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SUSTAINABLE FINANCE AND GREEN BOND ACCOUNTING AS A MEANS OF INTEGRATING ENVIRONMENTAL OBJECTIVES IN CORPORATE FINANCE IN NIGERIA

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Abstract

This study examined sustainable finance and green bond accounting as mechanisms for integrating environmental objectives into corporate finance in Nigeria. The objectives were to determine the extent to which Nigerian firms adopt green bond accounting to fund environmentally beneficial projects, assess how green bond issuance and investment contribute to renewable energy financing, and identify challenges hindering green bond integration in financial strategies. A descriptive research design was employed, with a sample of 196 respondents selected through snowball sampling from stakeholders engaged in sustainable finance, green bond issuance, renewable energy development, and corporate sustainability practices. Data were collected via electronic questionnaires and analyzed using percentage analysis, frequency counts, and Pearson Chi-squared tests. The results showed that although Nigerian firms incorporate green bond accounting into financial strategies, the level of implementation remains low ($p = 0.000$). Findings further revealed that green bond issuance and investment significantly support renewable energy infrastructure financing ($p = 0.000$). However, firms encounter moderate but significant challenges, including low awareness, regulatory gaps, and institutional capacity constraints ($p = 0.000$). The study concludes that, while Nigerian firms acknowledge the importance of embedding environmental objectives into finance, barriers limit full-scale adoption. It recommends that regulators and industry associations collaborate on targeted training and awareness programs to strengthen understanding of green finance and foster broader adoption of green bond strategies, ultimately promoting sustainable development and financial resilience in Nigeria.

Keywords: Sustainable finance, Green bond accounting, Renewable energy, Corporate finance, and Financial strategies.

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1.0. INTRODUCTION

1.1 Background to the Study

In recent years, the global community has intensified its focus on sustainability and environmental protection, prompted by concerns over climate change, biodiversity loss, and resource depletion. Businesses are increasingly expected to integrate environmental objectives into their financial strategies (Rahardja, 2024; Iliemena, 2020; Nworie, Obi, Anaike, & Uchechukwu-Obi, 2022). In Nigeria, a resource-rich but environmentally challenged nation, sustainable finance and green bond accounting have emerged as pathways for promoting environmentally responsible practices (Oguntuase & Windapo, 2021). This paradigm shift highlights the need for firms to align capital allocation with sustainable development goals and embed environmental, social, and governance (ESG) principles into decision-making (Iliemena & Ijeoma, 2019).

Green bonds have gained prominence as financing instruments for environmentally beneficial projects, attracting socially responsible investors while funding renewable energy, sustainable agriculture, and clean transportation (Banga, 2019; Chygryn, Pimonenko, Luylyov, & Goncharova, 2019). Nigeria, as Africa's most populous nation, is experiencing a gradual but notable shift towards sustainability (Iliemena-Ifeanyi, Amedu & Goodluck, 2025; Emejulu, 2018). The Nigerian Green Bond Market Development Programme (NGBMDP), supported by FSD Africa (2022), has built capacity and provided technical support for issuers, leading to the issuance of sovereign and corporate green bonds. Notably, Nigeria's inaugural sovereign green bond of N10.69 billion ($29m) in 2017 funded solar and forestry projects and achieved full subscription, with investors receiving a 13.48% coupon (Emejulu, 2018). Similar initiatives by Access Bank and North South Power Company further underscore the role of green bonds in financing low-carbon projects (Efosa, James, & Joseph, 2023). Beyond financing, green bonds signal firms' commitment to sustainability, enhancing reputation and access to capital (Lebelle, Lajili, & Sassi, 2020). Green bond accounting strengthens transparency by ensuring proceeds are allocated to intended purposes, thereby bolstering accountability and credibility (Flammer, 2021). More broadly, sustainable finance integrates ESG principles into investment and capital allocation decisions, aligning economic prosperity with environmental protection and social well-being (Adiyoh Ze, Gidado, & Ali, 2021; Adeyemi, Olasupo, Johnson, Adegun, & Sajuyigbe, 2024). Within this framework, green bond accounting ensures reliable reporting of environmental impacts, enhancing investor confidence and accountability (Ma, 2023).

For Nigeria, where environmental degradation poses critical challenges, sustainable finance can mobilize capital for renewable energy, reduce environmental risks, and foster green infrastructure development (Efosa, James, & Joseph, 2023). However, challenges such as low awareness, regulatory gaps, and institutional capacity constraints hinder adoption (Adewunmi, Omirin, & Koleoso, 2012; Adiyoh Ze, Gidado, & Ali, 2021). Leveraging

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existing frameworks, such as the Central Bank of Nigeria's Sustainable Banking Principles, can help mainstream sustainable practices and incentivize green investments. Thus, sustainable finance and green bond accounting represent vital mechanisms for integrating environmental objectives into corporate finance in Nigeria. By leveraging these tools, firms can access capital for green projects, mitigate environmental risks, and demonstrate their commitment to sustainable development. This study therefore examines the evolving landscape of sustainable finance in Nigeria, with particular emphasis on the role of green bonds in financing renewable energy and energy efficiency projects.

1.2 Statement of Problem

Sustainable finance and green bond accounting represent powerful tools for integrating environmental objectives into corporate finance in Nigeria because by aligning financial incentives with environmental priorities, these mechanisms can drive investments towards projects that promote sustainability, mitigate climate change, and enhance environmental stewardship (Efosa, James & Joseph, 2023). Ultimately, integrating environmental considerations into corporate finance not only benefits the environment but also contributes to Nigeria's economic growth, social development, and long-term prosperity.

Despite growing awareness of the importance of green bond in promoting corporate sustainability, many Nigerian firms continue to prioritize short-term financial gains over long-term environmental considerations (Saka, 2023; Otali & Monye, 2023; Otali, Ikurekong & Atser, 2021). As a result, there is a significant gap between rhetoric and action, with limited integration of sustainability principles into corporate finance strategies. Furthermore, the issuance of green bonds remains relatively nascent in Nigeria, with a lack of widespread adoption and understanding among both issuers and investors (Paramole, 2023). This hampers the country's ability to attract investment towards critical renewable energy infrastructure projects and other environmentally beneficial initiatives. Consequently, Nigeria's progress towards achieving its sustainable development goals is impeded, as insufficient investment flows towards key sectors such as renewable energy and energy efficiency (Adiyoh Ze, Gidado Kenneth & Ali, 2021). This exacerbates environmental degradation and climate change risks. Secondly, the lack of robust green bond accounting standards undermines transparency and accountability in the allocation of capital, eroding investor confidence and hindering the growth of the green finance market. Finally, the failure to prioritize sustainability in corporate finance perpetuates a cycle of unsustainable development, jeopardizing the long-term viability of Nigeria's economy and exacerbating social inequalities and environmental injustices.

In light of these challenges, it is imperative to examine the integration of environmental objectives in corporate finance in Nigeria, particularly through the lens of sustainable finance and green bond accounting. Despite the abundance of literature to this respect such as Adeyemi, Olasupo, Johnson, Adegun, and Sajuyigbe (2024); Zakari, Oryani, Alvarado, and

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Mumini (2023); Efosa, James, and Joseph (2023); Hunjra, Hassan, Zaied, and Managi (2023); Ma, Zhu, Liu, and Huang (2023); Abakah, Tiwari, Adekoya, and Oteng-Abayie (2023); Paramole (2023); Otali and Monye (2023); Saka (2023); Nabil (2023); García, Herrero, Miralles-Quirós, and del Mar Miralllles-Quirós (2023); Ye and Dela (2023); et cetera, the absence of empirical research examining the degree of incorporation of green bond accounting into the financial strategies of Nigerian firms leaves room for further research.

1.3 Objectives of the Study

The main objective of the study is to examine sustainable finance and green bond accounting as a means of integrating environmental objectives in corporate finance in Nigeria. The specific objectives of the study are:

1) To ascertain the degree to which Nigerian firms incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects.

2) To examine how the issuance and investment ingreen bonds helps to finance renewable energy infrastructure in Nigeria.

3) To examine thechallenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects.

1.4 Research Questions

1) To what degree do Nigerian firms incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects?

2) How does the issuance and investment ingreen bonds help to finance renewable energy infrastructure in Nigeria?

3) What are the challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects?

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2.0. LITERATURE REVIEW

2.1 Conceptual Review

Sustainable finance involves incorporating environmental, social, and governance (ESG) criteria into financial decision-making to promote long-term economic growth and social well-being (Cunha, Meira & Orsato, 2021). It goes beyond traditional financial returns by considering impacts on both the environment and society (Adiyoh Ze, Gidado & Ali, 2021). By directing capital towards responsible investments, sustainable finance contributes to the achievement of sustainable development goals and addresses global challenges such as climate change and biodiversity loss (Ziolo, Bak & Cheba, 2021). Its importance lies in fostering value creation, resilience, and stability in financial markets while encouraging investments that minimize environmental harm, promote efficiency, and support the transition to a low-carbon economy (Wang, Wang & Chang, 2022). Current trends include the growth of green bonds, impact investing, and ESG-focused indices, although challenges such as data reliability, inconsistent standards, and risks of greenwashing persist (Fatemi & Fooladi, 2013). Nonetheless, sustainable finance remains a vital driver of global sustainability, requiring collaboration, transparency, and innovation to overcome barriers and unlock opportunities for a more inclusive and environmentally responsible future (Mumtaz & Smith, 2019).

Green bonds represent a central innovation within sustainable finance. These debt instruments are specifically designed to fund projects with positive environmental benefits, such as renewable energy, sustainable transport, and pollution reduction (Flammer, 2021; Oche, 2020). Issued by governments, corporations, and financial institutions, green bonds mobilize capital for environmentally responsible investments while offering investors alignment with sustainability objectives (Banga, 2019; Oguntuase & Windapo, 2021). Beyond financing, robust accounting for green bonds is critical to ensure transparency and accountability in fund allocation. Issuers are expected to specify eligible projects, establish monitoring frameworks, and report on outcomes, yet challenges persist. These include the absence of standardized accounting principles, inconsistent impact measurement, and the risk of reduced credibility without harmonized disclosure practices (Oche, 2020). Strengthening accountability and enhancing transparency are therefore essential for maintaining investor confidence and supporting the growth of green bond markets worldwide (Sarpong et al., 2023).

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The integration of environmental objectives into corporate finance is becoming increasingly central to long-term business strategy. Incorporating sustainability into financial decision-making allows firms to identify opportunities for cost savings, risk mitigation, and innovation, while also strengthening reputation and investor confidence (Rahardja, 2024; Wang, Wang & Chang, 2022). Financial instruments such as green bonds, sustainability-linked loans, and ESG funds facilitate this integration (Driessen, 2021). Moreover, environmental risk assessments are vital for anticipating regulatory changes, resource scarcity, and climate-related disruptions (Apostolou & Papaioannou, 2021). Transparency through environmental disclosures, including emissions and resource use, further enhances accountability and informs investor decision-making (Miles & Ringham, 2020). Despite these benefits, challenges persist in quantifying environmental value, harmonizing reporting standards, and reconciling long-term sustainability goals with short-term financial pressures (PwC, 2020). Nevertheless, integrating environmental objectives remains both a strategic and ethical imperative to safeguard the planet and ensure corporate resilience (Bayari & Nobanee, 2023).

Renewable energy infrastructure exemplifies one of the most important environmental objectives in corporate and national finance. It encompasses systems for harnessing energy from solar, wind, hydro, geothermal, and biomass resources to reduce dependence on fossil fuels and mitigate climate change (Salak, Lindberg, Kienast & Hunziker, 2021). These infrastructures deliver not only environmental benefits, such as emissions reduction and pollution control, but also social and economic gains through job creation, local development, and enhanced energy security (Bagheri, Shirzadi, Bazdar & Kennedy, 2018). By driving decarbonization and supporting international climate goals, renewable energy projects represent a cornerstone of the global transition to a low-carbon economy. They are essential for balancing sustainability with economic growth while fostering innovation and resilience across industries (Tang, Chiara & Taylor, 2012).

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While the potential of green bonds is clear, their adoption within firms' financial strategies in Nigeria faces distinct challenges. Limited awareness and understanding of green finance among businesses often hinder adoption, highlighting the need for targeted education, training, and awareness programs (Otali & Monye, 2023). Firms also face constraints in accessing green finance expertise, data reliability, and technical capacity for project evaluation and reporting (Braam, De Weerd, Hauck & Huijbregts, 2016). The absence of robust regulatory and policy frameworks further limits growth, as firms lack incentives and standardized guidelines for green bond issuance (Oche, 2020; Ozili, 2022). Moreover, the financial burden of implementing green bond accounting—such as training, monitoring, and reporting systems—can be prohibitive, particularly for small and medium-sized enterprises (Babatunde & Perera, 2017). Addressing these barriers requires coordinated efforts from government, regulators, financial institutions, and civil society to build capacity, strengthen policies, and provide financial support. With the right frameworks, Nigeria can unlock the potential of green bonds to advance sustainable development and environmental stewardship (FSD Africa, 2022).

2.2 Theoretical Framework

2.2.1 Stakeholder Theory

Stakeholder theory, originating in the field of management and business ethics, was first proposed by R. Edward Freeman in 1984 (Stieb, 2009). Freeman's seminal work, "Strategic Management: A Stakeholder Approach," introduced the concept of stakeholders as individuals or groups who have a stake or interest in a company's activities and can significantly influence or be influenced by its actions and decisions (Iliemena, Amedu & Uagbale-Ekatah, 2023). Unlike traditional shareholder-centric views, which prioritize the interests of shareholders above all else, stakeholder theory asserts that companies should consider and balance the needs and concerns of all relevant stakeholders, including employees, customers, suppliers, communities, and the environment, to achieve long-term sustainability and success (Freeman, Harrison & Zyglidopoulos, 2018).

The postulation of stakeholder theory underlines the imperative for companies to recognize and respond to the diverse interests and concerns of stakeholders regarding environmental, social, and governance issues. By acknowledging stakeholders as key constituents with legitimate claims on corporate activities and outcomes, companies are compelled to adopt transparent and comprehensive sustainability disclosure practices. This entails providing stakeholders with relevant and reliable information about the company's environmental impact, social performance, and governance practices, enabling informed decision-making and accountability (Peng & Isa, 2020). Thus, sustainability disclosure serves as a mechanism for promoting stakeholder engagement, fostering trust, and driving positive environmental

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and social outcomes while enhancing long-term organizational resilience and competitiveness (Iliemena, Amedu & Uagbale-Ekatah, 2023).

Stakeholder theory is relevant to the study on sustainable finance and green bond accounting, particularly concerning the integration of environmental objectives into corporate finance. This is because this theory emphasizes the importance of considering the interests and concerns of various stakeholders, including investors, customers, employees, communities, and environmental advocates, in financial decision-making processes. In the context of sustainable finance and green bond accounting, stakeholders play a crucial role as they influence and are impacted by corporate activities related to environmental sustainability. Thus, understanding and addressing stakeholder expectations and preferences regarding green investments and environmental stewardship are essential for ensuring the success and credibility of sustainable finance initiatives.

2.3 Empirical Review

Several studies highlight the role of green finance and related instruments in promoting sustainability and financial performance. Adeyemi et al. (2024) found that green loans, training, investment, and policies significantly improved environmental performance among Nigerian banks, with financial innovation acting as a partial mediator. Similarly, Zakari et al. (2023) confirmed that green finance and renewable energy reduce pollution and enhance sustainability in China and Japan, while Efosa et al. (2023) showed that green bonds and stock indices positively influence infrastructure development in Nigeria. At a broader level, Hunjra et al. (2023) demonstrated that green finance supports sustainable development across developing nations, whereas Ma et al. (2023) revealed that its effectiveness varies depending on market maturity, with digital finance playing a growing role. In terms of market linkages, Abakah et al. (2023) established strong long-term causal effects between green bonds and gas prices, suggesting energy–finance interdependence.

In the Nigerian context, several studies examine the barriers and prospects of green bond markets. Paramole (2023) and Saka (2023) identified low market sophistication and the need for catalytic instruments like grants and subordinated debt to encourage private participation. Otali and Monye (2023) reported high awareness but weak implementation of green finance in infrastructure, citing risks, costs, and weak structures as key constraints.

Empirical evidence also links green bonds and accounting to firm-level outcomes. Nabil (2023) found positive impacts on banking sector performance, while García et al. (2023) showed that firms issuing green bonds tend to improve governance and environmental performance. Akpan and Nkanta (2023) confirmed that biodiversity and compliance disclosures enhance shareholder value among Nigerian firms, echoing Emmanuel (2021), who reported positive effects of green accounting on profitability. Regional studies reinforce these findings. Ngunjiri (2022) showed that green bonds improve financial performance of

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Kenyan banks, while Babon-Ayeng et al. (2022) and Mankata et al. (2022) highlighted socio-political and institutional factors such as training, incentives, and credit ratings that shape adoption in Ghana. Similarly, Oyedele et al. (2022) found mixed effects of green finance in Nigerian banks, with loans and technology proving effective, but investments underperforming. Globally, Owusu-Manu et al. (2021) observed that investors prioritize low interest rates, transparency, and flexible structures when considering green bonds. Meanwhile, Lebelle et al. (2020) suggested that market reactions to green bond issuance may sometimes be negative, reflecting investor skepticism.

Existing studies on sustainable finance and green bonds discussed above largely focused on global or regional perspectives, with limited attention to Nigeria. While prior works highlight the role of green bonds in financing sustainability projects, none directly examine how Nigerian firms incorporate green bond accounting into their financial strategies or the challenges encountered in financing renewable energy projects. This study addresses that gap.

3.0. METHODOLOGY

This study adopted a descriptive survey design, which provides an accurate profile of a phenomenon without manipulating variables or establishing causal relationships (Siedlecki, 2020; Salaria, 2012). The design was appropriate as it enabled data collection through questionnaires, aligning with the study's focus on examining sustainable finance and green bond accounting as tools for integrating environmental objectives into corporate finance in Nigeria. The study population comprised stakeholders in corporate finance, sustainable finance, and environmental conservation within Nigeria. Given the continuous emergence of new businesses and financial entities, the population was considered infinite. It included individuals with expertise in sustainable finance, green bond issuance, renewable energy, energy efficiency, environmental policy, and corporate sustainability practices. Snowball sampling was employed to identify stakeholders with relevant expertise in sustainable finance and green bond practices. Initial participants included professionals in financial institutions, sustainability consultants, government agency representatives, and academics. Using Cochran's formula, a sample size of 196 was determined, ensuring a sufficient range of perspectives to address the research objectives effectively.

$$n_o = \frac{Z^2 pq}{e^2}$$

Where: e = desired level of precision, n= the required sample size, p = estimated proportion, of the population, q = 1 – p. The z-value is found in a Z table. At p = 85% at 95% confidence interval, *e* = 5%, q = 0.15 and Z = 1.96

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$$n = \frac{(1.96)^2 X\ 0.85\ X\ 0.15}{(0.05)^2}$$

$$n = \frac{0.489804}{0.0025}$$

$$n = 196$$

Therefore, the requisite sample size for the study is 196. Primary data were collected using an online structured questionnaire designed with a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The instrument, developed by the researcher, comprised two sections: Section A captured demographic details, while Section B assessed the study variables. Data were analyzed using descriptive statistics (percentages and frequency counts) to summarize responses. Hypotheses were tested with Pearson Chi-squared at a 5% significance level. Analyses were conducted with SPSS (version 23.0), with results presented in tables, percentages, and mean values. At a 0.05 significance level, the null hypothesis was rejected when the p-value was less than 0.05 and accepted when the p-value exceeded 0.05.

4.0. ANALYSIS AND DISCUSSIONS

4.1 Data Presentation

Analysis of Research Questions

The responses to the questionnaire items are analysed below using frequency counts.

Table 4.1: ***Analysis of Responses on Research Question I***

S/N	**To what degree do Nigerian firms incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects?**	**SA**	**A**	**U**	**D**	**SD**
1	Incorporating green bond accounting into financial strategies is important for funding environmentally beneficial projects.	13	57	8	59	26
2	Our organisation actively considers the use of green bonds as a financing option for environmentally sustainable initiatives.	27	53	19	44	20
3	We have specific policies and procedures in place to integrate green bond accounting into our financial decision-making processes.	6	46	31	65	15
4.	Many companies in Nigeria demonstrates proficiency in integrating green bond accounting into their financial strategies.	12	51	8	27	65

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5.	Our organisation regularly evaluates the environmental impact of projects funded through green bonds using established accounting practices.	26	50	39	39	9

Source: Field Survey, 2024

The frequency distribution in Table 4.1 summarizes respondents' views on the integration of green bond accounting in Nigerian firms' financial strategies. For the first statement, 70 respondents agreed while 85 disagreed, showing divided opinions on its importance. On considering green bonds for sustainable financing, responses were more balanced, with 80 in agreement and 64 in disagreement. Regarding policies and procedures for integration, only 52 respondents agreed, while 80 disagreed, indicating limited implementation. On firms' proficiency in integration, 63 agreed but 92 disagreed, reflecting low perceived capacity. Finally, on evaluating environmental impact of green bond–funded projects, responses were mixed across all categories, suggesting no clear consensus.

Table 4.2: ***Analysis of Responses on Research Question II***

S/N	**How does the issuance and investment in green bonds help to finance renewable energy infrastructure in Nigeria?**	**SA**	**A**	**U**	**D**	**SD**
6	Investing in green bonds is an effective way to finance renewable energy infrastructure projects in Nigeria.	26	70	5	27	35
7	Our organisation actively seeks out investment opportunities in green bonds to support the development of renewable energy infrastructure.	9	92	10	42	10
8	There are tangible benefits from investing in green bonds, such as increased access to capital for renewable energy projects.	12	52	12	86	1
9	Green bonds are able to address Nigeria's energy needs while promoting environmental sustainability.	23	56	15	30	39
10	Our organisation considers the environmental impact and sustainability criteria of renewable energy projects before investing in green bonds.	19	23	41	47	33

Source: Field Survey, 2024

Table 4.2 presents the analysis of Research Question II on how green bonds contribute to financing renewable energy infrastructure in Nigeria. Statement 6 shows mixed views on their effectiveness, with 96 respondents agreeing and 62 disagreeing. Statement 7 indicates high interest in green bond investments, as 101 respondents agreed while 52 disagreed. For

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Statement 8, most respondents (87) disagreed that green bonds provide tangible benefits like increased access to capital, while only 64 agreed. In Statement 9, opinions on whether green bonds can address energy needs and promote sustainability were divided, with 79 in agreement and 69 in disagreement. Finally, Statement 10 reveals varied considerations of environmental criteria, with responses split across agreement (42), neutrality (41), and disagreement (80).

Table 4.3: Analysis of Responses on Research Question III

S/N	What are the challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects?	SA	A	U	D	SD
11	Limited awareness and understanding of green finance make it challenging for organisations to integrate green bond accounting into their financial strategies	14	58	38	18	35
12	Firms in Nigeria face difficulties in accessing expertise and technical support for implementing green bond accounting practices.	16	51	30	46	20
13	Organisations in Nigeria encounter challenges related to data availability and quality when incorporating green bond accounting into their financial reporting.	22	82	24	22	13
14.	Regulatory and policy uncertainties pose obstacles to the successful integration of green bond accounting into firm's financial strategies.	77	29	24	12	21
15.	Cost considerations and resource constraints hinder organisation's ability to fully adopt green bond accounting practices in our financial decision-making.	15	31	19	78	20

Source: Field Survey, 2024

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Table 4.3 presents the analysis of Research Question III on the challenges of incorporating green bond accounting into Nigerian firms' financial strategies. The results show that limited awareness and understanding of green finance (Statement 11) was acknowledged by most respondents, though some remained undecided or disagreed. Difficulties in accessing expertise and technical support (Statement 12) also revealed mixed views, with many agreeing but a considerable number undecided or in disagreement. Data availability and quality (Statement 13) was widely recognized as a challenge, while regulatory and policy uncertainties (Statement 14) drew the strongest agreement, highlighting its significant impact on green bond adoption. Conversely, cost considerations and resource constraints (Statement 15) generated divided opinions, with more respondents disagreeing on their severity.

4.2 Test of Hypotheses

Pearson Chi-Squared test was used in testing the null hypotheses of the study at 5% significance level.

4.2.1 Test of Hypothesis I

$H0_1$: Nigerian firms do not significantly incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects.

Table 4.4: ***Cross-Tabulation for Hypothesis I***

To what degree do Nigerian firms incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects?

	Observed N	Expected N	Residual
Lowly Implemented	45	40.8	4.3
Neutral	80	40.8	39.3
Highly Implemented	34	40.8	-6.8
Very Highly Implemented	4	40.8	-36.8
Total	163		

Source: SPSS Version 23 Output (2025)

Table 4.5: ***Chi-squared Test Statistics for Hypothesis I***

	To what degree do Nigerian firms incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects?
Chi-Square	72.509[a]

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df	3
Asymp. Sig.	.000

Source: SPSS Version 23 Output (2025)

The hypothesis ($H0_1$) tested whether Nigerian firms significantly incorporate green bond accounting into their financial strategies. Table 4.4 shows most respondents reported low or neutral implementation, with few indicating high adoption. Table 4.5 presents the chi-square test ($\chi^2 = 72.509$, $p = .000$), leading to rejection of $H0_1$. This suggests that while green bond accounting is significantly incorporated, its overall extent remains low.

4.2.2 Test of Hypothesis II

$H0_2$: The issuance and investment in green bonds does not significantly help to finance renewable energy infrastructure in Nigeria.

Table 4.6: ***Cross-Tabulation for Hypothesis II***

How does the issuance and investment in green bonds help to finance renewable energy infrastructure in Nigeria?			
	Observed N	Expected N	Residual
Very Unhelpful	4	32.6	-28.6
Unhelpful	46	32.6	13.4
Neutral	46	32.6	13.4
Helpful	56	32.6	23.4
Very Helpful	11	32.6	-21.6
Total	163		

Source: SPSS Version 23 Output (2025)

Table 4.7: ***Chi-squared Test Statistics for Hypothesis II***

	How does the issuance and investment in green bonds help to finance renewable energy infrastructure in Nigeria?
Chi-Square	67.215[a]
df	4
Asymp. Sig.	.000

Source: SPSS Version 23 Output (2025)

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The hypothesis (H02) tested whether green bond issuance and investment significantly finance renewable energy infrastructure in Nigeria. Results (Tables 4.6 and 4.7) show that most respondents considered green bonds helpful, and the chi-square test ($\chi^2 = 67.215$, $p = .000$) confirmed a significant effect, leading to rejection of the null hypothesis.

4.2.3 Test of Hypothesis III

$H0_3$: There are no significant challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects.

Table 4.8: ***Cross-Tabulation for Hypothesis III***

What are the challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects?			
	Observed N	Expected N	Residual
Not challenging at all	10	32.6	-22.6
Slightly challenging	21	32.6	-11.6
Neutral	90	32.6	57.4
Moderately Challenging	28	32.6	-4.6
Highly Challenging	14	32.6	-18.6
Total	163		

Source: SPSS Version 23 Output (2025)

Table 4.9: ***Chi-squared Test Statistics for Hypothesis III***

	What are the challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects?
Chi-Square	132.123[a]
df	4
Asymp. Sig.	.000

Source: SPSS Version 23 Output (2025)

The hypothesis (H03) tested whether challenges exist in incorporating green bond accounting into Nigerian firms' financial strategies. Results (Tables 4.8 and 4.9) show that most

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respondents reported moderate hurdles, and the chi-square test (χ^2 = 132.123, p = .000) confirmed these challenges as significant, leading to rejection of the null hypothesis.

4.3 Discussion of Findings

Finding 1: Although Nigerian firms significantly incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects, the extent of such implementation is low.

The finding indicates a notable intention among Nigerian firms to integrate green bond accounting into their financial strategies, reflecting a growing awareness of the importance of sustainable finance. However, the low extent of implementation suggests barriers or challenges hindering full adoption. Overcoming these barriers would require targeted efforts to raise awareness, provide technical assistance, develop supportive regulatory frameworks, and enhance the capacity of both issuers and investors to engage effectively in green bond markets. This aligns with the argument by Emejulu (2018); Oche (2020); Efosa, James and Joseph (2023).

Finding 2: The issuance and investment in green bonds significantly help to finance renewable energy infrastructure in Nigeria.

This finding highlights the positive impact of green bonds on financing renewable energy infrastructure, which is crucial for reducing greenhouse gas emissions and promoting clean energy transitions. By channeling investment into renewable energy projects, green bonds contribute to Nigeria's efforts to diversify its energy mix, enhance energy security, and mitigate the adverse effects of climate change. The significant role of green bonds in financing renewable energy underscores their potential to mobilize capital for sustainable development and support the transition to a low-carbon economy. Strengthening the enabling environment for green bond issuance and investment, including enhancing transparency, standardization, and accountability, can further catalyze investment in renewable energy infrastructure and accelerate progress towards sustainability goals. Similar findings that support the above arguments were found by Adeyemi, Olasupo, Johnson, Adegun and Sajuyigbe (2024); Hunjra, Hassan, Zaied and Managi (2023); Mumtaz and Smith (2019).

Finding 3: There are significant but moderate challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects.

This finding reflects the multifaceted challenges that Nigerian firms face in integrating green bond accounting into their financial strategies. While the intention to pursue environmentally beneficial projects exists, firms encounter various obstacles that impede seamless implementation. These challenges may include regulatory uncertainties, financial constraints, inadequate expertise, and concerns about data quality. Addressing these challenges requires a

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coordinated effort from policymakers, financial regulators, industry stakeholders, and development partners to create an enabling environment for green finance. This involves establishing clear regulatory frameworks, promoting capacity building and technical assistance, enhancing market transparency and integrity, and fostering collaboration among stakeholders to unlock the full potential of green bonds in financing sustainable development initiatives in Nigeria. This finding corroborates those by Babatunde and Perera (2017); Saka (2023); Otali and Monye(2023); Otali, Ikurekong and Atser(2021).

5.0. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The analyses conducted in the study indicated that:

1) Although Nigerian firms significantly incorporate green bond accounting into their financial strategies to fund environmentally beneficial projects, the extent of such implementation is low (p-value = 0.000).

2) The issuance and investment in green bonds significantly help to finance renewable energy infrastructure in Nigeria (p-value = 0.000).

3) There are significant but moderate challenges involved in incorporating green bond accounting into the financial strategies of Nigerian firms for the purpose of financing environmentally beneficial projects (p-value = 0.000)

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5.2 Conclusion

Sustainable finance and the integration of environmental objectives in corporate strategies are essential in addressing climate change. Green bonds, as a major financing tool for renewable energy and other environmentally beneficial projects, present opportunities for Nigerian firms to align with global sustainability goals. This study examined the extent to which Nigerian firms integrate green bond accounting into their strategies, the role of green bonds in financing renewable energy infrastructure, and the challenges hindering adoption. Findings reveal that although firms recognize the value of green finance, implementation remains limited due to low awareness, inadequate expertise, weak data systems, and regulatory uncertainties. Despite these barriers, green bonds have demonstrated strong potential in mobilizing capital for renewable energy, consistent with global financing trends. The challenges identified, though significant, are surmountable through coordinated efforts from policymakers, regulators, and businesses to provide incentives, technical support, and regulatory clarity.

In conclusion, while Nigerian firms acknowledge the importance of environmental integration in finance, overcoming existing barriers is crucial for achieving effective adoption of green bond accounting and advancing sustainable development.

5.3 Recommendations

1. Regulators and industry bodies should provide targeted training to raise awareness and strengthen firms' and investors' understanding of green bond accounting.

2. The government should introduce incentives such as tax breaks and subsidies to stimulate green bond issuance and renewable energy financing.

3. Development agencies and associations should create collaborative platforms for knowledge sharing and capacity building to help firms navigate regulatory, financial, and technical barriers.

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