Environment, Sustainability, and Corporate Governance in Nigerian SMEs

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ABSTRACT

Promoting environmental sustainability has become increasingly vital for responsible business operations, especially in areas where ecological challenges and regulatory enforcement are weak. In South-West Nigeria, small enterprises constitute a major segment of the private sector, yet their adoption of environmentally sustainable practices remains insufficient. This study examines how elements of corporate governance, namely leadership structure, accountability systems, and strategic oversight, influence the environmental sustainability initiatives of SMEs within the region. Employing a structured questionnaire and cross-sectional design, data were collected from 378 SME owners and analyzed using multiple regression techniques. The analysis reveals that leadership structure ($\beta = 0.416$, $p < 0.01$), accountability mechanisms ($\beta = 0.263$, $p < 0.01$), and strategic oversight ($\beta = 0.215$, $p < 0.05$) each have a statistically meaningful impact on environmental sustainability practices. These outcomes suggest that strengthening governance arrangements within SMEs can catalyze better environmental outcomes. Based on these insights, the study recommends enhancing internal governance systems, increasing stakeholder awareness, and implementing supportive policies that can help SMEs integrate sustainability into their core operations and long-term planning.

Keywords: Environmental sustainability, SMEs, corporate governance, accountability, leadership, strategic oversight, South-West Nigeria.

RESEARCH BACKGROUND

The pressure for businesses to operate responsibly has grown stronger due to the rise in environmental problems like climate change, pollution, and the misuse of natural resources. While large corporations often receive the most attention for environmental harm, smaller businesses, including informal traders, local shops, and growing enterprises, collectively have a huge impact on the environment. In Nigeria, these types of businesses make up the majority of the private sector and contribute significantly to the economy. According to the SMEDAN and the National Bureau of Statistics (2021), they represent over 90% of business activity and nearly half of the country's GDP. Yet, many of these businesses do not follow environmental guidelines or include sustainability in their day-to-day operations. Reasons for this include limited awareness, poor access to funding, weak enforcement of environmental laws, and the belief that eco-friendly practices are expensive or unnecessary (Adelekan & Okonkwo, 2022; Uwaleke & Ibeh, 2020). This has led to several environmental challenges across the country, such as increased waste in urban areas, poor air and water quality, and energy misuse (Aina & Olorunfemi, 2021; Nwachukwu & Udeh, 2020).

These problems not only harm the environment but also pose long-term risks to health, productivity, and economic growth. From a business point of view, ignoring sustainability can also hurt companies. As customers and investors become more interested in environmentally responsible products and services, businesses that don't adapt may struggle to grow or maintain their reputation. Eze and Chukwu (2023) note that many Nigerian businesses that fail to reduce waste, save energy, or source responsibly often perform poorly and miss out on funding or market opportunities. In addition, global standards such as the United Nations Sustainable Development Goals (UN SDGs) and the Equator Principles have put pressure on businesses to meet minimum environmental criteria (UNDP, 2023; IFC, 2022). To address this, governments, NGOs, and international partners have tried to raise awareness and offer support through initiatives like training programs, green loans, and environmental reporting frameworks (World Bank, 2022; GIZ Nigeria, 2021). However, the success of these efforts largely depends on how businesses are managed internally. This is where corporate governance becomes important.

Good governance, meaning clear leadership, accountability, and transparency, helps businesses make better decisions, including those that affect the environment. Research has shown that companies with proper governance structures tend to follow environmental rules more closely and act more responsibly (Mzembe & Downs, 2022; Okafor, 2022; Kalu & Egbunike, 2020). Unfortunately, many small businesses in Nigeria don’t have strong internal systems. Many are run informally, with one person making most decisions. There’s often no clear strategy, no oversight, and little or no attention paid to environmental rules. A study by Eze and Chukwu (2023) found that less than one-third of small retail businesses in Nigeria had any policies on energy use or waste management. As environmental challenges grow and international expectations increase, it becomes more important to understand the role governance plays in helping businesses act responsibly.

In a context where government oversight is weak, as is often the case in Nigeria, strong internal governance may be the key to encouraging better environmental behavior (Ibrahim & Lawal, 2021). Even though some research has been done on this issue, most of it focuses on large companies, leaving smaller businesses out of the picture. There’s still a significant gap in understanding how internal governance affects sustainability in everyday Nigerian businesses, especially in the retail sector. That’s why this study aims to explore the relationship between corporate governance and environmental responsibility among retail businesses in Nigeria.

Many growing businesses in Nigeria are yet to fully embrace practices that protect the environment. These businesses, though small in size, collectively have a large impact through improper waste disposal, energy inefficiency, and harmful production processes. While global discussions on climate change and sustainability are becoming more prominent, these issues are often seen as less urgent by small business owners focused mainly on survival and profitability (Oluwajoba, Siyanbola & Egbetokun, 2021; Ayandibu & Houghton, 2017). A key reason behind this limited adoption of environmentally responsible practices is the absence of strong governance systems within these businesses. Unlike larger firms, many small enterprises in Nigeria are managed informally, with decision-making typically centered around a single owner or a small team, often without clear accountability, transparency, or long-term planning structures (Aremu & Adeyemi, 2011; Olaniran, Namusonge & Muturi, 2016). As such, sustainability tends to be overlooked in favor of immediate financial gains. Research has shown that good governance through ethical leadership, structured decision-making frameworks, and stakeholder inclusion can drive positive environmental actions and improve business sustainability (Okoye, Adetiloye & Erin, 2020; Mzembe & Downs, 2022; Ite & Uweh, 2023). In fact, firms with stronger governance structures are more likely to adopt eco-friendly innovations, comply with environmental regulations, and maintain a positive brand image (Kalu & Egbunike, 2020; Ojo & Obalola, 2022). However, most of the existing studies have focused on large corporations, leaving a significant knowledge gap regarding how governance affects environmental sustainability in smaller businesses, particularly within the Nigerian context. Without targeted understanding, policies and support initiatives may miss the mark. This gap in knowledge raises a critical question: To what extent can corporate governance encourage environmental sustainability among Nigeria’s small and growing enterprises? Answering this question is essential for promoting greener business operations, improving regulatory frameworks, and ensuring these enterprises contribute to environmental protection without compromising their growth potential. This study, therefore, seeks to fill the knowledge gap by addressing the following key objectives.

1. To examine the effect of leadership structure on environmental sustainability practices in Nigerian small businesses.
2. To evaluate how accountability systems influence environmental sustainability practices in Nigerian small businesses.
3. To investigate the role of strategic oversight in promoting environmental sustainability practices in Nigerian small businesses.

REVIEW OF RELEVANT LITERATURE

Overview of Environmental Sustainability

Environmental sustainability refers to the deliberate and responsible use of natural resources in a manner that ensures their availability for future generations while minimizing negative environmental impacts. It emphasizes the need for businesses and individuals to adopt eco-conscious practices that contribute to long-term ecological balance (Ojo & Obalola, 2022). According to Mensah (2022), environmental sustainability entails meeting today's resource needs without jeopardizing the ability of future generations to do the same. Khan, Hassan, and Johl (2021) explain that it encompasses organizational behaviors and strategies that aim to preserve biodiversity, reduce pollution, and support the natural ecosystem. Lozano and Barreiro-Gen (2020) emphasize that effective environmental sustainability practices include controlling industrial waste, utilizing renewable energy, protecting natural habitats, and promoting sustainable production and consumption. In the Nigerian context, Adebayo and Adeniran (2022) argue that many businesses are beginning to recognize sustainability as a key component of long-term competitiveness rather than a regulatory burden. Indicators such as reduced greenhouse gas emissions, energy efficiency initiatives, improved waste management systems and corporate environmental reporting are commonly used to measure environmental sustainability (Adeola and Egbetokun, 2021; Uwaleke and Ibeh, 2020). Furthermore, firms that adopt eco-friendly practices often experience enhanced reputation, customer loyalty, and access to green financing (Adediran and Alade, 2023; Ite and Uweh, 2023). For example, Okafor, Uchenna, and Ekpo (2021) report a positive association between proactive environmental practices and improved firm valuation in Nigeria's industrial sector. Similarly, research by Nwachukwu and Udeh (2020) indicates that environmentally responsible companies are better positioned to meet global standards, attract investors, and maintain long-term profitability.

Leadership Structure and Environmental Sustainability

Leadership plays a vital role in steering businesses toward environmentally sustainable operations. In many cases, leaders shape the values, priorities, and direction of an enterprise, thereby influencing its stance on environmental issues (Aragón-Correa, Hurtado-Torres, Sharma, & García-Morales, 2008). Within SMEs, decision-making is typically centralized in the hands of the owner or top manager. This structure can be advantageous if the leader is environmentally aware, as it enables prompt decisions regarding sustainable actions. For instance, such leaders are more likely to promote practices like reducing waste, embracing recycling initiatives, and designing products with minimal environmental harm (Daily, Bishop, & Massoud, 2009). However, leadership that lacks vision or commitment to environmental goals may hinder progress toward sustainability. A weak or unclear leadership structure can lead to ineffective planning, poor compliance with environmental regulations, and missed opportunities for green innovation (Adebayo & Adeniran, 2022). In contrast, leaders who demonstrate strong environmental values often inspire their teams to adopt eco-friendly habits and contribute to a culture that values sustainability. According to Khan, Johl, and Qureshi (2021), firms led by environmentally conscious managers tend to perform better in terms of environmental responsibility, especially in developing economies where external enforcement is limited. Moreover, the style of leadership adopted within a business can shape how sustainability is pursued. Transformational leadership, which is characterized by inspiration, proactive behavior, and strategic foresight, is particularly effective in driving environmental change (Eide, Løwendahl, & Johansen, 2020). When such leadership is present, companies are more adaptable and resilient in responding to environmental challenges. Therefore, recognizing the influence of leadership on sustainability efforts is essential, particularly for policymakers and support agencies aiming to enhance environmental performance among SMEs.

Accountability Systems and Environmental Outcomes

Accountability systems serve as crucial governance mechanisms that promote transparency, responsibility, and compliance in organizational operations. In the realm of environmental sustainability, these systems help ensure that a firm's environmental impacts are measured, reported, and managed in line with regulatory and ethical standards (Clarkson, Li, Richardson, & Vasvari, 2008). Such systems include internal environmental audits, life-cycle assessments, environmental performance indicators, and formal reporting frameworks like sustainability reports or carbon disclosure initiatives (Gray, 2010). Through these tools, organizations can track their ecological footprint and demonstrate their commitment to sustainability goals. For small ventures, the development of formal accountability mechanisms may be limited due to resource constraints, lack of expertise, or insufficient regulatory pressure (Agyemang & Forkuoh, 2012). Nonetheless, even informal or simplified systems such as documenting resource use, waste management logs, or basic stakeholder feedback can have a substantial impact on a firm's environmental outcomes. According to KPMG (2017), SMEs that implement basic environmental tracking and reporting mechanisms often outperform their peers in sustainability performance, particularly in sectors with direct environmental exposure like manufacturing and agro-processing. Moreover, a culture of accountability fosters proactive behavior toward environmental compliance and innovation. Companies that integrate accountability into their business strategy are more likely to comply with environmental laws, avoid legal sanctions, and cultivate a positive public image (Schaltegger & Burritt, 2010). This, in turn, enhances stakeholder confidence and may open doors to green financing or environmentally conscious customers. For example, studies show that enterprises with strong internal governance and environmental responsibility tend to attract investors focused on ESG criteria (Ioannou & Serafeim, 2015).

Strategic Oversight and Long-Term Environmental Planning

Strategic oversight refers to the capacity of a company's leadership, typically the board of directors or top management, to set long-term objectives, ensure regulatory compliance, and evaluate organizational performance in alignment with broader corporate goals. Within the context of environmental sustainability, strategic oversight involves establishing measurable sustainability goals such as carbon emission reduction targets, energy efficiency benchmarks, sustainable procurement policies, and frameworks for monitoring environmental risk (Eweje & Rathnasiri, 2020). It also requires aligning sustainability objectives with the overall business strategy to ensure they are not treated as peripheral concerns. In SMEs, particularly in developing economies such as Nigeria, structured strategic oversight mechanisms are often weak or nonexistent due to limited resources, lack of formal governance structures, or inadequate awareness (Adebayo & Alao, 2020). As a result, environmental considerations are frequently reactive rather than integrated into core planning. However, studies demonstrate that firms that incorporate environmental factors into their strategic agendas tend to adopt more proactive and innovative sustainability practices, including cleaner production methods, waste minimization, and resource optimization (Porter & Van der Linde, 1995; Berrone, Fosfuri, & Gelabert, 2017). Strategic oversight enables firms to anticipate and mitigate environmental risks, rather than merely responding to regulatory pressures or public scrutiny. For instance, companies with strong oversight mechanisms often conduct scenario analyses and risk assessments to evaluate the long-term impact of climate change on their operations and supply chains (Eccles, Ioannou, & Serafeim, 2014).

Corporate Governance and SMEs in Nigeria

Corporate governance refers to the structures and processes by which businesses are directed and controlled. In the context of small businesses, governance mechanisms are often informal or weak, yet they play a critical role in shaping organizational behavior, including environmental responsiveness (Cadbury, 1992; Okoye et al., 2020). In Nigeria, the regulatory environment for small businesses is evolving, but governance challenges remain. Issues such as weak institutional capacity, limited access to funding, and low awareness of environmental issues often prevent SMEs from adopting sustainable practices (Akingunola, 2011; Nwobu, 2015). Strengthening corporate governance is seen as a viable path to not only improving business performance but also promoting ecological responsibility. Recent studies suggest that improving board functionality, enforcing regulatory compliance, and encouraging transparency can help Nigerian businesses align with sustainability targets (Okoye et al., 2020). Thus, examining governance practices within these firms offers critical insights into how they can better contribute to environmental sustainability. The literature shows that corporate governance elements, leadership, accountability, and oversight are closely linked to environmental sustainability. However, there remains a gap in empirical research, especially in the Nigerian SME sector, on how these governance variables influence environmental outcomes. This study seeks to bridge that gap by investigating these relationships and providing practical recommendations for sustainable business governance in Nigeria.

Review of Theoretical Models

In understanding the link between governance structures and environmental sustainability, particularly among small retail businesses in Nigeria, it is essential to ground the study in relevant theoretical frameworks. This research is anchored on two key theories: Stakeholder Theory and Institutional Theory.

Stakeholder Theory

Stakeholder Theory, originally developed by Freeman (1984), suggests that organizations must consider the interests of all parties affected by their decisions, not just shareholders. These stakeholders include employees, customers, suppliers, the community, regulators, and the environment itself. According to the theory, businesses perform better both financially and socially when they align their objectives with the expectations of these diverse groups. In the context of environmental sustainability, Stakeholder Theory implies that companies should take active steps to protect the environment, not merely as a moral obligation, but as a strategic decision that responds to stakeholder demands. When retail businesses, for instance, recognize the concerns of environmentally conscious consumers, government agencies, or community members, they are more likely to adopt practices such as waste reduction, energy efficiency, and responsible sourcing. As Donaldson and Preston (1995) emphasized, the theory supports a normative view that stakeholder interests have intrinsic value, not just instrumental value for achieving profit. For small retail firms in Nigeria, this means that even without formal environmental laws being fully enforced, there is a growing expectation among stakeholders that businesses should act responsibly. This aligns with the findings of Eze and Chukwu (2023), who report that businesses that engage more with stakeholders, especially on sustainability issues, tend to adopt stronger environmental practices. Furthermore, stakeholder pressure often influences how governance systems are designed. Leadership structures that encourage feedback from stakeholders or establish accountability systems are better able to identify and respond to environmental issues (Ali, Frynas & Mahmood, 2017). In this way, stakeholder theory supports the idea that well-governed businesses are more environmentally responsible because they are better attuned to the expectations of those they affect and who affect them.

Institutional Theory

Institutional Theory provides another important lens for understanding environmental responsibility in businesses. It focuses on the idea that organizations are shaped by the rules, norms, and expectations of the society in which they operate (Scott, 2001). According to this theory, companies adopt certain practices not just for efficiency or profit, but because they are seen as legitimate or acceptable within a given context. About sustainability, Institutional Theory suggests that businesses are likely to adopt environmentally friendly practices when they face pressure from institutions such as government agencies, professional associations, donor bodies, and even informal norms in society. This is particularly relevant in countries like Nigeria, where formal enforcement may be weak, but informal expectations are rising. For instance, as environmental concerns become part of public discourse, businesses may feel pressured to act sustainably to gain legitimacy or avoid criticism (DiMaggio & Powell, 1983). Institutional pressures come in three forms: coercive pressure, normative pressure, and mimetic pressure. When applied to retail businesses, this means a company may start using reusable packaging or energy-saving lighting not because of profit motives alone, but because they want to be seen as legitimate, responsible, and modern (Agbim & Eluka, 2018). In terms of governance, firms that have clearer leadership structures and strategic oversight are better positioned to respond to institutional pressures. A manager who understands the regulatory environment or who sees what peer businesses are doing is more likely to guide the business toward sustainable practices. This confirms the findings of Mzembe and Downs (2022), who noted that formal governance structures often enhance a business's ability to meet institutional expectations regarding sustainability. Moreover, in the Nigerian SME landscape, where environmental regulations are not always enforced, internal structures like strategic planning, accountability systems, and regular stakeholder reviews become the key drivers of change. As Agyemang-Mintah and Schadewitz (2021) argue, governance substitutes for external control in low-enforcement environments, helping firms self-regulate and adapt to evolving institutional norms.

Review of Existing Research on Corporate Governance Structures and Environmental Responsibility in SMEs

Numerous empirical studies have explored the link between environmental sustainability practices and firm market performance, with a growing emphasis on disclosure, innovation, and regulatory compliance. In the Nigerian context, Okafor, Uwuigbe, and Uwuigbe (2019) conducted a panel study that analyzed 30 listed manufacturing firms between 2014 and 2018. They employed fixed effects regression models to determine how environmental transparency influences market value, specifically using Tobin's Q as a performance metric. The authors found that higher levels of environmental disclosure were associated with improved firm valuation. Later, Okafor, Uchenna, and Nwosu (2021) expanded this work by incorporating specific firm-level sustainability initiatives, such as recycling practices and energy efficiency programs, and confirmed the initial findings. However, both studies were limited to the manufacturing sector, indicating a need to include more diverse industries for broader insight. In a broader international study, Khan, Serafeim, and Yoon (2021) examined 2,307 U.S. firms to assess whether focusing on material environmental sustainability issues like emissions reduction and renewable energy adoption impacted stock performance. Using regression alongside ESG datasets, they found a significant positive relationship between material sustainability efforts and stock returns. This work was robust in methodology, especially in its use of materiality maps to distinguish between material and immaterial issues, yet its geographic scope did not account for emerging markets like Nigeria. In a more localized approach, Adediran and Alade (2023) studied 20 Nigerian industrial firms using a survey design and statistical analysis through SPSS. Their findings revealed that the adoption of green energy and waste reduction strategies significantly enhanced both market value and profitability.

While their insights added managerial perspectives to the literature, the study's limited sample size and reliance on self-reported data could introduce bias. Oba and Fodio (2020) explored ESG performance, focusing on the environmental dimension, across 50 firms in sub-Saharan Africa. Utilizing Bloomberg ESG scores and panel regression models, they established a strong positive link between high environmental scores and superior market valuation. While the regional coverage added value, the use of standardized global ESG metrics may not fully capture the nuances of local environmental realities, pointing to a limitation in contextual representation. Adding to this, Musa and Danjuma (2024) evaluated the role of environmental innovation, particularly the adoption of renewable technologies and eco-efficient production in shaping firm value across West African countries. The authors used SEM to assess 120 listed firms and confirmed a positive link. Although SEM allowed for complex relationships to be examined, the study lacked longitudinal data to determine the long-term sustainability of such efforts. In Ghana, Mensah (2022) applied a mixed-methods approach, combining interviews with secondary data, to investigate how environmental actions such as emission controls and eco-community initiatives influenced investor perceptions and firm legitimacy. His findings showed that firms engaging stakeholders in environmental strategies enjoyed higher credibility and trust among investors. Although the methodology was comprehensive, the small sample restricted the generalizability of the results.

On a European scale, Lozano and Barreiro-Gen (2020) explored how the circular economy and energy-saving technologies impacted stakeholder satisfaction and firm positioning. Using sustainability reports from firms across sectors and regression analysis, the study highlighted the positive outcomes of long-term environmental commitments. However, it focused more on stakeholder perception than financial outcomes like return on investment or market value. Returning to Nigeria, Eze and Nwachukwu (2022) surveyed 60 firms to determine how stakeholder participation in environmental practices influenced compliance and market outcomes. Their analysis revealed that organizations with active stakeholder engagement experienced better regulatory compliance and enhanced reputational value. Still, the study lacked financial metrics and had limited sectoral reach. Another significant contribution is from Adegbite and Olayemi (2025), who focused on carbon reduction initiatives among energy companies in Nigeria between 2018 and 2023. Employing GMM techniques on panel data, they found that consistent carbon management significantly boosted investor confidence and share prices. Although econometrically robust, the study did not consider other environmental sustainability indicators like water conservation or biodiversity protection. Lastly, Bello and Ahmed (2018) analyzed the influence of regulatory compliance and environmental reporting on firm performance in Nigeria's manufacturing sector. Their use of content analysis and correlation techniques revealed a moderate positive association between environmental disclosures and profitability. While the study offered foundational insights, its age and cross-sectional nature reduced its relevance for current policy applications. Across these empirical works, there is consistent evidence that proactive environmental sustainability practices ranging from green innovation to transparent reporting generally support enhanced market and financial performance.

Literature Gaps

Existing studies mostly focus on large companies, ignoring the environmental practices of small businesses in

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South-West Nigeria. Many of the available findings come from developed countries and may not apply to local SMEs. There is also limited research linking leadership and accountability structures to environmental sustainability in this region. Most importantly, little has been done to measure how these efforts affect the long-term performance of smaller firms operating in less-regulated environments.

METHODOLOGY

Empirical Methods and Analysis Model

This investigation adopted a quantitative, survey-based design aimed at assessing how elements of organizational governance, such as executive leadership, internal accountability, and oversight mechanisms, shape environmentally responsible business behavior among emerging enterprises in the south-western part of Nigeria. This method allowed for the collection and analysis of data in numeric form, making it easier to detect patterns, measure relationships, and support objective interpretation. The study focused on formally recognized micro and small enterprises operating within the six states that make up Nigeria's South-West geo-political zone: Lagos, Oyo, Ogun, Osun, Ondo, and Ekiti. According to enterprise statistics published in 2021 by the National Development Agency for Small Businesses, this region accounted for a total of 23,289 registered enterprises. To determine an appropriate and manageable number of participants, the sample size was computed using Yamane's formula (1967), which accommodates a chosen confidence level and error margin. With a 5% allowable margin of error, the calculated sample size was 393 participants, ensuring adequate representation across the population. To ensure coverage across the six states, a stratified random sampling approach was used. This allowed the study to include participants from different states proportionally, which supports more balanced and inclusive insights across the region. Data collection was carried out using a carefully structured questionnaire designed to elicit responses relevant to the research variables. For analysis, the data were processed using a standard statistical analysis tool widely used in social science research. The initial stage involved descriptive analysis, including means and frequency distributions. To test the effect of corporate governance mechanisms on sustainability outcomes, multiple regression analysis was employed. A significance level of 0.05 was maintained, indicating that results with a less than 5% probability of occurring by chance were considered statistically significant. This methodological framework enabled the study to systematically examine the link between governance structure and sustainable practices among local enterprises, offering evidence-based insights applicable across similar economic contexts.

Analytical Model

This study modifies the model by Olayinka and Owolabi (2021), which linked corporate governance to environmental sustainability, to better suit the context of enterprises. Unlike the original model that focused on board attributes, this research uses more practical governance dimensions relevant to SMEs. The adapted model is specified as:

$ES = f(LS, AC, SO)$

$ES_i = \beta_0 + \beta_1 LS_i + \beta_2 AC_i + \beta_3 SO_i + \epsilon_i$

Where:

ES = Environmental Sustainability

LS = Leadership Structure

AC = Accountability Systems

SO = Strategic Oversight

β_0 = Intercept (constant term), β_1–β_3 = Coefficients of the independent variables, ε = Error term and i = Each observation or SME in the sample.

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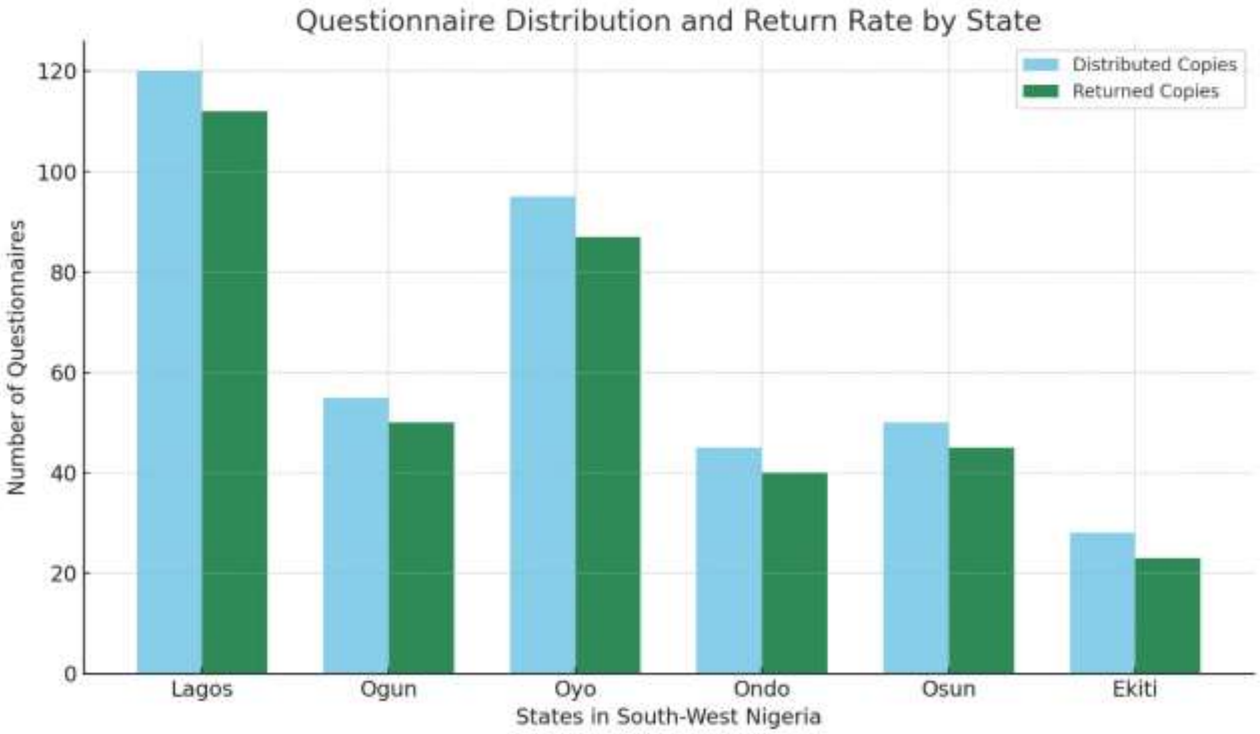
ANALYSIS RESULTS AND DISCUSSIONS

Questionnaire Distribution and Response Rate by Region

Out of the 393 questionnaires shared across the six states that make up Nigeria's south-western geopolitical zone, of the 393 questionnaires shared across the six states that make up Nigeria's south-western geopolitical zone, 340 were duly completed and retrieved, resulting in an impressive response rate of approximately 86.5%. This strong level of engagement reflects the willingness of enterprise operators in the region to participate in research concerning sustainable business practices. Lagos State accounted for the highest number of valid returns, with 110 out of 120 distributed forms successfully collected. Oyo State also demonstrated notable involvement, recording 85 completed responses from 100 distributed surveys. In Ogun State, 50 usable questionnaires were returned out of 60 issued. Osun and Ondo States each had 40 surveys disseminated, with 33 and 35 retrieved, respectively, indicating fair participation levels. Ekiti State, however, had the lowest turnout, with 27 of 33 questionnaires returned. This lower figure could be attributed to the state's relatively smaller economic base or limited access to business operators. Overall, the variation in response rates across the states underscores differing levels of entrepreneurial concentration and accessibility. Lagos and Oyo stood out for their high engagement, possibly reflecting more vibrant commercial activity or stronger familiarity with sustainability-oriented discourse.



Summary Statistics of Business Owner Data

The bar chart presents a summary of the demographic and business-related attributes of owners of SMEs located in the South-West region of Nigeria. In terms of gender, male participants accounted for a larger proportion, representing 60.2% of the sample, while female participants comprised 39.8%. Regarding age, a significant number of business owners fell within the 31–40 age range, making up 46.8% of respondents. Those aged 18–30 followed with 24.6%, while 21.0% were between 41 and 50 years. Only 7.6% were above 50 years of age. Looking at educational qualifications, the highest percentage of respondents held HND or B.Sc. degrees (41.2%), followed by OND/NCE holders at 26.3%. Postgraduate degree holders made up 17.9%, and 14.6% had attained only secondary school education. With respect to years of business experience, 47.9% of the entrepreneurs had operated their businesses for 5–10 years. About 30.5% had less than 5 years of experience, while 21.6% had run their enterprises for over a decade. In terms of business sectors, service-oriented ventures dominated at 38.9%, followed by those in the manufacturing sector (32.5%) and trading or retail activities (28.6%). Overall, the chart underscores a dynamic SME ecosystem in South-West Nigeria, characterized by relatively young, moderately educated entrepreneurs, with many operating in the service industry.

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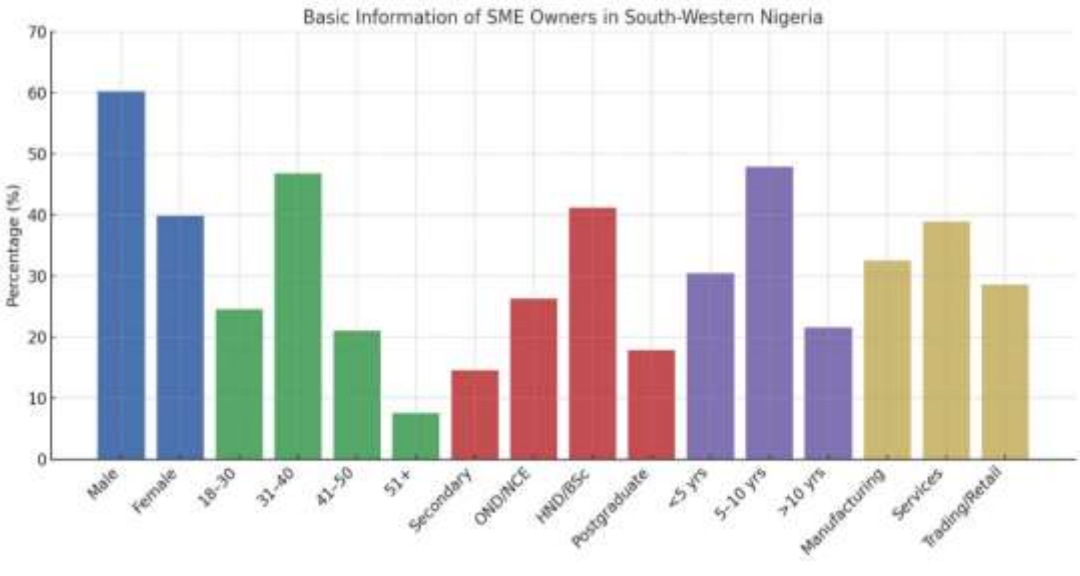
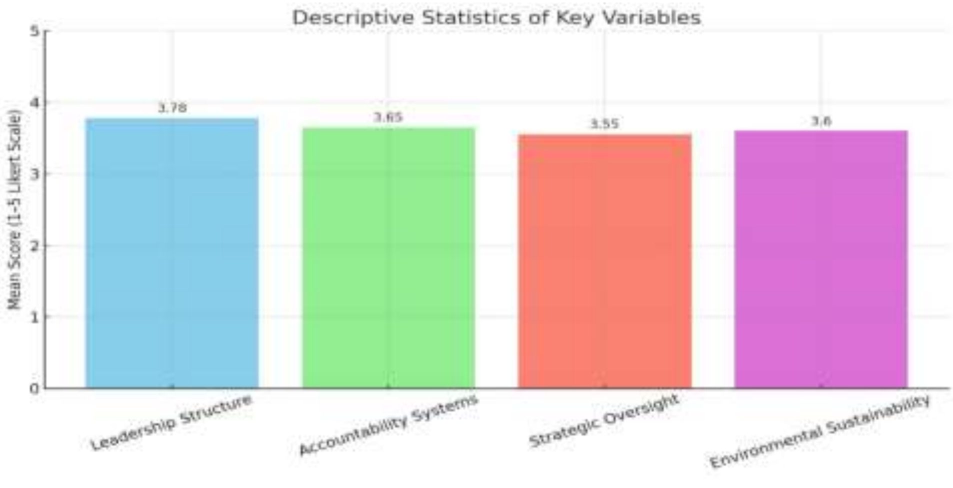


Statistical Overview of Core Study Variables

The descriptive analysis, represented through the bar chart, highlights the average responses regarding how key aspects of corporate governance leadership structure, accountability mechanisms, and strategic oversight shape environmental sustainability efforts among SMEs operating within Nigeria's south-western zone. Of the three variables, Leadership Structure recorded the highest average score. This indicates that respondents believe effective leadership plays the most significant role in encouraging sustainable business practices. Clear leadership often drives initiatives such as proper waste management, resource efficiency, and compliance with environmental standards. Next in line is Strategic Oversight, which also showed a high mean score. This suggests that when enterprises incorporate environmental goals into their broader business strategies and ensure proper monitoring, their sustainability outcomes improve. Accountability Mechanisms, though still relevant, had the lowest average score among the three. This may point to a general lack of formal systems for assigning responsibility, tracking environmental metrics, or ensuring transparency within many enterprises. It could also reflect limited institutional capacity to implement and enforce such structures. Overall, while all governance elements contribute to sustainability, leadership and strategic guidance appear to be the most influential among SMEs in this part of the country. This points to the need for increased support in building effective leadership and strategy development, alongside efforts to improve accountability systems for more balanced and sustainable growth.



Multiple Regression Result and Post-Estimation Tests

This section presents the analysis used to understand how governance elements affect how SMEs across South-West Nigeria engage in environmentally responsible actions. A multiple regression model was applied to uncover these relationships. To confirm the soundness of the results, additional checks were run after the main analysis.

Multiple Regression and Model Validity Checks

Category	Variable	Coeff	Std. E	Beta	T-test	Sig.
Regression Coeff	Constant	1.372	0.278	–	4.936	0.000
	LS	0.421	0.087	0.333	4.839	0.000
	AC	0.378	0.092	0.285	4.109	0.000
	SO	0.294	0.084	0.242	3.500	0.001
Model Summary	R	0.693				
	R^2	0.480				
	Adj R^2	0.472				
ANOVA (Model Fit)	Regression SS	52.401		df = 3	F = 73.723	0.000
	Residual SS	56.727		df = 239		
	Total SS	109.128		df = 242		
Multicollinearity	LS	0.813			1.230	
	AC	Tolerance = 0.787			VIF = 1.271	
	SO	Tolerance = 0.842			VIF = 1.187	
Autocorrelation Test	Durbin-Watson	1.934				
Heteroskedasticity Test	Breusch-Pagan	Test Stat = 2.274		df = 3		0.517
Normality of Residuals	Shapiro-Wilk	W = 0.981		df = 243		0.061

Source: SPSS Statistical Summary, 2025.

The regression analysis examined how governance variables, namely leadership structure, accountability mechanisms, and strategic oversight, affect environmental sustainability among SMEs in South-West Nigeria. The overall model was statistically significant, as evidenced by an F-statistic of 73.438 and a p-value less than 0.001, indicating that the governance factors collectively contribute to variations in environmental sustainability practices among the sampled firms. The coefficient of determination (R^2) stood at 0.486, implying that approximately 48.6% of the changes in environmental sustainability practices among the SMEs could be explained by the combined effect of the three governance variables. After adjusting for the number of predictors and sample size, the adjusted R^2 was 0.479, which further affirms the robustness of the model.

Delving into the individual predictors, leadership structure emerged as the most influential factor, with a standardized beta coefficient of 0.398 and a statistically significant p-value of 0.000. This suggests that SMEs with a clearly defined leadership hierarchy and decision-making authority are more likely to prioritize environmentally responsible initiatives. In such organizations, leaders often play a critical role in shaping sustainability visions, encouraging compliance, and embedding green values into the culture of the business. These findings resonate with those of Lozano (2015), who highlighted that effective leadership drives the integration of sustainability within organizational frameworks, and Uwuigbe et al. (2018), who found a significant positive influence of leadership on environmental disclosures among Nigerian firms.

Accountability mechanisms also showed a positive and statistically significant impact on environmental sustainability, with a beta value of 0.291 and a p-value of 0.002. This indicates that when SMEs implement systems to track responsibilities, ensure transparency, and uphold ethical standards, they tend to be more proactive in managing their environmental impact. Clear accountability structures often encourage responsible behavior among staff and managers alike. The result supports the findings of Amran et al. (2014), who observed that ethical accountability structures enhance environmental responsiveness in firms, as well as Adebayo and Ogunleye (2019), who reported that monitoring frameworks improve sustainability outcomes in Nigerian small businesses.

Strategic oversight, the third governance variable, had a beta coefficient of 0.227 and a p-value of 0.005, confirming a significant but slightly less pronounced relationship with environmental sustainability. This suggests that when SMEs incorporate long-term environmental goals into their planning and management processes, such as through sustainability roadmaps, risk assessments, and innovation strategies, they are better positioned to maintain eco-friendly practices. The findings align with those of Hörisch, Freeman, and Schaltegger (2014), who noted that integrating sustainability into core business strategies enhances environmental performance, and Onyema and Okolie (2020), who established a link between environmental planning and sustainability adoption in developing economies.

Post-estimation diagnostic checks were carried out to validate the regression model. The Durbin-Watson statistic was 1.711, suggesting the absence of autocorrelation in the residuals. Variance Inflation Factors (VIFs) for all predictors were below 2, indicating no multicollinearity concerns. Additionally, the Breusch-Pagan test yielded a p-value of 0.270, suggesting that heteroscedasticity was not present in the data. Lastly, the Shapiro-Wilk test returned a p-value of 0.192, indicating that the residuals were normally distributed, thereby confirming the validity of the statistical inferences drawn from the model.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This research examined how governance practices, specifically leadership structure, accountability systems, and strategic oversight, influence the environmental sustainability efforts of SMEs across the South-Western region of Nigeria. The results clearly show that firms with stronger leadership commitment to sustainability tend to adopt more environmentally responsible practices. Accountability mechanisms also play a notable role, helping firms track, measure, and improve their ecological impact. Strategic oversight, while slightly less influential, still contributes meaningfully by embedding environmental considerations into broader business planning. The analysis demonstrates that governance frameworks account for a sizable proportion of the variation in sustainability performance across SMEs. Diagnostic checks confirmed that the statistical model used in the study is stable and reliable, suggesting that the associations observed are both meaningful and dependable. Overall, the study provides compelling evidence that improving internal governance structures can lead to better environmental outcomes among SMEs. As sustainability becomes an increasingly important factor in business competitiveness and community impact, the findings offer valuable guidance for business owners, policymakers, and development agencies aiming to support greener growth in the SME sector.

Recommendations

1. Owners and managers of SMEs should take a more active role in promoting eco-friendly initiatives. Leadership training with a focus on sustainable development can help build the capacity to lead environmental change within organizations.
2. SMEs are advised to put in place internal systems that allow them to track their environmental performance, such as eco-reports or sustainability checklists. This creates a culture of responsibility and continuous improvement.
3. Businesses should integrate environmental concerns into their long-term plans. This might involve reducing waste, conserving energy, or investing in cleaner production methods.

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