




Empirical examination of sustainability reporting, return on capital employed and gross profit margin

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ABSTRACT

This study examined the effect of social and environmental disclosure respectively on gross profit margin (GPM) and return on capital employed (ROCE) of manufacturing firms in Nigeria. This was prompted by the dearth of literature on sustainability reporting (SR) and the inexistence of Nigerian based SR standards and guidelines. The study adopted *ex-post facto* research design while data were gathered from annual reports and sustainability reports of the 23 sampled companies from the period 2012 to 2021, which represents the International Financial Reporting Standards reporting period in Nigeria as at the time of the study. Finding from the regression analysis showed there is significant positive effect of social disclosure on GPM. However, no significant effect of environmental disclosure was observed on ROCE, which could have been due to other factors outside our scope of study. It is therefore recommended among others that business organizations incorporate SR as part of their reporting policy to reap the associated benefit on GPM with high hopes that other things being equal, constant increase in GPM will influence the ROCE to increase significantly at a point. As policy recommendation, government should put in place annual awards and recognition programs for firms with near or 100% disclosure to encourage a more sustainability-driven economy towards the achievement of the sustainable development goals agenda.

Keywords: social disclosure, environmental disclosure, ROCE, GPM, stakeholder theory, PIT theory

INTRODUCTION

Organizational activities have continuously mounted pressure on environmental resources leading to steady depletion, while the negative impacts of the usage are borne by the stakeholders in the form of global warming, pollution, gene mutation, etc. Over the past decades, corporate organizations had so much dwelt on the immediate operating profit with shareholders' satisfaction forming the core emphasis of business policies and strategies. This led to so many catastrophes in the global business environment since 1960 and thus, triggered the current concern for sustainable development which started in the year 1997 with the birth of an independent international organization, to handle critical issues of global concern such as climate change, human rights, governance, and social well-being. Klimova and Zitek (2011) (as cited in Chukwuka and Eboh [2018]) argue that corporate organizations and countries that want to be successful in the international scene rely on 'new and innovative environmental technologies, services and processes which are important for competitive advantage.' Research further shows

that 'the long-term sustainability of the economic system of a country does not depend on only quantitative growth, but also on the ecological aspects of the growth and sustainable development' (Chukwuka & Eboh, 2018; Iliemena et al., 2021). A business is considered as sustainable development oriented when it is able to succeed in its business activities without having net negative effect (the total effect of positive and negative impacts of business operations) on the environment that are not well compensated, as materials flow in and out of the business (Iliemena et al., 2022). Even the corporate stakeholders are very much awake to these current realities.

Shifting organizational emphasis to long term value creation demands that organizational policies and strategies be made to cover the interest of the general stakeholders (Muffee, 2021). The different stakeholders of a corporate organization include trade creditors, bond holders, investors, employees, suppliers, bankers, government, shareholders (investors), potential investors, customers, and management. There is therefore a general demand that corporate affairs be conducted in such a way to minimize the negative effects of its operation on the general social environment while maximizing its positive impacts and then communicated periodically to the

stakeholders. This is the very essence of SR and the core concern of global reporting initiative (GRI). The GRI located in the Netherlands was established in 1997 by the Coalition for Environmentally Responsible Economies and the Tellus Institute in partnership with over 20 international organizations such as the United Nations Environment Programme, Organisation for Economic Corporation and Development, and the United Nations (UN) working group on business and human rights, to develop general guidelines for SR. Nigeria as a member of the UN impliedly adopted the UN global compact on GRI standards and guidelines for sustainability performance disclosures (Iliemena and Ijeoma, 2019). By using the GRI guidelines, reporting organizations disclose their most critical impacts (negative and positive) on the environment, society, and the economy. This helps to generate reliable, relevant, and standardized information with which to assess opportunities and risks and enable more informed decision-making (within and outside the organization) for more sustainable business and environmental management (Emuebie et al., 2021; GRI, 2013, 2019; Lawrence, 2022).

According to the result of the research carried out by Ngwakwe (2008), sustainability practices generally affect corporate performance. The direction of this effect is, however, debatable as SR has also been indicated by some scholars as causing additional increment in overhead costs of reporting firms, which could ordinarily deter reportage. The debate has over the years necessitated several research in the area of SR worldwide. However, studies in this regard consistently showed mixed results which could have emanated from differences in country of study, scope of years of study, sector of study, methodological approaches adopted and other varying factors (Burhan & Rahmanti, 2009; Hussain, 2015; Ioannou & Sarafeim, 2014 as cited in Aisyah & Basuki, 2017).

However, a lot of the extant literature that have generated the conflicting results on the effect of sustainability disclosures on financial performance have been noted to have either focused on disclosure of one environmental event or used other measures of performance other than gross profit margin (GPM) and return on capital employed (ROCE) (Krishna and Lucus, 2010). Consequently, it is necessary to re-examine from the different components of both environmental and social disclosure based on more robust measures of financial performance which Iliemena and Ijeoma (2019) considered to be GPM and ROCE. Furthermore, evidence reveals that each country has its peculiarities that make it impracticable to generalize the effect and association between sustainability disclosures and performance (Krishna and Lucus, 2010). Most of the previous studies emanated from developed economies and the outcome of these research may not be applicable to developing countries, for example Nigeria. There is also need to bring existing literature up to date with wider scope as the most related research work with a focus on all social and environmental components, although based in Australia, was carried out in 2007 while that based in Nigeria (Chukwuka & Eboh, 2018; Lawrence, 2022; Nguyen, 2018; Okoye & Adeniyi, 2018), although more recent, focused only on the banking sector, used few components to measure environmental and social disclosure or used case study approach. Emanating from these, this current study is aimed to examine the effect of SR

respectively on ROCE and GPM of quoted manufacturing companies engaged in SR in Nigeria. This research work therefore set out to provide answers to the under listed questions:

1. What effect does social disclosure have on GPM?
2. How does environmental disclosure affect ROCE?

LITERATURE REVIEW

Conceptual Review

Concept of sustainability reporting

There has been a general conflict as to a generally accepted definition of SR. GRI (2011) defined SR as the reporting practice which measures, discloses and enables accountability to internal and external stakeholders towards sustainable development. SR as described by Elkington (2004) involves an integrated reporting system for accounting and reporting social, environmental, and economic impacts which is similar to the triple bottom line reporting concept.

According to GRI (2011),

“A sustainability report is a report published by a company or organization about the economic, environmental, and social impacts caused by its everyday activities. A sustainability report also presents the organization’s values and governance model and demonstrates the link between its strategy and its commitment to a sustainable global economy.”

In the midst varied definitions, it can be pointed out that SR involves three basic dimensions to reporting: economic, social, and environmental disclosure. An organization’s financial statements and information disclosure is constructed using a recognized framework. An SR framework for the purpose of this study and other related studies is conceived as a set of published criteria for the measurement, recognition, presentation, and disclosure of information regarding the economic, social, and environmental costs and benefit information in corporate reports. Just as highlighted in earlier studies, Nigeria at present has no SR framework although, the Nigerian Stock Exchange on Thursday 15th November 2018 launched a set of SR guidelines which became effective in 2019 but not yet adopted by most organizations in practical sense of it. Even the International Financial Reporting Standards (IFRS) that have been adopted in Nigeria in 2012 and currently in use as accounting standard, has no content as to SR. Nigeria has however, passed certain bills in the past to promote social and environmental protection as legislations are asserted to play a major role in inducing responsible attitudes towards people and the environment (Environmental Law Research Institute, 2009). These include Environmental Impact Assessment Act 2004, Environmental Guidelines and Standards for Petroleum Industry 2002, National Environmental Standards and Regulations Enforcement Agency Act 2004. None of these regulations mandate the disclosure of sustainability information as a part-content of the financial statements of corporate organizations in Nigeria. Even the Companies and Allied Matters Act 2020 as amended, is silent on SR practice by

Nigerian companies. This therefore makes SR in Nigeria a voluntary affair. The implication of this is that disclosures regarding economic impact, corporate social responsibility (CSR), environmental reporting is mainly voluntary and not mandated by any local law in Nigeria. However, the Financial Reporting Council of Nigeria in the Nigerian Code of Corporate Governance 2018 released in February 2019, recommends the practice of SR for Nigerian company but no specific standard of reporting was recommended.

Murray (2010) opines that it would be “counter intuitive” to believe that Nigerian companies would voluntarily take to SR if there were no return from such and most Nigerian firms currently in the reporting web were reported by Owolabi (2010) and Uwuigbe (2011) as under manufacturing sector. In international scene, SR is a serious affair in some country while it is still voluntary in some others like Nigeria.

In attempts to offer guideline to corporations in preparing sustainability reports, several initiatives were launched in the past with current updates. Some bodies and organizations like the International Standard Organisation and the World Business Council for Sustainable Development have set up frameworks for SR. These frameworks are adopted as a basis for general SR across countries. These frameworks and organizations include the SIGMA Project and the GRI's guidelines and standards for SR. This study however focuses on SR social and environmental practices in relation to the GRI guideline-4 as, it a globally accepted and applicable guidelines and standards for SR practices.

This study adopts SR disclosure indices without assigning percentage weighting to the indices. The assessment items for social and environmental SR are as contained in the guideline-4 without additional criterion. Each indicator point is awarded, as follows:

1. 1 point for reporting of each indicator and
2. 0 point for non-reporting of each indicator.

The total point for each social and environmental SR performance disclosure depended on the number of disclosure items required by the GRI guideline-4.

Environmental disclosure requirements: The GRI specific contents for environmental reporting covers dimensions relating to inputs sourced from the environments (such as energy and water) and outputs into the environment (such as emissions, effluents, and waste), biodiversity, transport, and product and service-related impacts, as well as environmental compliance and expenditure (GRI: G4). The measurement criteria totaled 34 expected disclosures detailed, as follows:

Material

1. Materials used by weight or volume
2. Percentage of materials used that are recycled input materials

Energy

3. Energy consumption within the organization
4. Energy consumption outside of the organization
5. Energy intensity
6. Reduction of energy consumption

7. Reductions in energy requirements of products and services

Water

8. Total water withdrawal by source
9. Water sources significantly affected by withdrawal of water
10. Percentage and total volume of water recycled and reused

Biodiversity

11. Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
12. Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas
13. Habitats protected or restored
14. Total number of IUCN red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk

Emissions

15. Direct greenhouse gas (GHG) emissions (scope 1)
16. Energy indirect GHG emissions (scope 2)
17. Other indirect GHG emissions (scope 3)
18. GHG emissions intensity
19. Reduction of GHG emissions
20. Emissions of ozone depleting substances
21. NO_x, SO_x, and other significant air emissions

Effluents and wastes

22. Total water discharge by quality and destination
23. Total weight of waste by type and disposal method
24. Total number and volume of significant spills
25. Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the basel convention and percentage of transported waste shipped internationally
26. Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organizations' discharges of water and runoff

Products and services

27. Extent of impact mitigation of environmental impacts of products and services
28. Percentage of products sold and their packaging materials that are reclaimed by category

Compliance

29. Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations

Transport

30. Significant environmental impacts of transporting products and other goods and materials for the

organizations' operations and transporting members of the workforce

Overall

31. Total environmental protection expenditures and investments by type

Supplier environmental assessment

32. Percentage of new suppliers that were screened using environmental criteria

33. Significant actual and potential negative environmental impacts in the supply chain and actions taken

34. Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms

Social disclosure requirements: Here there are total of 48 expected disclosures for the social impacts of business organizations on the social systems within which it operates. The specific disclosure requirements are outline below:

Labor practices and descent work

1. Total number and rates of new employee turnover by age group, gender, and religion
2. Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation
3. Return to work and retention rates after parental leave by gender

Labor and management relations

4. Minimum notice periods regarding operational changes, including whether these are specified in collective agreements

Occupational health safety

5. Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advice on occupational health and safety programs
6. Type of injury and rates of injury, occupational diseases, lost days, absenteeism, and total number of work-related fatalities, by region and gender.
7. Workers with high profile incidence or high risk of diseases related to their occupation
8. Health and safety topics covered in formal agreements with trade unions

Training and education

9. Average hours of training per year per employee by gender, and by employee category
10. Program for full skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings
11. Percentage of employees receiving regular performance and career development reviews, by gender and by employee category

Diversity and equal opportunity

12. Composition of governance bodies and breakdown of employee category according to gender, age group,

minority group membership, and other indicators of diversity

Equal remuneration for women and men

13. Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation

Supplier assessment for labor practices

14. Percentage of new suppliers that were screened using labor practices criteria

15. Significant actual and potential negative impacts for labor practices in the supply chain and actions taken

Labor practices grievance mechanisms

16. Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms

Human rights-Investment

17. Total number and percentage of significant investment agreements and contracts that include human rights
18. Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentages of employees trained.

Human rights-Nondiscrimination

19. Total number of incidents of discrimination and corrective actions taken

Human rights-Freedom of association and collective bargaining

20. Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights

Human rights-Child labor

21. Operations and suppliers identified as having significant risks for incidents of child labor, and measures taken to contribute to the effective abolition of child labor

Human rights-Forced or compulsory labor

22. Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor and measures to contribute to the elimination of all forms of forced or compulsory labor

Human rights-Security practices

23. Percentage of security personnel trained in the organization's human right policies or procedures that are relevant to operations

Human rights-Indigenous rights

24. Total number of incidents of violations involving rights of indigenous people and actions taken

Human rights-Assessment

25. Total number and percentage of operations that have been subject to human rights reviews or impact assessments

Supplier human right assessment

26. Percentage of new suppliers that were screened using human rights criteria
27. Significant actual and potential negative human rights impacts in the supply chain and actions taken

Human rights grievance mechanisms

28. Number of grievances about human rights impacts field, addressed, and resolved through formal grievance mechanisms

Local communities

29. Percentage of operations with implemented local community engagement, impact assessment, and development programs
30. Operations with significant actual or potential negative impacts on local communities

Anti-corruption

31. Total number and percentage of operations assessed for risks related to corruption and the significant risks identified
32. Communication and training on anti-corruption policies and procedures
33. Confirmed incidents of corruption and actions taken

Public policy

34. Total value of political contributions by country and recipient/ beneficiary

Anti-competitive behavior

35. Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes

Compliance

36. Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations

Supplier assessment for impacts on society

37. Percentage of new suppliers that were screened using criteria for impacts on society
38. Significant actual and potential negative impacts on society in the supply chain and actions taken

Grievance mechanisms for impacts on society

39. Number of grievances about impacts on society filed, addressed, and resolved through formal grievances.

Product responsibility-Customer health and safety

40. Percentage of significant product and service categories for which health and safety impacts are assessed for improvement
41. Total number of incidents of non-compliance with regulations and voluntarily codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes

Product and service labeling

42. Type of products and service information required by the organization's producers for products and services information and labeling and percentage of significant

products and service categories subject to such information requirement.

43. Total number of incidences of noncompliance with regulations and voluntary codes concerning products and service information and labeling by type of outcomes
44. Results of survey measuring customers satisfaction

Marketing and communications

45. Sale of banned or disputed products
46. Total number of incidents of noncompliance with regulations and voluntary codes concerning marketing communications including advertising, promotions, and sponsorship by type of outcomes

Customer privacy

47. Total number of substantiated complaints regarding branches of customer privacy and losses of customer data

Compliance

48. Monetary value of significant fines for noncompliance with laws and regulations concerning the provisions and uses of products and services

Return on capital employed and gross profit margin as measures of corporate performance

The stakeholders of a corporate organization are many with differing areas of emphasis in measuring corporate performance. There are different measures of performance and each stakeholder group pay particular attention to a measure of performance based on its information need and its stake in the company (Iliemena & Ijeoma, 2019; Will, 2018). The different measures of corporate performance include return on asset (ROA), return on equity (ROE), net profit margin, GPM, Tobin's Q, economic value added, dividend per share, earnings per share (EPS), operating cash flow, and ROCE. However, the emphasis of this study is on ROCE and GPM as the two are considered to be more general in nature and affects both the equity holders and the creditors respectively.

1. **GPM:** GPM is a performance measure which indicates how much gross income corporate organizations make with total sales achieved. A higher GPM means that the company is more efficient at converting sales into actual profit (Iliemena and Ijeoma, 2019; Wilkinson, 2013). Gross profit is clearly reported on an IFRS financial statement while the margin is computed as a percentage of sales. This study computes GPM, as follows:

GPM=Goss profit/sales

2. **ROCE:** This is an efficiency gauge to show the efficiency gauge to show the intensity and profitability of overall capital employed. This is determined, as follows:

ROCE=Net profit (before interest and taxes)/(capital employed×100)

The Perspective of Stakeholder Theory and Performance Improvement Theory

This study adopts the stakeholder theory and performance improvement theory (PIT) to provide the theoretical support for the independent variable (SR). The stakeholder theory suggests that all activities of the firm are carried out for the benefit of the stakeholders. Stakeholders are individuals or entities who are either affected by the organization's activities or who can affect the organization directly or indirectly. The stakeholders of an organization are generally viewed as those who are directly and indirectly affected by the activities of an organization. This includes investors, government, community, employees, bankers, and suppliers. Thomsen (2012) is of the view that SR will certainly reduce information asymmetry existing among the stakeholders and simultaneously reduce the overall cost of capital for a practicing company. Relating this to the opinion of Iliemena (2020) in PIT, the cost reduction could be due to cost savings emanating from avoidance of sanctions through social and environmental compliance. The PIT is of the view that good corporate image is earned through SR, which in return increases customer patronage, investors, and lenders' confidence. By implication of the PIT, a firm that wants to improve its return on capital and its gross profit would incorporate sustainability concerns in its operational strategies and models.

These theories were both found relevant to this study because they provide answers to the theoretical justifications and explanations to the practice of SR by companies and expectations regarding ROCE and GPM. Firms are thus, accountable to its multiple stakeholder groups through disclosures in sustainability reports (Nwobu, 2015). Consequently, firms that want to sustain good relationships with their stakeholders would want to communicate all available information to them regarding their positive and negative impacts.

EMPIRICAL REVIEWS

The plethora of existing literature related to environmental and social aspect of SR, its components and financial performance indicators include the most recent work by Lawrence (2022), which evaluated the impact of SR compliance on financial performance of 57 companies listed on the Nigerian Exchange Group (NGX). The evaluation was based on disclosure scores for economic, governance, social and environmental. Regression analysis methodology was used, and findings revealed that SR compliance have significant positive association with net profit margin and ROCE. However, this study used selective contents to measure disclosure scores which thus, becomes a major limitation. Emuebie et al. (2021) further examined how the social and environmental disclosures of firms affect their performance using 16 Nigerian consumer-goods listed companies as study sample. The multiple regression method was adopted for data analysis. Evidence from their study revealed that the disclosure of social and environmental information has significant effect on ROA but no significant effect on EPS. Ibrahim and Kurfi (2021) investigated the relationship

between environmental accounting, firm characteristics, and corporate performance among cement manufacturing companies in Nigeria over a seven-year period (2012 to 2018). Secondary data from annual reports were used while longitudinal research design was adopted. Evidence from this study showed that environmental accounting has negative effect on GPM while firm size and leverage both have positive relationship with performance. The restriction of this study to 2018 data could have affected the outcome as the effect of the COVID-19 pandemic was not factored in the 2018 performance data. Hence, finding may be different if the study is updated to current year. Muffee (2021) examined the effect of environmental accounting on corporate performance using environmental liability, cost, profit, and corporate resources as measurement variables. The area of study was development and management mission for industrial zones (MAGZI Ombe) while the opinions of 40 respondents were sampled from 6 organizations. The Pearson correlation analysis used in the study revealed that there is significant positive relationship between environmental accounting and corporate performance. Iliemena (2020) evaluated the practice of environmental accounting among oil and gas companies in the periods 2012 to 2018, from the Nigerian perspective, to determine its effect on performance. The regression analysis indicated that environmental accounting practices had no significant effect on net profit margin, but the effect was significant on ROCE. However, only 10 companies were sampled which limits the generalization of this outcome, thus the present study. Amedu et al. (2019) investigated the value relevance of SR in Nigerian manufacturing sector using a sample of 30 companies in the period 2010-2018. The data gathered were tested using regression methodology and results revealed that environmental SR has no value relevance among the studied companies. Nguyen (2018) took this further by carrying out an examination of CSR disclosure and performance of Vietnam banks to ascertain the direction and strength of the relationship existing among the variables. The study covered the period from 2011 financial year to 2016 reporting period. The study adopted content analyses method while data were analyzed using ordinary least square estimator. Results from this study also showed there is significant negative relationship between CSR disclosure and financial performance. The major limitation of this study is its focus on only the corporate social disclosure aspect of SR, its focus on the banking sector and the study was further conducted in Vietnam. The outcome may therefore differ when re-evaluated using the other dimensions of SR from a developing country perspective. Ahmad et al. (2018) further examined the relationship that exist between environmental accounting and performance of Pakistan listed companies from 2006 to 2016 using regression technique. The results indicated no significant relationship exists between environmental accounting disclosure, EPS, and ROCE. Since this evidence emanated from Pakistan, it weakens the general application of this finding as there exists very few companies listed on the Pakistan Stock Exchange. Chukwuka and Eboh (2018) went further in their study to examine effect of green business practices on performance of 10 manufacturing companies in Nigeria using respondent sample of 543 from a population of 5,705 comprising middle and lower cadres of management. The data generated were tested using linear

regression analysis and finding showed positive effect of green practices on the internal and external performance of the firms. The use of primary data for this nature of study is a major criticism of this study and no specific time period. There is therefore need for re-evaluation using secondary data and specific scope provided for the study. Similarly, Aisyah and Basuki (2017) examined the effect of SR disclosure on performance using three aspects of SR as environmental, social, and economic disclosure while performance was measured using Tobin's Q. The methodology used in the study was the quantitative method and results showed SR has significant positive effect on performance. This study is one of the few attempts to an evaluation based on the three components of SR but conducted in Indonesia. This makes future studies necessary to re-evaluate these claims based on the Nigerian business environment. Bhatia and Tuli (2017) reviewed the relationship between SR and specific corporate attributes of 158 Indian companies using content analyses of financial statements. The measures of corporate attributes used included size, age, multinational operation, software ownership etc. the result of the multiple regression analyses showed the companies leverage, profit ad growth have negative relationship with extent of sustainability disclosure. The major limitation of this study was its failure to cover the performance using any general performance index. Norhasimah (2016) in his study investigated the effect of environmental sustainability disclosure on financial performance of 100 Malaysian public limited companies. The regression tests results showed there is significant relationship between environmental disclosure and profit margin. This study was based in Malaysia; the result may therefore be different from what is obtainable in Nigeria. An additional limitation of this study is its focus on only an aspect of SR. Similarly, Aondoakaa (2015) conducted a study into the impact of SR on corporate performance on 76 non-financial companies quoted on Nigerian Stock Exchange in the periods 2002-2012. The corporate performance measures used in the study were ROA, ROE, EPS, and net profit margins while the sample of study consisted of 64 companies. Secondary data generated from annual reports of the companies were analyzed using regression methodology. The test results showed that SR has significant positive impact on selected performance measures. This study although covered a wider scope, can be considered out of date and the period scope by the study is observably before IFRS reporting in Nigeria and before the introduction of the GRI guideline-4. Guler et al. (2010) provided empirical evidence on the relationship between CSR and financial performance in developing countries using 100 index companies in Istanbul Stock Exchange in the periods 2005 to 2007. The method used in the study was highly based on previous empirical studies and assumptions on firm attributes and social responsibilities. Findings revealed no relationship CSR and corporate performance. This study is criticized for its focus on only an aspect of SR, future studies are therefore needed to cover other aspects of SR. Reddy and Gordons (2010) studied the effects of SR on financial performance of 68 companies listed in New Zealand Stock Exchange, and Australian Stock Exchange using event study method on 31 days events. Evidence emanating from the study revealed that SR significantly affects corporate performance. This study was conducted outside Nigeria and the outcome

may not be applicable to Nigeria. Similar study is therefore needed to be conducted in Nigeria. Ngwakwe (2008) in his own study examined the relationship between SR and corporate performance using field survey methodology. The study used a sample of 60 manufacturing companies in Nigeria. Finding revealed among others that sustainability practices of companies have significant positive relationship with corporate performance. However, this study was carried out in 2008 and is considered out of date. Jones et al. (2007) in the context of Australia carried out a study on SR, which compared SR scores, which are scored against the GRI, to both the market performance measured by abnormal returns with the aid of market index and the financial performance of measured by a range of variables including financial ratios, debt servicing capacity, measures of cash positions, selected valuation multiples, free cash flows, financial structure, and profitability. The findings of their study reveal among others that there is a negative relationship between SR and market returns of entities engaged in SR. The study also found a significant relationship between SR and financial performance. In the Nigerian context however, there is paucity of literature on the causal relationship of SR on market returns and financial performance. Similar studies therefore need to be carried out in Nigeria. Malcolm et al. (2007) examined environmental disclosures in relation to performance using information from financial statements of listed companies in Kuala Lumpur Stock Exchange Malaysia. The rating scale used for the study was based on previous studies and evidence generated revealed a negative relationship existing between environmental disclosure and performance. A significant inverse relationship was also found between disclosure score and ROAs. This study however, failed to use the provisions of the GRI guidelines as bases of disclosure measurement. This therefore creates the need for further studies in this area.

Gap in the Literature

Since the inception of corporate SR, research have been carried out to ascertain the effect of SR on performance of practicing companies. Even in the midst of diverse research, many firms are still yet to adopt SR and it remains a voluntary practice in Nigeria. However, these prior works have been criticized for one or more reasons. Some of the past research were carried out outside the shores of Nigeria (Bhatia & Tuli, 2017; Guler et al., 2010; Malcom, 2007; Muffee, 2021; Norhasimah, 2016) with the implication that results generated may not be applicable in Nigeria due to differences in business environment and culture. Some of the past studies carried out in Nigerian context used primary data for their empirical studies (Bhatia & Tuli, 2017; Chukwuka & Eboh, 2018) while some lack empirical justifications (Guler et al., 2010). It is further noted from the review of existing literature that there is yet to be a general consensus on the effect of SR on performance even though only a few studies focused on ROCE and GPM as their proxy variables (Ibrahim & Kurfi, 2021; Lawrence, 2022). Some of the previous studies were made using small scope which might not be enough for a valid conclusion (Chukwuka & Eboh, 2018; Iliemena, 2020; Muffee, 2021). Some of the studies with wider scope were either conducted before the introduction of GRI guideline-4 or already out of date by year of study (Aisyah & Basuki, 2017; Aondaakaa, 2015; Guler et al., 2010; Jones et al., 2007;

Malcom, 2007; Ngwakwe, 2008; Reddy & Gordons, 2010). Our current study therefore tends to fill these gaps which have been noted with past literature in a bid to provide further empirical justification to the effect of SR on financial performance using ROCE and GPM.

METHODOLOGY

This study employed “*ex-post facto*” research design, as the researchers examined past events, which are beyond the control of the Researchers. The information needed for the study already existed in financial statements and sustainability reports. The “*ex-post facto*” research design was found suitable for the purpose of this study as we cannot alter any existing data on the variables or control any of the variables (SR, ROCE, and GPM) but they were observed simultaneously. The population of study consisted of 30 manufacturing companies in three basic sectors; industrial goods firms, and oil and gas firms and consumer goods firms, quoted on the Nigerian Stock Exchange as of 21st February 2019 (Appendix A). The 23 companies as per Appendix B were therefore judgmentally selected for the purpose of this study based on the accessibility of their financial statements and sustainability reports for the periods 2012-2021. This study computed its secondary data from public information in Nigerian Exchange Group Fact Book (2022), annual reports and sustainability reports of the selected companies 2012-2021 (as found in their different websites) using content analysis approach. In measuring the disclosure indices, we did content analyses of the qualitative and quantitative information on sustainability reports over the years. Values of “1” or “0” (denoting present or absent as the case may be) were assigned to each disclosure item in line or related to specific disclosure requirements of GRI: G4 as detailed before. The total score divided by the total expected disclosure points gave the disclosure scores used in the study for both environmental and social disclosure scores.

Method of data analyses used in this particular study was simple linear regression analyses using the student t-test. We chose this method because it helps to study and rightly predict the relationship between two continuous variables that can be measured quantitatively and simultaneously. The models for the prediction of the study variables are hypothesized below:

1. $H_{01}: GPM = \beta_0 + \beta_1 SOCD + \varepsilon_1$
2. $H_{02}: ROCE = \beta_0 + \beta_2 ENVD + \varepsilon_1$

β_0 is constant, β_1 and β_2 are linear regression coefficient, and ε_1 is error term. As a decision rule, we accepted the null hypothesis when the probability value was greater than the alpha value; otherwise, we rejected the null hypothesis.

Table 1 provides an explanatory note to the uncommon abbreviations used in the study to aid readers’ understanding of the key concepts, especially in understanding the tabular presentation of information and data as contained below.

Table 1. Abbreviations

S/N	Abbreviation	Key
1	CSR	Corporate social responsibility
2	ENVD	Environmental disclosure
3	GPM	Gross profit margin
4	GRI	Global reporting initiatives
5	NGX	Nigerian exchange group
6	ROCE	Return on capital employed
7	S OCD	Social disclosure
8	SR	Sustainability reporting

Note. Source: Researchers’ construct 2022

RESULTS AND DISCUSSIONS

Descriptive Statistics

An observation of the data in Table 2 clearly shows the trend in social disclosure and environmental disclosure over the relevant years. The year 2012 recorded the worst performances in SR. This could be related to the very low concern which corporate organizations gave to stakeholders in general and the little attention being paid to the environmental and social issues by international organizations (like the GRI, the UN, etc.) at the time. Over time, from 2013 to 2019 the indices continued to grow as Nigerian firms became more informed and more concerned for the stakeholders. A huge drop in environmental and social disclosure was noticed in 2020. This was the period the global COVID-19 virus hit Nigeria so hard that most business organizations channeled their energy to surviving the heat of the pandemic. Consequently, it could have been that emphasizes on environmental and social concerns were reduced. Slight increase is noticeable in these indices in 2021 which could possibly be that firms have successfully adjusted their coping strategies to accommodate environmental and social concerns in the second phase of COVID-19 pandemic.

Table 2 shows the trend in both ROCE and gross profit among sampled firms from 2012 to the year 2021. The observation showed some unstable performance from 2012 to 2014 possibly due to insecurity and other factors outside the scope of our study. However, the years 2015 and 2016 recorded wide downward performances in both returns on capital employed and gross profit. These were seen to be stable, and performance improved from 2018 until 2020 when firms began to battle with the business effect of the COVID-19 pandemic in addition to the worsening economic recession in Nigeria. This can be seen to have improved by the year 2021 as firms recorded on the average 50% increase in ROCE from 2020 to 2021 and 9% increase in gross profit from 2020 to 2021.

The descriptive statistic in Table 3 shows that the minimum observation for social disclosure scores was 0.14; maximum 0.68 and the average disclosure scores from 2012 to 2021 was 0.41. Among observed ENVD scores from 2012 to 2021, the minimum score was 0.08, maximum 0.79 while the mean observed score was 0.32. For the measures of corporate performance, the minimum performance for ROCE was -0.02, maximum 0.36 while mean performance was 0.14. An observation of the GPM showed minimum value of 0.43, maximum value of 75, while the mean observation was 52.

Table 2. Annual averages for disclosure indices, return on capital employed, and gross profit performances from 2012-2021

Year Variable	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SOCD	0.33	0.47	0.43	0.73	0.56	0.64	0.71	0.77	0.50	0.54
ENVD	0.20	0.25	0.32	0.30	0.38	0.49	0.57	0.55	0.51	0.53
ROCE	0.17	0.15	0.17	0.07	0.13	0.09	0.13	0.18	0.08	0.12
GPM	0.74	0.56	0.42	0.24	0.32	0.55	0.46	0.64	0.53	0.58

Note. Source: Researchers' computation 2022

Table 3. Summary statistics for firm SOCD, ENVD, ROCE, and GPM

Variable	Observations	Minimum	Maximum	Mean	Standard deviation
SOCD	23	.14	.68	.4169	.17690
ENVD	23	.08	.79	.3190	.14992
ROCE	23	-.02	.36	.1402	.12416
GPM	23	.43	.75	.5152	.11464
Valid n (listwise)	23				

Note. Source: Researchers' computation using SPSS V.23

Table 4. Model summary of the prediction of GPM by SOCD

Model	R	R square	Adjusted R square	SEE	Durbin-Watson
1	.562 ^a	.315	.438	.10528	2.513

Note. Source: SPSS V. 23; SEE: Standard error of the estimate; ^aPredictors: (Constant) & SOCD; & Dependent variable: GPM

Table 5. ANOVA for the relationship between GPM and SOCD

Model	Sum of squares	df	Mean square	F	Sig.
1 Regression	.007	1	.007	.588	.001 ^b
1 Residual	.244	22	.011		
Total	.250	23			

Note. Source: SPSS V. 23; ^bPredictors: (Constant) & SOCD; & Dependent variable: GPM

Table 6. Regression coefficients for the effect of SOCD on GPM

Model	Unstandardized coefficients		Standardized coefficients	T.	Sig.
	Beta	Standard error	Beta		
1 (Constant)	.526	.270		1.986	.003
SOCD	.851	.115	.172	.763	.001

Note. Source: SPSS V. 23; Dependent variable: GPM; SOCD: Social disclosure; & GPM: Gross profit margin

Test of Hypothesis One

H₀₁: There is no significant effect of social disclosure on GPM.

$$GPM = \beta_0 + \beta_1 SOCD + \varepsilon_1$$

Table 4 explains the relationship of the independent variable with the dependent variable. The R value of 0.562 and adjusted R-square value of 44% both show a strong positive relationship with the dependent variable. Durbin Watson of 2.513 shows our data has no redundant variable.

Table 5 presents the ANOVA for the relationship between GPM and SOCD. The p-value of 0.001 shows that the least squares linear regression gives the best fit for predicting the relationship between GPM and SCOD at F-ratio of .588.

$$GPM = 0.526 + 0.851SOCD + 0.05$$

Given the data in **Table 6**, we rejected the null hypothesis that there is no significant effect of social disclosure on GPM as p-value of 0.001 was less than 0.05. In other words, our regression coefficient in the above table shows that SOCD has significant effect on GPM at .001. This effect is also positive as the coefficient of the independent variable is positive at .085. On the contrary, Guler et al. (2010) and Ibrahim and Kurfi

(2021) in a related study, both failed to find a significant association between the two variables above. Contrary to this and in line with our study, Wissink (2012) found significant positive relationship between corporate social performance and corporate performance. Also in line is our past study on oil and gas sector which reported significant positive effect even with a small sample (Iliemena, 2020). Furthermore, Mittal (2013) indicated a positive relationship between CSR and company's reputation but found a negative relationship between CSR and company's profitability. Furthermore, Nguyen (2018) further indicated that there is significant negative relationship between CSR disclosure and financial performance. Asuquo et al. (2018) found there is positive effect of SOCD on ROA, but the effect is not significant.

Test of Hypothesis Two

H₀₂: Environmental disclosure has no significant effect on ROCE.

$$ROCE = \beta_0 + \beta_2 ENVD + \varepsilon_1$$

In **Table 7**, entitled model summary, the value of R=.154; however, adjusted R-square=.902 shows that 90% of the dependent variable is explained by the independent variable.

Table 7. Model summary of the prediction of ROCE by ENVD

Model	R	R square	Adjusted R square	SEE	Durbin-Watson
1	.154 ^a	.024	.902	.14083	1.477

Note. Source: SPSS V. 23; SEE: Standard error of the estimate; ^aPredictors: (Constant) & ENVD; & Dependent variable: ROCE

Table 8. ANOVA for the relationship between ROCE and ENVD

Model	Sum of squares	df	Mean square	F	Sig.
1 Regression	.011	1	.011	.532	.479 ^b
1 Residual	.436	22	.020		
Total	.447	23			

Note. Source: SPSS V. 23; ^bPredictors: (Constant) & ENVD; & Dependent variable: ROCE

Table 9. Regression coefficients for the effect of ENVD on ROCE

Model	Unstandardized coefficients		Standardized coefficients	T.	Sig.
	Beta	Standard error	Beta		
1 (Constant)	.259	.134		1.999	.059
ENVD	.052	.062	.161	-.743	.479

Note. Source: SPSS V. 23; Dependent variable: ROCE; ENVD: Environmental disclosure; & ROCE: Return on capital employed

However, the unexplained variation is 10%, thus, our model provides a good fit to the data. Durbin Watson suggests that the model is serially correlated since 1.477.

ANOVA result shows F-ratio of .532 shows that the predictor is a major determinant in explaining the dependent variable (**Table 8**). It is also seen that the predictor has an insignificant effect on the dependent variable at .479>.05.

$$ROCE = 0.259 + 0.052ENVD + 0.05$$

The data in **Table 9** shows that environmental disclosure has positive effect on ROCE. This effect is however insignificant as .059>.05. Sequel to this, we accepted the null hypothesis that Environmental disclosure has no significant effect on ROCE. This negates the findings of Malcom (2007) which suggested that environmental disclosure is negatively associated with company financial performance. Somewhat in agreement (positive effect) and somewhat in disagreement (significant) with our result, Adediran and Alade (2013), Emuebie et al. (2021), Iliemena (2020), and Muffee (2021) in earlier studies both found significant positive relationship between environmental accounting and performance using ROCE, net profit and dividend per share as performance indices. Nwobu (2015) in her study found only a small positive correlation of 0.28 between SR index and profit after tax, which also measures financial performance just like ROCE. The results generated by Ahmad et al. (2018), which found a positive but insignificant relationship between environmental accounting and specific financial performance measures, is further in line with our study. Norhasimah (2016) in his study further reported a significant relationship existing between environmental disclosure and profit margin, which agrees with our test result in **Table 9**.

CONCLUSION AND POLICY RECOMMENDATIONS

Our study aimed to investigate the effect of SR on ROCE and GPM using sample of 23 listed manufacturing firms in Nigeria from 2012 to 2021. Social and environmental disclosures were both found to have positive effect on ROCE

and GPM but only the effect on ROCE was found to be significant. The practical implication of this is that as Sustainability disclosure indices increase over time, the ROCE and GPM of reporting companies increase simultaneously. The degree of this increase is significant on ROCE in the short-run and long-run while the degree of the increase in GPM is insignificant in the short-run (the situation might change to be significant in the long run after certain number of years if the scope of the study could be extended as time progresses). Based on the current outcome, our study concluded that SR has significant positive effect on ROCE while it has no significant positive effect on GPM. The theoretical implication supports the initial theories adopted for the study; the stakeholder theory which states that the success of a business indirectly depends on the 'well-being' of its stakeholders as a vital part of the business goal and long-term success. It further re-emphasizes the view of the PIT that corporate performances will improve when organizations begin to pay more attention to sustainability due to the good reputation it brings to the firm. The policy recommendations from the conclusion above are pointed out below:

1. Business organizations should incorporate SR in their reporting system to reap the associated benefit on GPM with high hopes that other things being equal, constant increase in GPM will influence the return on capital to increase significantly at a point.
2. The Financial Reporting Council of Nigeria and other countries should take further step to the standardization of SR. This will enable a uniform standard of reporting among Nigerian companies.
3. Governments across the globe should put in place annual awards and recognition programmes for firms with 100% disclosure to encourage a more sustainability-driven economy especially as we aim to achieve the sustainable development goals of the UN.

Limitations and Suggestions for Further Study

As the scope of this study only covered 2012 to 2021 financial years as constrained by currently available financial and qualitative information, future studies may be carried out

to increase the scope to more recent years with more available information, especially as new standards and guidelines keep outdated the existing ones. Also, being that our study focused only on Nigerian firms and still constrained to one sector (the manufacturing sector), future studies may be carried out to compare our result across other different countries or across different sectors.

Contribution to Knowledge

As a contribution to knowledge, this study provided further empirical validation to the benefits of SR on financial performance of companies from the aspect of ROCE and GPM. It also forms one of the few contemporary studies anchored on both ancient (stakeholder theory) and modern (PIT) theories. It is also an additional contribution that this evidence is rooted in a developing country where adoption and practice level of SR is observably poor

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REFERENCES

- Adediran, S. A., & Alade, S. O (2013). The impact of environmental accounting on corporate performance in Nigeria. *European Journal of Business and Management*, 5(23), 141-151.
- Ahmad, M., Waseer, W. A., Hussain, S., & Ammara, U. (2018). Relationship between environmental accounting and non-financial firms performance: An empirical analysis of selected firms listed in Pakistan Stock Exchange, Pakistan. *Advances in Social Sciences Research Journal*, 5(1), 197-209. <https://doi.org/10.14738/assrj.52.4139>
- Aisyah, F. C., & Basuki, B. (2017). The study of sustainability report disclosure aspects and their impact on the companies' performance. *SHS Web Conferences*, 34, 1-5.
- Amedu, J. M., Iliemena, R. O., & Umaigba, F. T. (2019). Value relevance of sustainability reporting in Nigerian manufacturing companies. *Journal of Global Accounting*, 6(2), 131-147.
- Aondoakaa, K. (2015). Impact of sustainability reporting on corporate performance of selected quoted companies in Nigeria. *Journal of Accounting*, 5(1), 65-93.
- Asuquo, A., Dada, E. T., & Onyeogaziri, U. R. (2018). The effect of sustainability reporting on corporate performance of selected quoted brewery firms in Nigeria. *International Journal of Business & Law Research*, 6(3), 1-10.
- Bhatia, A., & Tuli, S. (2017). Corporate attributes affecting sustainability reporting: An Indian perspective. *International Journal of Law and Management*, 59(3), 322-340. <https://doi.org/10.1108/IJLMA-11-2015-0057>
- Burhan, A. N., & Rahmanti (2012). Impact of sustainability reporting on company performance. *Journal of Economics, Business and Accountancy Ventures*, 15(2), 257-272. <https://doi.org/10.14414/jebav.v15i2.79>
- Chukwuka, E. J., & Eboh, E. A. (2018). Effect of green business practices on organizational performance of selected manufacturing firms in Nigeria. *International Journal of Development and Management Review*, 13(1), 1-26. <https://doi.org/10.12816/0044426>
- Elkington, J. (2004). Enter the triple bottom line, in A. Henriques, & J. Richardson(eds), *The triple bottom line: Does it all add up? Assessing the sustainability of business and CSR* (pp. 1-16). London: Routledge. <https://doi.org/10.1108/13598540910941948>
- Emuebie, E., Olaoye, S. A., & Ogundajo, G. (2021). Effect of social and environmental disclosure on the performance of listed consumer goods producing companies in Nigeria. *International Journal of Applied Economics, Finance and Accounting*, 11(1), 35-47. <https://doi.org/10.33094/8.2017.2021.111.35.47>
- GRI. (2011). Sustainability reporting guidelines, version 3.1. *Global Reporting Initiative*. <http://www.globalreporting.org>
- GRI. (2013). G4 sustainability reporting guidelines: Reporting principles and standard disclosure. *Global Reporting Initiative*. <http://www.globalreporting.org>
- GRI. (2019). G4 sustainability reporting guidelines. *Global Reporting Initiative*. <https://www2.globalreporting.org/standards/g4/Pages/default.aspx>
- Guler, A., Asli, A., & Ozlem, K. (2010). Managing corporate performance: Investigating the relationship between corporate social responsibility and financial performance in emerging markets. *International Journal of Productivity and Performance Management*, 59(3), 229-254. <https://doi.org/10.1108/17410401011023573>
- Ibrahim, N., & Kurfi, S. A. (2021). Environmental accounting, firms' characteristics, and performance of listed cement manufacturing companies in Nigeria. *Journal of Accounting and Finance Research*, 2(1), 44-59.
- Iliemena, R. O. (2020). Environmental accounting practices and corporate performance: Study of listed oil and gas companies in Nigeria. *European Journal of Business and Management*, 12(22), 58-70.
- Iliemena, R. O., & Ijeoma, N. B. (2019). *Effect of sustainability reporting on firm performance* [Unpublished seminar hardcopy]. Nnamdi Azikiwe University.
- Iliemena, R. O., Egolum, P. U., & Agu, S. I. (2021). Corporate resources and socio-economic sustainability of firms in Nigeria in the post COVID-19 pandemic era. *Global Research Journal of Business Management*, 1(1), 2-20.
- Iliemena, R. O., Egolum, P. U., Goodluck, H. C., & Ozue, C. C. (2022). Material resources management as means to satisfactory profit and environmental sustainability: Looking beyond COVID-19 pandemic era. *European Journal of Accounting, Auditing and Finance Research*, 10(1), 55-70. <https://doi.org/10.37745/ejaaf.vol10no1p55-70>

- Jones, S., Frost, G., Loftus, J., & Vander Laan, S. (2007). An empirical examination of the market returns and financial performance of entities engaged in sustainability reporting. *Australian Accounting Review*, 17(1), 78-87. <https://doi.org/10.1111/j.1835-2561.2007.tb00456.x>
- Lawrence, M. (2022). Sustainability reporting and financial performance of companies listed in the Nigeria Stock Exchange. *European Journal of Accounting, Auditing and Finance Research*, 10(5), 25-73. <https://doi.org/10.37745/ejaaf.2013/vol10n5pp2573>
- Malcolm, S., Khadijah, Y., & Ahmad, M. A. (2007). Environmental disclosure and performance reporting in Malaysia. *Asian Review of Accounting*, 15(2), 185-199. <https://doi.org/10.1108/13217340710823387>
- Muffee, V. W. (2021). The effects of environmental accounting on corporate performance (an empirical study of some companies in MAGZI Ombe). *International Journal of Economics, Commerce and Management*, 9(10), 163-199.
- Murray, A. (2010). Do markets value companies' social and environmental activity? An inquiry into associations among social disclosure, social performance and financial performance [PhD thesis, University of Glasgow].
- Nguyen, N. (2018). The effect of corporate social responsibility disclosure on financial performance: Evidence from credit institutions in Vietnam. *Asian Social Science*, 14(4), 109-120. <https://doi.org/10.5539/ass.v14n4p109>
- Ngwakwe, C. C. (2008). Environmental responsibility and firm performance: Evidence from Nigeria. *International Journal of Social, Management, Economics and Business Engineering*, 2(10), 187-194.
- Nigerian Exchange Group Fact Book. (2022). *X-factbook*. <https://ngxgroup.com/exchange/data/x-factbook/>
- Norhasimah. (2016). The effects of environmental disclosure on financial performance in Malaysia. *Procedia-Economics and Finance*, 35(1), 117-126. [https://doi.org/10.1016/S2212-5671\(16\)00016-2](https://doi.org/10.1016/S2212-5671(16)00016-2)
- Nwobu, O. (2015). The relationship between corporate sustainability reporting and profitability and shareholders fund in Nigerian banks. *Journal of Accounting and Management*, 5(3), 1-12.
- Okoye, E. I., & Adeniyi, S. I. (2018). Company age and voluntary corporate social disclosure in Nigeria: A study of selected listed manufacturing firms on the Nigerian Stock Exchange. *Academic Journal of Economic Studies*, 4(2) 138-145.
- Owolabi, A. (2010). Corporate social responsibility disclosures of Nigerian companies from 2006 to 2010. *International Journal of Research in Management, Economics and Commerce*, 7(9), 90-99.
- Reddy, K., & Gordon, L. W. (2010). The effect of sustainability reporting on financial performance: An empirical study using listed companies. *Journal of Asia Entrepreneurship and Sustainability*, 6(2), 19-42.
- Uwuigbe, U. (2011). *Corporate environmental reporting practices: A comparative study of Nigerian and South African firms* [Unpublished PhD thesis]. Covenant University.
- Wilkinson, J. (2013). Net profit margin analysis. *The strategic CFO*. <http://www.strategiccfo.com>
- Will, K. (2018). Financial performance: What is financial performance? *Investopedia*. <https://www.investopedia.com/terms/f/financialperformance.asp>
- Wissink, R. B. A. (2012). *A test of the virtuous cycle of corporate social responsibility: Testing the relation between corporate social performance and corporate financial performance* [Master's thesis, University of Twente].

APPENDIX A

List of Selected Companies Quoted on Nigerian Stock Exchange

A. Industrial goods companies

1. Berger Paints plc*
2. CAP plc*
3. Cutix plc*
4. Premier Paints*
5. First Aluminium Nigeria plc*
6. Aluminium Extrusion Industries
7. Notore Chemical Industries
8. B.O.C. Gases Nigeria
9. Thomas Wyatt Nigeria plc

B. Oil and gas companies

10. Total Nigeria plc*
11. Oando plc*
12. Eterna plc*
13. Conoil plc*

C. Consumer goods companies

14. Cadbury Nigeria Plc*
15. Champion Breweries plc *
16. DN Tyre and Rubber plc *
17. Flour Mills Nigeria Plc *
18. Guinness Nigeria plc *
19. International Breweries plc *
20. N. Nigeria Flourmills plc *
21. Nascon Allied Industries plc *
22. Nestle Nigeria plc *
23. Nigerian Breweries plc *
24. Nigerian Enamel Ware plc *
25. PZ Cussons Nigeria plc *
26. Unilever Nigeria plc *
27. Vita Foam Nigeria Plc
28. Meyer plc*

Note. Only the 23 asterisked companies met the sampling criteria

APPENDIX B

List of Sampled Firms

1. Total Nigeria plc
2. Oando plc
3. Berger Paints plc
4. CAP plc
5. Cutix plc
6. Premier Paints
7. Eternal plc
8. Conoil plc
9. Cadbury Nigeria Plc
10. Champion breweries plc
11. DN Tyre and Rubber plc
12. Flour Mills Nigeria Plc
13. Guinness Nigeria Plc
14. International Breweries Plc
15. N. Nigeria Flourmills plc
16. Nascon Allied Industries plc
17. Nestle Nigeria plc
18. Nigerian Breweries plc
19. Nigerian Enamel Ware plc
20. PZ Cussons Nigeria plc
21. Unilever Nigeria plc
22. First Aluminium Nigeria
23. Meyer