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SUSTAINABILITY REPORTING AND EARNINGS MANAGEMENT OF LISTED NON-FINANCIAL FIRMS IN NIGERIA

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Abstract

The effects of sustainability reporting on earnings management was examined in the study extensively. Causal research design was employed in this study. The study population comprises of all the 112 quoted non-financial firms in Nigeria, sample size is 22 listed manufacturing firms purposively selected for the purpose of this study. The study covered 7 years' period ranging from 2015-2021. The data used for this study were gotten from the annual reports and sustainability reports of the selected firms. Data used for this study were analyzed with the use of descriptive statistics and panel regression analysis. Sustainability reporting was measured in this study by using the social, economic and environmental disclosures index, whereas earnings management was measured using discretionary accrual and real earning. The outcome of the analysis of the study revealed that sustainability reporting has a significant negative effect on discretionary accruals and real earnings evidenced by t-statistics = (-2.31, -2.54, -2.95) and p-values of (0.037, 0.018 and 0.023) respectively for social, environmental and economic report disclosures on discretionary accruals and t-statistics of = (-2.53, -2.23, -2.86) and p-values of (0.012, 0.029 and 0.005) respectively for social, environmental and economic report disclosures on real earnings. The study concludes that the firms with low sustainability disclosure will probably be more involved in earnings management practices than the firms who actively disclosed their sustainability matters in details. The study recommends that firms should ensure they disclose in details the true state of their sustainability activities.

Keywords

Discretionary Accruals, Earnings Management, Economic disclosures, Environmental disclosures, Social disclosure

INTRODUCTION

Sustainability reporting is very important to the survival and success of every organization. In 1987, the World Commission on Environment and Development (WCED) stated that sustainability development is crucial to every organization and it is related to the present and future needs of generations. According to Francesco et al. (2020), there are three pillars of sustainability usually known as the principles of sustainability development. Those principles are: economic prosperity, social equity and environmental integrity. Sustainability development is a milestone which align behaviors in emerging and developing countries, the promotion of sustainable development goals (SDG) by the United Nation done in 2015has led to the increase in the awareness about sustainability reporting in emerging countries (Sach, 2012). The goal and targets of the sustainability development agenda is to respond to the worldwide crisis of sustainability development and provide solutions to challenges. Sustainability reporting is a means of evaluating, reporting and directing the multi-faceted performance of a company to the public. Sustainability reporting is also known as triple bottom line (TBL) (Potts, 2004). Triple bottom line is an approach used to evaluate performance which seeks to create link between the economic, environmental and social factors (Joshua et. al, 2022). Therefore, triple bottom line concentrate on people, profit and planet. Asuquo et al. (2018) expressed in their study that sustainability reporting is translucent on the manner by which firms handle their employees, environment and their impact in the communities. Most of the companies in developed countries like the United State of America, Europe and Australia include sustainability reporting in their reports, whereas most companies in the developing nations like Bangladesh still lag behind with regard to sustainability disclosures (Belal et al., 2015; Rahman et al., 2020). Sustainability reporting has started gaining grounds in Nigeria over the years, although not all companies in Nigeria disclose their sustainability reporting information till date. Sustainability reporting appear to be one of the most important global governance practices, especially in the developed countries like Canada, Germany, France, Australia, United Kingdom, United States of America among others.

However, the most crucial element of determining the financial stability and strength of any organization is earnings. Earnings is the metrics used to evaluate firm performance. Earnings can easily be manipulated to meet a firm specific benchmark (Yao, 2022). Earnings management usually occurs when organization directors use their own discretion in financial reporting and alteration of company's financial reports to misinform some shareholders about the fundamental financial performance of the firm. Earnings management can disrupt its reputation, shore up the firm cost of capital, lead to avoidable litigations and also encourage misapplication of scarce resources. Earnings management can occur when the directors intentionally manipulate usual commercial activities such as giving underserved credits, misuse of discretionary expenses and over production or excess production (real earnings management) (Trisnawat et al., 2015), it can also occur when it involves deliberate choice of accounting techniques or principles that is in the best interest of the firm directors with respect to earnings (accrual based earnings management) (Nechita, 2016). Several research studies in Bangladeshi revealed that managers used sustainability reporting as a strategic weapon to exaggerate their earnings through income, thus increasing discretionary accruals (Rahman et al., 2020). One of the major key challenges of measuring the performance of sustainability reporting disclosures is the absence of unified standards and differences in countries regulations.

More so, managers do engage in earnings management for multiple reasons so as to cover up the genuine economic essentials of their firms. The quality of sustainability report usually depends

on the absence or presence of earnings management in the organization. According to Pye & Lee (2013), managers can opportunistically use sustainability reporting for their own personal interest, and frequently the reports are not tailored to maximize the interest of the company and its stakeholders. Several studies have been conducted to examine the relationship between sustainability reporting and earnings management in Nigeria. In the international context, such as the studies of Asuquo et al. (2018), Francesco et al. (2020), Ibrahim et al. (2015), Joshua & Akintoye (2022), Uwuigbe et al. (2018) and Whetman (2018), most of the researcher used either discretionary accrual or real earnings management as a measure of earnings management, but there are dearth empirical evidences on the use of both, real earnings and discretionary accrual earnings concurrently. This study will bridge the gap by using both, discretionary accrual and real earnings as proxy of earnings management on sustainability reporting. The two proxies were used for earnings management so as to get a more accurate result on the effect of sustainability reporting on earnings management. Cohen et al. (2008) buttressed this in their study which revealed that, when measuring earnings management, concentrating on single method of determining earnings management does not completely explain earnings management activities, they advised that researchers should focus on more than one measure of earnings management so as to arrive to a definite conclusion.

Also, most of the studies reviewed in Nigeria, such as the studies by Joshua & Akintoye (2022); Akintoye et al. (2021) focus on the listed non-financial firms, but this study will bridge the gap by focusing mostly on the manufacturing firms (that specialize in producing or supplying consumer goods, agricultural products and industrial goods) because, according to Roychowdhury (2006) and Vogy (2021), manufacturing firms offer more inducements to involve in earnings management when compared to other sectors. More so, this study will have practical implications for practitioners, non-financial firms, government and researchers. The outcome of this study will help them to understand that the quality of sustainability report usually depends on the absence or presence of earnings management in the firms. The objective of this study is to examine the effect of sustainability reporting on discretionary accrual and real earnings management. Thus, the following research questions were addressed: "Is there any connection between sustainability disclosure and discretionary accrual in the Nigeria non-financial firms? "Does Sustainability reporting have any effect on real earnings management?"

HYPOTHESES

H0: There is no relationship between sustainability reporting and accruals earnings management.
H_0: There is no relationship between sustainability reporting and real earnings management.

LITERATURE REVIEW

Sustainability Reporting

Sustainability reporting is a novel type of reporting that includes three dimensions, namely social, environment and economic, it is therefore also called triple bottom line reporting. In earlier years, companies published environmental and social reports separately, but at present, sustainability reporting, social, economic and environmental reports are being published together (Abdullahi, 2017). The economic reports entail the influence of the company practices on the economic system, it relates company economy to continue to exist and advance in the future, so

as to support future generations (Onyali et al., 2018). According to Timothy & Tanya (2010), the economy aspect of sustainability reporting the link between the growth and development of firms and the fact how effectively the firms contribute to supporting the economy. It gives consideration to business climate issues, expenditure and income, taxes, employment and business variety dynamics. Moreover, the social report concentrate on the collaboration between the organization and the community, and also takes care of matters connected to employee relations, community involvement and fair wages (Goel, 2010). The environmental report part of sustainability reporting focuses on the ability of the companies to adopt policies that will not include the environmental resources available for the upcoming generations. It also deals with the efficient utilization of energy resources, curtailing the ecological imprint and decreasing greenhouse gas emissions (Onyali et al, 2018). Environmental reporting was paramount because of the government focus on heavy polluting industries and the introduction of environmental laws (Abdullahi, 2017).

Rahman et al. (2020) state that disclosure of sustainability information, in conjunction with financial information, is crucial for influencing stakeholder's investment decisions and prompts the inquiry of whether such disclosures is significant to investors in the capital markets. The GRI standards for sustainability disclosure index provided the framework for reporting sustainability. Firms use sustainability reporting to improve their image in the eyes of their stakeholders and the general public, and also to gain legitimacy for existence (Abdullahi, 2017). The growth in international trade and the fact that organizations do not operate in isolation, but must have a remarkable impact on their business environments, has led to the increase in the awareness of sustainability reporting (Onyekwelu & Uche, 2014). Several researchers, such as Nechita, (2021); Francesco (2020) and Joshua & Akintoye (2022) have researched sustainability reporting in various countries, using one or two of the Global Reporting Initiatives (GRI) procedures for sustainability reporting index which includes the economic, social and environment. This study used all the three major indicators of sustainability reporting.

Earnings Management

Earnings management occurs when managers exercise their discretion in financial reporting and manipulate transactions to modify financial reports with the intent to deceive certain stakeholders about the financial performance of the company, according to Yao (2022). The influence of earnings management on firm's performance and value is significant, leading to significant accounting scandals in the accounting history, such as the Xerox 2000, Enron 2001 and WorldCom in 2002 (Beslic et al., 2015). Following these scandals, investors have lost faith in the accuracy of accounting statements and the information they contain, leading to increased scrutiny from regulators, governments, and other organizations (Romen & Yaari, 2008). In his report, Yao (2022) emphasized that there are various ways in which firms can artificially inflate earnings. For instance, companies can utilize accounting discretion to generate income, thereby increasing discretionary accruals, also known as accrual manipulation. This method of manipulating earnings involves adjusting transactions in accordance with principles, standards and regulations. These activities are characterized by the changes in accounting methods that do not directly affect cash flow. Some of the examples of discretionary accrual are reversal of accrual or delay in recording assets written off. Furthermore, companies can also take tangible economic measures, such as cutting back on discretionary expenses related to research and development, advertising, and upkeep, so as to increase earnings, which is known as real earnings management. Lower research and development costs can be reported so that the reported earnings will be higher. Most of the

researchers, some of which are Ali (2022), Kustono (2020) and Rahman, (2020) who conducted research on earnings management, normally use either real or discretionary accrual earnings management as proxies of earnings management. Very few, such as Yao (2022) and Faiza (2019) utilized both, together as proxies of earnings management. However, this study bridges the gap by using both, real earning management and discretionary accrual as proxies of earning management so as to get more accurate result.

Sustainability Reporting and Earnings Management

According to Gras-Gil et al. (2016), companies that prioritize sustainability reporting or practices tend to make available more comprehensive financial reports and engage in less earnings manipulation. Previous studies have shown that increased sustainability disclosure by companies does not yield immediate benefits in terms of aggressive earnings manipulation to attain aims and preserve positive relationships with shareholders and employees, which is in support of long-term perspective hypothesis (Rahman et al., 2020). However, as Pye and Lee (2013) point out, sustainability reporting can also be used opportunistically by managers for their own interests, and these reports may not always be tailored to maximize the interests of the company and its stakeholders. The quality of sustainability report usually depends on the absence or presence of earnings management in the organization. Nechita (2021) opined that many benefits were attributed to sustainability reporting in several literature review. Sustainability reporting helps to reduce information asymmetry, conforms to social norms, lower agency costs, protect stakeholders interest and ensures employee participation. In his study, Welter (2011) therefore observed that sustainability reporting has an effect on earnings management. Although some researchers, including Movassaghi and Bramhandkar (2012), claimed that sustainability reporting does not influence earnings management, the impact of sustainability reporting on earnings management remains uncertain due to inconsistent empirical results, as noted by Rahman et al. (2020). Some studies suggest that organizations with a stronger commitment to sustainability reporting provide more comprehensive financial reports and engage in less earnings manipulation, according to Gras-Gil et al. (2016). However, others argue that firms that disclose more sustainability information may inflate their earnings through income, resulting in increased discretionary accruals. Managers who engage in earnings manipulation may be encouraged by extensive sustainability reporting to abandon their enrichment tactics. The contradictory findings from prior research on sustainability reporting and earnings management add to the subject's intrigue, according to Rahman et al. (2020).

THEORETICAL REVIEW

Legitimacy Theory

In 1975, Dowling and Pfeffer developed legitimacy theory, which suggests that organization's activities should align with the larger social system. As per this theory, companies will engage in sustainability practices due to external social, political and economic pressures from their environment. To balance these demands, companies will attempt to meet the expectations of the environment and community environment in which they operate, and the needs of other stakeholders, while also complying with regulations (Darus et al., 2008). By doing so, organizations aim to maintain their legitimacy and accountability. In line with this, Bashatweh &

Jordan, (2018) stated that organizations are responsible for exploring the human and natural resources available in their environment. It is not appropriate for management to engage in earnings management, and they are required to provide information on the company's environmental impact beyond what is legally mandated. Despite this, the legitimacy theory has been subject to criticism from scholars such as Mobus (2005) and Owen (2008). These critics argue that, while the theory provides a plausible explanation for managerial behavior, it does not address how disclosure may enhance transparency and accountability to stakeholders beyond shareholders.

Positive Accounting theory

This theory was popularized by Watts and Zimmerman in 1979. The theory suggests that positive accounting emerges from an examination of the factors that shape management's perspective on accounting standards, which can impact company's cash flows and are, in turn, influenced by accounting standards. Managers, for example, are enticed to use accounting standards that show lower earnings due to taxation, as well as political and regulatory institutions (Osho &Ayorinde, 2018). Some organization have incentives schemes that they use to make accounting decisions that inflate earnings. This theory is facing criticism due to being deemed scientifically flawed, making it a problematic theory that accountants cannot fully rely on, according to Deegan (2009).

EMPIRICAL REVIEW

Joshua & Akintoye, (2022) investigated the consequence of sustainability disclosure on real earnings management of listed Nigeria firms. The study covers the period 2015-2019, nine listed firms were examined. The data from the study was analyzed through the use of multiple linear regression analysis. The results showed that the disclosure of sustainability reporting has a noteworthy negative impact on the real activities of earnings management. This proposes that companies that report sustainability are less possible to involve in earnings management. The study suggests that more regulations should be implemented to encourage all companies to disclose their sustainability efforts, which can improve their reputation and overall performance.

Akintoye et al. (2021) investigated how sustainability reporting affected abnormal operating cash flows in multinational companies operating in Sub-Saharan Africa. The study focused on five multinational companies from each of the ten countries, covering the period between 2010 and 2019. The results showed that sustainability disclosure had a significant impact on abnormal operating cash flows in these corporations, suggesting that it also influenced their earnings management. The authors suggested that management of international companies in Sub-Saharan Africa should strictly adhere to sustainability reporting practices to improve their earnings quality and reduce the need for earnings management practices.

Rahman et al. (2020) reviewed the curbing effect of earnings management on sustainability disclosures. As many as 30 banks in Bangladeshi were observed in the study, while the period of study covered 9 years ranging from 2009-2017. The study used discretionary accrual to measure earnings management, and evaluated the degree of sustainability reporting disclosure in annual reports of quoted banks in Bangladesh to evaluate sustainability reporting. The results specified that positive impact existed between sustainability reports and equity value, but the effect was curbed by earnings management, which was negatively significant to both.

Also Francesco et al. (2020) observed the influence of sustainability engagement on earnings management (EM) practices observing 60 quoted companies in the Italian Stock Exchange for 2018. Earnings management was measured with discretionary accrual. According to the analysis, there was a weak correlation between sustainability reporting and earnings management practices. It was also found that firms with a greater level of sustainability involvement were less possible to involve in earnings management activities.

Ji et al. (2019) conducted a related study in Korea to examine the potential connection between earnings management and sustainable practices in companies. The researchers divided earnings management into two categories: real and accrual-based earnings management. Their analysis was grounded on data collected from 1,418 years of publicly traded companies in the Korean Capital Market between 2015 and 2017. They discovered a negative correlation between sustainable practices and abnormal cash flow at a significance level of 5%. These results support the view that companies that prioritize external ethics are likely to have strong internal ethical practices as well.

Ernfjord and Voigt (2018) conducted a study in Sweden to determine the connection between CSR disclosure and earnings management. They established that there is a significant negative correlation between the two variables, which can be attributed to the factors, such as reputation, culture, external monitoring, and ethical considerations.

METHODOLOGY

For this study, a causal research design was utilized to investigate how a specific independent variable (sustainability reporting) affects the dependent variable (earnings management) of quoted non-financial firms in Nigeria. This research design is based on the assumption that a cause-and-effect relationship exists between the two variables. The population of the study comprises of all the 112 non-financial firms listed on the Nigeria Exchange Group as at December, 2021. The study's sample size comprised 20 listed non-financial firms in the Nigeria's manufacturing sector, which were selected using purposive sampling techniques. This approach is consistent with Kerjice and Morgan's recommendation, which suggests that a minimum of 5% of the population can be used to make generalizations about it. (Uwuigbe et al., 2018).

The manufacturing sector was chosen because of its large contributions to the Nigeria Gross Domestic Product (GDP). This study covered 7 years' period raging 2015-2021. The data used for this study were sourced from the published annual reports of selected companies. The study utilized a mechanistic approach to content analysis to evaluate the annual report and the sustainability report of the selected firms, with the aim of determining their sustainability disclosure index.

Measurement of Variables

Independent Variable

Sustainability reporting was proxy by the standards of the GRI, which includes reporting on economic, social, and environmental factors. In order to measure independent variables, a scoring index was used based on performance indicators from previous studies that followed the GRI guidelines. The three GRI factors were measured centered on the number of indicators that were revealed and the level of its disclosure. If a firm divulged an indicator, a score of 1 was assigned, while a score of 0 was assigned if the company did not disclose any indicators. The level of disclosure was also taken into account, with a score of 3 assigned for quantitative disclosure and a

score of 2 assigned for qualitative disclosure (Rezaee & Tuo, 2017). The environmental, economic or social index were then calculated by dividing the total level of disclosure by the total occurrence.

Dependent Variable

Earnings management was proxy by discretionary accruals and real earnings management. Various method has been developed for testing for earnings management. This study adopted the modified Deschow et al. (1995) as given by Kothari et al. (2005) model for discretionary accruals earnings management, and the Roychowdhury (2006) model for real earnings management.

Discretionary accruals earnings management

Kothari et al. (2005) argued for the need to include the first lag of the return on asset (ROA) in the modified Jones model of Deschow et al. (1995) given as:

$$\frac{TA_{it}}{A_{t-1}} = \delta_1\left[\frac{1}{A_{t-1}}\right] + \delta_2\left[\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{t-1}}\right] + \delta_3\left[\frac{PPE_{it}}{A_{t-1}}\right] + ROA_{it-1} + \mu_{it} \quad (1)$$

The total accrual is obtained as

$$TA_{it} = NI_{it} - CFO_{it} \quad (2)$$

Where:

TA_{it}= Total accrual of firm i in year t

A_{t-1}= First lag of total asset of firm I at year t

ΔREV_{it}= The difference between contemporaneous revenue and previous year revenue for firm i

ΔREC_{it}= The difference between contemporaneous account receivables and previous year account receivables for firm i

PPE_{it}= PPE of firm I at time t.

μ_{it} = The residual of the model

δ_1, δ_2, and δ_3 = The parameters of the model

NI_{it}= Firm i Net income at time t

CFO_{it}=Firm i Net cash flow from operation at time t

ROA_{it-1}= immediate past year return on assets

Real Earnings Management

The measurement of real earnings management was approximated by utilizing the models developed by Roychowdhury (2006) and Cohen & Zarowin (2010), which relied on abnormal operating cash flow as a proxy. Abnormal operating cash flow was determined by subtracting the actual operating cash flow from the normal operating cash flow.

$$\frac{CFO_{it}}{A_{t-1}} = \delta_1\left[\frac{1}{A_{t-1}}\right] + \delta_2\left[\frac{Sales_{it}}{A_{t-1}}\right] + \delta_3\left[\frac{\Delta Sales_{it}}{A_{t-1}}\right] + \mu_{it} \quad (3)$$

CFO_{it}= Cash flow in period t

$Sales_{it}$= Net sales in period t

$\Delta Sales_{it}$= Changes in net sales in period t

A_{t-1}= Total assets in period t-1

μ_{it} = The residual of the model

Control Variables

This study utilized two control variables to control the impact of earnings management. These variables included firm size, which was measured by the natural logarithm of the firm's total assets, and debt ratio, which was calculated as the ratio of debt to equity (Olagunju et al. 2021). It is expected that discretionary accruals would be positively associated with the debt ratio in this study, since a higher level of earnings management would generate greater value for discretionary accruals.

Model specification

The effects of sustainability reporting on discretionary accrual earnings management and real earnings management were analyzed using adopting and modifying the model used by Joshua et al. (2022) and Rina et al. (2016). The model used for this study is stated below:

DAE Model 1

$DAE_{it} = \beta_o + \beta_1 SR_{1it} + \beta_2 ENVR_{2it} + \beta_3 ER_{3it} + \beta_4 FS_{4it} + \beta_5 DR_{5it} + \mu i_t$ ---------- *3.0*

REM Model 2

$REM_{it} = \beta_o + \beta_1 SR_{1it} + \beta_2 ENVR_{2it} + \beta_3 ER_{3it} + \beta_4 FS_{4it} + \beta_5 DR_{5it} + \mu i_t$ ---------- *3.1*

Where:

DAE = Discretionary accrual earnings management
REM = Real earnings management
ENVD = Environmental disclosure
SR = Social disclosure
ECD = Economic disclosure
β_0 = Constant parameter
$\beta_1 - \beta_5$ = Regression coefficient of Independent and control variables,
i = Number of sampled firms.
t = Number of years
U_{it} = Error terms

RESULTS AND DISCUSSION OF FINDINGS

Table 1 Descriptive Statistics

Stats	DAE	REM	SRD	ENVD	ECD	FS	DR
Mean	-.0408	.0038	.9675	.5390	.3312	8.6417	.4669
Median	-.0441	.0021	1	1	0	8.3979	.1553
Max	.6117	.644	1	1	1	11.987	5.3748
Min	-.9875	-.8656	0	0	0	.5787	.0002
Stan. Dv.	.2377	.1839	.1778	.5001	.4722	2.157	1.0816
Skewness	-.5199	-.1645	-5.2758	-.1563	.7175	-.3239	3.9189
Kurtosis	7.7455	4.614	28.83	1.024	1.5148	2.8474	17.527
N	154	154	154	154	154	154	154

Source: Authors' Computation, 2023

Table 1 shows the mean, median, minimum, maximum and standard deviation values of -0.0408, -0.0441, -0.9875, 0.6117 and 0.1839 percent respectively for discretionary accruals earnings management, whereas real cash flow earnings management has a mean value of 0.0038 with the median, maximum, minimum and standard deviation values of 0.0021, 0.644, -0.9875

and 0.1839 respectively. More so, the independent variable SRD has a mean value of 0.9675 with the median, maximum, minimum and standard deviation values of 1,1,0 and 0.1778 respectively, ENVD also has a mean value of 0.5390 while its median, maximum, minimum and standard deviation values are 1,1,0 and 0.5001 respectively. Similarly, ECD which is also a measurement of sustainability reporting has a mean, median, maximum, minimum and standard deviation values of 0.3312, 0, 1,0 and 0.4722 respectively. Nevertheless, the mean and median of the control variables firm size and debt ratios are 8.6417, 8.3979, 0.4669 and 0.1553 correspondingly, whereas their maximum and minimum values 11.987, 0.5787, 5.3748 and 0.0002. The standard deviation of both control variables are 2.157 and 1.0816. With the exception of ECD and DR, all of the variables in the study displayed negative skewness. The kurtosis analysis also indicated that none of the variables had a platykurtic distribution, as all of their kurtosis values exceeded three, with the exception of ENVD, ECD, and FS, which had values below three. Furthermore, ENVD, ECD, and FS were positively skewed, indicating that their distributions were skewed to the right.

Table 2 Estimated Matrix of Correlations

VAR	DAE	REM	SRD	ENVD	ECD	FS	DR	VIF	1/VIF
DAE	1.0000								
REM	-0.5890*	1.0000							
SRD	0.1100	-0.0095	1.0000					1.07	0.655
ENVD	0.0054	-0.0212	0.1981*	1.0000				1.41	0.709
ECD	0.0585	0.0365	0.1289	0.4571*	1.0000			1.53	0.832
FS	0.0056	-0.0996	-0.1179	0.1452	0.2795*	-1.0000		1.20	0.845
DR	-0.0139	0.0395	0.2139*	0.0338	0.3714*	-0.6555*	1.000	1.18	0.937

Source: Author's Computation, 2023

The outcomes of the correlation analysis are presented in Table 2. The results revealed that DAE has a positive connection with SRD given the estimated correlation coefficient of 0.1100 while SRD has a negative correlation with real earnings management with correlation coefficient of -0.0095. Moreover, the correlation coefficient of 0.372 revealed a weak direct connection between ENVD and DAE with 0.0054. The estimated correlation coefficient of -0.0212 implies a weak negative connection between ENVD and REM of the listed non-financial firms in Nigeria. Also, ECR has a positive but weak relationship with DAE represented by correlation coefficient of 0.0585, whereas it also has a weak positive relationship with REM expressed by 0.0365 correlation coefficient. The control variables of firm size and debt ratio have positive and negative connection with DAE with coefficient of 0.0056 and -0.0139 respectively. While debt ratio has a negative and positive significant connection with REM with coefficient of -0.0139 and 0.0395 respectively. The pre-estimation diagnostic test for multicollinearity showed an estimated value with the highest VIF of 1.53 recorded by ECD. Since none of the estimated VIF value is close to the threshold of 10, this implies that multicollinearity does not exist amongst the explanatory variables contained in the model for this study.

Table 3 Diagnostic Test for Serial Correlation and Heteroscedasticity Results			
Diagnostic Test	**Type of Test**	**P-value**	**Remarks**
Heteroscedasticity	Breusch-Pagan	0.650	Absence of heteroscedasticity
F-tests	F-tests	0.000	Panel Regression to pooled OLS preferred

Hypothesis testing

Hypothesis 1

H_0: There is no connection between sustainability reporting and accruals earnings management of quoted non-financial firms in Nigeria.

Variables	**Coefficient**	**Std. Error**	**t-statistics**	**Prob**
C	0.429	0.308	1.40	0.165
SRD	-0.098	0.236	-2.31	0.037
ENVD	-0.254	0.096	-2.54	0.018
ECD	-0.195	0.106	-2.95	0.023
FS	0.008	0.021	0.39	0.679
DR	-0.002	0.408	-0.04	0.964
R-Square	0.337			
F-Statistics	36.21			
Prob > F	0.000			

The outcome of testing the Hypothesis 1 shows an R-square of 33.7%. This implies that 33.7% variation in accrual earnings management is affected by sustainability reporting of the sampled quoted non-financial firms in Nigeria. Whereas 66.3% is triggered by other variables not stated in the model. The outcome also shows F-statistics of 36.21 and p-value of 0.000, which thus reveal the level of model fitness. However, the t-statistics for sustainability reporting measured by the GRI guidelines for sustainability disclosure index which includes the social disclosure, environmental disclosure and economic disclosure are -2.31, -2.54, -2.95 respectively, whereas their p-values are 0.037, 0.018 and 0.023 respectively. This result indicates that all the sustainability reporting disclosure index has negative significant effects on DAE. This indicates that the higher the quality of sustainability reporting, the lower the chances that mangers will engage in earnings management. The outcome further infers that the null hypothesis ought to be jettisoned. Similarly, the outcome of the findings of Nechita, (2021), Francesco (2020) and Rahman et al. (2020) and Rina et al. (2016) are consistent with the result of this study by proposing that there is a negative significant connection between sustainability reporting and discretionary accrual earnings management. According to the studies conducted by Movassaghi and Bramhandkar (2012) and Yoon, Kim and Lee (2019), sustainability reporting was found to have no impact on earnings management. However, Dewi (2014) reported a positive relationship between sustainability disclosure and earnings management, suggesting that sustainability reporting may be used by managers to conceal unethical practices, supporting the notion of it being a "smoke screen". Additionally, the control variables of debt ratio and firm size were not found to be significantly related to discretionary accrual earnings management activities.

Hypothesis 2

H_0: There is no connection between sustainability reporting and real earnings management of quoted non-financial firms in Nigeria.

Variables	Coefficient	Std. Error	t-statistics	Prob
C	-0.435	0.211	-2.06	0.004
SRD	-0.022	0.151	-2.53	0.012
ENVD	-0.124	0.069	-2.23	0.029
ECD	-0.029	0.073	-2.86	0.005
FS	0.045	0.015	3.00	0.003
DR	0.009	0.35	0.727	0.023
R-Square	0.350			
F-Statistics	38.34			
Prob > F	0.000			

The result of the test of Hypothesis 2 shows an R-square value of 0.35. This entails that 35% explanatory capacity of the approximation for the logical dissimilarity in the dependent variable with 38.34 F-statistics value and p-value of 0.000, which proposes that the model is fit. The SRD, ENVD and ECD have t-statistics of -2.53, -2.23 and -2.86 respectively, whereas p-values of the sustainability measures are 0.012, 0.029 and 0.005 respectively. The findings of the study suggest that there is a negative connection between the quality of social, economic, and environmental disclosure and the occurrence of real earnings management. As a result, the null hypothesis can be rejected. These outcomes are in consonance with those of a previous study conducted by Akintoye et al. (2021), Joshua & Akintoye, (2022) and Ernfjord & Voigt (2018), which also revealed negative significant relationship between sustainability reporting disclosure index and real earnings management. On contrary, Movassaghi and Bramhandkar (2012) in their study revealed there is no connection between sustainability reporting disclosure index and earnings management. Further, the control variables debt ratio and firm size have a positive significant relationship with real earnings management. This implies that the higher the firm size and debt ratio, the higher the possibilities that the managers will involve in earnings management activities.

Discussion on Findings

Relationship between sustainability reporting and discretionary accruals earnings management of quoted non-financial firms in Nigeria

According to Yao (2022), discretionary accruals earnings management occurs when the firms manipulate earnings by revaluating transactions in accordance with principles, standards and regulations. The quality of sustainability reporting depends on whether there is an occurrence of earnings management in the firm or not. The result of this study analysis discovered that sustainability has a negative significant relationship on discretionary accruals earnings management. This implies that firms with low sustainability reports will be more involved in discretionary earnings management practices. This result is supported by the findings of Joshua & Akintoye, (2022) which proposed that companies that are aggressively involved in sustainability reporting will report earnings of higher quality. If earnings generated through legitimate means do not meet the earnings target, it is believed that firm managers resort to discretionary accruals

earnings management. Manufacturing firms provides greater incentives for engaging in earnings management than other industrial sectors, as noted by (Roychowdhury, 2006)

The outcome of this study is also in line with the assumptions of legitimacy theory; Uwuigbe, et al. (2018) in their study opined that reporting sustainability matters reveals to the public that the legitimate firm, that is the company involved in the disclosure of sustainability reporting, will involve less in earnings management activities. More so, the outcome of this study is consistent with the results of Nechita, (2021), Francesco (2020), Rahman et al. (2020) and Rina et al. (2016), while the result differs from that of Movassaghi and Bramhandkar (2012) and Yoon, Kim and Lee (2019) who stated that there is no association between sustainability disclosure and earnings management.

Relationship between sustainability reporting and real earnings management of listed non-financial firms in Nigeria

Furthermore, when firm takes economic steps to boost earnings, it is called real earnings management. It entails reduction of discretionary expenditure on research and development, maintenance and advertising so as to boost earnings. Companies that discloses more of their sustainability matters will help to reduce earnings management. According to Francis (2008), the quality of a firm's disclosures is a crucial factor in determining the quality of its earnings. As a firm grows larger, there is a greater likelihood that it will involve in real earnings management activities.

The result from the test of Hypothesis 2 revealed that sustainability disclosure has a negative significant effects on real earnings management. This implies that the quality of sustainability reporting will reduce management involvement in real earnings management activities. Joshua & Akintoye (2022) attested to this in their study which shows that sustainability disclosure restricts the management from involving in earnings management. They also stated that earnings qualities depend on disclosure qualities. This result is also in line with legitimacy theory. The outcome of this study is consistent with the result of the study of Akintoye et al. (2021), Joshua & Akintoye, (2022) and Ernfjord & Voigt (2018), while it is inconsistent with the study of Movassaghi and Bramhandkar (2012), which stated that there is no significant association between sustainability reporting and earnings management.

CONCLUSION AND RECOMMENDATION

This study examined the effects of sustainability reporting on earnings management of listed non-financial firms in Nigeria. The study utilized the two most popular measures of earnings management (discretionary accruals and real earnings management) to examine how they are influenced by the three sustainability *reporting indices*, namely the environmental, social and economic, as given by the GRI standards for sustainability reporting index. The outcome of the study revealed that sustainability reporting has negative effects on both, discretionary accrual and real earnings management. The findings of this study are in agreement with the research conducted by Vogy (2021), which explored the most effective measure of earnings management. According to Vogy (2021), firms use both forms of earnings management in a sequential manner, with managers resorting to accrual-based earnings management more frequently if earnings produced through real manipulations fail to meet the earnings target. Vogy (2021) further revealed that DAE

and REM usually occur sequentially instead of simultaneously. The more the firm managers engage in real earnings management, the less they engage in discretionary accrual earnings management to meet earnings target (Zang, 2012). However, this study focuses on the use of DAE and REM, so as to arrive at a definite conclusion that sustainability reporting has a negative significant impact on earnings management. The conclusion drawn from this study is that the quality of sustainability reporting depends on the absence or presence of earnings management. The firms that disclose their sustainability reports do involve less in earnings management activities, while the firms that do not disclose their sustainability report have the tendency to involve more in earnings management activities.

Moreover, the study recommends that companies should ensure they disclose the true state of their sustainability activities, they should ensure they disclose quality sustainability reporting so as to curtail earnings management. The study also recommends that unified standards should be set for sustainability disclosure records to encourage easy comparability of sustainability reports. Firms are also advised to seek external assurance so as to strengthening their consistency and integrity.

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