KASU Journal of Accounting Research and Practice (KAJARAP)
Volume 11, Number 2, July - December, 2026 ISSN: 2360-8889
http://journals.kasu.edu.ng/index.php/Accounting/issue/view/1

EFFECT OF PROFITABILITY AND FIRMAGE ON SUSTAINABILITY REPORTING AMONG LISTED INDUSTRIAL GOODS FIRMS IN NIGERIA

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Abstract

This study examined the effect of firm attributes on sustainability reporting among listed industrial goods firms in Nigeria, focusing on profitability and firm age. The study was motivated by concerns about inconsistent environmental and social disclosures among industrial goods firms despite increasing regulatory and stakeholder expectations. A correlational research design was adopted, while secondary data were obtained from the sampled firms' annual reports, official websites and the Nigerian Exchange database. Sustainability reporting was measured using an unweighted disclosure index based on environmental and social items drawn from the Global Reporting Initiative framework. The study employs General lease regression model. The findings revealed that profitability had a positive but statistically insignificant effect on sustainability reporting. Similarly, firm age had a positive but statistically insignificant effect. However, the explanatory variables were jointly significant in explaining variations in sustainability reporting. This study concludes that profitability and firm age do not independently determine sustainability reporting among listed industrial goods firms in Nigeria. It recommends that firms strengthen their sustainability disclosure practices regardless of their profitability and years of operation. Regulatory authorities should also enhance monitoring, provide clear disclosure guidelines and encourage consistent compliance with sustainability reporting standards.

Keywords: firm attributes, firm age, profitability, sustainability reporting, listed industrial goods firms

1. Introduction

Sustainability reporting has become an essential component of corporate governance and accountability, enabling organisations to disclose their environmental, social and economic contributions while promoting transparency, responsible business practices and long-term value creation (Bebbington & Unerman, 2020; KPMG, 2022).

Its global recognition followed the Brundtland Report of 1987 and was further strengthened by the adoption of the Sustainable Development Goals (SDGs) in 2015, which encouraged organisations to address climate change, environmental degradation and social inequalities (WCED, 1987; Bebbington & Unerman, 2017). Although sustainability reporting is particularly important in environmentally sensitive industries such as manufacturing, oil and gas and mining (Hahn & Kühnen, 2013), its adoption remains

limited in many developing economies due to weak regulatory enforcement, institutional challenges and inadequate organisational resources (Johari & Komathy, 2019).

In Nigeria, sustainability practices have evolved through environmental regulatory institutions such as FEPA (1988) and NESREA (2007), alongside subsequent legislation, including the Climate Change Act 2021 and Petroleum Industry Act 2021. The adoption of international frameworks such as GRI and IFRS Sustainability Disclosure Standards (IFRS S1 and S2) has further strengthened expectations for corporate sustainability disclosures. However, variations in firms' disclosure practices suggest that sustainability reporting may be influenced by firm-specific attributes, particularly size, leverage, profitability, age and growth, which determine their financial capacity, reporting resources and responsiveness to stakeholder and regulatory expectations.

Variations in sustainability reporting practices suggest that firm-specific characteristics influence the extent and quality of corporate disclosures. In particular, profitability, and Firm age may determine firms' financial capacity, reporting capabilities and responsiveness to stakeholder and regulatory expectations. Profitable firms may have greater resources to finance sustainability initiatives, while older firms may possess established reporting systems and experience in managing stakeholder expectations. Consequently, sustainability disclosure may serve as a means of strengthening corporate legitimacy, reputation and stakeholder confidence (Uwuigbe et al., 2020; Musa & Garba, 2024).

Industrial goods firms contribute significantly to economic development through increased productivity, employment generation, industrial expansion, foreign exchange earnings, technological advancement and improvements in living standards. Their activities, however, may also generate environmental and social consequences, making sustainability reporting essential for promoting corporate accountability and responsible business practices. Against this background, this study examines the effect of firm attributes on sustainability reporting among listed industrial goods firms in Nigeria, with particular emphasis on how organisational characteristics influence their sustainability disclosure practices.

Although sustainability reporting has become a global corporate practice, with 95% of the world's 250 largest companies disclosing corporate responsibility activities (GRI, 2011; KPMG, 2011), its adoption and effectiveness remain challenging among Nigerian industrial goods firms. Major companies, including Dangote Cement Plc, BUA Cement Plc, Lafarge Africa Plc, Beta Glass Plc and Cutix Plc, face environmental concerns arising from carbon emissions, industrial waste, dust, chemical discharges and water pollution, which threaten public health and environmental sustainability (Andrew, 2019; IEA, 2023; NESREA, 2022).

Despite existing environmental regulations, compliance and sustainability disclosure remain inconsistent, with considerable differences in the quality of social and environmental information reported by listed firms (Adekunle & Adebayo, 2023; Abubakar & Dandago, 2024). While some companies demonstrate greater commitment to employee welfare, community development and environmental accountability, others provide limited and fragmented disclosures, particularly on greenhouse gas emissions, energy consumption, waste management and climate-related risks (Nwachukwu & Udeh, 2021; Owolabi & Emmanuel, 2022). These inconsistencies highlight the need to examine

the firm-specific attributes influencing sustainability reporting among listed industrial goods firms in Nigeria.

The motivation for this study stems from concerns over inadequate and inconsistent sustainability reporting among listed industrial goods firms in Nigeria, despite growing expectations for corporate environmental and social accountability. Differences in firms' financial and organisational characteristics may explain variations in their sustainability disclosure practices. Therefore, the study seeks to examine the effect of profitability and firm age on sustainability reporting of listed Industrial goods firms in Nigeria.

2. Literature Review and Hypothesis Development

Sustainability refers to the ability to meet present needs without compromising the capacity of future generations to meet their own needs (Pobbi et al., 2020). It encompasses the integration of economic development, social well-being and environmental protection to ensure long-term societal and organisational prosperity (Cortese, 2003; Winter, 2006).

In the corporate environment, sustainability reporting provides a mechanism through which organisations measure, disclose and communicate the economic, environmental and social impacts of their operations to internal and external stakeholders, thereby promoting transparency, accountability and responsible business practices (Global Reporting Initiative [GRI], 2018; World Business Council for Sustainable Development [WBCSD], 2002).

For the purpose of this study, sustainability reporting is adopted as the public disclosure of a firm's economic, environmental and social activities and performance to stakeholders, providing information on its commitment to sustainable development and corporate responsibility, as conceptualised by the WBCSD (2002).

Profitability represents a firm's ability to generate earnings from its business operations through the effective utilisation of available financial and non-financial resources. It reflects the extent to which an organisation manages its revenues, expenses and assets to achieve financial returns and sustain business growth. From an operational perspective, profitability indicates managerial efficiency in deploying corporate assets to generate income and create value for shareholders. It also provides investors and other stakeholders with an important basis for assessing financial performance, resource utilisation and the effectiveness of management decisions (Dioha et al., 2018; Souha & Anis, 2016).

For the purpose of this study, profitability adopts the efficiency-based perspective of Horton (2021), conceptualising it as the ability of a firm to utilise its assets effectively to generate earnings and enhance shareholders' economic value.

Firm age refers to the length of time a company has existed, usually measured from its date of incorporation, establishment or initial public offering (IPO) (Shumway, 2001; Ilaboya & Ohiokha, 2016). It represents an important organisational characteristic that reflects a firm's experience, maturity and operational development.

Older firms may benefit from accumulated knowledge, established structures and improved decision-making, although prolonged existence may also create organisational rigidity and reduce flexibility in adapting to changing business environments (Coad, 2016; Loderer & Waelchli, 2009).

For the purpose of this study, firm age is adopted as the number of years a company has existed since its legal incorporation, reflecting its organisational experience, stability and maturity, consistent with the perspective of Okunbo and Oghuvwu (2019).

Review of Empirical Studies

This study reviewed studies that looked into the firm attributes and how they react to sustainability reporting.

Profitability and Sustainability Reporting

Alsaadi and Ebrahim (2024), Khan et al. (2023), Zhang et al. (2022), and Osho and Akinyemi (2023) found that profitability has a significant positive effect on sustainability reporting, indicating that profitable firms possess greater financial capacity to invest in environmental and social initiatives and respond to stakeholder expectations. Similarly, Egbide et al. (2023) and Bello and Yusuf (2021) established that profitability enhances sustainability disclosure, although external pressures and governance practices also influence reporting quality.

In contrast, Michelon and Rodrigue (2020) observed that highly profitable firms may engage in selective disclosure and impression management, while Musa and Okafor (2022) reported a weak positive relationship, suggesting that regulatory enforcement and stakeholder pressure may be more influential than profitability alone. These mixed findings highlight the need for further investigation into the effect of profitability on sustainability reporting among listed industrial goods firms in Nigeria. In line with the above, therefore, **H_{01}** is Profitability has no significant effect on the sustainability reporting of listed industrial goods firms in Nigeria.

Firm Age and Sustainability Reporting

Alsaadi and Ebrahim (2024), Khan et al. (2022), and Okafor and Musa (2022) found that firm age positively influences sustainability reporting, suggesting that older firms disclose more due to accumulated resources, stakeholder pressure and reputational concerns. Similarly, Li and Zhang (2020) established a non-linear relationship, indicating that disclosure initially increases with firm age but may decline due to organizational rigidity.

In contrast, Bassey and Hinson (2021) found no significant relationship, while Nwankwo and Adeyemi (2021) reported that younger firms were more inclined towards sustainability disclosure to attract investors and improve competitiveness. These mixed findings reveal an empirical gap that justifies further investigation into the effect of firm age on sustainability reporting among listed industrial goods firms in Nigeria. In line with the above, therefore, **H_{02}** is Firm age has no significant effect on the sustainability reporting of listed industrial goods firms in Nigeria.

Theoretical Review

There are number of theories that underpin firm characteristics and sustainability reporting.

Institutional Theory

Institutional Theory, developed by Meyer and Rowan (1977) and further advanced by DiMaggio and Powell (1983), explains how organisations adopt structures, policies and practices in response to institutional pressures within their operating environment. Scott (1995, 2014) further developed the theory by identifying three institutional pillars which include the regulative pillar, normative pillar, and cultural-cognitive pillar.

The regulative pillar comprises laws, regulations and enforcement mechanisms; the normative pillar, which reflects professional standards, societal expectations and accepted practices; and the cultural-cognitive pillar, which represents shared beliefs and taken-for-granted assumptions that influence organisational behaviour. The theory suggests that organisations adopt certain practices not only to improve operational efficiency but also to gain legitimacy, maintain stakeholder confidence and secure continued acceptance within their institutional environment.

The theory underpins this study because profitability and firm age may influence sustainability reporting among listed industrial goods firms in Nigeria. Recent empirical evidence by Ikpor et al. (2022) suggests that profitability and firm age are important determinants of sustainability reporting, as financially successful and experienced firms may possess greater resources and established reporting practices.

Similarly, Chinda and Joseph (2025) highlight the influence of financial performance and organisational maturity on social and environmental disclosure. These findings support Scott's (2014) Institutional Theory, which explains that organisations respond to regulatory, professional and societal expectations to maintain legitimacy and institutional acceptance. Therefore, the theory provides a basis for explaining how profitability and firm age influence sustainability reporting among listed industrial goods firms in Nigeria.

3. Methodology

This study adopted a correlational research design to examine the relationship between firm attributes and sustainability reporting among listed industrial goods firms in Nigeria. The population comprised 13 listed industrial goods firms on the Nigerian Exchange (NGX) as at 31 December 2024. Using a census-based selection approach, three firms (BUA Cement Plc, Notore Chemical Industries Plc and Tripple Gee & Company Plc) were excluded due to incomplete data for the study period (2015–2024), leaving 10 firms as the final sample. The study relied on secondary data obtained electronically from the sampled firms' annual reports and accounts, official websites and the NGX database. These sources provided the financial and non-financial information required to measure the study variables and conduct the empirical analysis.

Measurement of Variables

The study employed two categories of variables: the dependent variable and the independent variables. Sustainability reporting (SR) was used as the dependent variable, while profitability (PROF) and firm age (FA) served as the independent variables. Sustainability reporting was measured using an unweighted disclosure index developed from the Global Reporting Initiative (GRI, 2011) framework, comprising 79 environmental and social disclosure items, as presented in Appendix I.

Content analysis was employed to score each item as 1 for fully reported, 0.5 for partially reported and 0 for not reported. The total score was divided by the maximum obtainable score to derive the Sustainability Disclosure Score (SDS), ranging from 0 to 1. Profitability was measured using Return on Assets (ROA), calculated as net profit after tax divided by total assets, while firm age was measured as the number of years since the company's incorporation.

Table 2

Variables Measurement and Definition

Variable	Type	Measurement	Definition	Source
Sustainability Reporting (SR)	Dependent	Total environmental and social disclosure score divided by the maximum obtainable score, based on the unweighted GRI disclosure index.	The disclosure of a firm's environmental and social activities and performance to stakeholders.	GRI (2011); Nasiru et al. (2018)
Profitability (PROF)	Independent	Return on Assets (ROA) = Net Profit After Tax ÷ Total Assets.	The ability of a firm to generate earnings through the effective utilisation of its assets.	Al-Najjar and Kilincarslan (2017); Alaeto (2020)
Firm Age (FA)	Independent	Current Year − Year of Incorporation.	The number of years a firm has existed since its legal incorporation.	Adeniyi (2020); Bostanci et al. (2018)

Source: Author's Compilation (2025)

The study employed multiple regression analysis to determine the extent of variation in the dependent variable (Sustainability Reporting) due to variations in the independent variables (Firm characteristics). The following model shall be used to estimate the effect of the independent variables on the dependent variable, which is stated below. $SR_{it} = \beta_o + \beta_1 PROF_{it} + \beta_5 FG_{it} + \mu_{it}$ **;** where SR = Sustainability Reporting; PROF = Profitability; FA = Firm Age; β_o = Constant; $\beta_1 - \beta_2$ = Coefficient of explanatory variables; μ = Error term; it = Industrial Goods Firms (Panel Indicator)

4. Results and Discussion

Descriptive Statistics

Descriptive statistics were employed to summarise the characteristics and distribution of the study variables using the number of observations, mean, standard deviation, minimum and maximum values.

Table 2

Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
Sustainability Reporting (SR)	100	0.466	0.130	0.250	0.625
Profitability (PROF)	100	0.0076	0.098	-0.122	0.060
Firm Age (FA)	100	53.300	14.895	31	83

Source: STATA Output (2026)

Table 2 shows that sustainability reporting has a mean of 0.466 and a standard deviation of 0.130, with values ranging from 0.250 to 0.625, indicating a moderate level of sustainability disclosure among the sampled firms. Profitability has a mean of 0.0076 and a standard deviation of 0.098, with minimum and maximum values of -0.122 and 0.060, respectively, suggesting generally low profitability and variations in financial performance, including losses among some firms.

Firm age records a mean of 53.3 years and a standard deviation of 14.895, with values ranging from 31 to 83 years, indicating that the sampled firms are relatively established, although differences exist in their years of operation. Overall, the descriptive results reveal variations in sustainability reporting, profitability and firm age across the sampled industrial goods firms in Nigeria.

Correlation Analysis

Correlation analysis was employed to examine the strength and direction of the relationship between sustainability reporting, profitability and firm age. The results are presented in Table 3.

Table 3

Correlation Matrix

Variable	SR	PROF	FA
SR	1.000		
PROF	.325**	1.000	
FA	.249*	-.093	1.000

Source: STATA Output (2026)

Table 3 indicates that profitability has a moderate positive and statistically significant correlation with sustainability reporting ($r = .325$, $p < .01$), suggesting that more profitable firms tend to disclose more environmental and social information. Similarly, firm age has a weak positive and statistically significant relationship with sustainability reporting ($r = .249$, $p < .05$), indicating that older firms generally demonstrate higher sustainability disclosure. However, profitability and firm age have a weak negative and statistically insignificant relationship ($r = -.093$), suggesting that the age of a firm does not necessarily determine its profitability.

Furthermore, all correlation coefficients are below the commonly applied threshold of 0.80, indicating no preliminary evidence of serious multicollinearity between the explanatory variables. Overall, the results suggest positive associations between both profitability and firm age and sustainability reporting, although correlation alone does not establish causation.

Table4

Variance Inflation Factor

Variables	VIF	1/VIF
Firm Age (Fage)	1.18	0.851
Return on Assets (ROA)	1.18	0.851
Mean VIF	1.18	

Source: STATA Output (2026)

The VIF results show that firm age and return on assets have VIF values of 1.18 each, with tolerance values of 0.851. The mean VIF of 1.18 is below the recommended threshold of 10, while the tolerance values exceed 0.10. This indicates the absence of serious multicollinearity among the independent variables. Therefore, firm age and profitability can be retained in the regression model.

Regression Result

The regression analysis examines the effect of profitability (ROA) and firm age (FA) on sustainability reporting (SR) among listed industrial goods firms in Nigeria.

Table5

Random Effects (GLS) Regression Results for Sustainability Reporting

Variables	Coefficient	Std. Error	Z-value	p-value
Constant	0.125	0.085	1.47	0.142
Profitability (ROA)	0.124	0.065	1.91	0.056
Firm Age (FA)	0.001	0.001	1.00	0.317
Hausman Test (p-value)	0.284			
LM Test (p-value)	0.001			
R-squared	0.186			
Wald Chi-square (2)	8.42			
Prob. Wald Chi-square	0.015			

Source: STATA Output (2026)

The model fitness results presented in Table 5 indicate a Wald Chi-square value of 8.42 with a probability value of 0.015, which is statistically significant at the 5% level. This implies that profitability and firm age are jointly significant in explaining variations in sustainability reporting among listed industrial goods firms in Nigeria. Furthermore, the R-squared value of 0.186 indicates that approximately 18.6% of the variations in sustainability reporting are explained by the independent variables, while the remaining 81.4% is attributable to other factors not captured in the model. The Hausman test probability of 0.284, which is greater than 0.05, supports the use of the Random Effects Model, while the LM test probability of 0.001 indicates the presence of significant panel effects. Overall, the results suggest that the model is statistically significant and suitable for examining the relationship between profitability, firm age and sustainability reporting.

The regression results show that profitability (ROA) has a positive coefficient of 0.124 and a probability value of 0.056, indicating a positive but statistically insignificant relationship with sustainability reporting at the 5% significance level. This suggests that an increase in profitability may be associated with an improvement in sustainability disclosure, although the effect is not statistically established.

Similarly, firm age has a positive coefficient of 0.001 and a probability value of 0.317, indicating a positive but statistically insignificant relationship with sustainability reporting. This implies that older firms may demonstrate slightly higher sustainability disclosure, but the relationship is not statistically significant. Therefore, the results suggest that although both profitability and firm age have positive relationships with sustainability reporting, neither variable has a statistically significant individual effect at the 5% level.

5. Conclusion and Recommendations

This section presents the conclusion and recommendations based on the study's findings. It also highlights the policy implications and contribution to knowledge. Based on the regression results, the study concludes that profitability and firm age have positive but statistically insignificant effects on sustainability reporting among listed industrial goods firms in Nigeria. This indicates that increases in profitability and the number of years a firm have operated do not necessarily translate into improved sustainability disclosure.

Furthermore, although the variables are jointly significant in explaining sustainability reporting, their individual effects are not statistically established. Therefore, sustainability reporting may depend on other organisational and institutional factors beyond profitability and firm age.

Based on the findings, the study recommends that listed industrial goods firms should strengthen their sustainability reporting practices irrespective of their profitability levels. Management should allocate adequate resources to environmental and social disclosure and integrate sustainability reporting into corporate policies and long-term strategies.

Furthermore, older firms should leverage their accumulated experience, established structures and stakeholder relationships to improve the quality and consistency of sustainability disclosures. Firms should also strengthen compliance with relevant sustainability reporting standards and regulatory requirements to promote transparency and accountability.

Policy Implications

The findings imply that sustainability reporting policies should not rely solely on firms' profitability or years of operation to encourage disclosure among listed industrial goods firms in Nigeria. Regulatory authorities, particularly the Nigerian Exchange (NGX) Group and the Financial Reporting Council of Nigeria (FRCN), should strengthen sustainability reporting requirements, provide clear disclosure guidelines and monitor compliance across listed firms.

Furthermore, policies should encourage consistent environmental and social reporting regardless of firm size, profitability or age. This would promote transparency, improve corporate accountability and strengthen stakeholders' confidence in the sustainability practices of listed industrial goods firms.

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