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Drivers of Sustainability Accounting and Reporting in Emerging Economies: Evidence from Nigeria

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Abstract: Stakeholders' demand for companies to provide social, economic and environmental reports is increasingly becoming a fundamental requirement for companies. This paper investigates the factors that drive the choice of sustainability reporting in an emerging market economy context, with reference to Nigeria. Using data sourced from 3 different reports (annual accounts, sustainability reports and websites) of the top 50 large companies listed in the Nigeria Stock Exchange for the period 2015–2020 and a fixed effect panel regression model, our study makes three important findings. First, the study provides evidence that sustainability reporting is mostly influenced by the following company internal factors: size, profitability, ownership structure, listing age, leverage and auditor type. Second, the findings indicate that that size of firms, profitability and companies audited by Big-4 audit firms has a significant positive relationship with sustainability reporting in Nigeria. In contrast, ownership structure and the leverage position of firms affect sustainability reporting negatively. Finally, our study shows that the banking and oil and gas sectors take sustainability reporting more seriously than any other sectors in Nigeria. Contextualizing the findings within accountability and transparency, we provide evidence on the drivers and the relationship between the various drivers and sustainability reporting in Nigeria. This has implications for policymakers, future researchers and contributes to the literature of sustainability reporting in Nigeria. Even though this study used Nigerian data, it will increase pressure on firms in other developing countries to assess the context-specific determinants of sustainability reporting.

Keywords: sustainability accounting; voluntary disclosure; non-financial disclosure; accountability; GRI; triple bottom-line accounting

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Citation: Ikpor, I.M.; Bracci, E.; Kanu, C.I.; Ievoli, R.; Okezie, B.; Mlanga, S.; Ogbaekirigwe, C. Drivers of Sustainability Accounting and Reporting in Emerging Economies: Evidence from Nigeria. *Sustainability* **2022**, *14*, 3780. https://doi.org/10.3390/su14073780

Academic Editors: Dongkuk Lim, Po-Chang Chen and Che-Wei (Scott) Chiu

Received: 26 January 2022
Accepted: 28 February 2022
Published: 23 March 2022

1. Introduction

Stakeholders' demand for companies to provide social, economic and environmental reports (SEER), known as sustainability reporting, is increasingly becoming a fundamental requirement for companies. The increase in global awareness of sustainability reporting was evidenced by earlier scholars [1–3], who document that over 13,000 companies in about 160 countries have voluntarily adopted sustainability reporting standards, including the Global Reporting Initiative (GRI) guidelines and ISO 14000.

The importance of providing sustainability reporting by companies to promote accountability and transparency has been widely acknowledged by scholars in both developed and developing economy. The available evidence indicates that companies that provide sustainability reporting enjoy a long-term competitive advantage, improve employee motivation and increase profitability [4], legitimacy [5] and cost reduction [6]. Sustainability reporting might also contribute to other objectives of the company, such as the improvement of reputations [7], which in turn can improve competitive advantage, increase profit margins, attract investors, and increase potential sales markets [8].

Regardless of the importance of sustainability reporting in creating long-term value, corporate success, and accountability, companies' disclosure practices of sustainability reporting vary from company to company and industry to industry. The causes of such variations appear to not have been given adequate attention in the emerging market economy. The results from prior studies in the emerging market economy indicate that the factors that drive sustainability reporting remain mixed, and the debate over whether there is a link between these determinants and sustainability reporting is also far from settled. Jessop et al. [8] in their study found that corporate environmental disclosure varies significantly across firms and such variations are accounted for by factors, such as the complexity of the business or internationality. In the same way, Ching et al. [9] found that profitability, leverage and size are factors that affect voluntary disclosure, but their effects on sustainability reporting holistically vary from sector to sector and country to country. Dienes et al. [3], in a study that assessed drivers of sustainability reporting in Germany, suggest that firm size, media visibility and ownership structure are the most important drivers of sustainability reporting, while corporate governance only seems to have an influence on the existence of audit or sustainability committee. In contrast, similar studies in developing countries find otherwise. Dienes et al. [3] also found that profitability, capital structure, firm age or board composition do not show a clear relationship with environmental reporting. Similarly, [10] found that size, profitability and leverage are internal organizational factors that determine extent of environmental information disclosure and are negatively related with voluntary disclosure, but [11] found otherwise.

Furthermore, scholars addressed sustainability issues through compartmentalization [1] (i.e., on either environmental, social or economically), thereby, separating the three main dimensions of sustainability. Moreover, the extent of holistic research in this important area are more in developed countries than it is in developing countries. Such studies that focused on sustainability reporting in developed countries include Dienes et al. [3], who conducted a systematic review of the determinants of sustainability reporting in developed countries, while Ortas [7] carried out a study on the origin and development of sustainability reporting using Latin America as a case study. Similarly, Ching et al. [9] concentrated on the quality of sustainability reports and corporate financial performance using evidence from Brazilian companies, whereas, in developing economies, the research is still limited, with some notable exceptions, for example Jassop et al. [8] and Dissanake et al. [12], who only focused on the extent and determinants of corporate environmental reporting and social reporting, respectively. This study extends earlier works in this area by using both internal and external factors to predict how each influence the sustainability reporting practice by companies that report based on Global Reporting Initiative (GRI) version of sustainability reporting in Nigeria. The GRI guidelines are chosen as they are the most popular standard of sustainability reporting with a vision to include non-financial information in the decision making of organizations. This is expected to produce more robust results considering the peculiarity of Nigeria with a weak legal institution and poor governance system. We also avoid compartmentalization by taking the three dimensions holistically. This is to provide information on a broader perspective. Kwakye et al. [4] and Jessop et al. [8] suggested that sustainability reporting needs to have a broader perspective than focusing on only one dimension, for instance, the environmental or social dimension. Therefore, the underlying motivations for this research are twofold: first, the lack of consistency in empirical evidence of the drivers of sustainability reporting in the emerging market economy context [13,14]; and second, the scarcity of research addressing sustainability reporting holistically in emerging market economies using the GRI guidelines. GRI is one of the most complete and worldwide recognized voluntary guidelines for reporting on SEER performance [1] and implicating companies' accountability in the process. Using stakeholder and legitimacy theories as theoretical frameworks, we addressed two main questions: (a) What attributes drive sustainability reporting in Nigeria and to what extent? (b) What is the extent of sustainability reporting when compared across firms and sectors in Nigeria?

Based on the foregoing, therefore, the contributions of this paper are threefold. First, it contributes to the sustainability reporting literature in emerging economies, providing a holistic assessment of the determinants in Nigerian companies. While many studies have investigated sustainability reporting in developed countries, there is a dearth of research that uses Global Reporting Initiative guidelines as a basis for assessing sustainability performance of companies in the context of developing countries. The paper also updates and extends the results of prior studies, contextualizing them in emerging market economies. In so doing, we contribute to the call for more context-specific research in developing countries [13,14]. Finally, the findings will provide additional evidence on the significance of some determinants to the literature supporting the development of the knowledge in the field. As one of the fastest growing emerging economies in Africa, Nigeria presents the best focus point for the study. Nigeria's population of over 180 million people and a landmass of 9,232,668 sq. kilometers as well as notable record of human right abuses, poor labor practices, poor industrial waste management and loss of biodiversity give a more advantageous jurisdiction for the study.

The rest of the paper is structured as follows. Section 2 provides a brief review of the literature on sustainability reporting practices in Nigeria. The determinants of sustainability reporting and theoretical framework are also discussed in that section. Section 3 presents the methodology and data analysis methods. Section 4 presents the results, while Section 5 is the discussion of the results and their implications. Finally, the paper concludes in Section 6 with a discussion of the study's limitations and future research direction.

2. Literature Review

Sustainability reporting according to the World Business Council for Sustainable Development (WBCSB) is defined as the public reports by companies to provide internal and external stakeholders with a picture of corporate position on social economic and environmental activities [15]. The Brundland report (1987) cited by [1] defines sustainability as "*a development that meets the needs of the present generations without compromising the ability of the future generations to meet their own needs*". The Brundland definition is in line with the earlier definition given by the World Commission on the Environment and Development (WCED).

Based on the foregoing, sustainability reporting can be defined as a report that addresses the economic, social and environmental needs of the present stakeholders without compromising its ability to meet the needs of the future stakeholders. The stakeholders include both direct and stakeholders, such as shareholders, employees, clients, pressure groups, regulatory bodies, creditors, government and local communities [2–15]. In emerging economies, just as, some other jurisdictions, sustainability reporting is voluntary. There are also protocols in place to guide companies that have volunteered to be socially and environmentally responsible, such as the Kyoto protocol, Montreal Protocol, and Green House Gas Protocols, as well as several sustainability reporting standards and guidelines, such as GRI, CERES, EMAS, AA1000, SA8000, ISO 14000 and more recently ISO 26000. The GRI framework produced in 2013 provides qualitative information on social, economic and environmental and is globally accepted.

The benefits of providing for this type of report (either as a standalone report, or as part of a company's annual reports and accounts) by companies have been acknowledged by scholars, particularly in developed and, to a lesser extent, in developing or emerging economies. The authors of [2] studied sustainability reporting by publicly listed companies in Sri Lanka and documented various benefits for different classes of stakeholders. For example, investors benefit from sound business strategies and an effective management of risks arising from SEER disclosure. Sustainability reporting enables investors to reward companies who behave in a socially responsible way, while an employee's retention is high for organizations that are socially and environmentally responsible. For Ching et al. [9], companies that provide SEER enjoy a competitive advantage, improve employee motivation and increase profitability, legitimacy and cost reduction. Sustainability reporting might also contribute to other objectives of the company, such as improve reputations [7]. Companies have the opportunity to improve their reputations, which in turn can improve competitive advantage, increase profit margins, attract investors, and increase the potential sales markets [8]. Companies can also benefit from cost savings due to the more efficient use of resources and reduced risk of legal actions or public slandering [8].

Although the practice of account reporting has become increasingly important, the level of knowledge on sustainability reporting in emerging economies is poor [5,16]. The authors of [17] underlined that SEER determinants and their effects are substantially different in developing countries with respect to developed countries and called for context-specific studies. Recently, there have been several studies that examined the determinants of sustainability reporting in Nigeria. While Nwobu [5] provided empirical data on how institutional fields and internal organizational process factors determine sustainability reporting based using the Nigerian Stock Exchange guidelines as indicators, his finding showed that there was a statistically significant variation in sustainability reporting in the sample companies. The study further revealed that the companies were influenced by the disclosure of the guidelines of the Nigerian Stock Exchange regulator. The Nigerian Stock Exchange guidelines on sustainability reporting provide only local information that may not be comprehensive, such as the Global Reporting Initiative, which many scholars have stated that it is robust, popular and informative for all types of companies.

Haladu and Salim [18] compared environmental sustainability with social sustainability. Their results show that firms performed better on social reporting than on environmental reporting in terms of higher sustainability disclosure rates. Haladu et al., however, noted the inadequacy of the sample size and recommended for further studies using the industrial classification. Similarly, Iheduru and Okoro [19] used cross-sectional data to examine the effect of sustainable reporting on the profitability indicators of twenty Nigerian quoted firms. However, the sample size may not allow for generalization, especially given the fact that these companies are not spread across the industrial classification. Finally, the work of Monday and Nancy [20] showed the determinants of voluntary disclosure quality among listed firms in emerging economies. None of these studies have used firms from eleven industrial classifications to predict the drivers of sustainability reporting in the Nigerian context. Moreover, while these studies have investigated sustainability reporting, there is a dearth of research that uses Global Reporting Initiative guidelines as a basis for assessing the sustainability performance of companies in the developing country context. Our study expands this discussion by using the metric provided by the GRI, which is comprehensive and robust in the evaluation the sustainability reporting practices of firms in Nigeria. In this way, this study adds to the frontier of knowledge in corporate reporting. Other studies that have investigated this issue concluded that more work is needed in the area of sustainability reporting to show the factors that determine the level of sustainability information disclosure in other developing countries [17,18]. One stream of research examines the link between social sustainability disclosures and financial performance. The result of this stream of research is mixed as some find a positive association between social sustainability disclosures and financial performance [19], others find a negative association [20], and yet there are some who do not find any association at all [5]. For example, the authors of [21] in their study showed how social sustainability reporting affects company profitability. Another avenue of research examines the association between environmental sustainability disclosure and financial performance. Again, their result is mixed [6], while another venue of research examines the association between company attributes and sustainability reporting. This avenue of research provides evidence that size, foreign listing, and sector type are positively associated with the probability of a company publishing sustainability reporting. Thus, we know much about the company attributes that induce sustainability reporting. However, most of the studies are in developed economies, and there are only a few that focused in the emerging market economy addressed sustainability through compartmentalization. While these studies shed light on size and foreign listing, not much is known about the individual effect of these drivers in promoting the extent to which a company provides sustainability reporting in developing economies.

Addressing this research gap, we focus our research in the context of Nigeria. Nigeria has made a number of efforts to encourage sustainability reporting practices. Some notable examples include the Nigerian Stock Exchange becoming a member of the GRI in 2015, the voluntary GRI membership of some Nigerian and some Nigerian companies volunteering to create reports based on the GRI guidelines. These efforts show that Nigeria is progressing in terms of providing SEER. There are many reasons why sustainability is important for Nigeria. First, Nigeria faces a number of social and environmental problems, such as poor labor practices and decent work, human rights abuses, bribery and corruptions, poor customer health and safety as well as lack of respect for privacy, while instances of environmental problems include land degradation, pollution, poor management of water resources, loss of biodiversity, coastal erosions and poor industrial waste management. These problems suggest that more efforts should be taken in shaping sustainability disclosure practices because of the high risks posed by the action of companies. The objective of this study is to identify the characteristics that explain why companies publish varying sustainability reports in Nigeria.

2.1. Theoretical Framework

The literature suggests that the basic motivation for sustainability reporting is for companies to communicate their commitments to sustainable development as well as to describe the results of their actions in social, economic and environmental dimensions [22]. Two schools of thoughts emerge from the above; first is the neo-classical school of thought [7], who believes that economic objective (profit maximization) is the primary motive for businesses. This has been widely questioned in the current literature [1]. Along this line of argument, there are sustainability-sensitive investors who analyze social and environmental reports when making investment decisions [23,24]. The extent of the disclosure of SEER determines how risky or otherwise are such investments. In other words, sustainability-sensitive investors make a decision to invest in a market depending on perceptions of the socially responsible behavior of companies.

Another school of thought correlates with socio-political theorists. This set of theorists criticizes the reductionist character of the economic approach [1], and hold the view that the disclosure of SEER must be interwoven with political and institutional processes. The socio-political theorists argue that the drive to be accepted by all stakeholders forms another motivation for SEER disclosure. Therefore, at the heart of the socio-political theory of sustainability reporting is the legitimacy theory and stakeholder theory. In line with [23], organizations disclose SEER with the aim of being accepted by society, while stakeholder theorists argue that the urge to be accountable (and take responsibility for one's actions) propels companies to provide a SEER. Therefore, research that takes stakeholder theory into account when explaining the sustainability reporting phenomenon is focused on the accountability of organizations [7].

2.2. Determinants of Sustainability Reporting and Hypothesis Development

Previous studies on sustainability reporting have revealed that certain company characteristics influence the extent and nature of sustainability reporting [25]. Prior scholars have identified that a set of companies' attributes or characteristics affect the sustainability reporting practices of companies. The fact that sustainability is a voluntary issue in Nigeria can be affected by many factors attributable to companies. There are studies that used factors, such as size, internationality, ownership structure, profitability, leverage, listing age, and auditor type, as major determinants of voluntary disclosures. In addition to the fact that this is takes place more often in developed than in developing economies [13,14], this study wants to examine whether similar factors affect sustainability reporting from the developing country perspective.

In line with the extant literature, company size is one of the frequently used measures of determinants of voluntary disclosure practices. There are studies that have found that a positive relationship exists between firm size and the extent to which a company provides voluntary information [11,26]. Their argument hinges on the fact that larger firms have enough resources that incentivize them to provide additional disclosure in addition to the statutory annual reports. There is also the postulation by scholars that large firms also enjoy a competitive advantage over small companies [7,24]. Large firms also have a large number of users who might be seeking for varied forms of information, including social, economic, and environmental information.

Age is another determinant of voluntary reporting that was found to have a positive effect on the extent of the voluntary disclosure of companies, given that firms increase their sustainability reporting capacity over years. The authors of [27,28] found that the younger the firms are, the more prone they are to present fewer sustainability reporting information, while older firms are expected to provide more voluntary disclosure than the younger firms. On this basis, some scholars found that the age of firms positively influences environmental disclosure, but negatively influences corporate social responsibility reporting [3,29]. Dienes et al. [3] and Hossain et al. [27] conclude that older or more established companies have a tendency to provide more environmental and sustainability issues in their standalone reports.

Many studies that examined the impact of profitability on voluntary disclosure have also found a positive association [29,30]. Possible explanations are the following. First, highly profitable firms will disclose higher sustainability information. Providing higher disclosure will help to increase investors' confidence and hence compensation. Daferighe et al. [18] and Gao and Jang [31] argue that decisions to disclose sustainability reporting are based on the company's willingness to showcase that they are performing well. This is in line with the signaling theory hypothesis. High performing firms will disclose more social and environmental reports. The decision to disclose may be affected by the users of such information [21,32]. The company will disclose less if it is related to the government and more if its intention is for the shareholders to attract higher compensations. Some other studies [6] found that profitability positively influences social, economic and environmental disclosure. Le et al. [24] link profitability with age, risk and growth.

In addition to internal factors, earlier studies, such as [3,17], argued on the effect of national culture, corruption and regulatory environment on the shaping of voluntary disclosure practices. Such studies draw from the countries ethical and cultural peculiarities. Ethically conscious companies respect stakeholders' health and wellbeing by providing additional disclosure. However, unethical companies take advantage of the voluntary nature of sustainability reporting. From this perspective, the importance of a regulatory environment becomes necessary [17,33]. This reduces corrupt practices and increases voluntary non-financial reporting. Theoretically, we argue that countries with a high regulatory quality practice in place will ordinarily provide extensive sustainability information. This view has already been proposed by a similar study in Latin America [13]. On the other hand, a country with a high corruption perception index will provide less sustainability information [8]. According to [13], companies in a country with weak regulations provide less non-financial reporting, although with a feebler regulatory environment, companies could self-regulate in order to fill in weak institutional voids [13]. In this study, we developed hypotheses to test the relationship between internal firm attributes and sustainability reporting, which might affect sustainability reporting in an emerging economy, using evidence from Nigeria.

Therefore, the first series of hypotheses tested in this study address whether these firms attributes affect the extent of sustainability reporting in Nigeria.

Hypothesis 1 (H1) : *There is a significant relationship between the extent of sustainability reporting and company size.*

Hypothesis 2 (H2) : *There is a significant relationship between the extent of sustainability reporting and company age.*

Hypothesis 3 (H3) : *There is a significant relationship between the extent of sustainability reporting and company profitability.*

Hypothesis 4 (H4) : *There is a significant relationship between the extent of sustainability reporting and leverage.*

Similarly, ownership structure is another factor frequently used by researchers in developed countries to study the extent of the voluntary disclosure of firms. Firms with large ownership diffusion provide more voluntary information compared to those with a high ownership concentration [3,34]. Voluntary disclosure being an aspect of sustainability reporting is important because companies that provide information voluntarily also provide sustainability information voluntarily. This is because in Nigeria, the provision of a sustainability report is performed by companies voluntarily. High ownership diffusion implies the presence of many small shareholders and sustainability reporting may facilitate their monitoring role by providing a higher disclosure level, restricting accounting policy choice and reducing costs for information collection. Nigerian firms are mainly indigenous owned and present a high ownership concentration (see [10,18]). Nevertheless, we assume that if firms have high ownership diffusion, they are more willing to provide a sustainability report.

Additionally, internationality is another factor that affects the firms' sustainability reporting. Internationally operating firms are exposed to a wider range of more diversified stakeholders, which may demand more standardized sustainability reporting practices, such as the GRI [7,23,35]. Firms characterized by a higher level of foreign sales have to come into contract with a broader range of foreign parties, and then the provision of sustainability reporting may facilitate the establishment and maintenance of contracting relations with them [8,36]. Others argue that firms with high level of foreign sales have more incentives to provide sustainability reports. Other determinants of voluntary disclosure, which could be said to be true of sustainability reporting, were also harvested from the literature and include leverage and auditor type (see [5,26]). Earlier studies documented that companies audited by the Big 4 firms auditing firms (i.e., Ernest & Young, KPMG, Deloite & Touche, PWC) provide higher voluntary disclosure than those audited by local firms, as shown by [37], who finds that companies audited by the Big 4 provide a higher quality of sustainability reporting. There are also studies that argue that the audit type is not an issue while looking at voluntary disclosure [10,38,39]. This gives rise to the second set of hypotheses tested in this study.

Hypothesis 5 (H5) : *There is a significant relationship between the extent of sustainability reporting and internationality.*

Hypothesis 6 (H6) : *There is a significant relationship between the extent of sustainability reporting and ownership structure.*

As discussed in the Introduction, the key question examined in this study is what factors influence the choice of sustainability reporting in an emerging economy, such as Nigeria. Secondly, we also examine what is the relationship between the identified internal firm attributes and sustainability reporting in Nigeria.

The research approach used to address the hypotheses and research questions is discussed next.

3. Research Method

We employed content analysis in this study to examine the annual reports, separate sustainability reports and websites of the top 50 Nigerian companies listed in the Nigerian Stock Exchange for the 2015 to 2020 financial reporting period. As of February, 2020, there were 152 companies listed in the Nigerian Stock Exchange in 11 industry categories. For a company to be selected, the company must have either published annual reports and accounts that contain substantial evidence of sustainability performance indicators within the study period or a standalone sustainability report in either type (e.g., sustainability reports, corporate social responsibility reports, corporate social responsibility progress reports, integrated reports corporate environmental reports) in accordance with the GRI 4 sustainability standards.

Annual reports were used based on the fact that it is mandatorily required by law (e.g., Company and Allied Matter Acts) for companies to publish these reports every year, so those that did not published within the period under consideration in this research (22) were excluded. The sustainability reports are published voluntarily by companies every year as a complement to annual reports to show how socially responsible the company is. Since it is not required by law in Nigeria, most of the companies (45) did not publish sustainability reports, while 35 did not have their sustainability reports published on their websites as a standalone report. The remainder were only 50 companies. The top 50 companies selected were drawn from 11 industry classification of banking, energy, industrial goods, conglomerates, consumer goods, natural resources, construction, agriculture, services, health and information and communication technology. This classification is based on the Nigerian Stock Exchange (NSE) classification as shown in Table 1.

Table 1. Number of sustainability reports and annual accounts based on sector type across the period of study.

Sector	2015	2016	2017	2018	2019	2020	Total
Banking	4	5	6	6	6	6	33
Oil and gas	6	7	7	8	8	8	44
Industrial goods	3	5	4	5	5	5	27
Conglomerates	3	4	2	5	5	5	24
Consumer goods	5	5	4	5	5	5	29
Natural Resources	4	4	4	4	4	4	24
Construction	5	5	5	5	5	5	30
Agriculture	4	4	3	4	4	4	23
Services	2	4	4	4	4	4	22
Healthcare	4	4	2	4	4	4	22
Information and Communication Technology	2	4	4	4	4	4	22
Total	42	51	45	54	54	54	300

Sources: Annual Reports for various years.

Table 1 presents the number of sustainability reports based on sector type across the study period. From the table, a total of 300 annual reports and sustainability reports of companies were downloaded and analyzed within the period. The next table (Table 2) shows the reports based on the number of companies assessed, including the percentage of the companies used in each of the sectors.

Table 2. Distribution of sustainability reporting of the considered sample.

Sector	Number of Reports Assessed	Number of Company Assessed	% Company
Banking	33	6	12
Oil and gas	44	4	8
Industrial goods	27	5	10
Conglomerates	24	5	10
Consumer goods	29	5	10
Natural Resources	24	4	8
Construction	30	5	10
Agriculture	23	4	8
Services	22	4	8
Healthcare	22	4	8
Information and Communication Technology	22	4	8
Total	300	50	100

According to Table 2, 12% of the total companies were drawn from the banking sector, 8% from oil and gas, 10% industrial goods companies, 10% conglomerates, 10% were companies that produce consumer goods, 8% natural gas companies, 10% construction companies, 8% agricultural companies, 8% healthcare service companies and 8% ICT companies. These companies were selected based on availability of their sustainability reporting in any form (either standalone or in other sustainability report types) in the corporate website of SDD and/or annual reports in NSE websites within the period of assessment.

3.1. Sustainability Reporting Scoring Metric

To quantify the extent of sustainability reporting in annual reports by companies, key sustainability performance indicators provided by GRI framework were used. According to Dissanayake et al. [15], GRI has 79 performance indicators, out of which 50 are regarded as core indicators. However, in this study, we eliminated 2, leaving a balance of 48. These two indicators cannot be traced in more than 40% of the annual report and accounts or sustainability reports of the selected companies. This left us with 48 sustainability information items (aspects) that were considered material and relevant to most stakeholders and were therefore used in this study. Table 3 provides comprehensive list of the key sustainability performance indicators categorized into environmental, economic, and social. Each of the categories has a sub-category and core information item that a firm is expected to disclose in each of the category. These indicators include statement to the effect that the company is using GRI disclosure guidelines, disclosure of environmental initiative, disclosure of information on long term policy, etc. In line with Ching et al. [9], firms are awarded a score of one (1) for each of the sustainability information item disclosed, and a score of zero, if otherwise. By using the 'FIND' option, it was easy to trace the sustainability information in all the reports.

Table 3. GRI framework for performance indicators.

Category	Sub-Category	Aspect
Environmental	Environmental information	Disclosure guidelines, including GRI environmental initiatives, i.e., REACH long-term policy, goals Continuous improvement Air emissions (actual and results) Waste emitted Recycling (must include the word recycle) Emission and pollution related to products Materials Energy Water and Biodiversity Emission, effluents and waste Compliance Transport
	Sustainability information	General mention of sustainability Commitment to protocols, such as UNCED and Kyoto Biodiversity conservation Mention of climate change Any mention of responsible care
Economics	Direct Economic impacts	Customers and Suppliers Employees Providers of capital Public sector
Social	Labour practices	Employment Labor/Management relations Health and Safety Training and education Diversity and equal opportunity Equal pay for men and women
	Human Rights	Strategy and management Non-discrimination Child labor Freedom of association and collective bargaining Disciplinary practices Forced and compulsory labor Indigenous right Security practices
	Society	Bribery and corruption Political contribution Competition and pricing Community
	Product responsibility	Customer health and safety Products and services Advertising Respect for privacy

Source: GRI Core Performance Indicators 2002.

This classification allowed us to obtain a final score for each company. In line with previous studies, the total score for each company was calculated with the sub-score of each indicator equally weighted. The total has a scale of 0 to 48, with 0 indicating non-disclosure of the sustainability information and 48 indicating a detailed disclosure. The values for each firm were aggregated and related to the total sustainability information expected to be disclosed. This revealed a ratio of sustainability reporting for each company per year. Therefore, the sustainability score was calculated as the ratio of the number of sustainability information a firm discloses divided by the total number of information expected to be disclosed. Akhtaruddin et al. [34] and Ching et al. [9] employed a similar method.

3.2. Measurement of Explanatory Variables

As discussed in Section 2.2, the explanatory variables for this study and their measurement criteria are shown in Table 4. The complete dataset with the variable measures for each company of the sample is available as Supplementary Materials File S1.

Table 4. Measurement criteria of the determinants of sustainability reporting.

Variables	Measurement	Label
Size (Size)	Natural logarithm of total assets of the company	SIZE
Internationality (Int)	Proportion of foreign sales on total sales	INT
Ownership structure	One minus the proportion of shares held by the majority shareholders	OWN
Profitability	Net income divided by net sales	PROF
Listing Age	Age since incorporation	AGE
Leverage	Total debt divided by total assets	LEV
Auditor type	One if the audit firm is one of the Big 4, and zero if otherwise	AUDIT

4. Regression Model

We adopted panel estimation regression model to predict the effect of the various firm attributes on sustainability reporting of companies in Nigeria. The key variables used in the regression estimation included sustainability reporting (SR SCORES) as the dependent variable, while the independent variables consisted of the various attributes/drivers of each of the firms. Our fixed effects estimation model is as shown below.

$$Y_{ij} = \beta X_{ij} + \alpha_i + \mu_{ij} \tag{1}$$

where Y is the dependent variable; α =(i = 1 . . . .n) is the unknown intercept for each entity (n entity specific intercepts); β is the vector containing coefficients of independent variables; X represent vectors of the independent variables, μ_{it} is the error term defined as $\mu i + \nu ji$; and j and I, respectively, represent each of the sampled firms and each of the years. This model allows for the control of individual unobserved heterogeneity. Expanding the model in Equation (1), we obtain Equation (2) as follows:

$$SRScore_{it} = \alpha_o + \beta_1 SIZE_{ij} + \beta_2 OWN_{ij} + \beta_3 PROF_{ij} + \beta_4 INT_{ij} + \beta_5 AUDIT_{ij} + \beta_6 AGE_{ij} + \beta_7 LEV_{ij} + \mu_{ij} \tag{2}$$

where SRScore is the sustainability reporting score for each company.

The model can be used in estimating a dependent variable (on a scale) and predictor variables (with a mix of quantitative and qualitative attributes). The fixed effects model also produces unbiased estimates of the coefficients, but the coefficients can be subject to high variability based on the sample. This makes panel data analysis suitable in the current study.

5. Results

5.1. Descriptive Statistics

Table 5 illustrates the descriptive statistics of the previously introduced variables, including minimum, maximum, arithmetic mean and standard deviation.

Table 5. Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
SRScores	300	6.50	13.30	32.71	11.76
Size	300	0.00	5.20	3.64	0.80
INT	298	0.00	12.06	2.75	12.03
OWN	300	0.00	1.00	0.62	0.49
PROF	300	0.00	37.8	28.81	57.98
AGE	300	15.00	36.00	22.16	4.23
LEV	300	1.88	3.26	0.10	0.27
AUDIT	300	0.00	1.00	0.62	0.49
Valid N (listwise)	229				

Our study found that sustainability reporting has gained momentum, rising from 6.50 to 13.30 with a mean of 32.71 and standard deviation of 11.76. The increase in the level of sustainability across firms based on different variables indicate that some companies in Nigeria have started to embrace the triple bottom line reporting in line with the provisions of the Global Reporting Initiative. The size of the companies (in logarithm) ranges between 0.00 and 5.20, with an average of 3.64, exhibiting a moderate variability in terms of standard deviation (0.80). The proportion of foreign sales is between 0.00 and 12.06 with a mean of 12.03. For two companies, it was not possible to obtain the proportion of foreign sales. Regarding the ownership structure, the proportion of shares not held by the majority shareholders ranges from 0.00 to 1.00 with an average value of 0.62. The profitability of considered companies ranges between a negative value from 0.00 to 37.80, with an average of 28.81 presenting a very high variability in terms of standard deviation (57.98). Concerning the listing age, the disclosure level ranges from 15.00 to 36.00, while the average disclosure and standard deviation stood at 22.16. The total debt divided by total assets (leverage) ranges between a minimum disclosure of 1.88 and a maximum of 3.26 and a mean and standard deviation of 0.10 and 0.27, respectively. For auditor type, our descriptive result shows that the disclosure level of companies audited by Big 4 ranges between a minimum of 0.00 and a maximum disclosure of 1.00 with a mean of 0.62 and standard deviation of 0.49.

Overall, our results show that sustainability reporting in Nigeria varies among companies based on size, internationality, ownership structure, profitability, age, leverage, and the type of auditor (that is, whether audited by Big 4 or not).

Furthermore, our results also indicate that companies in the oil and gas sector (energy) disclose higher sustainability accounting information in Nigeria, followed by the banking sector and the industrial sector. This is not surprising, as companies in industries with a high environmental footprint are keener to communicate their effort to responsible economic actors and achieve legitimacy.

We also observed that the top 50 companies examined provide varying social sustainability information, such as labor practices, human rights information and information about the absence of child labor practices, and other environmental sustainability information, even though the information varies among sectors (see Figure 1).

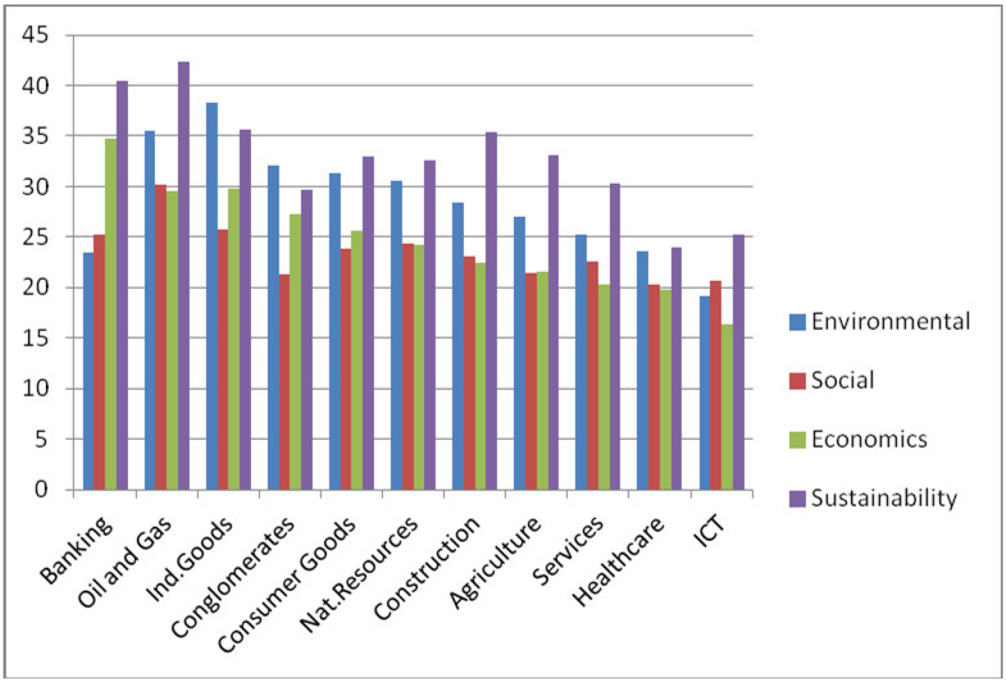

Figure 1. Sector-by-sector analysis of the sustainability report.

5.2. Fixed Effects Regression Result

We performed two main statistical tests in this study. The first is the pooled ordinary least square (OLS) model. However, due to the inability of the pooled OLS to account for within-effects and omitted bias, we also adopted panel data estimation. There are two panel data estimation that can be used. These are the panel fixed effects (FE) and panel random effects (RE). To select the most appropriate, we employed a Hausman test (HT), which is useful to determine which option to choose. Table 6 shows the results of the Hausman test.

Table 6. Hausman test results.

Variables.	Fixed Effect (b)	Random Effect (B)	Differences (b–B)
OWN	−0.3062	0.1382	0.168
SIZE	5.2145	2.6672	2.5473
PROF	0.0081	0.0067	0.0014
INT	0.1247	0.1295	−0.0048
AGE	0.332	0.879	1.211
AUDIT	1.7591	6.9182	−5.1591
LEV	−0.0448	0.0062	0.0386

$\chi^2(5) = 16.23$; prob > $\chi^2(5) = 0.0062$.

Based on the Hausman test, the fixed effects model result is more appropriate than the random effect model as the *p*-value of the test is significant (*p* is equals to 0.0062) at the 5% level.

The findings from the fixed effects model show that ownership structure (OWN) has a significant negative relationship with the level of sustainability reporting in Nigeria (see Table 7). The results mean that companies with a diversified ownership structure provide more detailed sustainability information in their annual reports, standalone reports or in their websites than those that are indigenously owned; the greater the diversity of the ownership structure, the more the sustainability information is disclosed by companies. On the other hand, a concentrated ownership structure has negative impact on the extent that Nigerian firms disclose sustainability information. Further results show that companies with high total assets (SIZE) and profitability (PROF) have a higher engagement in actions that improve sustainability reporting, while companies with a high proportion of foreign sales (INT) are positively linked with increased sustainability reporting due to their foreign exposure. Only according to the pooled model, companies audited by Big 4 audit firms (AUDIT TYPE) usually present a more advanced sustainability reporting. For both of the considered models, leverage is negatively correlated with level of sustainability disclosure of firms in Nigeria. The results also indicate that the correlation between age and the extent that companies provide sustainability reports is positive. This result implies that, the older the firm, the more sustainability reports that the company discloses.

Table 7. Panel regressions.

Dependent Variable: SR		
Indep. Variables	**Pooled OLS**	**Fixed Effect**
OWN	−0.306 ** (0.048)	−0.138 * (0.070)
SIZE	5.214* (0.0123)	2.667 *** (0.0319)
PROF	0.081 ** (0.0329)	0.006 *** (0.0206)
INT	0.124 * (0.058)	−0.129 ** (0.030)
AUDIT	0.759 ** (0.013)	−0.918 *** (0.0410)
AGE	0.332 * (0.053)	0.879 *** (0.001)
LEV	−0.044 *** (0.116)	−0.006 * (0.845)
R-square		
Within	0.043	0.216
Between	0.020	0.038
N	299	299
Constant	−8.535	−5.431
F-test/Wald Ch2	14.22	9.27
Prob > F/Prob > Chi2	0.0000	0.0000

Significance symbols: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors are depicted in brackets. Source: STATA 17.0.

Additional explanation to the negativity of the relationship between leverage and sustainability disclosure could be drawn from the empirical evidence arising from the voluntary disclosure of non-financial information by firms. Expectedly firms disclose more when they choose and less when they know that voluntary disclosure can be harmful to them. Therefore, firms may avoid providing key performance indicators and other issues that may expose their leverage problem to the public.

6. Discussion of Findings

Sustainability reporting is becoming highly relevant to both internal and external stakeholders. It is also increasingly becoming a part of management decisions, accounting, and reporting practices in society today. The objective of this study was to identify the determinants that explain why companies publish varying sustainability accounting information in their annual reports. The study also analyzed the extent and nature of the relationship that exists between sustainability reporting and the various characteristics that shape sustainability reporting practices. Previous studies have suggested that there are corporate (e.g., size and leverage) and general contextual factors (e.g., political, legal or social context) that affect the disclosure of sustainability reports. Aljifri [11] and Kwakye et al. [4] studied the determinants of sustainability reporting and conclude that certain characteristics are important to determine the level of sustainability reporting in developed countries. In this study, external and firm-specific (internal) variables were tested. The results of the extent to which the firms explain the variables varies across firms and industries. Dienes et al. [3] opine that the corporate drivers of sustainability reporting will continue to be subject to further changes in view of the interest stakeholders pay to sustainability reporting.

The results of the impact of company size on the extent of the disclosure of sustainability information is significant and positively related. A positive relationship indicates that large firms provide more sustainability information in their annual reports. The reason for this is that large firms may have the resources that enable them to provide information that is relevant across stakeholders and shareholders. Similarly, large firms may enjoy the economy of scale that enables them to have a competitive advantage over smaller firms. This competitive advantage increases shareholders and, in turn, reduces agency costs and promotes higher legitimacy and performance [40]. Our finding is in line with previous studies in this research area who argue that larger companies follow better disclosure practices (e.g., [11,36,41]) and that this additional disclosure might reduce costs and improve profitability [28].

The results also indicate that the association between age and the extent to which companies provide sustainability reporting is positive. This result implies that, the older the firm, the greater the number of sustainability reports that the company can disclose. This result contradicts the earlier results of Hossain et al. [27], who studied the association between age and sustainability reporting of firms in Asian countries, but found that age is negatively correlated with the extent of disclosure. One possible reason for the statistical insignificance might be that companies' disclosure of social and environmental report is not a function of age. Companies irrespective of age can decide to disclose socially and environmental information in the annual reports. This tends to agree with the reputation hypotheses of Barako [10], who opined that a company's willingness to provide sustainability reports is related to the reputation they have built over years in the business. This conclusion agrees with the results achieved by Dienes et al. [36], who assert that age is an important factor when accessing the sustainability reporting practices of firms.

The results also show that a concentrated ownership structure has a negative impact on the extent to which a firm discloses sustainability information. With concentrated ownership, the extent of sustainability information disclosure is minimized. In Nigeria, the ownership structure of most firms is indigenously owned (indigenization policy), a situation that creates incentives for firms to withhold information, because owners may not look beyond the offshore in accessing the information content of their annual reports. An earlier study has found that concentrated ownership structure does not enhance disclosure practices [34]. This implies that, in a company with diversified ownership, such as institutional investors, foreign investors tend to provide more sustainability information in their annual reports than other firms with domestic ownership. This finding is consistent with the results of [39,42]. Our conclusion contradicts the proposition of [26], but corroborates the findings of [10], who claim that concentrated ownership has a negative influence on voluntary disclosure practices.

The results also show that profitability is positively related with sustainability reporting. This implies that highly profitable companies tend to disclose more information than less profitable firms. One possible reason for this is that companies want to showcase to investors and shareholders that they are performing well. According to signaling theory, a profitable firm discloses higher sustainability information. Higher profitability also means having a higher level of resources to be devoted to sustainability practices, responding to calls by stakeholders, as well as reducing the pressures on managers to seek higher compensation. Our finding is consistent with the findings of [18], who found that profitability is significant and positively correlated with the quality of sustainability reporting in emerging economies. However, the results contradict the findings of [29], who found that profitability is negatively correlated with sustainability reporting.

Internationality measured by the number of foreign sales is found to positively affect sustainability reporting. The reason is that companies with a high number of foreign sales tend to disclose more sustainability information than those that do not. Our finding is in line with the findings of [30], but it contradicts the findings of [36]. Internationalized companies tend to be under higher scrutiny by customers and other stakeholders, as well as having a tendency to import foreign sustainability practices [40] At the same time, SEER could be a tool for a firm to present itself as a good corporate citizenship internationally, increasing the chances of entering new markets [13,14].

Our results also indicate that there is a negative relationship between sustainability reporting and the leverage of firms. This means that a company with high leverage produces less sustainability reports. Earlier studies [24,34] argued that highly leveraged firms provide less information to cover their indebtedness. However, studies showed that highly leveraged firms have overwhelming levels of disclosure to avoid problems arising with creditors [20,27]. On this variable, more research is needed to point to a clear direction regarding this relationship.

The final relevant variable, auditor type, measured by whether a firm is audited by a Big 4 firms, affects sustainability reporting. The results indicate that the relationship between the auditor type and a firm's disclosure of sustainability information is significant and positive. One possible reason for this is that a firm audited by Big 4 is subjected to a higher scrutiny than those audited by others. Big 4 have an international reputation and tend to subject the firms that they audit to international codes and standards. This causes the firms to provide higher disclosure. This result contradicts the findings of other authors, such as [4,5,10], who did not find any evidence that this corporate governance factor has an influence on sustainability information disclosure. This is contrary to our prediction in Table 6. Our finding also contradicts the results of earlier studies [10,34], who find a negative association between auditor type and sustainability reporting.

7. Conclusions, Limitations, and Future Research Direction

The demand for both financial and non-financial information by stakeholders for investment and other decision needs has increased over the years. This is driven by corporate/internal or general contextual factors, whereas the fundamental drivers of sustainability reporting are the maximization of shareholders wealth, the maintenance of organizational legitimacy and the management of risks to corporate reputations [3]. This paper investigated the drivers of sustainability reporting within an emerging economy context, using Nigeria as a case study. The results of the study show that a set of firm attributes affects the level of sustainability reporting positively and are significant in predicting the sustainability reporting efforts of firms in Nigeria. These findings have some practical implications. The policy implication of this finding is that the fight against corruption that the government is putting in place would also improve the willingness to disclose sustainability information by companies in Nigeria. Additionally, policymakers can have a better comprehension of internal factors and which explains the greater transparency and accountability by companies. We also provide evidence that companies with low ownership concentration, internationalization and age of listing are bound to exhibit more accountability and transparency in their sustainability reporting in Nigeria. Therefore, policymakers and regulators may attempt to act to incentivize companies to become more exportation-oriented, as well as opening their capital to independent investors and to be listed in the sustainability stock market, which will, in the long run, improve the sustainability practices by Nigerian companies. Additionally, this finding suggests that the behavior of these variables in an emerging economy, such as Nigeria, may be affected by weak legal institutions and poor governance mechanisms that breed corruption. Therefore, regulatory authorities and governments should take cognizance of these drivers to enable Nigerian companies to compete internationally. From a managerial point of view, sustainability issues need to be tackled at the board of director's level to increase the awareness and therefore the diffusion of sustainability reporting. This change necessitates the training of personnel and new recruitments policies so as to diffuse an environmental consciousness throughout the organization.

The contributions of this paper are threefold. First, it contributes to the sustainability reporting literature in emerging economies, providing a holistic assessment of the determinants in Nigerian companies. Thus, it is one of the first studies, to the best of our knowledge, to have studied the drivers of sustainability reporting and accountability in Nigeria using GRI performance indicators. The paper also updates and extends the results of prior studies contextualizing them in the emerging market economy. In so doing, this paper provides new evidence on the issue of sustainability in the context of emerging markets, unlike most prior studies, which highlighted developed markets. Thus, we contribute to the call for more context-specific research in developing countries [43,44]. Finally, the findings provide additional evidence on the significance of some determinants to the literature, supporting the development of the knowledge in the field.

The major limitation of this study is that it uses only one country, Nigeria, and a small sample of companies, which could affect generalization. Cross-country studies extending the theoretical framework by including additional social and cultural factors influencing sustainability reporting represent an interesting avenue for further research. Second, the incomplete retrieval of relevant indicators and a company's reporting bias could affect the outcome of the study. Based on the foregoing, future research should increase the number of countries and or make it regional base to compare sustainability across regions. Reporting bias by companies could also be controlled by using only audited financial statements and reports. It is interesting to note that, at the moment, most of the sustainability reports examined have neither assurance reports nor are they audited by any independent experts on sustainability matters.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su14073780/s1. File S1: The complete dataset with the variable measures for each company of the sample.

Author Contributions: Conceptualization, I.M.I. and E.B.; writing—original draft preparation, I.M.I., E.B.; methodology, R.I., I.M.I., B.O., C.I.K.; Supervision, validation, and editing, E.B., S.M., I.M.I.; Data curation, C.I.K., B.O., C.O.; formal analysis, I.M.I., B.O. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data supporting reported results is attached as Supplementary Materials.

Conflicts of Interest: The authors declare no conflict of interest.

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