

**RELATIONSHIP BETWEEN CARBON ACCOUNTING AND PERFORMANCE
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Oyedepoof@gmail.com, 08034794020**ABSTRACT**

The growing problems of climate change and global warming pose a threat to the future of the earth. Many stakeholder organizations are voicing concerns about these problems and offering a variety of solutions. Governments are particularly being urged by environmental organizations to pass legislation controlling greenhouse gas (GHG) emissions and to lead the charge in creating policies to reduce carbon emissions. Thus, it is now crucial for businesses to safeguard their brands by developing proactive plans for environmental issues and disclosing GHG emissions data in response to stakeholder demands. The study examined the relationship between carbon emissions disclosure by corporate governance and performance of financial institutions registered by the Central Bank of Nigeria. Anchored on Stakeholder Theory, the study employed a correlational research design using secondary data from 10 financial institutions licensed by the Central Bank of Nigeria, covering a five-year period (2018–2022). Purposive sampling was adopted, and data analysis was conducted using the Ordinary Least Squares (OLS) regression method via SPSS version 2025 to assess the impact of profitability and corporate governance on carbon accounting. The findings revealed a significant and positive relationship between carbon accounting and firm performance at the 5% significance level. Furthermore, both profitability and corporate governance have positive and significant relationship with carbon accounting. Based on the findings of the

study, it was concluded that carbon accounting has a significant effect on the performance of corporate firms in Nigeria. Therefore, it was recommended that Nigerian companies should consider investment in and disclosure of carbon accounting, more independent directors and financial expertise should be considered in the composition of board of directors

Key Words: Carbon Accounting, Performance, Profitability, Corporate Governance.

1.0. INTRODUCTION

Massive investment is needed to meet the ambitious goal of the Paris Agreement, which is to ensure that the rising global temperature this century is kept well below 2°C above the preindustrial level, as the damage caused by climate change spreads throughout the world and humanity's reliance on fossil fuels shows only slight signs of abating (Intergovernmental Panel on Climate Change IPCC, 2018). Companies are the primary cause of unequal climate change because they are the largest emitters of anthropogenic greenhouse gas (GHG) emissions. Between 2012 and 2016, the private sector's annual global carbon abatement investment (CAI) exceeded \$200 billion. Nevertheless, this investment falls well short of what is needed, with the energy industry alone expected to require over US\$1.6 trillion in expenditure annually until 2050 (Carbon Preference Index, CPI, 2019). CPI further explained that this very low annual global carbon abatement investment has led to a broad policy discussion about how to enhance investment in carbon abatement in the public and private sectors. However, the scholarly literature has not gone far in explaining why business investment in carbon abatement is still so low.

The world's future is being threatened by the mounting issues of climate change and global warming. In relation to these issues, numerous stakeholder organizations are calling for action and putting out a number of remedies. Environmental organizations are specifically urging governments to enact laws governing greenhouse gas (GHG) emissions and to take the initiative in developing carbon emission reduction plans. Disclosures pertaining to greenhouse gas emissions have changed because of increased awareness of these emissions. Therefore, in response to stakeholder demand, it is now essential for organizations to protect their corporate image by creating proactive strategies for environmental challenges and reporting GHG emissions information. According to some writers, managers are hesitant to commit to climate change solutions because they fear that their companies will generate less money or because they do not have the necessary support from shareholders (Wright & Nyberg, 2017). However, the literature does not consistently present empirical data to support the claim that businesses' socially beneficial investments in carbon abatement match investors' best interests (Busch & Hoffmann, 2019). Study on carbon disclosure practices in Nigeria, as an emerging economy was motivated by the need to ascertain the situation in the country because previous studies; Hervás-Peralta et al. (2020), Konadu et al. (2020), and Castellano et al.

(2020) have largely focused on carbon emission disclosures in developed nations. Furthermore, earlier research, including that of Oshiole, Elamah, and Amahalu (2020); Garzón-Jiménez and Zorio-Grima (2021); Lu, Jie, Wang, and Zhao (2020); and Geerts, Michael, and Lara (2020), primarily examined the relationship between traditional company attributes like size, profitability, leverage, age, and industry and carbon emission disclosure. Consequently, there is relatively little or no research combining profitability and corporate governance features, hence, this study fills the apparent gaps in the body of knowledge.

Objectives of the Study

The main objective of the study was to determine the impact of carbon accounting on the performance of corporate firms in Nigeria. Specifically, the study determined the:

1. Impact of investment in carbon accounting on profitability of emerging companies in Nigeria.
2. Impact of corporate governance on the carbon accounting of emerging companies in Nigeria.

Research Questions

The following research questions guided the study:

1. To what extent does Investment in Carbon Accounting impact Profitability of emerging companies in Nigeria?
2. To what extent does Corporate Governance impact Carbon Accounting of emerging companies in Nigeria?

2.0 LITERATURE REVIEW

Literature for the study was reviewed as follows:

Carbon Accounting Disclosure

An increasingly common terminology in the conversation on climate change is disclosure. Disclosure entails measuring and disclosing information about key aspects of operations of business firms to help investors better appreciate the importance of environmental performance and repercussions to the future of the company. It is an essential first step in controlling and reducing environmental impact in the face of unprecedented global concerns, such as deforestation, water scarcity, and climate change (Simpson, 2017; Egolum, Amahalu, & Obi, 2019). Based on voluntary disclosures made by the business, a company's environmental sustainability is gauged by its carbon disclosure grade. The goal of the practice is to support investors who want to take environmental, social, and governance (ESG) considerations into account while making investment decisions.

Additionally, common law systems, which have strict environmental legislation and robust investor protection, are the main drivers of voluntary carbon disclosure (Tang & Luo, 2021). According to Chu et al. (2018) and Tang and Luo (2021), there is evidence to suggest that companies operating in carbon-intensive industries disclose carbon

emissions at a higher rate than companies operating in other sectors due to regulatory pressure. Empirical studies conducted in the United States (Freedman & Park, 2019), Australia (Cowan & Deegan, 2021; Liu et al., 2019), the United Kingdom (De Aguiar&Bebbington, 2018; Tauringana&Chithambo, 2018), and China (Yang & Farley, 2021) highlight the beneficial impact of governmental or stock exchange regulations surrounding carbon disclosure on the tendency to voluntarily disclose carbon information. According to Ott et al. (2017), enterprises' decisions to voluntarily disclose carbon activities may be influenced by pressure from competitors.

Profitability and Carbon Accounting

Profitability is the ability of a company to generate a financial profit or gain. Ndulue, Okoye and Amahalu (2021) defined profitability as the capacity of a business to record profit in a given period. What remains of a business's revenue after all costs directly associated with generating the revenue like manufacturing a product and other costs associated with carrying out its operations is known as a profit. Hofstrand (2018). Profit making is the main objective of any company or business endeavour, and no firm can survive over a long time without profitability (Amahalu, Ezenwaka, Obi & Okudo, 2022). Previous studies on the relationship between firm profitability and carbon disclosure (Choi et al., 2018; Chu et al., 2018; Luo et al., 2018; Ott et al., 2017) were based on the theory that a firm's ability to invest in carbon disclosure and abatement increases with higher profitability but did not find a significant relationship between carbon accounting and profitability. However, Ott et al. (2017) reported a correlation between return on assets and a company's choice to participate in the carbon disclosure survey. No previous study showed that the propensity or degree of carbon disclosure is not significantly impacted by corporate profitability

Corporate Governance and Carbon Accounting

The term Corporate Governance describes the methods used to run a firm or manage and steer businesses. It entails operating the company in accordance with the wishes of all stakeholders, including the community, government, employees, managers, and financiers. In reality, the board of directors and the relevant committees carry out our corporate governance for the benefit of the company's stakeholders. It all comes down to striking a balance between social and economic aims, as well as between individual and societal aspirations (Prachi, 2020). The involvement of several stakeholders (shareholders, the board of directors, and the company's management) in determining the performance and direction of the organization is known as corporate governance. In a company, the owners' and managers' relationship needs to be harmonious and free from confrontation. Sun (2020) explained that company owners are required to verify that each employee's actual performance aligns with the expected performance. Conflicts of interest between stakeholders, particularly between shareholders and higher management or among shareholders, make corporate governance vital (Amahalu & Ezechukwu, 2020).

The corporate governance structure of a corporation is one factor that influences carbon disclosure. According to (Rankin et al., 2019) and Choi et al., (2018), the propensity and comprehensiveness of carbon disclosure are positively correlated with the overall quality of corporate governance. Furthermore, Liao et al. (2018), Elsayih et al. (2018), and Hollindale et al. (2019) reported that there is a favorable correlation between the proportion of female directors on the board and the willingness to publish carbon information. In the same vein, Liao et al. (2018) and Elsayih et al. (2018) revealed that because of their varied backgrounds and lack of financial interest in the company, independent directors typically support more transparent carbon disclosure.

Carbon Accounting and Firm Value

The notion that carbon emissions reduce a company's market value is because corporations have un-booked liabilities related to compliance and carbon mitigation costs, both now and in the future. Research conducted in the UK, the EU, the US, and Japan that specifically examine the valuation effects of carbon emissions (Johnston et al., 2018; Matsumura et al., 2019; Saka & Oshika, 2019; Clarkson et al., 2019; Baboukardos, 2021; Griffin et al., 2017) consistently support this claim. Furthermore, it seems that carbon disclosure could potentially mitigate the adverse impacts of carbon emissions on a company's value to some extent (Griffin & Sun, 2018; Matsumura et al., 2019; Saka & Oshika, 2019; Baboukardos, 2021; Liesen et al., 2020). According to Clarkson et al. (2019), not all emissions are important to valuation, looking beyond the overall valuation implications of carbon emissions. (That is, under an ETS, investors would only be exposed to potential fines if emissions exceeded allotted limits). Furthermore, they discover that the value-attenuating impacts of carbon emissions are mitigated by businesses' capacity to pass on emissions costs to customers. According to their findings, the valuation effect of carbon emissions is a complicated topic that is heavily influenced by institutional elements like legal frameworks, financial market efficiency, and carbon legislation. According to Baboukardos (2017), the United Kingdom's mandatory carbon report rule was passed, which mitigated the value lowering consequences of carbon emissions. Furthermore, using an event study methodology, Chapple et al. (2018) and Luo and Tang (2019) discovered that businesses in carbon-intensive industries saw a decline in value when news broke that there was a greater chance of carbon legislation (a carbon tax and ETS) being passed by the Australian parliament. Furthermore, as demonstrated by Griffin and Lont (2018), the Volkswagen emissions cheating scandal had a significant and long-lasting negative impact on the security price of the company as well as other major companies in the same sector. But take notice that investors might obtain anomalous risk-adjusted returns by simply investing in portfolios built based on GHG emissions disclosure and performance, which means that financial markets are inefficient at pricing publicly available information on carbon disclosure and performance. According to Rong, Le, Abdul, and Qingliang (2021), adding carbon abatement investment derived from firm-level data to the equity valuation model reveals that CAI lowers firms' market value, suggesting that cost considerations predominate

among the sample companies. Our subsample study, however, reveals that the CAI's valuation effect is statistically insignificant in Australia, positive in the UK, and negative in the US. These findings support the idea that the degree to which enterprises' CAI can result in net financial gains to them depends on how strict carbon restrictions are. Therefore, in nations with distinct climate policy regimes, capital markets respond to CAI in diverse ways.

Stakeholder Theory

Edward Freeman introduced the stakeholder hypothesis in 1984. According to the stakeholder theory, companies are accountable not just to shareholders but also to a wide range of other stakeholders, including suppliers, consumers, workers, the government, the community, the environment, lenders, and future generations. The interaction between a company and those in its internal and external surroundings is examined by the stakeholder theory. It also examines the ways in which these interactions impact the organizations and the way in which the organizations carry out their operations (Freeman 2019). In the context of this study, Stakeholder Theory is relevant because carbon accounting and disclosure are driven largely by the expectations and pressures from these various stakeholders. Firms are increasingly being held responsible for their environmental impact, and as such, stakeholders demand transparency in carbon emissions reporting and proactive environmental strategies. Therefore, carbon accounting serves as a tool through which firms can demonstrate environmental responsibility, gain stakeholder trust, and enhance firm performance. By applying the Stakeholder Theory, this study explains the rationale behind why emerging firms in Nigeria engage in carbon disclosure practices—not merely for regulatory compliance, but as a strategic response to meet the demands of stakeholders who influence firm reputation, investment decisions, and long-term sustainability.

3.0 METHODOLOGY

The study adopted an ex-post facto research design. This design was considered appropriate because it relies on existing secondary data and does not involve manipulation of variables by the researcher. It enables the investigation of cause-and-effect relationships between carbon accounting practices and firm characteristics such as profitability and corporate governance. The population of the study comprised the 105 financial institutions licensed in Nigeria as listed in the Central Bank of Nigeria (CBN) 2022 Bulletin, which include both banks and insurance companies. From this population, a sample size of 10 emerging financial institutions was purposively selected. The purposive sampling technique, a non-probability sampling method, was adopted because it allows the researcher to deliberately select firms with complete and relevant financial and sustainability disclosure data within the study period.

The study utilized secondary data covering a period of five years (2018–2022), which were obtained from the published annual reports of the sampled institutions available on

their respective official websites. To achieve the research objectives, the study employed the Ordinary Least Squares (OLS) regression technique using the Statistical Package for Social Sciences (SPSS). The OLS method was chosen because it is suitable for estimating the relationship between a dependent variable and one or more independent variables, particularly when the aim is to assess the impact and significance of predictors on the outcome variable. The decision basis for hypothesis testing was set at a 5% level of significance ($p \leq 0.05$), where any variable with a p-value less than 0.05 is considered to have a statistically significant effect on the dependent variable.

The functional form of the model is expressed as:

The model to be used to achieve the objective of the study is specified as follows.

Carbon Accounting = f (Profitability, corporate governance)

Specified econometrically as.

$$CAC_{it} = \beta_0 + \beta_1 PRT_{it} + \beta_2 COG_{it} + \beta_3 FMS_{it} + \mu_{it}$$

Where:

CAC = Carbon Accounting (It is being measured by the percentage of carbon accounting expenses disclosed).

PRT = Profitability (Profitability is measured with the use of return on assets).

COG = Corporate Governance (It is calculated as the percentage of independent in the board composition).

FMS = Firms Size (Control Variable, It is calculated by natural log of total asset).

4.0 RESULT

Table 1: OLS Regression Results Showing the Impact of Profitability and Corporate Governance on Carbon Accounting of Emerging Companies in Nigeria

Variables	Coefficient	Std Error	T-stat	Prob
Constant (C)	1.504	0.854	1.7611	0.078
Profitability (PRT)	0.098	0.028	3.502	0.000
Corporate Governance (COG)	0.088	0.032	2.751	0.007
Firm Size (FMS)	0.056	0.010	5.601	0.000
R Square	0.652			
Adj R square	0.612			
Std error of regression	0.128			
F- stat	10.652			
Prob (F-stat)	0.000			

Author's Computation, 2025

The results presented in Table 1 reveal that both specific objectives of the study were achieved. In line with the first objective, which examined the impact of profitability on carbon accounting, the regression result shows that profitability has a positive and

significant effect on carbon accounting among emerging financial institutions in Nigeria ($\beta = 0.098$, $p < 0.01$). This implies that firms with higher profitability are more likely to invest in and disclose carbon accounting activities, suggesting that financial strength enhances environmental accountability. Regarding the second objective, which assessed the effect of corporate governance on carbon accounting, the result indicates a significant positive relationship between corporate governance and carbon accounting ($\beta = 0.088$, $p < 0.01$). This suggests that firms with stronger governance structures, particularly greater board independence, tend to be more transparent and committed to environmental reporting practices.

Taking this together, the findings demonstrate that profitability and effective corporate governance jointly contribute to improved carbon accounting practices among financial institutions in Nigeria.

DISCUSSION

The findings from the regression analysis reveal that both profitability and corporate governance have significant positive effects on carbon accounting practices among selected financial institutions in Nigeria. Specifically, profitability ($\beta = 0.098$, $p < 0.01$) was found to positively influence carbon accounting, indicating that more profitable firms are better able to invest in and disclose carbon-related activities due to their stronger financial positions. Similarly, corporate governance exhibited a positive and significant relationship with carbon accounting ($\beta = 0.088$, $p < 0.01$), implying that firms with effective governance structures, particularly independent and diverse boards, are more committed to transparency and environmental accountability. The overall model significance ($F = 10.652$, $p < 0.01$) suggests that profitability and corporate governance jointly explain a substantial proportion of the variation in carbon accounting, highlighting their combined role in promoting sustainability reporting among Nigerian financial institutions. Overall, the findings underscore that profitability and sound corporate governance are essential drivers of carbon accounting practices, enhancing transparency, stakeholder confidence, and environmental accountability within Nigeria's financial sector.

CONCLUSION

Based on the findings of the study that profitability and corporate governance both have significant positive effects on carbon accounting practices among selected financial institutions in Nigeria, it was concluded that firm-level characteristics play a crucial role in determining the extent of carbon disclosure and environmental accountability. The study established that profitability enhances a firm's capacity to invest in carbon accounting initiatives and supports transparent reporting due to increased financial flexibility and stakeholder expectations. Likewise, sound corporate governance reflected in board independence, competence, and oversight promotes stronger commitment to sustainability disclosure and accountability. Therefore, it was concluded that financially

strong institutions with effective governance structures are more likely to integrate carbon accounting into their operational and reporting frameworks, thereby fostering greater corporate transparency, environmental responsibility, and sustainable performance in Nigeria's financial sector

Recommendations

Based on the findings and conclusion of the study, it was recommended as follows:

1. Nigerian companies should consider investment in and disclosure of carbon accounting as result of the fact that it enhances the profitability such as reduction in wastage, reduction in cost of litigation and increase in the firm reputation.
2. Management of Nigerian corporate firms should include independent directors and financial experts in the composition of their board of directors to enhance investment in and disclosure of carbon accounting.
3. Shareholders should actively engage in corporate governance by demanding greater environmental transparency and accountability from company management. They should use their voting rights and annual general meetings to push for improved sustainability practices, including carbon accounting disclosures.
4. The Nigerian government, through relevant regulatory agencies like the Financial Reporting Council (FRC) and Corporate Affairs Commission (CAC), should establish clear and enforceable guidelines mandating carbon accounting disclosures for companies.

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