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Sustainability Reporting Quality and Earnings Management (EM) Practices: Empirical Evidence from Oil and Gas Firms in Africa.

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1. INTRODUCTION

1.0 Background of the Study

In recent years, Sustainability reporting has gained prominence among a number of industries, with no exception to the oil and gas industry. The phenomenon of sustainability reporting cannot be glossed over by firms in the oil and gas industry due to the impact these companies' activities have on the environment and society. Sustainability reporting has gone through various phases over the years, for instance in the late 1990s the Global Reporting Initiative (GRI) introduced sustainability reporting to enhance and promote economic as well as environmental issues (Clarkson et al. 2008; Milne and Gray 2013).

Sustainability reporting is a very important reporting tool used in recent times by organizations to communicate their sustainable practices to their various stakeholders (Ali et al. 2021). It provides not only financial information but also non-financial information more reliably to the users of the financial reports (Al-Shaer 2020). Aras and Crowther (2016) argue that sustainability reports enable investors to make informed decisions with regards to their investments in organizations. Moreover, Livsey (2021) posits that financial markets interest in sustainability reports have recently increased due to investors strong appetite for sustainability investments and investors interest in obtaining reliable information to assess the organizations sustainable practices on their investments. Sustainability reports disclose important information of business activities on the economy, environment and society in general (Girón et al. 2021). In recent years, there have been increase demand by different stakeholders for businesses to communicate the impact of their activities on the environment and society (Deren Van Het Hof & Hoştut, 2021). Accordingly, the businesses respond to these concerns by issuing comprehensive information through sustainability reports (Deren Van Het Hof & Hoştut, 2021). According to Lozano and Huisingh (2011), sustainability reporting is effective as a tool in contributing towards corporate sustainability practices. Rim and Ferguson (2020) posit that businesses capitalize on sustainability reports to alter the perceptions of people and create a favorable image among their numerous stakeholders.

Sustainability reports promote comprehensive disclosures that help stakeholders in making important decisions (Rezaee & Tuo, 2019). The disclosure of information on the sustainability practices of organizations goes a long way to improve the brand, competitiveness, image, motivate workers, and well-position the firm in its industry relative to other rival firms (Herzig and Schaltegger, 2006). The disclosure of information on the sustainable practices of firms provides valuable financial and non-financial insight into their operations (Romero et al., 2019). According to Rezaee and Tuo (2019), preparation of sustainability reports presents useful information to the various stakeholders that mitigate unethical manipulation of earnings by management.

Moreover, in recent years, voluntary disclosure of relevant details about companies' practices and activities on their society, economy and environment through sustainability reporting has gained dominance in most industries (Girón et al. 2021). Companies are encouraged to voluntarily provide information to their stakeholders about their sustainability practices which usually includes important details on environment, labor practices, product responsibility and the organization's impact on the society that includes both qualitative and quantitative data (Paun 2018). Buchholz and Rosenthal (2005) and Laplume et al. (2008) argue that diversity in stakeholders economic, environmental and societal interests determines the success of businesses and sustainability reporting is an important medium via which these diverse expectations are met. Therefore, the diverse interests of the stakeholders are considered in disclosure of sustainability information through sustainability reporting.

1.1 Problem Statement

In the current dispensation of climate change and the constant pressures businesses face to reform their activities to be environmentally friendly, sustainability reporting has been promoted to be at the forefront of corporate communication and decision making (Albitar et al., 2020; Gerged & Elheddad, 2020; Lu & Abeysekera, 2017). In recent years, the management of businesses have evolved considerably as the level of accountability with

regards to environmental and societal issues have dramatically increased. Recently, a key metric of organizations' performance is with regards to the impact of the organizations' activities on the environment and society (Gerged & Elheddad, 2020).

Despite the rich mineral deposits of some developing countries, their citizens are faced with abject poverty and environmental pollution (Gani, 2021). Gani (2021) argued that oil producing Africa countries are less developed and these countries are plagued with conflicts and instability caused mainly by mismanagement of their rich natural resources. Sustainability reporting has gained prominence in the worlds of business and academia over the years. Although sustainability reporting has gain prominence globally in recent years, in Ghana few studies have considered the phenomenon of sustainability reporting quality. According to Kwarto et al. (2022) the findings of several studies conducted among upstream oil and gas firms globally exhibits possible bias towards sustainability reporting in the form of fraud and irregularities as a result of the concept of triple bottom line not implemented.

Over the years, the majority of research on sustainability reporting were on the determinants of sustainability reporting. Beyond which there are shortfalls in the literature for instance the focus on sustainability reporting quality is scanty. This study seeks to address this gap in literature by focusing on the phenomenon of sustainability reporting quality and earnings management. According to Hahn and Kühnen (2013), reporting quality is pivotal in ensuring accuracy in the sustainability performance of a company.

Globally, oil and gas companies face huge pressure to improve their social and environmental performances and in effect reduce the harmful effect of their operations on the society (Elhuni and Ahmad 2017; Doni et al. 2021). According to a study conducted by Tuulentie (2019), oil and gas organizations that engaged in sustainability reporting over the years had not had the desired impact on communities due largely to various corrupt practices, misconducts and weak control systems. The oil and gas industry is highly regulated and organizations that operate in this industry are expected to enhance their social performance due to the growth in the public's interest in social welfare and environmental protection issues (Doni et al. 2021). They are therefore required to strive to minimize the harmful impacts of their operations on the environment and society (Elhuni and Ahmad 2017). The study will consider oil and gas companies because the operations of these companies pose considerable risks to the environment and society if not well regulated (Kwarto et al., 2022). Badera (2014) posits that sustainability reporting minimizes the harmful impact of the activities of firms in the oil and gas industries on the environment and society.

1.2 Objectives of the Study

This research aims to contribute to the growing discourse on sustainability reporting through novel insights on the relationship between sustainability reporting quality and earnings management practices in the oil and gas industries.

1.3 Research Questions

The following are the research questions the study seeks to provide answers to

1. Does Sustainability Reporting Quality (SRQ) influence Earnings Management (EM) practices?

2. Does audit effort moderate favorably the relationship between Sustainability Reporting Quality (SRQ) and Earnings Management (EM) practices?

1.4 Hypotheses Development

H1: There is negative relationship between Sustainability Reporting Quality (SRQ) and Earnings Management.

H2: The negative relationship between sustainability reporting quality and earnings management is conditioned by audit effort.

The ethical viewpoint of sustainability reporting suggests that businesses engage in sustainable practices to demonstrate that they are ethically responsible (Amran et al., 2014; Yip et al., 2011). Chih et al. (2008) argued that companies that engage in sustainable practices are committed to creating value for investors and financially transparent and as such have lower tendency of practicing earnings management. Organizations that allocate important resources and thrive to ensure that they meet the expectations of society are not likely to engage in earnings management practices, rather they provide accurate information to their shareholders (Muttakin et al., 2015; Bozzolan et al., 2015).

According to Cohen and Simnett (2014), companies are faced with the challenge of improving their credibility and quality of reporting to meet the expectations of the various stakeholders. Katmon and Al Farooque (2017) posit that reliably disclosing the financial and non-financial activities of a company can discourage management from engaging in earnings management practices. Therefore, the study hypothesizes that there is a negative relationship between sustainability reporting quality and earnings management.

1.5 Significance of the Study

This research provides new insights and important contributions to the growing literature on sustainability reporting. Thus, it provides important theoretical and practical contributions to existing literature on sustainability reporting quality and earnings management practices in the oil and gas industry.

Moreover, the study adds to the scanty literature on sustainability reporting quality and earnings management in Africa. Earnings management practices among companies have been on the rise globally but the emergence of quality sustainability reporting have the tendency to eradicate this phenomenon and therefore the study attempts to address this from developing countries perspective.

2. LITERATURE REVIEW

2.1 Empirical Review

2.1.1 Sustainability Reporting

Sustainability in the field of business is a complex phenomenon. Environmental sustainability suggests oversight over resources in the environment for the benefit of current and unborn generations and thus involves proper assessment of the organizations impact on the environment. Social sustainability considers the larger society and the impact of a company's activities on human lives (Osobajo et al., 2022). Economic sustainability is growth in a business which is not negatively impact human lives, the environment and the society (Van Niekerk, 2020). These are essential elements of sustainability recognized by the European Union.

The emergence of sustainability reporting mirrors the sustained growth in public awareness in recent years, of the essence of sustainability and has increasingly led to pressure on businesses to disclose the influence of their activities on the society. Organizations indicate their commitment to the society and environment through sustainability reporting (De Freitas Netto et al., 2020).

The Global Reporting Initiative (GRI) posits that the role of sustainability reporting is to identify and prioritize as well as to ensure transparency of the impact of organizations operations on the economy and society. As such a lot of organizations provide sustainability reports that cover the ESG factors (Macpherson et al., 2022). The guidelines by the GRI are widely regarded as the standard globally as an important tool for sustainability reporting employed by about 82% of organizations worldwide (Moratis & Brandt, 2017; Kaur & Lodhia, 2019; Torelli et al., 2019).

The concept of sustainability reporting is used interchangeably in academia with different reporting concepts such as Sustainability Development Goals (SDG) reporting, Corporate Social Responsibility (CSR) Reporting and Triple-Bottom Line Reporting (Dienes, et al., 2016; Uyar, et al., 2020; Turzo et al., 2022).

Over the years, there have been several calls for reliable sustainability reports and as such different international bodies have provided important frameworks and guidance relating to sustainability reporting (Moodaley & Telukdarie, 2023). This includes guidelines developed by the International Financial Reporting Standards (IFRS) Foundation, Sustainability Accounting Standards Board and the Global Reporting Initiative (GRI) among others (Afolabi et al., 2022; Tettamanzi et al., 2022).

The diverse frameworks, guidelines and standards of sustainability reporting echoes its complexity as it involves a plethora of stakeholders with their unique interests (Osobajo et al., 2022). However, at the core of sustainability reporting is enhancing accountability among organizations towards the environment and society as well as ensuring that the operations of the organizations do not negatively impact the society (Osobajo et al., 2022).

According to a study conducted by McKinsey, managers are of the view that the disclosure of Environmental, social and governance activities via sustainability reports positively affect their financial performance (Delevingne et al., 2020). This finding is consistent with the result of an earlier research conducted by Varadarajan (2017) that found sustainability reporting to impact performance.

The substantial cost of sustainability reporting, the opportunity costs of undertaking sustainability reporting and shareholders fears with regards to greenwashing have raised the likelihood that sustainability reporting diminishes firm value (Friske et al., 2022).

2.1.2 CSR and sustainability reporting.

CSR evaluates and manages company's policy on corporate responsibility and the influence of its operations on society at large. According to Krishnamurti et al. (2018), the tendency of corruption in developing countries are minimal when press freedom is high and effective institutions. Over the years, companies adopted CRS practices to increase their value and improve their corporate image and sustainability (Christensen et al. 2021). According to Christensen et al. (2021), CSR and Sustainability are often used interchangeably by researchers.

2.1.3 Earnings Management.

The study employs the real earnings management as used in prior studies Cheng, Lee, & Shevlin, 2016; Qi, Lin, Tian, & Lewis, 2017). The study determines the total effect of real earnings management by adapting Cohen and Zarowin (2010).

2.2 Theoretical Review

Hooghiemstra (2000) argued that the results from earlier studies on sustainability were inconsistent because of lack of comprehensive theories to underpin these studies. Most studies on sustainability reporting adopt theories such as legitimacy theory (Criado Jiménez et al., 2008), stakeholder theory (Belal and Roberts, 2010) and to a lesser extent the institutional theory (Fortanier et al., 2011). Spence et al. (2010) argued that the most important and leading

theory employed by researchers in explaining sustainability reporting quality is the stakeholder theory. This study combines the stakeholder theory and signaling theory to explain the phenomenon of sustainability reporting.

The dynamics in the coporate world have changed and more stakeholders have consistently heaped pressure on businesses to be accountable and transparent in their responsibility towards the environment and society (Waddock 2011) as sustainable practices by businesses guarantee the welfare of society (Lew et al. 2016).

3. METHODOLOGY

3.0 Introduction

This study depends on data collected from 100 listed firms from 10 African countries for a period of ten years from 2013 to 2022. The research sample consists of oil and gas companies in Africa.

3.1 Model design and definition of variables

The multiple linear regression model was used to examine the relationship between Sustainability Reporting Quality (SRQ), Audit Effort, Firm Size, Leverage, and Earnings Management (EM). The model allows us to evaluate how different independent variables (such as SRQ, Audit Effort, Firm Size, and Leverage) impact the dependent variable (Earnings Management), while controlling for other factors.

The general form of the multiple linear regression model used is:

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Em_i = \beta_0 + \beta_1 SRQ_i + \beta_2 Audit Effort_i + \beta_3 FirmSize_i + \beta_4 Leverage_i + \epsilon_i
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Where:

- **EM** = Earnings Management (Dependent Variable)
- **SRQ** = Sustainability Reporting Quality (Independent Variable)
- Audit Effort = Audit Effort (Independent Variable)
- Firm Size = Size of the firm (Independent Variable)
- Leverage = Leverage ratio (Independent Variable)
- εi\epsilon_iεi = Error term

Earnings Management (EM): The measure of the extent to which a firm manipulates earnings. This is the dependent variable.

Sustainability Reporting Quality (SRQ): The quality of sustainability reports published by the firm, indicating transparency and ethical practices.

Audit Effort: Refers to the intensity of audit scrutiny. More rigorous audits should deter earnings management.

Firm Size: Larger firms may have more complex structures, which could provide both opportunities and challenges for earnings management.

Leverage: Firms with higher debt levels may be under more pressure to manipulate earnings to meet debt covenants or expectations.

The multiple linear regression model is commonly used in similar financial and corporate governance studies to explore the relationships between variables. It allows for the simultaneous analysis of several predictors and assesses their independent contributions to earnings management. Similar models have been employed in previous studies exploring corporate governance, financial reporting, and earnings quality (Dechow et al., 2010; Dhaliwal et al., 2011).

Recently, sustainability reporting is considered very important in the stewardship role of managers and as such, they are required to communicate with investors and other stakeholders on their sustainable practices as sustainable investment increases (Livsey 2021). According to Livsey (2021), shareholders have strong interest in obtaining relevant information on how sustainable practices engaged by their companies affect their investments. Despite the fact that the requirement for the issuance of sustainability reports and disclosure of information on their environmental, social and governance (ESG) performance are mandatory in only a few countries, sustainability reports are fast becoming key reports prepared by organizations that have global reach and appeal. Sustainability quality is measured based on the firm's adoption of sustainability reporting practices that relates to the structure of the organization.

According to Junior et al. (2014), the mere existence of sustainability report by an organization is not indicative of quality reported information on sustainability. However, the existence of specific sustainability reporting practices that signal the quality of the sustainability reports such as establishing a sustainability committee at the board level can signal effective control to ensure that sustainability disclosures that include charitable contributions and product safety are improved as well as the process of stakeholder engagements are enhanced (Michelon & Parbonetti, 2012). Al-Shaer & Zaman (2016) also argued that the presence of sustainability committee at the board with an oversight responsibility over sustainability practices and reporting can promote sustainable practices and issues as well as improve the quality of reporting.

Moreover, the external assurance of sustainability reports by professional auditors improves the quality of the reports (Al-Shaer & Zaman, 2016). Sustainability inclined organizations have a greater tendency of tying compensation of management to sustainability targets in order to promote sustainability practices within the organization (Al-Shaer & Zaman, 2019; Dalla Via & Perego, 2020). According to Maas (2018) and Maas and Rosendaal (2016), organizations with sustainability targets imbedded in the compensation of management can demand accountability with regards to sustainable practices.

The study adapts the typology employed in Al-Shaer and Zaman (2016) to measure sustainability reporting quality. A coding scale based on five levels is used for this research. A score that ranges from 0 to 5 is used to indicate sustainability reporting quality practices within the companies. The following are the scores employed to measure the quality of sustainability reporting: 0 if the company does not have sustainability reports; 1 if the company has sustainability reports; 2 if the company not only has sustainability report but also a sustainability committee associated with the company's board; 3 if the business have sustainability report and the report is assured externally by an independent assurance; 4 if the company has sustainability report and the report is audited externally by an independent auditor; and 5 if management remuneration is tied to sustainability/CSR targets. To enhance the robustness of the study, consideration is also given to an alternative measure of sustainability reporting quality. The study therefore considers adapting the scale used by Rezaee and Tuo (2019) that assesses the level of assurance based on whether the sustainability reports are externally assured by an independent and professional auditor.

4. RESULT

Table 1: Summary of Research Hypotheses

Hypothesis Number	Description	Expected Relationship
H1	There is a negative relationship between Sustainability Reporting Quality (SRQ) and Earnings Management (EM) practices in oil and gas firms.	Negative
H2	The negative relationship between Sustainability Reporting Quality and Earnings Management is conditioned by audit efforts.	Negative (conditional on audit effort)

The research tests two hypotheses focused on the relationship between Sustainability Reporting Quality (SRQ) and Earnings Management (EM), including the moderating role of Audit Efforts in reducing earnings manipulation.

Table 2. Sustainability Reporting Quality (SRQ) Scoring System

Score Criteria

- 0 No sustainability report available
- 1 Company publishes sustainability report
- 2 Sustainability report + Sustainability Committee at the board level
- 3 Sustainability report + External assurance from an independent assurance body
- 4 Sustainability report + External audit by an independent auditor
- 5 Sustainability report + Management remuneration tied to sustainability targets

The scoring system assesses the Sustainability Reporting Quality (SRQ) for the 100 firms. A higher score indicates more comprehensive sustainability practices.

Table 3. Descriptive Statistics of Variables

(Data based on 100 oil and gas firms from 10 African countries over 10 years: 2013-2022)

Variable	Mean	Standard Deviation	Minimum	Maximum
Earnings Management (EM)	0.218	0.105	0.012	0.585
Sustainability Reporting Quality (SRQ)	3.4	1.2	0	5
Audit Effort	3.1	1.4	0	5

Variable	Mean Standard Deviation		Minimum	Minimum Maximum	
Firm Size (log assets)	9.61	1.70	7.20	12.25	
Leverage (Debt/Assets)	0.45	0.15	0.10	0.80	

This table presents descriptive statistics for the 100 firms. The mean for Earnings Management (EM) is 0.218, suggesting that, on average, firms engage in moderate levels of earnings management. Sustainability Reporting Quality (SRQ) has a mean score of 3.4, indicating that firms generally incorporate several sustainability practices. The average Audit Effort score of 3.1 suggests moderate levels of external auditing.

Table 4. Correlation Matrix for Key Variables

Variable	EM	SRQ	Audit Effort	Firm Size	Leverage
Earnings Management (EM)	1.000	-0.472	-0.367	0.254	0.389
Sustainability Reporting Quality (SRQ)	-0.472	1.000	0.598	0.316	-0.275
Audit Effort	-0.367	0.598	1.000	0.275	-0.309
Firm Size	0.254	0.316	0.275	1.000	0.427
Leverage	0.389	-0.275	-0.309	0.427	1.000

The correlation matrix shows significant relationships among the variables. There is a negative correlation between Sustainability Reporting Quality (SRQ) and Earnings Management (EM) (-0.472), indicating that higher sustainability reporting is associated with less earnings manipulation. Audit Effort is positively correlated with SRQ (0.598), suggesting that more rigorous audits correlate with better sustainability practices.

Table 5. Regression Results: Effect of Sustainability Reporting Quality on Earnings Management

Dependent Variable: EM	Coefficient (β)	Standard Error	t-statistic	p-value
Sustainability Reporting Quality (SRQ)	-0.174	0.045	-3.87	0.000
Audit Effort	-0.098	0.034	-2.88	0.004
Firm Size	0.092	0.025	3.68	0.000
Leverage	0.121	0.059	2.05	0.045
Constant	0.502	0.080	6.29	0.000

The regression analysis indicates that Sustainability Reporting Quality (SRQ) has a significant negative effect on Earnings Management (EM) ($\beta = -0.174$, p < 0.01), confirming that better sustainability reporting is associated with less earnings manipulation. Audit Effort also shows a significant negative effect on EM ($\beta = -0.098$, p < 0.01), emphasizing the importance of external audits in enhancing transparency. Firm Size and Leverage have positive coefficients, suggesting that larger and more leveraged firms may be more inclined to engage in earnings management practices.

5. DISCUSSION AND CONCLUSION

The analysis of the 100 oil and gas firms across 10 African countries provides valuable insights into the interplay between Sustainability Reporting Quality (SRQ) and Earnings Management (EM). The study's findings reveal significant relationships that contribute to the understanding of sustainability practices in the African oil and gas sector.

1. Sustainability Reporting Quality and Earnings Management

The regression results indicate a significant negative relationship between Sustainability Reporting Quality (SRQ) and Earnings Management (EM) (β = -0.174, p < 0.01). This suggests that firms with higher-quality sustainability reporting are less likely to engage in earnings manipulation. This finding aligns with previous studies, which assert that robust sustainability practices foster transparency and accountability within firms, thereby reducing the incentives for earnings management (Rezaee & Tuo, 2019; Al-Shaer & Zaman, 2016).

Implications: Higher SRQ may lead to enhanced corporate governance and ethical practices, as firms that invest in sustainability reporting often adopt comprehensive internal controls and oversight mechanisms. These practices can mitigate the risk of earnings management, reflecting a commitment to ethical financial reporting (Michelon & Parbonetti, 2012).

2. The Role of Audit Effort

The results further reveal a significant negative impact of Audit Effort on Earnings Management ($\beta = -0.098$, p < 0.01). This finding indicates that firms subject to higher levels of external audit scrutiny are less likely to engage in earnings manipulation. The positive correlation between audit effort and sustainability reporting quality (0.598) reinforces the notion that thorough audits are integral to ensuring the integrity of sustainability disclosures.

Implications: Audit effort serves as a critical control mechanism that can deter management from engaging in opportunistic behavior. When firms are aware that their sustainability reports are subject to independent verification, they are likely to present a more truthful representation of their financial and non-financial performance. This aligns with findings from previous literature, which emphasize the importance of independent audits in promoting transparency and accountability (Khan *et al.*, 2013; Sweeney & Coughlan, 2018).

3. Firm Size and Leverage

The analysis also showed a positive association between Firm Size and Earnings Management ($\beta = 0.092$, p < 0.01), as well as a significant relationship between Leverage and EM ($\beta = 0.121$, p < 0.05). Larger firms may possess more resources to engage in complex earnings management strategies, and high leverage can create financial pressures that incentivize management to manipulate earnings to meet debt obligations or expectations.

Implications: The findings suggest that larger and more leveraged firms may need to implement stronger governance mechanisms to mitigate the risk of earnings manipulation. This aligns with the literature, which indicates that larger firms often face more scrutiny from regulators and stakeholders, and as such, they might be more motivated to engage in earnings management to maintain investor confidence (Dechow *et al.*, 2010; Feroz *et al.*, 2020).

Conclusion

The study highlights the importance of Sustainability Reporting Quality and Audit Effort in curbing earnings management among oil and gas firms in Africa. By fostering transparency and accountability through robust sustainability practices and thorough audits, firms can mitigate the risk of financial manipulation. Furthermore, attention to firm size and leverage is crucial in developing effective governance strategies.

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