moderating variable: CEO academic qualification (ceoq), it was observed from table 4.1 that the combined average was 0.9 with standard deviation of 0.301. This entails that CEOs in the manufacturing sector were highly educated with post graduate qualifications

Table 4.3 Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
eamu	290	0.642	73.939	10.085	0.000
cabd	290	0.997	0.543	-1.430	0.924
ewad	290	0.997	0.630	-1.083	0.861
ward	290	0.995	1.010	0.023	0.491
ceoq	290	0.948	10.708	5.556	0.000

Source: Author's computation (2025)

Table 4.3 presents the results of the normality tests conducted for each variable in the study. Out of the six variables examined, three were found to follow a normal distribution, while the other three did not. The dependent variable, earnings multiple (eamu) did not exhibit normality. This conclusion is based on their respective probability values of 0.000, which are statistically significant at the 5% level. In contrast, carbon disclosure (cabd) yielded a Z-statistic of -1.430 and a probability value of 0.924; effluent and water disclosures (ewad) showed a Z-statistic of -1.083 and a p-value of 0.861, the waste recycling disclosures (ward) variable demonstrated normality, with a Z-statistic of 0.023 and a p-value of 0.491, which exceeds the 0.05 threshold, indicating that the data followed a normal curve. Lastly, the variable for CEO academic qualification (ceoq) did not follow a normal distribution.

Table 4.4 Spearman's rank correlation coefficients for model 2 (earnings multiple)

Variables	(1)	(2)	(3)	(4)	(5)
Combined sample					
(1) eamu	1.000				
(2) cabd	-0.042	1.000			
(3) ewad	-0.038	0.080	1.000		
(4) ward	0.030	0.094	0.116	1.000	
(5) ceoq	0.047	-0.027	0.067	0.066	1.000

Source: Authors computation (2025)

Table 4.4 present the correlation analyses for this study. From table 4.4, it was observed that carbon disclosures (cabd) and earnings multiple (eamu) yielded an insignificant negative correlation coefficient of -0.042. Similar was the case for effluent and water disclosures (ewad) and earnings multiple (eamu) of the studied manufacturing firms with coefficient of -0.038. Waste recycling disclosures (ward) and earnings multiple (eamu) presented 0.030 as correlation coefficient. This is a weak coefficient showing a negligible relationship between waste recycling disclosures and earnings multiple of listed manufacturing firms in Nigeria. For CEO academic qualifications (ceoq), a correlation coefficient of 0.047 was the case when tested against earnings multiple (eamu). This was also a very weak coefficient suggesting a negligible relationship between waste recycling disclosures and earnings multiple of the sampled manufacturing firms.

Table 4.5 Regression result before and after moderation with CEO academic qualification for earnings multiple's model

	Before moderation			After moderation		
	(Pooled OLS) eamu	(Random Effects) eamu	(Iterated Robust LS) eamu	(Pooled OLS) eamu	(Random Effects) eamu	(Iterated Robust LS) eamu
Constant	-5.622 (0.689)	-5.622 (0.689)	8.046 (0.104)	0.320 (0.964)	0.320 (0.964)	8.009*** (0.001)
Cabd	9.084 (0.537)	9.084 (0.536)	10.544** (0.042)			
ewad	-7.987 (0.577)	-7.987 (0.576)	-2.488 (0.621)			
ward	1.222 (0.933)	1.222 (0.933)	7.730 (0.129)			
CEO acad	13.924 (0.130)	13.924 (0.129)	2.945 (0.362)			
cabd_ceoq				12.553 (0.363)	12.553 (0.362)	7.644** (0.013)
ewad_ceoq				-0.388 (0.977)	-0.388 (0.977)	-0.441 (0.926)
ward_ceoq				4.423 (0.752)	4.423 (0.751)	7.856 (0.108)
r ²	0.010	0.020	0.224	0.006	0.006	0.213
N	290.000	290.000	290.000	290.000	290.000	290.000
F/W	0.713	2.850	11.777	0.599	1.800	11.247
P	0.583	0.583	0.034	0.616	0.616	0.033
hettest	242.15(0.000)			156.58(0.000)		
Vif	1.03			1.52		
lagrange		0.00(1.000)			0.00(1.000)	

p-values in parentheses* *p* < 0.10, ** *p* < 0.05, *** *p* < 0.01**Source: Author's computation (2025)**

Table 4.5 presents the regression output examining the effect of waste accounting disclosures on earnings multiple, both before and after incorporating the moderating variable (CEO academic qualification). In the unmoderated model, the F-statistic of 11.777 with a corresponding p-value of 0.034 indicates that the iterated robust least square regression is

statistically significant and appropriate for inference. The model gave an R-squared value of 0.224 suggesting that 22.4% of the systematic variations in earnings multiple can be attributed to waste accounting disclosures of the studied manufacturing firms. The unexplained part (77.6%) is captured in the error term.

For the moderated model which incorporates the moderating effect of CEO academic qualification with the waste accounting disclosures proxies, an R-squared of 0.213 was the case; implying that 21.3% of the variations in dependent variable (earnings multiple) can be explained by the combined effect of waste accounting disclosures and the moderating role of CEO academic qualification. The unexplained 78.7% is captured in the stochastic error term. The F-stat of 11.247 with corresponding p-value of 0.033 indicates that the iterated robust least square regression is fit for statistically inference.

DISCUSSION OF FINDINGS

Output from table 4.5 presented coefficient and p-value of 10.544 and 0.042 respectively for the effect of carbon disclosures on earnings multiple of listed manufacturing companies in Nigeria. The probability value was statistically significant at 5% level of significance thus, carbon disclosures have a significant positive effect on earnings multiple of listed manufacturing firms in Nigeria. This implies that increase in carbon disclosures causes increase in earnings multiple in the sampled companies. When a manufacturing company provides extensive disclosures about its carbon emissions and related management practices, it signals to investors that the company is forward-thinking, risk-aware, and aligned with the growing global consensus on climate responsibility. Such disclosures suggest the company is actively mitigating potential regulatory, operational, and reputational risks associated with carbon emissions, thereby enhancing investor confidence in its long-term earnings sustainability. As a result, the market is likely to reward the company with a higher earnings multiple. This finding aligns with the studies of Ojiakor et al. (2022) and Ilelaboye who noted that companies with lower carbon emissions and effective mitigation strategies may be perceived as more resilient and attractive investments, leading to higher earnings multiple.

Also table 4.5 presented a coefficient of -2.488 and a p-value of 0.621 for the effect of effluent and water disclosures on the earnings multiple of listed manufacturing companies in Nigeria. While the negative coefficient suggests a possible inverse relationship, the high probability value (well above the 5% significance threshold) indicates that the relationship is statistically non-significant. In essence, effluent and water disclosures do not exert a significant effect on the earnings multiple of the sampled companies. This could suggest that effluent and water disclosures may be perceived by investors as compliance-based or operational disclosures that are mandated by regulatory authorities, rather than as strategic indicators of value creation. This perception could limit their influence on valuation metrics such as the earnings multiple. Also, it is important to note that many firms may still be in the early stages of integrating environmental concerns into their core business strategy. This finding aligns with works of Dwi et al. (2024); Akpan and Nkanta (2023); Sumiati et al. (2021) and Nwokeji (2020) who found out that disclosure on water and effluence has significant negative effect on firm value.

Similarly, output from Table 4.5 showed that waste recycling disclosures, with a coefficient of 7.730 and a p-value of 0.129, have a statistically insignificant effect on the earnings multiple of listed manufacturing companies in Nigeria. This indicates that there is insufficient statistical evidence to assert a reliable relationship between the two variables. In other words, while there is a directional tendency, it lacks the robustness needed to draw conclusive inferences. First, despite the growing global emphasis on sustainability, the Nigerian capital market is still in a developing phase with respect to Environmental, Social, and Governance (ESG) awareness and integration into investment decisions. Waste recycling, although important from an environmental stewardship perspective, may not yet be a high-priority metric for most investors and analysts in Nigeria. In such cases, even if the firm is engaging in substantial recycling initiatives, the disclosures may not be sufficient to influence earnings expectations, and by extension, the earnings multiple. In support of this finding, Dewi et al. (2024) in their study revealed that waste recycling disclosure has no significant effect on firm value. However, Ekolm and Vuetma (2021) found that waste recycling disclosures have a positive and significant influence on the earnings multiple, while Carandang and Ferrer (2020) also found that waste recycling disclosures have significant influence on profitability (ROE). Both findings were not in line with this study's finding in this case.

Finally, table 4.5 presented values for the moderating effect of CEO academic qualification on the relationship between waste accounting and market value of listed manufacturing companies in Nigeria. Specifically, it was observed that CEO academic qualification has a significant positive effect on the relationship between carbon disclosures and earnings multiple {7.644(0.013)} of listed manufacturing companies in Nigeria. CEO academic qualifications failed to moderate the effect of effluent and water disclosures failed to moderate the effects of effluent and water disclosures {-0.441(0.926)}, and waste recycling disclosures {7.856(0.108)} on earnings multiple of listed manufacturing companies in Nigeria. Overall, CEO academic qualification has a significant positive moderating effect on the relationship between waste accounting on market value of listed manufacturing companies in Nigeria.

CONCLUSION AND RECOMMENDATIONS

This study investigated the effect of waste accounting disclosures; specifically, carbon disclosures, effluent and water disclosures, and waste recycling disclosures on the market value of listed manufacturing companies in Nigeria, while also examining the moderating role of CEO academic qualifications. From the findings of the study, it was concluded investors value firms that are environmentally responsible in terms of their waste management and disclosure practices. This, it was recommended that the management of manufacturing companies should link effluent and water disclosures to financial performance indicators such as operational efficiency, regulatory risk mitigation, or cost savings to make them more relevant to investors in evaluating future earnings potential. It was also recommended that CEOs without relevant qualification in sustainability or environmental management should receive this training and development programs to enhance their understanding of waste accounting and disclosures.

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