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Enhancing Sustainability Reporting Among Tanzanian Listed Companies: Exploring the Influence of Firm Characteristics

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Abstract

This study examines the influence of firm characteristics on the extent of sustainability reporting among listed companies in Tanzania. Data was collected from the annual reports of companies listed on the Dar es Salaam Stock Exchange (DSE) spanning the period from 2016 to 2021 resulting in a panel data set of 130 firm-year observations. These were analysed using both Ordinary Least Squares (OLS) and Random Effects (RE) regression model techniques. The results indicate that the size of a firm and the presence of a sustainability committee have a significant positive relationship with the extent of sustainability reporting. In contrast, the age of a firm exhibits a significant negative relationship with the extent of sustainability reporting. Additionally, financial metrics namely liquidity, gearing, and profitability as well as audit quality did not show any significant relationship with sustainability reporting.

The findings suggest that large and young firms are more inclined to adopt extensive sustainability reporting than their counterparts and challenge traditional assumptions about the influence of financial attributes. This implies that regulators such as DSE and Capital Markets and Securities Authority (CMSA) should persist in encouraging smaller companies to keep enhancing their sustainability reporting, supporting older firms in improving their reporting practices and fostering awareness about the benefits of sustainability reporting across all listed entities. Similarly, DSE and CMSA may require listed firms to establish sustainability committees on the boards of directors to enhance sustainability reporting disclosure.

Keywords: Sustainability reporting, Firm characteristics, Listed companies, Tanzania.

Introduction

Business organizations play an important role in the sustainable development of societies due to their capacity to address key societal and environmental challenges facing the world. These organizations control a significant portion of global resources (Maak, 2009), and their operations are often linked to various social and environmental problems (Etzion, 2007). Given this context, society increasingly looks to these firms for resources and solutions to address these sustainability challenges. Consequently, there is a growing call from stakeholders for business firms to actively contribute to resolving persistent social problems. In response to this increasing demand, business organizations are increasingly adopting sustainability reporting. It may go without saying that sustainability reporting has gained significant global attention as a means through which firms can communicate their economic, environmental, and social initiatives to stakeholders, including

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shareholders, investors, customers, employees, and regulators (Buallay, 2022). Such reporting is vital for business organizations as it ensures transparency and accountability in their sustainable practices, enabling stakeholders, such as investors, customers, and regulatory bodies, to evaluate the organization's commitment to preserving the environment and enhancing the social and economic well-being of societies (KPMG, 2022). Sustainability reports not only serve as a mechanism for communication but also aid in identifying areas for improvement, enhancing corporate reputation, and attracting socially responsible investments (Eccles & Serafeim, 2013). Consequently, sustainability reporting is a critical tool reflecting a firm's dedication to sustainable development and its alignment with broader societal and environmental goals.

Globally, the prevalence of sustainability reporting has markedly increased, with substantial progress observed in regions like Europe and North America. Here, a considerable proportion of large corporations are actively engaged in comprehensive sustainability disclosures (KPMG, 2022). Notably, approximately 96% of the world's top 250 companies (G250) undertake sustainability reporting (KPMG, 2022). In contrast, Africa, and particularly Sub-Saharan Africa, exhibits a slower growth rate in sustainability reporting practices compared to these more developed regions (Tilt *et al*, 2021; KPMG, 2022). As reported by Tilt *et al*. (2021) and KPMG, 2022, only a mere 17% of companies in Sub-Saharan Africa engage in any form of sustainability reporting, underscoring a significant disparity when juxtaposed with global leaders like the G250. Furthermore, Tilt *et al*. (2021) further noted that Tanzanian companies represent a modest 4% of companies preparing standalone sustainability reports in Sub-Saharan Africa, a figure notably lower than Kenya's 13%. This positions Tanzania among the countries with the least number of firms that engage in extensive sustainability reporting in the region. This disparity underscores the need for an investigation of determinants of the extent of sustainability reporting in Tanzania. Tilt *et al*. (2021) argued that the low uptake of extensive sustainability reporting in the Sub-Saharan African context is partly influenced by firm-specific variables such as resources and expertise. This observation underscores the significance of investigating how various characteristics of firms influence the extent of sustainability reporting in Tanzania. Firm characteristics refer to the attributes or features of a company, such as its size, liquidity, profitability, age, ownership structure, and industry within which it belongs (Kogan & Tian, 2012). The Positive Accounting Theory (PAT) and Legitimacy Theory provide theoretical underpinnings for understanding these influences. PAT suggests that firms adopt sustainability reporting when it is economically beneficial, driven by self-interest and profitability (Watts & Zimmerman, 1978). In contrast, the Legitimacy Theory posits that firms engage in sustainability reporting to maintain their social legitimacy and stakeholder support (Suchman, 1995). The influence of these characteristics on the extent of sustainability reporting has been a focal point of considerable scholarly inquiry as they can indicate a firm's ability to allocate substantial resources and capacity towards extensive sustainability reporting (Sahore & Verma, 2021).

Despite extensive research on the influence of firm characteristics, such as size, age, profitability, liquidity, leverage, the existence of sustainability committee and audit quality, on the extent of sustainability reporting, the findings remain inconsistent and inconclusive. Generally, the findings indicate that these characteristics demonstrate all three conflicting linear effects, i.e. positive, negative or lack of influence, on the extent of sustainability reporting in various studies (Tyas & Khafid, 2020; Bhatia & Tuli, 2017; Giannarakis, 2014; Vitolla *et al*., 2023; Aris *et al*., 2021; Dissanayake, Tilt & Qian, 2019; Al-Gamrh & Al-Dhamari, 2014; Lucia & Panggabean, 2018;

Alsaeed, 2006; Wahyudi, 2021). This inconsistency highlights a research gap in understanding the definitive influence of these firm attributes on sustainability reporting practices. Further investigation is required to reconcile these divergent findings and develop a more cohesive understanding of how firm characteristics affect sustainability reporting, especially in varying economic and regional contexts, suggesting the need for more targeted research in this area.

Ali, Frynas, and Mahmood (2017) attribute the varied findings on the influence of firm characteristics on the extent of sustainability reporting to differences in national contexts, including social, political, and cultural factors. This suggests that studies focusing on specific countries may yield more accurate insights than cross-country analyses. Notably, most research in developing countries has concentrated on Southeast Asia and South Africa, with minimal attention to other Sub-Saharan African nations (Ali *et al*., 2017) and no specific focus on Tanzania. Most sustainability studies in Tanzania have focused on the nature of sustainability practices (Suluo *et al*., 2023), the influence of sustainability practices on financial performance (Suluo *et al*., 2020; Suluo & Anderson, 2022), the influence of governance on sustainability reporting (Christopher *et al*., 2022) and influence of firm characteristics on sustainability reporting of oil and gas companies using perceptual measures (Christopher & Chalu, 2018) and none focused on other industries. Therefore, this study aims to investigate how firm characteristics influence the extent of sustainability reporting in Tanzania, aiming to fill this notable research gap. Specifically, the study seeks to examine the influence of firms' size, liquidity, leverage, profitability and age on the sustainability reporting of listed firms in Tanzania using secondary data. In Tanzania, since 2016, only the companies listed on the Dar es Salaam Stock Exchange (DSE) are mandated to prepare sustainability reports. This makes it easier to access comprehensive and reliable data on their sustainability reporting practices and other relevant variables.

The findings of this study could provide insights into the barriers and opportunities that listed firms in Tanzania face in adopting sustainability reporting practices. By concentrating on a specific Sub-Saharan African country that has been largely overlooked in previous research, this study aims to provide precise insights that are contextually relevant to Tanzania's unique social, political, and cultural landscape. Such focused research is invaluable for developing tailored strategies and policies that are effective in enhancing sustainability practices within Tanzania and potentially other similar contexts. The remainder of the paper is structured as follows: The theoretic framework and hypotheses development sections come after the introduction followed by methodology, analysis and results and discussion sections. Finally, the paper ends with a conclusion section.

Theoretical Framework

Sustainability reporting is a tool utilized by corporations to measure, communicate, and make public their economic, environmental, and social performance (Montiel & Delgado-Ceballos, 2014; Tavares & Dias, 2018). This practice involves the collection of data including metrics on carbon emissions, water usage, waste management protocols, social impact, and governance practices, thereby creating a comprehensive depiction of a firm's sustainability footprint (Herzig & Schaltegger, 2006). This raw data is then subjected to rigorous analysis, and the insights derived are disseminated through organized, transparent methods such as annual reports or other media (Herzig & Schaltegger, 2006). This process enables organizations to track their sustainability

journey, facilitating the assessment of their sustainability goals and providing a base for shaping future strategies. The ultimate purpose of sustainability reporting is to furnish stakeholders with actionable information regarding an organization's sustainability efforts, including their policies, practices, and environmental and societal impact (Tavares & Dias, 2018). In doing so, sustainability reporting encourages accountability, enhances transparency, and engenders trust with stakeholders, all while contributing positively to a company's reputation and stakeholder relationships.

Firm characteristics on the other hand are distinct attributes that define a company's identity and differentiate it from others (Kogan & Tian, 2012). These traits, such as company size, liquidity, capital structure, financial performance, and firm age, can provide valuable insights into a company's competitive positioning and industry reputation (Smith *et al*., 2013). The link between firm characteristics and sustainability reporting lies in the influence these characteristics can have on a company's approach to and capacity for sustainability reporting. For example, larger firms might have more resources to invest in thorough sustainability reporting, while those with robust financial performance may perceive sustainability reporting as a strategic investment to enhance their industry reputation. Conversely, younger or smaller firms, or those with less liquidity, might face challenges in implementing comprehensive sustainability reporting due to resource constraints. Firm characteristics not only shape a company's identity and standing in the market but also significantly influence its approach to sustainability reporting.

The influence of firm characteristics on sustainability reporting may be described by the Positive Accounting Theory (PAT) and the Legitimacy Theory. PAT explains accounting practices based on firms' economic incentives, positing that firms adopt practices like sustainability reporting when benefits outweigh costs, driven by self-interest and profitability (Watts & Zimmerman, 1978). Thus, under PAT, firm characteristics like profitability, liquidity, and leverage influence sustainability reporting. On the other hand, the Legitimacy Theory asserts that organizations maintain legitimacy, a social license to operate, for success (Suchman, 1995). This theory posits that firms engage in practices such as sustainability reporting to sustain their legitimacy. Consequently, firm characteristics enhancing visibility, such as size, firm age, audit quality (by choosing a reputable auditor), and setting sustainability governance structures may enhance sustainability reporting to gain stakeholder support (Martens & Bui, 2023).

Hypotheses Development

Firm Size and Sustainability Reporting

The relationship between firm size and sustainability reporting has garnered considerable attention in academic literature. Larger firms are generally found to disclose more sustainability information, a phenomenon attributed to factors such as enhanced visibility, greater resource availability, and increased stakeholder scrutiny (Maryana, 2021; Wang, 2017; Trencansky & Tsaparlidis, 2014). Generally, empirical evidence supports this observation (Ali *et al*., 2017). Studies by Tyas and Khafid (2020), Vitolla *et al*. (2023), Eneh and Amakor (2019), Bhatia and Tuli (2017), Aris *et al*. (2021), Dissanayake *et al*. (2019), Al-Gamrh and Al-Dhamari (2014), and Giannarakis (2014) indicate a positive association between firm size and sustainability reporting. However, Wahyudi (2021), Adhania and Nurdiana (2024), and Natalia and Wahidahwati (2016) found no significant impact of firm size on sustainability reporting. On the contrary, Dilling

(2010) observed that firm size has a negative relationship with sustainability reporting. In light of Positive Accounting Theory, this study, therefore, hypothesizes that:

H1: Firms' size positively influences the extent of their sustainability reporting.

Firm Age and Sustainability Reporting

The influence of a firm's age and its engagement in sustainability reporting has been the subject of varied scholarly investigations. It is often posited that older firms are more inclined towards sustainability reporting, attributed to their long-standing perspective on business operations and heightened sensitivity to reputation management (Trencansky & Tsaparlidis, 2014; Maryana, 2021). These firms also benefit from greater resource availability and are more responsive to institutional pressures, which facilitates their sustainability endeavours (Maryana, 2021; Fadilah *et al.*, 2022). Alsaeed (2006), Adhania and Nurdiana (2024), Dienes *et al*. (2016) and Soysa *et al.* (2022), however, contend that the age of a firm does not significantly impact the extent of its sustainability reporting. From the perspective of legitimacy theory, it is reasoned that older firms, having invested extensively in their reputation and legitimacy over time, and with more established governance frameworks, are likely more adept at navigating social and environmental challenges. Consequently, this study hypothesizes that:

H2: Firms' age positively influences the extent of their sustainability reporting.

Firms' Profitability and Sustainability Reporting

Research examining the influence of profitability on sustainability reporting has garnered reasonable interest. Vitolla *et al*. (2023), Lucia and Panggabean (2018), Wahyudi (2021), Aris *et al*. (2021), and Giannarakis (2014) have found that more profitable companies tend to engage in higher levels of sustainability reporting. On the other hand, Sulistyawati and Qadriatin (2019), Natalia and Wahidahwati (2016), Tyas and Khafid (2020) and Bhatia and Tuli (2017) found no significant impact of profitability on sustainability reporting. Anchoring on the PAT, which posits that financially stronger firms are more inclined to invest in sustainability reporting due to their increased resources and heightened stakes, this study proposes the hypothesis that:

H3: Firms' profitability positively influences the extent of their sustainability reporting.

Firm's Liquidity and Sustainability Reporting

The empirical examination of the relationship between a firm's liquidity and its sustainability reporting has resulted in diverse findings. Hassan and Marimuthu (2016), Ruhana and Hidayah (2020), and Siregar, Muslimah and Hapsoro (2022) established that companies with greater liquidity have more resources to invest in sustainability initiatives and reporting. However, Lucia and Panggabean (2018) and Arnes and Toto (2020) reported that liquidity has no significant effect on sustainability reporting. Under the lens of Positive Accounting Theory, this study postulates that a firm's liquidity can positively influence its sustainability reporting practices and hence our study hypothesizes that:

H4: The Firm's liquidity positively influences the extent of its sustainability reporting.

Leverage and Sustainability Reporting

The influence of a firm's leverage on its engagement in sustainability reporting has been received reasonable research focus. Vitolla *et al*. (2023) discovered a positive influence of firm leverage on the level of sustainability reporting, suggesting that highly leveraged firms might increase their sustainability disclosures to manage risk and enhance credibility with investors and creditors. On the other hand, studies by Giannarakis (2014), and Bhatia and Tuli (2017) have indicated a negative association, implying that firms with lower leverage are more actively involved in sustainability reporting. This trend suggests that companies with a higher equity base may have more financial capacity to invest in sustainability initiatives, potentially improving their reputation and reducing their cost of capital. However, contrasting findings from Tyas and Khafid (2020) and Lucia and Panggabean (2018) showed no significant impact of leverage on sustainability reporting. Given these mixed results, this study draws upon Positive Accounting Theory, which posits that firms may intensify their sustainability reporting to positively shape lender and investor perceptions when faced with high leverage and vice versa. Thus, the hypothesis of this study is that:

H5: Firms' level of leverage positively influences the extent of their sustainability reporting.

Sustainability Committee and Sustainability Reporting

Consistent with the tenets of legitimacy theory, which posits that organizations seek to legitimize their operations in the eyes of stakeholders, it is observed that entities often manifest their commitment to Corporate Social Responsibility (CSR) by instituting a dedicated CSR committee or appointing specific officers or departments charged with guiding the organization's trajectory in fulfilling stakeholder expectations. This perspective is supported by Amran, Lee, and Dev (2014), who assert that such structural provisions are instrumental in shaping organizational approaches to meeting stakeholder demands. Ong and Djajadikerta (2017), in their investigation into the influence of corporate governance structures on sustainable reporting within Australian enterprises, found that the presence of a sustainability committee significantly augments the breadth of sustainability reporting. Corroborating this, Amran *et al*. (2014), Hidayah, Badawi and Nugroho (2019) as well as Velte and Stawinoga (2020) observed a positive and significant association between the existence of a CSR committee and the enhancement of sustainability reporting quality. In contrast, Önder and Baimurzin (2020) identified a negative impact of sustainability committees on sustainability disclosures, noting that firms with such committees tended to concentrate more on advancing social responsibility initiatives, such as outreach programs, rather than on refining sustainable reporting mechanisms. This observation indicates that while firms strive to uphold their legitimacy, their focus may diverge towards enhancing social responsibility endeavours at the expense of comprehensive sustainability reporting. Consequently, this leads to the hypothesis that:

H6: The presence of Sustainability Committees positively influences the extent of sustainability reporting.

Audit Quality and Sustainability Reporting

Audit quality is defined by the auditor's proficiency in identifying potential irregularities and mistakes within the system and effectively communicating the results of these findings (Tahir *et al*., 2020). Audit quality, essential for mitigating stakeholder information asymmetries plays a

crucial role in enhancing the credibility and reliability of sustainability reporting among stakeholders (Maroun, 2019; Samaha *et al*., 2015). The empirical literature suggests higher audit fees lead to greater audit effort and improved quality in both financial and non-financial information disclosure (Doogar *et al*., 2015; Hribar *et al*., 2014; Chen *et al*., 2016). Rivera *et al*. (2017) indicate that external assurance and higher levels of auditing positively influence disclosure levels and market response, respectively. Chen *et al*. (2016) demonstrate that audit quality significantly enhances integrated reporting. Cooray *et al*. (2020) report that integrated report disclosure is influenced by whether financial statements are audited by a Big 4 firm, and Velte (2018) finds that audits by Big 4 firms improve the readability and credibility of integrated reporting. In contrast, other studies did not find any impact of audit quality on nonfinancial information reliability (Simnett & Huggins, 2015). This body of research generally supports the hypothesis:

H7: Audit quality positively impacts integrated reporting.

Methodology

Data

The data were manually collected from the annual reports of all firms which are primarily listed in the Dar es Salaam Stock Exchange (DSE). According to the DSE website, there were twenty-eight (28) listed firms as of 2021 operating in various sectors such as banking, manufacturing, mining, telecommunications, and insurance. All variables used in the analysis are based on the data collected from annual reports from the year 2016 to 2021. This period was considered appropriate because DSE introduced a sustainability reporting framework in 2016 which is expected to influence the extent of sustainability reporting. Moreover, 2021 was the latest reporting period at the time of data collection. Annual reports of some firms were missing in all or certain years. Out of 28 listed firms at the DSE, 3 firms were missing annual reports for the desired period and hence 25 (89%) firms were considered in the sample. Additionally, based on the 6-year time frame and the population of 28 firms, we expected to have 168 firm-year observations but we ended up having 130 (77%) firm-year observations due to the reason mentioned earlier. This means our analysis of data is based on an unbalanced panel data set. One potential limitation of our sample selection criteria is the introduction of survivorship bias into the process (Riffenburgh, 2006). Nevertheless, the criteria yielded a substantial number of observations, and as such, the generalizability of our study's findings should not be significantly impacted by the sample selection process (Riffenburgh, 2006).

Two researchers independently extracted data from the annual reports of listed firms for the years 2016 to 2021. Each researcher systematically downloaded the reports from the Dar es Salaam Stock Exchange (DSE) website or the firms' websites. They extracted values for total assets, current assets, current liabilities, total debt, equity, and net income from the balance sheets and income statements. This data was used to compute key financial metrics, including firm size (logarithm of total assets), liquidity (quick ratio), leverage (debt-to-equity ratio), and profitability (return on assets). Additionally, they collected information on firm age from company profiles, the presence of a sustainability committee from governance sections, and audit fees (logarithm of audit fee) from the income statements. The researchers also assessed sustainability reporting using a 32-indicator index, scoring each indicator as either present (1) or absent (0) to derive the sustainability reporting index as the sum of these scores. To ensure reliability, a systematic

approach with inter-rater reliability checks was employed. Both researchers collaborated on developing the data collection instrument and ensured a shared understanding of the measurement indicators. They independently extracted data from the 2016 annual reports and compared their results to evaluate consistency. Discrepancies were resolved through discussion, leading to refined extraction methods. The researchers then proceeded to extract data for the remaining years and conducted inter-rater reliability tests using Cohen's Kappa coefficient at the end of the data collection phase. This revealed a high inter-rater reliability of 96% [95% CI, 0.92-1.00], indicating strong alignment in their assessments. Any remaining differences were resolved through further discussion between researchers.

Measurement of Variables

Table 1 contains measures of all of the study's variables. The dependent variable for the study is sustainability reporting which has been measured using an index adopted from Garg (2017) with 32 indicators. Measures for independent variables are indicated in Table 1.

Table 1: Variables' Measures

Variable	Measurement	Source
Sustainability Reporting	An index with 32 indicators	Garg (2017)
Firm size	Natural logarithm of total assets	Egbunike and Okerekeoti (2018)
Liquidity	Quick ratio *(Cash balance/Current Liabilities)*	Katchova and Enlow (2013)
Leverage	Debt to equity ratio *(Long term Liabilities/Equity)*	Omondi *et al*. (2013)
Profitability	Return on assets *(Net Income/Total Assets)*	Katchova and Enlow (2013)
Firm Age	Number of years since the establishment	Egbunike Okerekeoti (2018)
Presence of the Sustainability Committee	Whether the firm reports to have (score 1) or not (score 0)	Ong and Djajadikerta (2017)
Audit Quality	Natural logarithm of Audit Fee	Doogar *et al*. (2015)

Analysis and Results

Descriptive Statistics

Table 2 presents an overview of the descriptive statistics for the variables under study. The average Sustainability Reporting Index (SRI) stands at 14.654, which, against a full disclosure benchmark of 32, denotes a marginally below-average level of sustainability information disclosure by Tanzanian listed firms. In terms of firm size, as indicated by the natural logarithm of total assets, the mean value is 26.1. This logarithmic mean, when converted back to its original form, corresponds to an average asset base of approximately 216 billion Tanzanian Shillings (equivalent to around 87 million US Dollars) for the listed firms in Tanzania. This suggests that, as per the National SMEs Policy, 2002, listed firms are among the large firms in Tanzania. The current ratio has a mean value of 2.246, implying a relative adequacy in the firms' ability to meet their short-term liabilities. The average leverage ratio, at 0.265, suggests that the companies' total

debt constitutes about 26.5% of their total assets, indicative of a generally low gearing level. Regarding profitability, measured by the Return on Assets (ROA), the average return is approximately 4%, pointing to a modest level of profitability among these firms. The firms' age distribution, with an average of 15.5 years and a range from a minimum of 5 years to a maximum of 25 years, reflects a diverse mix of relatively nascent and more established entities. Additionally, the data reveal that, on average, approximately 67% of the firms have established sustainability committees, a trend that can be seen as highly encouraging. Finally, the average audit quality, gauged by the natural logarithm of the audit fee which stands at 19, translates to an average audit fee of about 197 million Tanzanian Shillings (roughly 79,000 US Dollars). This figure underscores a significant investment in audit services, highlighting the financial robustness and the scale of operations of these listed Tanzanian firms.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Sustainability Reporting Index	130	14.654	7.655	0	29.000
Firm Size	130	26.100	2.318	21.188	30.852
Liquidity	130	2.246	3.129	0.001	16.037
Leverage	130	0.265	0.295	0.000	0.869
Profitability	130	0.037	0.092	-0.284	0.303
Age	130	15.477	6.337	5.000	25.000
Sustainability Committee	130	0.669	0.472	0.000	1.000
Audit Quality	130	19.099	1.645	15.99	25.88

Source: Field Data (2022)

Diagnostic Tests

In examining the normality of residuals, the Jarque-Bera test showed a statistic of 1.11 with a p-value of 0.574, indicating no significant deviation from normality (Jarque & Bera, 1987). Similarly, the Shapiro-Wilk test resulted in a W statistic of 0.988 and a p-value of 0.325, also supporting the hypothesis of normal distribution (Shapiro & Wilk, 1965). Both tests suggest the residuals are normally distributed, validating the assumptions for further statistical analysis.

Table 3: Correlation Matrix

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
(1) Sustainability Reporting Index	1.000							
(2) Firm Size	0.229	1.000						
(3) Liquidity	-0.033	-0.149	1.000					
(4) Leverage	0.009	0.094	-0.160	1.000				
(5) Profitability	-0.197	0.089	0.104	0.070	1.000			
(6) Age	-0.345	-0.138	-0.279	-0.036	0.177	1.000		
(7) Sustainability Committee	0.148	0.242	-0.195	0.248	-0.082	0.229	1.000	
(8) Audit Quality	-0.023	0.584	-0.051	0.181	0.308	-0.124	0.135	1.000

Source: Field Data (2022)

In assessing multicollinearity within the dataset, the correlation matrix (Table 3) showed notable correlations, such as between Audit Quality and Firm Size (0.584), which are below the threshold of 0.7 suggesting no significant multicollinearity issues (Pallant, 2020). Moreover, the Variance

Inflation Factor (VIF) values (Table 4) revealed no significant multicollinearity concerns, with VIFs ranging from 1.206 to 2.006, well below the threshold of 10 (Pallant, 2020). The overall analysis thus suggests that there was no significant multicollinearity concerns.

Table 4: Value Inflation Factors and Tolerance Values

Variables	Variance Inflation Factor	Tolerance Values
Audit Quality	2.006	0.499
Sustainability Committee	1.892	0.528
Firm Size	1.865	0.536
Age	1.457	0.686
Profitability	1.409	0.710
Liquidity	1.271	0.787
Leverage	1.206	0.829

Source: Field Data (2022)

In assessing the presence of heteroskedasticity in the regression model, the Breusch-Pagan/Cook-Weisberg test was utilized. The test focused on the fitted values of Sustainability Reporting Index as the independent variable. The resulting chi-squared statistic was 0.18, with a corresponding p-value of 0.6689. This p-value, significantly exceeding the conventional alpha level of 0.05, indicates that the test provides no substantial evidence of heteroskedasticity in the model (Breusch & Pagan, 1979; Cook & Weisberg, 1983). This suggests that the assumption of homoskedasticity, a key consideration for the validity of standard regression estimates, is met in our analysis. Lastly, the Wooldridge test for autocorrelation in our panel data yielded an F-statistic of 0.898 and a p-value of 0.3536. With the p-value exceeding the standard alpha level of 0.05, it suggests the absence of autocorrelation in the panel data (Wooldridge, 2010). Therefore, the analysis supports the assumption of independence of the residuals in the panel model, reinforcing the reliability of the estimated parameters.

Regression Analysis

In determining the most suitable regression model for our panel data analysis, we employed two pivotal statistical tests: the Breusch and Pagan Lagrangian Multiplier test for random effects and the Hausman specification test. The Breusch and Pagan test yielded a chibar2(01) statistic of 28.68 with a p-value less than 0.001. Since the p-value is significantly less than the conventional threshold of 0.05, this indicates strong evidence of existence of random effects (Breusch & Pagan, 1980) and suggesting the inadequacy of a simple Ordinary Least Squares (OLS) model for data analysis. This result advocates for the adoption of a panel model incorporating random effects. Further clarifying the choice between a random effects model and a fixed effects model, the Hausman test was conducted, resulting in a Chi-square value of 3.602 and a p-value of 0.824. The high p-value above 0.05 indicates no significant difference between the fixed and random effects models (Hausman, 1978), thereby validating the use of a random effects model. Consequently, based on these statistical tests, a random effects panel model emerges as the most appropriate analytical approach for our study. The hypotheses of the study were therefore analysed using a Random Effects (RE) panel regression model while controlling for industry category using 6 industry dummies. Additionally, OLS regression results are presented as a robustness check. Nevertheless, both models were statistically significant, and there are few differences between the Random Effects (RE) and Ordinary Least Squares (OLS) regression results. These similarities

indicate the robustness of our findings. Table 5 below presents regression results for both models; however, the discussion is based on RE results for the reasons mentioned earlier.

Table 5: Regression results

VARIABLES	(OLS) SRI	**(RE) SRI**
Size	0.870**	**0.900****
	(0.340)	**(0.386)**
Age	-0.507***	**-0.327****
	(0.110)	**(0.157)**
Profitability	-0.197	**3.110**
	(7.412)	**(7.303)**
Liquidity	-0.165	**-0.0876**
	(0.208)	**(0.205)**
Leverage	-3.017	**-2.752**
	(2.148)	**(2.262)**
Sustainability Committee	4.987***	**3.865****
	(1.682)	**(1.949)**
Audit quality	-1.449***	**-0.850***
	(0.497)	**(0.495)**
Industry dummies	included	**Included**
Constant	25.83**	**11.33**
	(10.61)	**(13.14)**
Observations	130	**130**
R-squared	0.334	**0.296**
Number of Coy_ID		**25**

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Field Data (2022)

The analysis presented in Table 5 revealed a statistically significant and positive influence of firm size on the extent of sustainability reporting, with a coefficient of 0.900, standard error of 0.386 and p-value of less than 0.05. These findings empirically supported Hypothesis H1, underscoring that larger firms tend to engage more extensively in sustainability reporting. Concerning Hypothesis H2, the data revealed a significant inverse relationship between the age of a firm and the extent of its sustainability reporting, evidenced by a coefficient of -0.327, a standard error of 0.157 and a p-value of less than 0.05. This outcome implies that older companies may not positively influence the extent of sustainability reporting but young firms do, leading to the non-affirmation of Hypothesis H2, which posited a positive impact of age on sustainability reporting. Moreover, the impact of firm profitability on sustainability reporting was observed to be positive but not statistically significant. Consequently, Hypothesis H3, which proposed a significant effect of profitability on sustainability reporting, did not find support in the data. Similar conclusions

were drawn for Hypotheses H4 and H5, wherein both liquidity and leverage, with coefficients of -0.088 and -2.752 respectively, and standard errors of 0.205 and 0.262, did not exhibit a significant influence on the extent of sustainability reporting.

Further analysis demonstrated that the presence of a Sustainability Committee within a firm positively influenced the extent of sustainability reporting, as evidenced by a coefficient of 3.865, a standard error of 1.949 and a p-value of less than 0.05, thereby lending support to Hypothesis H6. This finding suggests that sustainability committees play a significant role in enhancing sustainability reporting practices. Lastly, the relationship between audit quality and sustainability reporting, despite being negatively correlated (coefficient = -0.850), was not statistically significant, indicating that Hypothesis H7, which anticipated a positive influence of audit quality on sustainability reporting, is not substantiated by the data.

Discussion

The objective of this study was to determine whether specific firm characteristics, namely; size, age, profitability, liquidity, leverage, the presence of sustainability committees, and audit quality, influenced the extent or level of sustainability reporting among listed firms in Tanzania. The study revealed that larger Tanzanian firms tend to engage more in sustainability reporting, while older firms are less active in these practices than their younger counterparts. Also, the study found that the presence of a sustainability committee positively influenced the level of sustainability reporting. In contrast, financial metrics such as profitability, liquidity, and leverage as well as the quality of audit showed no significant influence on the level of sustainability reporting. The positive influence found in this study of firm size on the extent of sustainability reporting in Tanzanian listed firms supports a well-established trend in existing literature. This alignment with the hypothesis and previous research underscores that larger firms are more inclined to engage in extensive sustainability reporting, a trend attributed to factors like enhanced visibility, greater resource availability, and increased stakeholder scrutiny (Maryana, 2021; Wang, 2017; Trencansky & Tsaparlidis, 2014). The empirical evidence supporting this observation is widely documented (Ali *et al*., 2017; Tyas & Khafid, 2020; Vitolla *et al*., 2023; Eneh & Amakor, 2019; Bhatia & Tuli, 2017; Aris *et al*., 2021; Dissanayake *et al*., 2019; Al-Gamrh & Al-Dhamari, 2014; Giannarakis, 2014). The consistency of these findings with the broader academic consensus reinforces the notion that larger firms, due to their scale and public profile, feel a greater obligation and possess more resources to disclose sustainability information comprehensively. However, it is noteworthy that this study's findings diverge from Wahyudi (2021), who did not observe a significant impact of firm size on sustainability reporting. This discrepancy may reflect contextual differences, highlighting the importance of considering regional and industrial variations when examining sustainability practices.

The findings that revealed a negative influence of firm age on the extent of sustainability reporting, present an intriguing contrast to the prevailing literature. The expectation, as noted in the works of Trencansky and Tsaparlidis (2014) and Maryana (2021), is typically that older firms, with their long-standing business operations and concern for reputation management, would be more inclined towards sustainability reporting. This viewpoint is supported by the argument that older firms have more resources and are responsive to institutional pressures, facilitating their sustainability endeavours (Maryana, 2021). However, the study's findings align more closely with Jabłoński (2019), who suggests that younger firms, with their focus on modern social and

environmental responsibilities and often more innovative approaches, might be better positioned to engage in sustainability reporting. This divergence from the expected outcome, as seen in traditional views of Legitimacy Theory, where older firms are thought to be more committed to sustainability reporting to uphold their legitimacy and reputation, is notable. The study's results also resonate with Alsaeed (2006), who argued that the age of a firm does not significantly impact the extent of its sustainability reporting. This suggests that in the context of Tanzanian firms, other factors such as current market dynamics, regulatory environment, and perhaps a shift towards more progressive and modern business models in younger firms, might be influencing their approach to sustainability reporting more than the traditional advantage of age and established reputation.

Firms' liquidity, capital structure and profitability were found not to have an influence on the extent of sustainability reporting among listed firms in Tanzania. The findings that no significant influence of profitability on sustainability reporting contrasts with findings from researchers like Vitolla *et al*. (2023), Lucia and Panggabean (2018), Wahyudi (2021), Aris *et al*. (2021), and Giannarakis (2014), who observed a positive influence of profitability on sustainability reporting. This discrepancy might suggest that in the Tanzanian context, profitability is not a key driver for sustainability reporting, unlike in other contexts. This aligns with Tyas and Khafid (2020) and Bhatia and Tuli (2017), who also did not find a significant impact of profitability on sustainability reporting, indicating variability in how financial performance influences sustainability efforts across different regions and business environments. Concerning a firm's liquidity, the study also did not find a significant effect on sustainability reporting. This outcome is in line with the findings of Lucia and Panggabean (2018), but contrasts with Hassan and Marimuthu (2016), who found that higher liquidity facilitates greater investment in sustainability initiatives. This could indicate that liquidity, as a financial metric, may not directly translate into sustainability efforts, possibly due to varying strategic priorities or resource allocations in different firms. Similarly, the study's findings did not support a significant impact of leverage on sustainability reporting, diverging from Vitolla *et al*. (2023) who found a positive influence. This suggests that the leverage of a firm, in the Tanzanian context, might not be a critical determinant in driving sustainability reporting, as opposed to findings by Giannarakis (2014), who noted a negative association. These findings, overall, suggest that the financial performance-related characteristics of Tanzanian firms, such as profitability, liquidity, and leverage, do not significantly dictate the extent of their sustainability reporting. This could be reflective of a business environment where sustainability practices are influenced more by non-financial factors or perhaps a different set of strategic priorities within these firms.

The study's findings which demonstrated a significant positive impact of the presence of a sustainability committee on sustainability reporting, align well with the tenets of legitimacy theory and existing literature. According to legitimacy theory, organizations aim to legitimize their operations in stakeholders' eyes, often by establishing dedicated structures like sustainability or CSR committees (Amran, Lee, and Dev, 2014). This study's findings resonate with the research of Ong and Djajadikerta (2017) and Amran *et al*. (2014), who found that the presence of such committees enhances the breadth and quality of sustainability reporting. This suggests that having dedicated governance structures, like sustainability committees, plays a crucial role in shaping organizational practices towards meeting stakeholder demands and improving sustainability disclosures. However, these findings present a contrast to Önder and Baimurzin (2020), who

observed a negative impact of sustainability committees on the extent of sustainability disclosures. This discrepancy could be attributed to the possibility that in some contexts, sustainability committees might focus more on direct social responsibility initiatives rather than on refining sustainability reporting mechanisms. This indicates that the effectiveness of sustainability committees in enhancing reporting may depend on their specific mandates and operational focus. Generally, this finding emphasizes the importance of structured and dedicated governance mechanisms in driving effective sustainability practices.

The findings, which did not find a significant relationship between audit quality and sustainability reporting, provide an interesting perspective when viewed against existing literature. Audit quality is often considered crucial in enhancing the credibility and reliability of sustainability reporting (Maroun, 2019; Samaha *et al*., 2015), with higher audit fees being associated with greater effort and improved disclosure quality (Doogar *et al*., 2015; Hribar *et al*., 2014). Moreover, Rivera *et al*. (2017) suggest a positive influence of external assurance on disclosure levels. However, the study's findings contrast with these observations, aligning instead with the results of Simnett and Huggins (2015), who found no significant impact of audit quality on nonfinancial information reliability. This discrepancy might suggest that in the Tanzanian context, factors other than audit quality could play a more significant role in influencing sustainability reporting practices. It could also indicate that the perceived value or impact of high-quality audits on sustainability reporting is not as pronounced in this specific business environment. This highlights a potential divergence in how audit quality is valued or utilized in different regional or regulatory contexts concerning sustainability reporting. Generally, this study on Tanzanian listed firms reveals that larger firms and those with sustainability committees are more engaged in sustainability reporting, aligning with global trends and legitimacy theory. In contrast, older firms, surprisingly, are less active in these practices. Financial metrics like profitability, liquidity, and leverage, along with audit quality, do not significantly influence sustainability reporting, suggesting that in Tanzania, these aspects might not be as crucial in driving sustainability initiatives as they are in other contexts. This study highlights the complexity and contextual nature of factors influencing sustainability reporting in emerging economies.

Conclusion

This study examines the influence of various firm characteristics on the extent of sustainability reporting among listed firms in Tanzania – the knowledge of which was lacking. This research uniquely contributes to the understanding of sustainability reporting in Tanzania, a context not extensively covered in previous studies, thereby enriching the global discourse on corporate sustainability practices in diverse regions, particularly in Sub-Saharan Africa. The findings highlight distinct regional characteristics, such as the significant role of firm size and the lesser engagement of older firms in sustainability reporting, diverging from trends commonly observed in developed economies. Additionally, the study challenges the conventional emphasis on financial performance metrics as key drivers of sustainability reporting, suggesting alternative motivations in the Tanzanian context. The importance of sustainability committees in this setting underscores varying corporate governance influences on sustainability practices compared to more developed markets. Furthermore, the non-significant impact of audit quality on sustainability reporting in Tanzania offers a fresh perspective, indicating differing regional priorities and approaches to corporate sustainability. This study, therefore, provides a unique contribution by shedding light on the nuances of sustainability reporting in an emerging African

economy, offering valuable insights for a more comprehensive global understanding of sustainability practices.

The practical implications of this study are significant in light of the low levels of sustainability reporting in Sub-Saharan Africa, particularly in Tanzania, as identified by Tilt *et al*. (2021). Firstly, the study highlights the importance of firm size in sustainability reporting. Larger Tanzanian listed firms are more likely to engage in sustainability practices, suggesting that initiatives aimed at enhancing sustainability reporting should particularly target smaller firms, possibly through policy incentives, support programs, or regulatory frameworks that encourage or mandate sustainability disclosure. Secondly, the finding that older firms in Tanzania are less active in sustainability reporting than younger firms suggests a potential generational gap in corporate culture and practices. This indicates a need for initiatives to sensitize and educate older firms about the benefits and necessity of sustainability reporting, possibly through industry associations, governmental programs, or partnerships with NGOs.

The study also reveals that financial performance metrics are not significant drivers of sustainability reporting in Tanzania. This suggests that efforts to promote sustainability reporting should not solely focus on the financial aspects but also consider other motivating factors such as corporate governance, stakeholder engagement, and market competitiveness. Furthermore, the significant role of sustainability committees in enhancing sustainability reporting practices highlights the need for Tanzanian firms to establish such committees or equivalent structures. This could be facilitated through policy guidelines or industry standards that advocate for the establishment of dedicated sustainability governance mechanisms within organizations. Lastly, the non-significant impact of audit quality on sustainability reporting in Tanzania suggests the need for a broader approach to improving sustainability reporting standards, beyond just financial auditing. This could involve developing comprehensive sustainability reporting frameworks and guidelines tailored to the Tanzanian context, considering the unique economic, social, and environmental challenges faced by firms in the region.

However, the study has its limitations. Its focus on Tanzanian listed firms may limit the generalizability of the findings to other developing or developed countries with different regulatory, economic, and cultural landscapes. Additionally, since the surveyed companies are all listed, they are inherently subjected to strict reporting requirements, including sustainability reporting, which introduces an element of compliance. This regulatory compliance aspect might overshadow other influential factors such as reputation and voluntary motivations for sustainability reporting. Moreover, while the study highlights the negative relationship between firm age and SR, the specific reasons for this correlation are not fully unpacked, opening avenues for future research to explore the underlying motivations or barriers for older firms. The study also calls into question the role of audit fees, a finding that needs to be corroborated through additional research to better understand the trade-offs firms make between financial reporting and SR.

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