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Corporate environmental reporting components and return on capital employed growth of the Nigerian listed manufacturing companies: An empirical analysis

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ABSTRACT

This study explored the impact of corporate environmental reporting components on the growth of the return on capital employed in Nigerian listed manufacturing firms. The study adopted an ex post facto research design. 39 manufacturing businesses listed on the Nigeria Stock Exchange provided secondary data over the research period (2010-2109). The multiple regression statistical approach was used to analyse the data. This study made use of a quantitative research strategy. While environmental non-financial information did not show any significant influence on the return on capital employed growth of identified manufacturing organisations in Nigeria, results showed that environmental financial and performance information had a significant and beneficial impact. However, the data demonstrated that the integration of all aspects of corporate environmental reporting positively and statistically significantly influenced ROCE growth in Nigeria's listed manufacturing businesses. A future study could expand the population of the study to include non-manufacturing companies in other industries. The implication of these results is that the manufacturing companies in Nigeria need to pay more attention to environmental, financial, and environmental performance information to enhance their return on capital employed growth. The writers were unable to locate any prior research that demonstrated this connection. Additionally, corporate environmental reporting components impact the growth of return on capital employed in listed manufacturing businesses in Nigeria, and this research provides new and significant findings in this area.

Contribution/Originality: The writers were unable to locate any prior research that demonstrated this connection. Corporate environmental reporting components impact the growth of return on capital employed (ROCE) for listed manufacturing businesses in Nigeria, and this research provides new and significant findings in this area.

1. INTRODUCTION

Shareholders and other stakeholders are interested in the information about how the company with which they have a relationship is doing. Having access to this information enhances the stakeholders' informed business actions when dealing with such a company. The ability of the business organisation to efficiently manage its assets will be reflected in one of its performance measures, namely, the return on capital employed (Jeevitha & Rema, 2022). Return on capital employed measures the efficient use of capital by the management of the company in generating profit (Chena & Liu, 2022). It is the measure of how well the management of the company puts the company's capital into use in order to generate the expected profit that will make the company healthy financially from the stakeholders' perspective (Okpe, Emmanuel, & Blessing, 2022). It is a profitability ratio that showcases the results of organisational management decisions (Iliemena, Amedu, & Uagbale, 2023). Good business decisions made by the organisational management in the past will result in a good return on capital employed, while bad business decisions made by the management in the past will generate a bad return on capital employed (Gololo, 2019; Kenton, 2019). Return on capital employed is one financial statistic that can be used to evaluate a business's profitability and capital efficiency (Kenton, 2019).

Investors regard this performance ratio as reliable, as most of them use this profitability ratio when looking for a business organisation to invest in (Kristic, Bonic, Radenovic, Vujatovic, & Ognjanovic, 2023). The performance ratio is useful for the company's stakeholders, particularly when comparing the performance of other companies with the same amount of capital. It is instrumental in performance comparison among capital-intensive business organisations such as telecommunications and utilities companies. Stakeholders consider it to be reliable because it takes into consideration the shareholders' equity, debts, and other liabilities in determining the performance of the business organisation. This financial performance ratio exposes the companies to huge amounts of debt, thus giving the organisational stakeholders better tools to use during the decision-making process. By subtracting current liabilities from total assets, one may get the capital employed, which is the full sum of capital that the business organisation employs for its commercial operations. Operating profit, or profits before interest and tax divided by the capital employed, is the return on the capital invested (Abdulkadir & Usman, 2023).

Gololo (2019) examined the impact of corporate social responsibility (CSR) disclosure on financial performance, as measured by return on capital employed, in a sample of listed Nigerian manufacturing enterprises. A favourable and statistically significant relationship between CSR disclosure and return on capital employed was found in the research. Listed manufacturing businesses that want to see an increase in their return on capital employed should look out for the local community and environment.

Makori and Jagongo (2013) investigated the correlation between environmental accounting and ROCE. Fourteen Indian corporations traded on the Bombay Stock Exchange, which provided them with secondary data in the form of annual reports and financial statements. The data was analysed using a linear multiple regression model. The study's findings indicate a significant inverse relationship between environmental accounting and return on capital employed. Capital employed is not substantially contributing to the profitability of the firms in the research when it comes to the problem of environmental accounting and return on capital employed. Additionally, they found that compared to medium-sized businesses, large corporations provide more environmental details in their annual reports. Their final recommendation was that the government mandate the release of all environmental data. They advocated for the idea of offering tax incentives to businesses that follow all environmental requirements. They claim that businesses would benefit most from following environmental laws and regulations as doing so will boost their efficiency.

Environmental and social expenses were studied by Agbiogwu, Ihendinihu, and Okafor (2016) and their effects on 10 Nigerian manufacturing enterprises. Companies' annual reports and financial summaries were used as secondary sources of data. We used a T-test to examine the data and determine the accuracy of the study's hypotheses. Environmental and social costs significantly impacted the manufacturing enterprises' performance, according to the research. Researchers found that environmental and social expenses significantly impacted the financial results of the participating industrial firms. They argued that the government ought to mandate the release of environmental data. They said that in order to encourage management to follow environmental requirements, the government should provide financial incentives and recognition for excellent performance.

Oti and Mbu-Ogar (2018) examined the relationship between the financial performance proxies of Nigerian oil and gas companies listed on stock exchanges and the environmental and social reporting proxies of worker safety and waste management. Ordinary least squares regression analysis was performed on data related to the oil and gas business. There is conflicting evidence in the study's conclusions about the relationship between worker health and safety and ROI. A favourable return on invested capital is significantly impacted by waste management. Even though the findings were contradictory, they did come to the conclusion that social and environmental data is critical for oil and gas firms to improve their bottom lines.

They said that oil and gas firms should invest money in worker safety and health because it would increase their enterprises' worth. Since non-interruptive businesses need a quiet setting to conduct their operations, they stressed the significance of looking out for the host community and staff. They worry that businesses may run into trouble if they disregard the needs of their workers and the local community. To lessen the negative effects of corporate operations on ecosystems and other interested parties, they suggested that corporations regularly review and revise their waste management policies and use eco-friendly technological solutions. They said that the firms' financial performance would improve as a result of these actions.

The question of return on capital employed growth has been a major issue in both the existing literature and in reality. Manufacturing firms have employed different strategies to address these issues; however, there have been mixed results in this research. Soetan, Adegbie, and Akintoye (2020) suggested that we should investigate the potential impact of corporate environmental reporting on the growth of return on capital employed. A need for this is hinged on the position of Soetan, Oyetunji, and Lawal (2018) which contends that companies who disclose their sustainability efforts will likely see an improvement in their bottom line. In that instance, if a company decides to disclose in one year and then increases its return on equity, return on assets, and profit margin in the subsequent year, then there is a positive association. The goal of environmental reporting is to hold organisations responsible for their impact on the environment and to serve as a powerful instrument for environmental communication. Consequently, environmental reports should have certain common elements or contents. Hence, a case for this study. The rest of the study is structured as follows; literature review and hypothesis development, theoretical review (legitimacy theory), corporate environmental reporting components and return on capital employed growth, methods, model specification, results and interpretation, discussion of findings, conclusions, and limitations.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Corporate Environmental Reporting Components and Return on Capital Employed Growth

Thirteen (13) oil and gas firms traded on the Nigerian Stock Exchange were the focus of research by Etale and Otuya (2018). Data for the research came from secondary sources, namely the annual reports of the selected firms. We used the simple least squares regression model. The study's results showed that environmental responsibility reporting and financial success, as measured by return on capital employed, had a strong positive association. The study's participants submit minimal data about the environmental impacts of their operations due to the lack of disclosure requirements for environmental information. They came to the conclusion that reportage on environmental issues in Nigeria is changing. Additionally, they stated that larger corporations convey more accurate information in their annual reports. They suggested that the government should establish all environmental standards and guidelines that businesses must adhere to. They said this would make their businesses more competitive.

The disclosure of information in a company's annual reports can greatly diminish, if not eliminate, the information gap between its management and its stakeholders. Shareholders, investors, suppliers, and lenders are all considered stakeholders in a company, and they rely on knowledge in order to make informed choices. Having access to the information necessary to make business choices improves the likelihood of these stakeholders making better judgements. The authors Ofoegbu and Odoemelam (2018) looked at non-financial businesses listed on the

NSE and how voluntary disclosure compared to the mandated disclosure required by IFRS regarding return on capital employed (a performance proxy). They used content and regression analysis with sixty-four (64) selected businesses and 384 firm-year observations. The study's results showed that the listed businesses' performance (as measured by return on capital employed) was positively correlated with the information disclosure (voluntary and mandatory disclosures); however, the correlation was weak and not statistically significant.

Erhinyoja and Marcella (2019) found that disclosing social and environmental information had a negative impact on return on capital employed; however, it was not statistically significant. They looked at the Nigerian oil and gas industry's financial performance (as measured by return on capital employed) and corporate social sustainability reporting. They culled ten(10) years of data, spanning 2007–2016, from ten(10) oil and gas firms traded on the Nigerian Stock Exchange. They utilized descriptive statistics and multiple regression to interpret the data. They came to the conclusion that the lack of consensus on social ethical reporting requirements and the fact that environmentally friendly disclosure is entirely voluntary might be to blame for the non-significant detrimental impact of environmental and social disclosure on return on capital employed. In their view, the current system of voluntary sustainability reporting should be replaced with obligatory corporate sustainability reporting and the appropriate regulatory bodies should coordinate the several international standards governing sustainability.

Eleven(11) oil and gas firms traded on the Nigerian Stock Exchange were the subject of Polycarp (2019) examination of environmental accounting and financial performance. We examined the data collected from the participating firms over a three-year period, from 2015 to 2017, using descriptive and regression statistical approaches. Environmental information disclosure was shown to have a positive, but not statistically significant, correlation with return on capital employed (ROCE), a measure of financial success. Despite finding an adverse association between environmental information disclosure and return on capital employed, the research nevertheless maintains that disclosing environmental information is desirable. Companies that disclose their environmental efforts willingly have a higher probability of being competitive, according to the research.

Despite the time difference, none of the two studies we looked at above found anything statistically significant. Both studies used data obtained from the firms over a longer period of time; however, the second research only used data collected over a three-year period. The low degree of transparency in Nigeria on firms' environmental activities may explain why both studies used the same approach and came to the same non-significant conclusion. Based on these findings, it seems that the disclosure of information about firms' environmental operations is not getting better. There is a pattern to the reporting of information on environmental activities in the investigated sector, and the evaluated papers all belong to the same sector.

In order to enable consumers of information to make educated business and economic choices and to decrease information asymmetry between stakeholders and firms, it is essential that companies provide information in their annual reports. Unuagbon and Oziegbe (2016) evaluated the importance of return on capital employed to the voluntary disclosure of Nigerian listed businesses. Return on capital employed is a measure of corporate performance. We used ordinary least squares regression technique to sift through data from Nigerian Stock Exchange-listed firms. The research found a favourable and statistically significant correlation between voluntary disclosure and return on capital employed. The study's main finding is that annual reports should provide detailed information about a company's operations so that stakeholders, particularly investors, may make educated financial and commercial choices. To close the information gap between businesses and their many stakeholder groups, the regulatory bodies, in charge of ensuring that firms' annual reports provide relevant information should promote such disclosure. They said that an adequate punishment programme should be established to guarantee adherence to accounting standards for the disclosure of information, and that there should be strong monitoring of the disclosure of information in the annual financial statement.

Return on capital employed (ROCE) is a measure of a manufacturing company's performance in Nigeria. Iheduru and Chukwuma (2019) looked at how environmental, social and governance (ESG) factors affected ROCE.

A total of fourteen (14) manufacturing businesses trading on the Nigeria Stock Exchange were surveyed for this research. We used statistical methods for descriptive and regression analysis to examine the gathered data. Environmental and social costs were shown to have a strong negative correlation with return on capital utilised, according to the research. Researchers found that few businesses really disclose in their annual reports how their operations affect the environment. Consequently, they petitioned the government to require corporations to provide details on their environmental initiatives in their yearly reports.

Difference in sample size may explain the discrepancy in results across the aforementioned research. The second research used a sample size of fourteen (14) instead of fifty (50) like the previous study did. When it comes to sample size, research matters, because a larger sample makes the study's results more reliable. Thus, it is possible that the discrepancy in the outcomes between the two research is due to the fact that the samples used in the two investigations were different.

Environmental accounting disclosures and return on capital were studied by Ezeagba, John-Akamelu, and Umeoduagu (2017) in reference to a subset of Nigerian food and beverage industries. As many as one hundred (100) businesses contributed to the study's data set. We examined the gathered data using statistical methods such as descriptive statistics, the Pearson or correlation coefficient, and analysis of variance. he data that was gathered were examined using statistical methods such as descriptive statistics, the Pearson correlation coefficient, and analysis of variance. The study's results showed that the relationship between environmental disclosures and return on capital employed did not have a meaningful link. It was determined that the study's findings might be linked to the fact that the majority of corporations do not prioritise environmental information reporting. Their argument was that top-down support, high implementation costs, and a lack of legally binding environmental norms and regulations were to blame.

Using data from 85 businesses traded on India's Bombay Stock Exchange, Malarvizhi (2016) determined if environmental information disclosure was relevant to ROCE. Regression of the data retrieved from the sustainability reports and annual reports of the participating firms was done using regression and correlation statistical approaches. The study's findings revealed a negative but non-significant link between environmental information disclosure and return on capital employed. Researchers in India came to the conclusion that this may be because fewer Indian businesses provide environmental data. They demanded that the government do more to make businesses follow environmental laws and regulations while also taking action against those that disobeyed. According to the above literature review, the following hypotheses were formulated:

H_{01}: Environmental Financial Information has no significant effect on the Return on Capital Employed Growth of the Nigerian listed manufacturing companies.

H_{02}: Environmental Non-financial Information has no significant effect on the Return on Capital Employed Growth of the Nigerian listed manufacturing companies.

H_{03}: Environmental Performance Information has no significant effect on the Return on Capital Employed Growth of the Nigerian listed manufacturing companies.

3. THEORETICAL REVIEW

3.1. Legitimacy Theory

When it comes to understanding how a company interacts with its many constituents, legitimacy theory is the way to go. Dowling and Pfeffer (1975) laid the groundwork for legitimacy theory. Corporations affect both the ecosystems in which they operate and the people who live there via their daily operations. For the corporation to operate successfully, its various stakeholders must trust it. The ability of the corporation to present itself to its neighbour as a trustworthy entity in terms of disclosing the impact of its business activities on the environment is germane to the survival and sustainability of the corporation. The corporation must meet the expectations of society to a certain extent. The corporation needs to maintain cordial relationships with its neighbours, as this is necessary for its long-term existence. Legitimacy theory is one of the theories used to explain the relationship between the company and its neighbour, especially in terms of legitimising its existence and its continuing existence in society. A company must consider its environment and other stakeholders in its business activities to maintain legitimacy in society (Guthrie, Cuganesan, & Ward, 2006; Portella & Borba, 2020).

The corporation must consistently provide a rationale for its existence to society by disclosing the benefits the society is enjoying from its existence. The only reason a corporation exists is because society needs its goods and services. At any point in time, that the society believes the corporation's business activities are not in the best interest of the society, it may take several actions that may put the existence of the corporation at risk. The organisation can decide to refuse to order goods and services from the corporation as well as refuse to provide labour to the corporation. The society may even make it difficult for the company to have access to the natural resources needed for its business. The corporation is responsible for defending its legitimacy in society by constantly disclosing the economic and other benefits the society is enjoying and will continue to enjoy from its existence. It must be in the mind of the organisational management that the society has the power to renew the legitimacy of the corporation or to deny it (Mahmood, Kouser, & Masud, 2019; Zyznarska-Dworczak, 2018).

As indicated by Mousa and Hassan (2015) legitimacy theory is "logical reasoning in the form of set broad principles by which environmental disclosure practice can be explained or may be predicated" (p. 48). Providing information about the organisation's social and environmental data to the various stakeholders is crucial to the image of the organisation. The company can suffer a severe setback or face an imminent threat of closure if its environmental behaviour differs from societal expectations. The company is responsible for acting in ethical faith by meeting societal expectations, as its survival depends on the acceptance of its existence in society. The company cannot compel itself to function in an unwelcome environment. The company bears the responsibility of justifying its operations or business activities in specific environments. The company needs to deliver the benefits that its neighbours will enjoy if it is allowed to operate in their environment. The company needs to make its neighbours realise that they need its products and services; thus, its existence in their environment is in their best interest. The disclosure of the environmental practices is vital to the legitimisation of the company, as it can only grow when its existence is legitimised (Girón, Kazemikhasragh, Cicchiello, & Panetti, 2021). This theory is relevant to this study because following the assumptions of this theory will enhance the return on capital employed growth of the business organisation.

4. METHODS

A research design known as ex post facto was utilised in this study. The research strategy's data type is the driving force behind its selection. The use of secondary data necessitated the adoption of an ex post facto research strategy. This study aligns well with the current research design. The research included 49 manufacturing businesses that were listed on the NSE as of December 31, 2019 (NSE, 2019). The data for this study were collected to reflect the true nature of things before COVID-19 pandemic. We used a sample of 39 manufacturing enterprises for this research. Researchers used a convenience sampling method in this investigation. The reasoning for this sample method was that some of the manufacturing businesses listed on the Nigerian Stock Exchange had comprehensive data, while others did not. We gathered secondary data from from the annual reports of these industrial businesses posted on the Nigerian Stock Exchange. Both internal and external auditors, in addition to the board of directors' audit committee, attested to the accuracy of these yearly reports. All of the manufacturing businesses that were a part of this research have had their annual reports certified by regulatory bodies such as the Nigerian Security Exchange, the Central Bank of Nigeria, and the National Association of Securities Dealers Automated Quotations (NASDAQ). All of these procedures guaranteed the reliability and validity of the data acquired for this investigation. The data for this research was analysed using the multiple regression statistical approach. To study the impact of environmental disclosure procedures on the rate of increase of return on capital employed for listed manufacturing companies in Nigeria, we used environmental financial information (EFI), environmental non-financial information (ENFI), and environmental performance information (EPI) as our metrics.

Based on the existing studies of Soetan et al. (2020) and Soetan et al. (2018) the legitimacy theory. The model shows the interactions between corporate environmental reporting components (environmental financial information, environmental non-financial information, and environmental performance information) and return on capital employed growth. The specifications for this study model are as follows:

$$ROCEG_{it} = f\,(EFI_{it}, ENFI_{it}, EPI_{it})$$

$$ROCEG_{it} = \beta_0 + \beta_1 EFI_{it} + \beta_2 ENFI_{it} + \beta_3 EPI_{it} + \mu_{it}$$

Where:

ROCEG = Return on capital employed growth.

EFI = Environmental Financial Information.

ENFI = Environmental Non-financial Information.

EPI = Environmental Performance Information.

β_0 is a constant.

$\beta_1, \beta_2, \beta_3$, are coefficient estimators.

μ is the error term.

Table 1. Corporate environmental reporting components and return on capital employed growth.

Dependent variable: ROCEG				
Variables	**Pooled OLS**	**Random effect**	**Fixed effect**	**Feasible generalized least squares (FGLS)**
Coefficient–EFI	0.028	0.126***	0.014	0.028***
Standard error	(0.022)	(0.032)	(0.071)	(0.007)
T-test	1.301	3.938	0.203	3.726
Probability value	0.194	0.000	0.839	0.000
Coefficient–ENFI	0.019	0.014	-0.032	0.038
Standard error	(0.100)	(0.140)	(0.292)	(0.037)
T-test	0.186	0.103	-0.108	1.040
Probability value	0.853	0.918	0.914	0.298
Coefficient–EPI	0.101	0.308***	0.111	-0.095*
Standard error	(0.210)	(0.106)	(0.620)	(0.056)
T-test	0.481	2.906	0.179	-1.680
Probability value	0.631	0.001	0.858	0.093
Coefficient –constant	-0.071	-0.074	-0.031	0.159**
Standard error	(0.211)	(0.304)	(0.723)	(0.066)
T-test	-0.335	-0.243	-0.043	2.399
Probability value	0.738	0.808	0.966	0.016
Panel B: Diagnostic test				
Adjusted R^2	0.315	0.342	0.361	0.361
F-test	61.247(0.00)	-	86.064(0.00)	-
Wald test	-	75.793(0.00)	-	21.40(0.00)
Hausman test	-	-	0.17(0.982)	-
Bresuch-Pagan (Reduction of error) RE test	-	31.27(0.00)	-	-
Heteroscedasticity test	-	-	36.064(0.00)	-
Pesaran estimated mean severity ratings (CSID)	-	-	-1.431(0.15)	-
Serial correlation test	-	-	0.03(0.87)	-
Observations	390	390	390	390

Note: Results are shown in Table 1. Corporate environmental reporting components' impacts on the increase of return on capital employed for listed manufacturing businesses in Nigeria: Pooled ordinary least squares (OLS), fixed effects (FS), random effects (RLS), and feasible generalised linear model (GLM) regression findings. The growth rate of return on invested capital is the dependent variable in this analysis. The environmental performance information (EPI), environmental non-financial information (ENFI), and environmental financial information (EFI) are the factors that explain the relationship. Enclosed in brackets is the standard error value. * At the 10% level, ** At the 5% level, and *** At the 1% level, it is significant.

Source: Researcher's computation (2021).

The model was formulated to incorporate environmental financial information, environmental non-financial information, and environmental performance information. Previous studies, including Soetan et al. (2020) and Soetan et al. (2018) did not use these variables. These variables were used because the reflect the true nature of corporate environmental reporting components.

5. RESULTS

5.1. Interpretation

$$ROCEG_{it} = \beta_0 + \beta_1 EFI_{it} + \beta_2 ENFI_{it} + \beta_3 EPI_{it} + \mu_i$$

$$ROCEG_{it} = -0.074 + 0.126EFI_{it} + 0.014ENFI_{it} + 0.308EPI_{it}$$

$$T - Test = -0.243 \quad 3.938 \quad 0.103 \quad 2.906$$

Table 1 of the regression analysis shows the impact of corporate environmental reporting components on the increase in the return on capital employed for listed manufacturing businesses in Nigeria. The findings indicate that environmental financial information, environmental non-financial information, and environmental performance information positively impact the growth of return on capital employed for listed Nigerian manufacturing businesses.

Traded manufacturing organisations in Nigeria show a positive and significant effect on the growth of return on capital employed when considering environmental, financial, and environmental performance information (EFI= 0.126, t-test= 3.938, $p < 0.05$, and EPI = 0.308, t-test= 2.906, $p < 0.05$, respectively). This suggests that listed Nigerian manufacturing businesses' environmental, financial, and performance data have a substantial role in determining how their return on capital employed grows.

On the other side, there is data that shows that listed Nigerian manufacturing enterprises' return on capital employed growth is unaffected by environmental non-financial information (ENFI= 0.014, t-test= 0.103, $p > 0.05$). This further suggests that non-financial environmental data does not play a substantial role in determining how listed Nigerian manufacturing businesses' return on capital employed grows.

Regarding the size of the parameter estimates for the regression analysis's coefficients, listed Nigerian manufacturing companies' return on capital employed growth will increase by 0.126, 0.014, and 0.308 units, respectively, when financial information, environmental non-financial information, and environmental performance information are all increased by one unit.

A little over one-third of the variation in ROCE for Nigerian listed manufacturing companies can be explained by the Adjusted R2, which quantifies the extent to which shifts in environmental, financial, environmental non-financial, and environmental information about performance impact ROCE expansion. The model only accounts for 36% of the variation in ROCE growth across Nigerian listed manufacturing businesses; the remaining 66% is attributable to other variables.

The Wald Test with a significance level of 75.793 and a $p < 0.05$ or less showed that the null hypothesis, which said that the parts of corporate environmental reporting have no significant effect on the rise of return on capital employed for listed manufacturing companies in Nigeria, was not supported. As a result, the alternative hypothesis—which holds that the elements of corporate environmental reporting have a major influence on the rise in return on capital used by Nigerian listed manufacturing companies—is accepted.

6. DISCUSSION OF FINDINGS

Table 1 illustrates the impact of corporate environmental reporting components on the increase in return on capital employed. The metrics of corporate environmental reporting components, encompassing environmental, financial, and and non-financial information, positively influence the growth of return on capital employed. While environmental non-financial information does have a favourable influence on return on capital employed growth, it is not statistically significant. In contrast, environmental, financial, and environmental performance information all significantly affect return on capital employed change.

Businesses have a better chance of winning over their stakeholders if they participate in eco-friendly business practices and publicise these efforts in their annual reports. In theory, one can gain a better understanding of a company's environmental position by perusing its annual report and learning about its environmental initiatives. Organisational development in return on capital employed is enhanced when they participate in environmentally friendly business operations, according to Table 1. Environmental financial information and environmental performance information, which measure corporate environmental reporting components, have a positive and significant impact on the growth of return on capital employed. Nonetheless, there is a favourable correlation between environmental non-financial data and ROCE increase. Engaging with environmental non-financial information and reporting it can help companies increase their return on capital employed.

The aggregated measures of environmental performance information, environmental non-financial information, financial information, and environmental information, as they relate to corporate environmental reporting in Nigeria, significantly influence the growth of return on capital employed. To improve the increase in return on capital employed, corporate environmental reporting components are vital, as this indicates. For listed manufacturers, this means factoring in the aggregated metrics of corporate ecological reporting components is essential. If this were to happen, businesses would be able to collect the expected return on their capital investments made throughout the accounting timeframe. A good return on capital employed would be achieved by the commercial groups that accomplish this.

Additionally, the legitimacy hypothesis is consistent with Table 1's results. A good return on capital employed growth can only be achieved by business organisations when all of their stakeholders are in favour of their continuation.

The business organisations cannot force themselves on the host community unless the host community sees the reason or reasons for the existence of such business organisations in its community. It is when the environment in which business organisations operate is peaceful that their business activities can thrive. That is, peaceful co-existence between the business organisations and their host community that creates a conducive environment for the smooth running of the business organisation that would result in a positive return on capital employed growth is required.

Agbiogwu et al. (2016) came to the same conclusion as Table 1. The results show that social and environmental expenditures significantly impact the company's bottom line. Companies should focus on improving both their financial and non-financial performance if they want a good return on capital employed growth. Businesses that aren't doing well can't hope to have a healthy return on investment (ROI) since ROI is directly proportional to how well an organisation is doing. Table 1's results are at odds with those of Makori and Jagongo (2013) research. According to their research, there is a negative correlation between environmental actions conducted by organisations and their return on capital employed. A negative return on capital employed growth occurs when a company engages in environmentally friendly initiatives, which raise operating expenses. A persistent drop in return on capital employed could deprive the company entity of the resources necessary for development; thus, it's not good news for commercial organisations when this metric shows negative growth. It is in the best interest of commercial organisations to include environmental concerns during decision-making, regardless of their findings.

Waste management significantly affects return on capital employed (ROCE) in a favourable way; however, worker health and safety did not have any influence (Oti & Mbu-Ogar, 2018) according to the environmental activity indices. One environmental disclosure index supports the results of the research, while the other contradicts them. According to the environmental activity indices, environmental activities may have either a positive or negative impact on ROCE. Environmental information sharing is still something they fight for, even if the research had mixed results. The results shown in Table 1 are consistent with those of the study by Etale and Otuya (2018). Their research shows that there is a strong correlation between reporting on environmental responsibility and return on capital utilised.

The consumers and other organisational stakeholders are not just interested in the outputs of the business organisations. Particularly in this global era of environmental awareness, they seek to understand the production processes behind those outputs. Business organisations that have their products and render their services in environmentally friendly processes stand a better chance of retaining their customers and even attracting more customers. This would result in getting a better return on capital employed than those business organisations that engage in business activities that are environmentally insensitive in producing their products or rendering their services.

Annual reports' users rely on the disclosure of the information to make well-informed business decisions. A favourable, but not statistically significant, correlation between information disclosure and return on capital employed is seen in the research of Ofoegbu and Odoemelam (2018). Their study's conclusions are consistent with this one, even if they're not statistically significant. Businesses see an increase in their return on capital employed (ROCE) when they provide more information, as demonstrated by the positive link. The expansion of return on capital utilised would be positive if the return on capital employed were to increase. This study's results are at odds with those of Erhinyoja and Marcella (2019). Their research shows that disclosing social and environmental information has a negative, although insignificant, impact on ROI. While this study's results show a positive rise in return on capital employed, their research shows that doing business in an eco-friendly way actually decreases ROCE. The results of this research provide hope to companies who are already doing their part to protect the environment and those that are planning to do the same. Nonetheless, their discovery supports the corporate entities that are hesitant to participate in eco-friendly business practices.

The results in Table 1 are consistent with those of the research by Unuagbon and Oziegbe (2016). Their research confirms the relationship between ROCE and voluntary information sharing. Return on capital utilised is positively correlated with environmental actions, according to their data. Compared to companies that don't care about the environment, those that highlight their beneficial impact on the environment are more likely to see an increase in their return on capital employed. Business organisations are expected by their stakeholders to participate in environmental initiatives and disclose these efforts in their yearly reports. When a company is transparent about its environmental practices in its annual report, it shows that it is not trying to conceal anything, which should translate to better returns on investment for the time under review.

The results of this research are at odds with those of Iheduru and Chukwuma (2019) who discovered a negative and statistically significant correlation between social and environmental costs and ROI. This study's findings support the view that environmental cost is an investment that helps businesses increase their return on capital. Nonetheless, their research does not support the idea that corporate organisations would reap benefits from investing in environmental costs. Instead, they see environmental expenditures as an unnecessary expense that would lower the return on capital invested and ultimately stunt company development.

Malarvizhi (2016) found an inverse relationship between environmental information disclosure and returns on capital employed. Despite the lack of statistical significance, their results run counter to this study's conclusion that corporate organisations should prioritise environmental protection in their decision-making processes. Companies aren't prepared to do anything that might hurt their return on capital investment. Return on capital employed is not significantly related to environmental information sharing, according to Ezeagba et al. (2017). Their research found the opposite to be true, because ours found that environmental information disclosure metrics taken together significantly boost ROCE growth.

Based on these results, it seems that listed Nigerian manufacturing company managements that want to increase their return on investment should do what's best for the environment. Results are mixed when looking at the impact of corporate environmental reporting components on the increase of return on capital employed for listed manufacturing businesses in Nigeria. The increase in return on capital employed is positively and significantly affected by the combined metrics of corporate environmental reporting components. In order to get better returns on capital-employed growth, listed manufacturing businesses in Nigeria should conduct their operations in an eco-friendly manner.

7. CONCLUSION

The purpose of this study was to look into how different parts of corporate environmental reporting affect the growth of ROCE in Nigerian listed manufacturing companies. The findings support the theory behind the study. It is not unexpected that companies that do not participate in eco-friendly business practices may struggle to increase their return on capital employed growth, given the level of knowledge among the different organisational stakeholders. The results of this research corroborate the argument. Listed manufacturing businesses in Nigeria were the focus of this research, which aimed to determine how various elements of corporate environmental reporting affected the rise of ROCE. Results showed that listed manufacturing companies in Nigeria experienced a positive and significant effect on ROCE growth when all four components of corporate environmental reporting—environmental, financial, environmental non-financial, and environmental performance information—were considered together. Nevertheless, when examining the study's results from a metric specific to corporate environmental reporting, we find that environmental, financial, and performance data all have a positive and significant impact on the growth of return on capital employed for listed manufacturing companies in Nigeria. The rise of return on capital employed is unaffected by environmental non-financial information for listed manufacturing businesses in Nigeria. Return on capital employed growth is positively affected by environmental non-financial information; however, this impact is not statistically significant. The research revealed a positive and significant impact of corporate environmental reporting elements on the return on capital employed growth of listed Nigerian manufacturing companies. This was based on the fact that all three measures of these components had a beneficial and substantial impact on ROCE growth.

The implication of these results is that the manufacturing companies in Nigeria need to pay more attention to environmental, financial, and environmental performance information to enhance their return on capital employed growth. The findings of this study will also assist various governmental authorities in formulating policies that will aid manufacturing companies in improving their return on capital employed growth.

8. LIMITATION

The purpose of this research was to examine the relationship between the increase in return on capital employed and the components of corporate environmental reporting as they pertain to listed manufacturing businesses in Nigeria. Not all industries with a detrimental effect on the environment may be included in the study's conclusions. However, this study has provided additional insights into the strategies Nigerian listed manufacturing companies can employ to boost their return on capital. Future research can perform a comparative analysis among various industries to determine which industry or industries contribute more to environmental degradation. We used secondary data collected for other purposes in this study. Future research can collect primary data directly from the employees who are knowledgeable about the environmental issues.

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REFERENCES

Abdulkadir, A., & Usman, A. S. (2023). Role of working capital management in achieving financial performance. *African Journal of Management and Business Research, 11*(2), 84-94. https://doi.org/10.24088/ijbea-2023-830015

Agbiogwu, A., Ihendinihu, J., & Okafor, M. (2016). Impact of environmental and social costs on performance of Nigerian manufacturing companies. *International Journal of Economics and Finance, 8*(9), 173-180. https://doi.org/10.5539/ijef.v8n9p173

Chena, Y., & Liu, J. (2022). Seasoned equity offerings, return of capital and agency problem: Empirical evidence from Taiwan. *Asia Pacific Management Review, 27*, 92-105. https://doi.org/10.1016/j.apmrv.2021.05.006

Dowling, J., & Pfeffer, J. (1975). Organisational legitimacy: Social values and organisational behavior. *The Pacific Sociological Review, 18*(1), 122–136. https://doi.org/10.2307/1388226

Erhinyoja, E. F., & Marcella, E. C. (2019). Corporate social sustainability reporting and financial performance of oil and gas industry in Nigeria. *International Journal of Accounting, Finance and Risk Management, 4*(2), 44-60. https://doi.org/10.11648/j.ijafrm.20190402.12

Etale, L., & Otuya, S. (2018). Environmental responsibility reporting and financial performance of quoted oil and gas companies in Nigeria. *European Journal of Business and Innovation Research, 6*(6), 23-34.

Ezeagba, C. E., John-Akamelu, C. R., & Umeoduagu, C. (2017). Environmental accounting disclosures and financial performance: A study of selected food and beverage companies in Nigeria (2006-2015). *International Journal of Academic Research in Business and Social Sciences, 7*(9), 161–174. https://doi.org/10.6007/ijarbss/v7-i9/3315

Girón, A., Kazemikhasragh, A., Cicchiello, A. F., & Panetti, E. (2021). Sustainability reporting and firms' economic performance: Evidence from Asia and Africa. *Journal of the Knowledge Economy, 12*(4), 1741–1759. https://doi.org/10.1007/s13132-020-00693-7

Gololo, I. A. (2019). Corporate social responsibility disclosure and financial performance of quoted Nigerian cement companies. *International Business and Accounting Research Journal, 3*(2), 89. https://doi.org/10.15294/ibarj.v3i2.60

Guthrie, J., Cuganesan, S., & Ward, L. (2006). *Legitimacy theory: A story of reporting social and environmental matters within the Australian food and beverage industry*. Retrieved from http://ssrn.com/abstract=1360518

Iheduru, N. G., & Chukwuma, I. R. (2019). Effect of environmental and social cost on performance of manufacturing companies in Nigeria. *International Journal of Accounting & Finance Review, 4*(2), 5–12. https://doi.org/10.46281/ijafr.v4i2.378

Iliemena, R. O., Amedu, M. J. A., & Uagbale, R. E. (2023). Empirical examination of sustainability reporting, return on capital employed and gross profit margin. *European Journal of Sustainable Development Research, 7*(1), 1-14. https://doi.org/10.29333/ejosdr/12539

Jeevitha, R., & Rema, V. (2022). A critical assessment of the relationship between P/E ratio, RONW and ROCE: A study of FMCG, IT and banking sectors. *SDMIMD Journal of Management, 13*(2), 1-16.

Kenton, W. (2019). *Return on capital employed ROCE definition*. Retrieved from https://www.investopedia.com/terms/r/roce.asp

Kristic, B., Bonic, L., Radenovic, T., Vujatovic, M. J., & Ognjanovic, J. (2023). Improving profitability measurement: Impact of intellectual capital efficiency on return on total employed resources in smart and knowledge-intensive companies. *Sustainability, 15*(12076), 1-18. https://doi.org/10.3390/ su151512076

Mahmood, Z., Kouser, R., & Masud, A. K. (2019). An emerging economy perspective on corporate sustainability reporting – Main actors' views on the current state of affairs in Pakistan. *Asian Journal of Sustainability and Social Responsibility, 4*(8), 1–31. https://doi.org/10.1186/s41180-019-0027-5

Makori, D. M., & Jagongo, A. (2013). Environmental accounting and firm profitability: An empirical analysis of selected firms listed in Bombay stock exchange, India. *International Journal of Humanities and Social Science, 3*(18), 248–256.

Malarvizhi, P. (2016). Link between corporate environmental disclosure and firm performance – perception or reality? . *Review of Integrative Business & Economics Research, 5*(3), 1–34.

Mousa, G. A., & Hassan, N. T. (2015). Legitimacy theory and environmental practices: Short notes. *International Journal of Business and Statistical Analysis, 2*(1), 42-53. https://doi.org/10.12785/ijbsa/020104

NSE. (2019). *Listed companies.* Retrieved from https://ngxgroup.com

Ofoegbu, N. G., & Odoemelam, N. (2018). International financial reporting standards (IFRS) disclosure and performance of Nigeria listed companies. *Cogent Business & Management*, *5*(1), 1542967. https://doi.org/10.1080/23311975.2018.1542967

Okpe, A. J., Emmanuel, D., & Blessing, E. (2022). Capital employed and structural capital efficiency and financial performance of listed non-financial companies in Nigeria. *International Journal of Humanities Social Science and Management*, *2*(5), 324-341.

Oti, P. A., & Mbu-Ogar, G. B. (2018). Analysis of environmental and financial performance of selected quoted oil and gas companies in Nigeria (2012-2016). *Journal of Accounting and Financial Management*, *4*(2), 1–12.

Polycarp, S. U. (2019). Environmental accounting and financial performance of oil and gas companies in Nigeria. *Research Journal of Finance and Accounting*, *10*(10), 192-202. https://doi.org/10.7176/rjfa/10-10-21

Portella, R. A., & Borba, J. A. (2020). Environmental disclosure in corporate websites: A study in Brazil and USA companies. *RAUSP Management Journal*, *55*(3), 309–324. https://doi.org/10.1108/RAUSP-07-2018-0053

Soetan, T. A., Adegbie, F. F., & Akintoye, I. R. (2020). Environmental disclosure practice and corporate growth: A perspective from stakeholder theory. *SYLWAN*, *164*(11), 315-333.

Soetan, T. A., Oyetunji, O. T., & Lawal, B. A. (2018). Corporate governance and the quality of financial reports a literature review. *International Research Journal of Commerce and `Law*, *5*(10), 1-12.

Unuagbon, E. O., & Oziegbe, D. J. (2016). Financial reporting and voluntary disclosure in Nigeria quoted companies. *Igbinedion University Journal of Accounting*, *1*(1), 42-58.

Zyznarska-Dworczak, B. (2018). Legitimacy theory in management accounting research. *Problemy Zarzadzania*, *16*(72), 195–203. https://doi.org/10.7172/1644-9584.72.12