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GREEN BANKING PRACTICES AND FINANCIAL PERFORMANCE OF QUOTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

Financial performance of banking industry globally including Nigeria is affected by several factors such as economic instability and financial crises. Evidence from literature confirmed that deposit money banks are faced with the threat of unstable financial performance especially in the developing countries across Africa, Asia and Latin America. Studies have shown that though a number of variables have been employed in different countries to improve financial performance of deposit money banks but only few have adopted green banking practices. This study therefore, examined the effect of green banking practices on financial performance (Return on Assets) of quoted deposit money banks in Nigeria.

The study adopted an ex-post facto research design. The population consisted of 13 deposit money banks listed the Nigeria Exchange Group as 31st December, 2021. A sample of 11 deposit money banks with the relevant data were purposefully selected between 2012 and 2021. Data were obtained from published annual reports and financial statements. The reliability of the data was premised on the independent certification by statutory auditors. Descriptive and inferential (panel regression analysis) statistics were used to analyse the data at 0.05 level of significance.

The findings showed that green banking practices have significant effect on return on assets; (Adj.R2 = 0.09, $W(5, 104) = 10.41$, $p < 0.05$) of quoted deposit money banks in Nigeria. The study concluded that green banking practices improved financial performance of quoted deposit money banks in Nigeria. It is therefore recommended that Central Bank of Nigeria should develop specific guidelines on green banking practices for the banking industry and motivate banks to adopt the practices and reporting as mainstream strategy. In addition, Management of Banks should intensify the integration of green banking practices into their operations in order to enhance improved sustainable financial performance.

Keywords: Green banking practices, Financial performance, Deposit money banks, Return on assets.

Introduction

Primarily, the financial performance of any organisation is a measure of the organisation's income, profits, and increase in the value of the entity (Fuad et al, 2022). In service firms, financial performance is especially crucial as it reflects the effectiveness of management practices (Fuad et al, 2022). The financial performance of banks' worldwide is influenced by a myriad of factors that shape the banking industry's dynamics and profitability. These factors include the global economic environment, regulatory frameworks, technological advancements, and shifts in consumer behaviour and preferences (Vätavu, 2015; Szegedi, Khan, & Lentner, 2020 AnithaBose, & Gnanaraj, 2023; El Chaarani et al, 2022; Gofwan, 2022). Sana'a, (2016) measured financial performance using a variety of financial indicators and ratios, such as profitability ratios, liquidity ratios, solvency ratios, and efficiency ratios.

In some instances, poor financial performance and collapse of Banks have been traced to abuse of corporate governance. Numerous infamous corporate failure cases have been tried abroad and in Nigerian courts. Similarly, corruption has also been perpetuated by banks in Africa and worldwide, as they have facilitated corrupt politicians and others in concealing their illicitly acquired wealth. However, there are positive examples of ethical banking, such as Islamic banking, which has been linked to reduced corruption in some instances (Uddin, Chowdhury & Islam, 2017).

Government regulations and policies have been introduced to ensure the financial performance and stability of banks while also strengthening the risk management practices of banks operating in Nigeria. The 1990 Prudential Guidelines, introduced in 2005, aimed to strengthen banks' capital adequacy, risk management, and credit evaluation (Abdullahi, Shuaibu, Yusufu, Shehu, & Rafay, 2023). However, despite several government regulations, some banks still engage in risky lending practices and lack adequate risk management measures,



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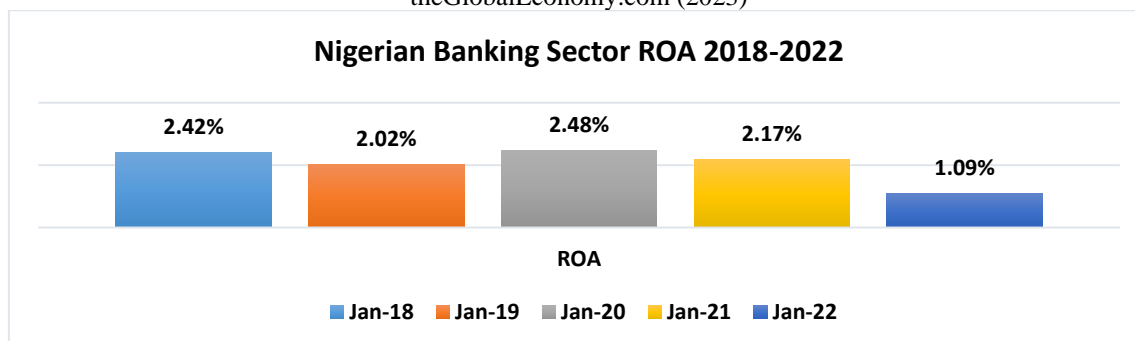
leading to financial instability (Apalowowa, et'al, 2023). One of the regulatory burdens in DMB is financial performance. Performance has evolved into a genuine opportunity to push beyond the limits and achieve greater success and advance profits in the long run.

Szegedi, Khan, and Lentner, (2020) reported that Inadequate financial performance can pose significant challenges for organizations, hindering their growth, profitability, and long-term sustainability. When a company fails to achieve desirable financial results, it may struggle to attract investors, secure loans, or retain talented employees. In their 2023 analysis of banks in Nigeria, Wisdom, Uloma, Omotayo, and Chibuzor, (2023) found that ROA and other key ratios using Tobin Q ratio for the years 2017, 2019, and 2020 indicated that the bank had been overvalued during those periods. The ratio values for these years were all above 1.0, which suggests that the bank's market value exceeded its true asset value.

Profitability is hampered by Nigeria's Cash Reserve Requirement (CRR), which is among the highest in the world and was raised from 27.5 per cent to 32.5 percent in October 2022 by the Central Bank of Nigeria (CBN). The CRR limits banks' ability to create risk assets because these reserves can only be used for intervention funds, forcing them to park an increasing amount of local currency deposits with the CBN. Despite the sector's earnings growing at a compound annual growth rate of about 23.5 per cent over the past ten years, real growth has been much lower, at around 12 per cent, with a sizable portion coming from noncore banking activities like fixed income and derivative income (CBN, 2020).

As seen in Fig 1.1 aside the observed undulating ROA performance of banks in Nigeria, the average ROA for the 5-year period in the chart is lower than 3%. In effect the ROA performance dropped from 2.17% in 2021 to 1.09% in 2022

Fig 1.1
Trend chart of Nigerian Banks ROA from 2018 to 2022.
theGlobalEconomy.com (2023)



Globally, imminent developments in the banking sector underscore sustainability in practicing green banking. The banking industry is presently under enormous pressure from its shareholders to conduct business in the most sustainable manner possible (Sharma & Choubey, 2022). In recent decades, there has been an increase in global demand for environmentally responsible business practices and a focus on green disclosure (Fatica & Panzica, 2021; Li, Ngniatedema & Chen 2017; Negash & Lemma, 2020).

Demand for environmentally friendly banking have had a particularly compelling pressure on the banking industry, particularly on emerging-market central banks. These demands have compelled banks in countries such as Bangladesh, Brazil, China, India, and Indonesia to go beyond the widely used voluntary approach to regulatory development. All of these countries have enacted mandatory environmental regulations and disclosure requirements (Bose, Khan, Rashid, & Islam 2018). These regulations, which are frequently issued as guidelines, require banks to engage in and publicly disclose environmentally friendly activities, which are known in the banking industry as 'green banking disclosure (GBD)' (The Guardian, 2014).

Ehiedu, and Eyamu, (2023) explore the relationship between environmentally sustainable practices adopted by Nigerian banks and their financial performance. The motivation behind this research is driven by the growing global awareness of environmental issues and the need for businesses, including banks, to contribute to



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sustainability efforts. By examining how green banking practices impact financial performance, the study aims to provide valuable insights that can help banks make informed decisions about integrating sustainability measures into their operations while maintaining profitability.

As a result, the purpose of this study is to investigate how green banking practices in Nigeria contribute to the financial performance of quoted deposit money banks in Nigeria

Review of Related Literature

Review of Concepts

Financial Performance

Financial performance refers to a company's ability to manage assets and make profits (Masum, Hassan & Jahan 2019; Masum, Latiff & Osman, 2021). Vätavu. (2015), also define financial performance as a measure of a company's financial health, which is determined by its ability to generate profits, manage costs, and efficiently allocate resources. The term "financial performance" in Hoque et al., (2019) research refers to a subjective measure of how effectively a firm utilizes its resources in its primary business operations to generate income and is also used as an overall indicator of a firm's financial health over a specific period. It can be deduced that the term is simply general measure of the overall health of an organization where the performance of an organization over a period of time and the position at a particular date is measured. Different measures are used to assess financial performance, including a measure for profitability, a measure for liquidity, and a measure for solvency.

Financial performance addresses the question of how well companies are performing in providing their services to consumers and businesses, and how much one can gauge that performance about certain benchmarks (Dinesh, 2021). It can be described as the extent to which the financial goal of a firm is being or has been accomplished. Financial performance is the process of measuring the results of an organization's policies and operations in monetary terms (Awan, Lodhi & Hussain, 2021). It measures the overall financial health of a firm over a given period. Abata and Migiro (2018) defined it as a way to satisfy investors and can be represented by profitability, growth, and market value (MV).

The FP of an organization is key to the sustainability of companies (Isaboke & Kwasira, 2016). High performance is an indicator that management is effective and efficient in utilising the company's resources and this in return contributes to the country's economy at large (Dinesh, 2021).

Return on Assets

ROA is a ratio used to calculate a company's profit over a specific time period as defined by Supriyadi and Terbuka (2021). It measures a company's ability to generate net income based on asset levels or ratios that demonstrate how capable the company is of using existing assets to generate profits. It represents the income earned on each unit of assets. According to Putri (2016), it is a comparison of net income after tax to total assets (average total assets obtained from the average total assets at the beginning and end of the year) (Asmi, 2014). Salihi et al. (2023) Calculating a firm's return on assets (ROA) can be relevant when the firm's profitability is analysed across several years whilst also comparing it to when analyzing its profitability over several quarters and years, as well as when comparing it to businesses that are alike. The return on all assets employed by the company is presented by the ROA ratio. Moreover, ROA gives a more detailed measure of the business's success because it establishes how well management utilises resources.

The ability of a company to generate profits in operating activities focuses on evaluating company performance. Profit is an indicator of a company's ability to meet its obligations to creditors and investors, as well as a component of the company's value creation process in relation to the company's future prospects. It can be used to assess a company's ability to generate profits by utilizing the total assets owned by the company after adjusting for the costs used to fund these assets, such as development costs and employee management in improving intellectual property (Rachmawati, 2020)

The issue with ROA is that it excludes off-balance-sheet items of the bank, creating a positive bias in evaluating bank performance (Watusake, Worang, & Tielung 2019). However, banks are always optimizing the objectives to achieve the expected level of profit. Expatriating, Gadoiu (2014) explained that there are various forms of



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calculating this ratio. It is calculated by dividing net income of the bank by the value of its assets. That is, profit before tax / total assets. Mathematically, it is defined as thus:

$$ROA = \frac{\text{Net Profit}}{\text{Total assets}}$$

Green Banking Practices

Green banking is defined as a business concept that refers to environmentally friendly business practices. To encourage banks to grow and develop sustainability in an integrated economic, social and environmental context. Green banking refers to the adoption of environmentally friendly practices and the reduction of carbon footprints associated with banking operations (Tara, Siingh, & Kumar, 2015). It is an attempt to avoid environmental damage through banking activities. Green banking is the promotion of environmentally friendly practices and the reduction of carbon footprints associated with banking activities. It is an effort to ensure that banking activities do not have a negative impact on the environment.

Green banking is a contemporary concept in Nigeria's banking sector. Green banking is a strategy for promoting environmentally friendly practices that help banks and customers reduce their carbon footprints. Since 2017, various strategies have been implemented to promote environmentally friendly business practices in order to determine their effectiveness in reducing the CO₂ footprint of the banking sector (Bukhari et al. 2020).

In response to the International Finance Corporations (IFC) promotion on the adoption of relevant Environmental, Health and Safety (EHS) guideline encapsulating elements of green banking practices, came the Nigerian Sustainable Banking Principles (NSBP). These principles were introduced in Nigeria by the Central Bank of Nigeria (CBN) in 2012 to promote sustainable growth while supporting developmental goals focusing on people and environmental conservation with the provision of socio-economic benefits (CBN, 2012). These SBPs are principles and concepts developed to ensure improved viability of banks and also make them promote commercially green- conscious economy. The nine NSBPs put together by CBN are delineated below;

Principle 1 – Environmental and Social Risk management affecting bank's business operations.

Principle 2 – Environmental and Social footprint affecting business operations of Banks.

Principle 3 – Need to respect human rights in bank's business.

Principle 4 – Banks' requirements to promote woman's economic empowerment activities.

Principle 5 – Banks' pledge to pursue Financial Inclusion.

Principle 6 – Provision of Environmental and social governance practises.

Principle 7 – Banks' involvement in Capacity Building programmes for their staff.

Principle 8 – Banks' playing collaborative partnership both locally and internationally.

Principle 9 – Banks must report on their progress at institutional and sectoral level.

Theoretical Framework

This theory is underpinned by the theory of socially responsible investment (SRI) which was informed by the quest for ethical investment and had been in practice for a long time from the era of Christianity, Islam and Judaism (Renneboog et al, 2008). The theory appears not to have a consensual definition because terminologies such as ethical, sustainability, social, green investment are substituted for SRI (Chatzitheodorou et al, 2019). SRI theory cannot be traced directly to a specific propounder however, Oehmke and Opp (2022) developed the theory further by building a model around assumptions around it.

Socially responsible investment theory functions as a model which could be leveraged to strengthen the relationship between green banking practices and bank trust while paying attention to socially responsible investment as a medium of enhancing sustainability performance which is deemed to be of benefit to policymakers, managers and investors (Korzeb & Samaniego, 2019). One of the key underlining assumptions for SRI theory is that a number of investors are particular about socially responsible goals when they invest. The investors look for ways to make such investments on three aspect of environmental, social and corporate governance (Oehmke & Opp 2022).

The critics of the theory of socially responsible investment include Friedman, (1970), who raised questions on how the theory would be recurred in the aspect of rise of socially responsible investment. Other critics to the theory were Pastor, Stambaugh and Taylor, (2021) and Pederson, Fitzgibbons and Pomorski, (2021), who stated in socially responsible fund, assets under management in socially responsible funds have increased dramatically and many investors are looking for ways to supplement their asset allocation with environmental, social, and



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governance. Also, the Hong and Kacperczyk, (2009), Chava, (2014), Barber, Morse and Yasuda, (2021) opine that asset management raise immediate concerns about the FP of investments. This means that for an investment to be socially responsible there must be a genuine impact on how it must influence the performance decisions of the banking sector and what conditions influence the socially responsible investment behaviour of the banking sector.

Oehmke and Opp's (2021) study supported the theory of socially responsible investment by explaining the need to internalize social costs regardless of whether they are investors in a given firm. When firms face binding financial constraints, impact is maximized by enabling a scale increase for clean production, and socially responsible and financial investors complement each other: together, they can achieve a higher surplus than either investor type alone. Scarce socially responsible capital should be allocated according to a social profitability index. This micro-founded Environmental Social Governance (ESG) metric captures not only a company's social status quo, but also the counterfactual social costs caused by the absence of socially responsible investors.

The researchers who have adopted the theory were Mackey, Mackey, and Barney, (2007), who studied the CSR and firm performance using the investor preferences and corporate strategies. Other researchers who adopted the theory include Dam and Scholten (2015), the researchers used the theory to explain the economic foundations of corporate social responsibility. Other researchers include Starr (2008), Johnson (2003), and Junkus and Berry (2015), among others. A study by Williams, (2007) used the socially responsible investment to explain some determinants decision in a cross-country study. The theory is relevant to GBPs and FP of the quoted banks in Nigeria, especially FP because the theory cared about the financial returns and how to internalize some of the social costs generated by the Nigeria DMBs. The theory can help this research on how to fully explain their social costs and how it can be used independently for banks' investment.

Empirical Review

Green Banking Practices and Return on Assets

Several studies have been carried out to determine whether the proxies of GBP impact ROA. Majority of the researchers used ROA to measure financial performance or firm financial performance. Though, little research has been carried out on GBP and ROA. Most studies have considered a different aspect but related to banking practice and ROA. These researchers include Almansour, Asad and Shahzad (2016), Nalinda, Balagobei and Dissanayake (2019), Arif and Syed (2015), among others.

In different parts of Africa, some researchers have revealed ROA with a different variable. The study of Ogunode and Adegbe (2020) studied environmental justice and ROA using some listed oil and gas in Nigeria. The study employed an expo-facto research design to analyse twelve oil and gas operators listed from the NGX. The study used dataset from 2003 to 2018 and adopted both descriptive and inferential statistics to discover that environmental justice significantly affect ROA.

In Malaysia, Almansour, Asad and Shahzad (2016) studied the analysis of corporate governance (CGS) and its impact on ROA. The study used 45 listed companies collated from Bursa Malaysia and discovered that frequency of board meetings, risk management committee members, foreign shareholders, and audit committee qualification regarding accounting and finance have a major impact over the ROA. Similar to the research was the study of Nalinda, Balagobei and Dissanayake (2019) who studied corporate governance principles and financial performance. The study was carried out in Sri Lanka and FP was measured with ROA and ROE by adopting secondary data from the Sri Lankan listed financial companies. The findings show that CGS, which is an aggregate of the compliance requirements of the corporate governance principles, has a positive impact on FP as measured by ROA and ROE, whereas only directors' remuneration and relationships with shareholders have a significant positive impact on FP of listed financial institutions, while the size of the company, sales volume, and number of years the company has been in the market are kept as constant variables.

Other researchers such as Arif and Syed (2015) explained the impact of corporate governance on performance using firm in the commercial banks and financial services in Pakistan. The study of Arif and Syed (2015) used ROA to measure FP and the study used 108 panel observations and used multiple regression analysis. The study, however, concluded that board independence has significant impact on ROE of the firm while board size and audit committee Independence have significant impact on ROA. In Sri Lanka, Danoshana and Ravivathani, (2019) on how to impact the corporate governance using firm performance using firm performance of financial



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institutions. ROA and ROE were the two variables to measure financial performance. Their study used 25 listed financial institutions for the period of 2008 to 2012. The study concluded that corporate governance significantly impacted on firm performance and board size and audit committee size have positively impact on firm performance.

Abueid, Adam, and Galadima (2021) worked on investigating the influence of corporate governance on listed company's performance using both fixed effect and random effect models to analyse the variables. The study revealed a negligible relationship between corporate governance and firm performance. However, when the study is controlled for financial leverage and total assets, a significant relationship between corporate governance and firm performance has been found. Abdullah (2021) worked on same study in Malaysia and used ROA to measure the effectiveness and efficiency of the organisation. Giving to the outcomes of the analysis, board independence has positive insignificant relationship with firm performances while board size and firm performances have negative and insignificant relationship. With respect to the frequency of audit committee meeting and firm size, the results displayed that the two variables have negatively significant relationship with the performances of the firm. This study, however, concluded used E-view software to analyse and to run Breusch-Godfrey Serial Correlation LM Test, Hausman Test, Ordinary Least Squared (OLS) method, Autocorrelation, Multicollinearity and Normality Test. Pasopa (2018) worked on the relationship between corporate governance and performance using companies listed in the stock exchange of Thailand. The research used 86 companies to study the empirical research and concluded that corporate governance and financial risk have negative impact on the rate of ROA significantly; corporate governance on the proportion of independent directors and size of business has a positive influence on EPS. For the financial risk, there is negative impact on EPS significantly, corporate governance on the size of the business has negative influence on the value of business significantly.

In the Nigeria manufacturing companies, firm's FP was measured using ROE by Alalade, Onadeko, and Okezie (2014). The study employed the use of panel data and analysed using ordinary least square method of analysis. The study, thereby, discovered that positive relationship between the return of equity and legal compliance, though the relationship is weak. Also, a weak relationship between ROE occurs with board compliance. Olaoye, Nwaobia and Oshadiya (2016) studied corporate governance and organisational growth by using 34 quoted consumer goods and food and beverage manufacturing companies. The study used seven (7) years data and analysed using OLS regression analysis. The study, however, concluded that corporate governance affects an organization's ability to grow and develop. Another similar study carried out by Enilolobo, Adesanmi and Aigbe (2019) explained the corporate governance and FP using food and petroleum profits. The study also represents FP as ROA and thereby concluded that corporate governance mechanism of board size has negative effect on the FP of food and petroleum companies in Nigeria.

Sanyaolu, Adesanmi, Imeokparia, and Alimi (2018) investigated the impact of corporate governance on the FP of Nigerian listed DMBs from 2007 to 2016. The study proxied corporate governance with board size, audit committee, board independence, board gender diversity, and firm size, while FP was proxied with ROA. The study examined eight (8) DMBs listed on the Nigerian stock exchange at random and obtained data from the banks' annual reports from 2007 to 2016. The extracted data were analyzed using the pooled least squares regression method. The study discovered a significant negative relationship between board size, audit committee, firm size, and ROA. Adesanmi, Sanyaolu, Ogunleye, and Ngene (2018) investigated the impact of corporate governance on the FP of Nigerian manufacturing firms and banks from 2005 to 2014. The study used proxies for corporate governance such as board size, audit committee, and board independence. The pooled least squares method of regression and the paired t-test were used to analyse the study's data. The pooled ordinary least square regression results for the manufacturing firms showed an R² of 0.71 (71%), while the R-squared for the sampled banks was 0.85 (85%). The research discovered a positive and significant relationship between board size, board independence, and ROA of the companies studied in the manufacturing and banking sectors.

Several studies have been conducted to explore the relationship between green banking practices (GBP) and Return on Assets (ROA). While most researchers used ROA to measure financial performance, limited research has focused on the impact of GBP on ROA. Various studies have examined different aspects related to banking practices and ROA, such as environmental justice in Nigerian oil and gas companies and corporate governance principles in Sri Lankan financial institutions. In Malaysia, corporate governance factors like board meetings, risk management committees, and audit committee qualifications have been found to significantly influence ROA, while in Pakistan, board independence was shown to impact ROE and ROA. In Nigeria, weak positive



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relationships were found between ROE and legal compliance and between ROE and board compliance in manufacturing companies. Additionally, corporate governance was found to affect organizational growth and firm performance in Nigeria's consumer goods and petroleum sectors, while in Nigerian listed deposit money banks, board size, audit committees, and firm size were negatively related to ROA. However, in Nigerian manufacturing firms and banks, board size and board independence were found to have a positive and significant relationship with ROA.

Methodology

This study adopted an ex-post facto research design. The population consisted of 13 deposit money banks listed on the Nigeria Exchange Group as 31st December, 2021. Purposive sampling technique was used to select 11 from the 13 listed deposit money banks on Nigeria Exchange Group. The 11 DMBs sampled were Access Bank PLC, Fidelity Bank PLC, First City Monument Bank PLC, First Bank of Nigeria PLC, GT Bank PLC, Union Bank PLC, United Bank of Africa PLC, Zenith Bank PLC, Stanbic IBTC Bank PLC, Sterling Bank PLC and Wema Bank PLC respectively. These banks constitute 84% of the total number of listed banks on the Nigeria Exchange Group as 31st December, 2021 hence the sample size is considered as amply representing the population.

Data were obtained from published annual reports and financial statements

The scoring index for green banking practices was used to determine the final measures of the independent variables. It was based on performance indicators chosen and used in prior studies (Chen, Siddik, Zheng, Masukujjamna, & Bekhzod, 2022; Sarma & Roy 2021). Based on the frequency of disclosure, indicators indexes for the five sections; bank employee related practices, bank operation related practices, bank customer related practices, bank policy related practices and bank environmental compliance practices will be computed. For example, if an indicator appears in the company's financial statement, the researcher gave it a value of "2," but if it did not, it gave a value of "1." The index score was calculated by dividing the number of occurrences by the total number of possible scores as seen in Table 3.5. This is leveraging formula adopted by Amran et al. (2017).

$$\text{Green Banking Practices index } GBI = \frac{\text{The score of disclosed items per section}}{\text{Total obtainable score of items per section}}$$

Table 3.1: Green Banking Index

Name	Green Banking Practices	Score/Item	Total Score
BERP	Bank Employee-Related Practices		
	Staff training and awareness on green conscious environment	2	4
	Staff Buses/Car Pooling/Business Travel to reduce contribution to carbon emission	2	
BORP	Bank Operation-Related Practices		
	Paper usage reduction	2	8
	Waste management	2	
	ATMs availability	2	
	Eco-friendly banking services/Solar energy deployment	2	
BCRP	Bank Customer-Related Practices		
	Internet banking services	2	8
	Mobile banking services	2	
	Agency banking services	2	
	PoS terminals	2	
BPRP	Bank Policy-Related Practices		
	Committee/Team on sustainability	2	4
	Information Technology Steering Committee	2	
BCEP	Bank Environmental Compliance Practices		
	Sustainability Reporting	2	4
	Green House Gas (GHG) emission or Carbon footprint	2	

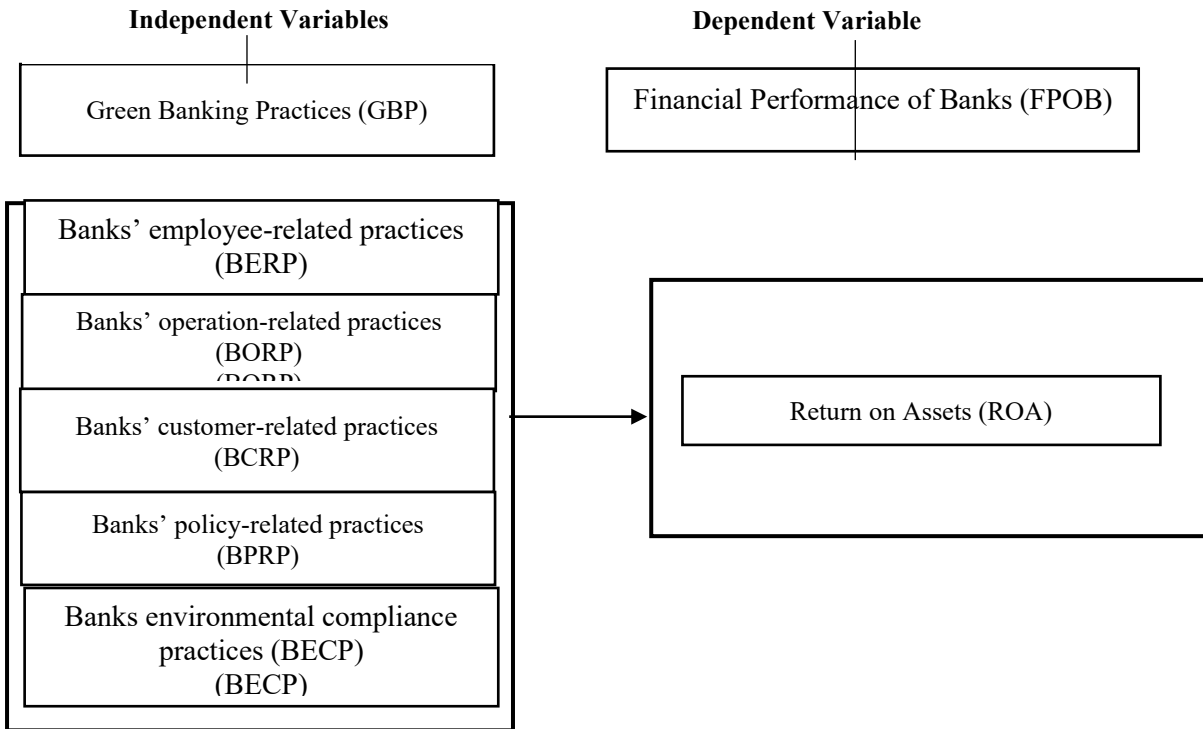
Source: Researcher's Field Survey, 2024

For the purpose of the study, the formulated hypothesis and the conceptual framework are as follows:



Research Hypothesis One (H₁): Green banking practices have significant effect on return on assets of quoted DMBs in Nigeria

Figure 2.1: Study’s Conceptual Framework



Model Specification

In order to estimate the impact of green banking practices on financial performance a model is specified. In the model, ROA is the dependent variable, serving as the proxy for financial performance

$$ROA_{it} = \beta_0 + \beta_1BERP_{it} + \beta_2BORP_{it} + \beta_3BCRP_{it} + \beta_4BPRP_{it} + \beta_5BECP_{it} + \epsilon_{it} \dots \dots \dots (1)$$

Where

- ROA= Return on Asset
- BERP= Bank Employee-Related Practices
- BORP= Bank Operation-Related Practices
- BCRP= Bank Customer-Related Practices
- BPRP= Bank Policy-Related Practices
- BECP= Bank Environmental Compliance Practices
- ϵ = Error term

The apriori expectations regarding the impact of independent variables is that improvement in any of these will improve financial performance.

Results and Discussions of Findings

Descriptive Findings

The minimum value of ROA which is -2.06 is linked to 2012 and recorded by Wema bank. Whereas the highest ROA within the period under study is attributed to Guaranty Trust Bank in 2018. Between 2012 and 2021, the mean value and standard deviation of ROA for DMBs was estimated at 1.86. Table 4.1.1 showed that the maximum EPS for all the DMBs sampled was 7.79 as recorded by Zenith Bank while the lowest EPS of -0.42 was recorded also by Wema bank. The minimum value of NPM explained that the Fidelity bank Plc had the lowest NPM while of 35.72 while Guaranty Trust Bank had the highest with 83.67



Post-Estimation Results for Model One

The result of the Hausman test with the *p-value* of 0.99, being greater than the 5 percent level of significance chosen for this study reveals that fixed effect is not the appropriate estimator according to its null hypothesis which states that there is presence of unsystematic difference in the model coefficients; thus, the study does not reject the null hypothesis, and the random effect estimation technique was utilized. The result of the confirmation test (Breusch and Pagan Lagrangian multiplier (LM) test) with *p-value* of 0.000 equally supports the outcome of the Hausman test which proved that the random effect estimation technique is the appropriate estimation technique for Model 1. The result of the heteroskedasticity test ($p = 0.0062$) and autocorrelation test ($p = 0.0067$) revealed that the model suffers from autocorrelation and heteroskedasticity issues. These issues were thus addressed by analyzing the model with econometric codes that produced robust standard errors.

Regression Equation Results for model one

$$ROA_{it} = \beta_0 + \beta_1BERP_{1it} + \beta_2BORP_{2it} + \beta_3BCRP_{3it} + \beta_4BPRP_{4it} + \beta_5BEC P_{5it} + \varepsilon_{it} \dots \dots \dots (1)$$

$$ROA_{it} = 1.986 + 0.764BERP_{1it} + 0.697BORP_{2it} + 0.706BCRP_{3it} - 0.756BPRP_{4it} - 1.448BEC P_{5it}$$

The F-statistic value of 10.41 and its associated P-value of 0.04 shows that the regression model on the overall is statistically significant at 5% level. This means that the regression model is valid and can be used for statistical inference.

Table 4.1: Regression and Post-Estimation Results for Hypothesis One

Variables	Random Effect Model			
	Coeff	Std. Err	T-Stat	Prob
Constant	1.986	0.678	2.930	0.003
BERP	0.764	0.401	1.070	0.284
BORP	0.697	0.650	1.070	0.284
BCRP	0.706	0.654	1.080	0.281
BPRP	-0.756	0.417	-1.810	0.070
BEC P	-1.448	0.630	-2.300	0.022
Adj R ²	0.0992			
Wald Stat (Prob)	= 10.41 (0.0443)			
Hausman Test	chi ² ₍₅₎ = 0.38 (0.9959)			
LM Test	F _(14, 174) = 273.29 (0.000)			
Heteroskedasticity Test	chi ² ₍₅₎ = 7.50 (0.0062)			
Autocorrelation Test	F _(1, 13) = 11.581 (0.0067)			

Dependent Variable: ROA

Source: Researcher’s Computation (2024)

Note: all the analysis was tested at 5% significance level

The magnitude of the effect of each the constructs of green banking practices are estimated using coefficients of the regression results. The result showed that Bank’s customer-related practices (BCRP) have a positive influence ($\beta = 0.706$) and insignificant effect (T-stat p-value = 0.281) on ROA at 5% level of significance. Banks’ operation-related practices (BORP has a positive ($\beta = 0.697$) relationship on ROA but the effect is not statistically significant (T-stat p-value = 0.284) at 5% level of significance. Also, Banks’ policy-related practices (BPRP) as an independent variable to ROA also has a negative ($\beta = -0.756$) and insignificant influence (T-stat p-value = 0.070) on ROA at 5% level of significance. In the study, it was discovered that banks’ environmental compliance practices (BEC P) as an independent variable to ROA has a negative ($\beta = -1.448$) and significant influence (T-stat p-value = 0.022) on ROA at 5% level of significance. Bank employee-related practices (BERP) as an independent variable to ROA has a positive ($\beta = 0.764$) and significant (T-stat p-value = 0.284) effect on ROA at 5% level of significance. This therefore implies that a percentage change in Bank employee-related practices (BERP) will lead to 0.76 percent change in the ROA of banks.



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Decision: Based on the probability of F-statistics of 0.044 being less than the 5% chosen significant level adopted for this study, this study therefore established that the null hypothesis for model one which states that “Green banking practices have no significant effect on return on assets of quoted DMBs in Nigeria” should be rejected, while the alternate hypothesis should be accepted. Hence arriving at a conclusion that “Green banking practices have significant effect on return on assets of quoted deposit money banks in Nigeria.”

Discussion of Findings

The study found that green banking practises have a significant and positive effect on return on assets. This is evidenced by two of the indicators of green banking practises which are banks’ environmental compliance practices and banks’ operation-related practices. This shows that the higher the use of green banking practices the increase in banks’ ability to enhance return on assets. Therefore, it can be deduced that the more the usage of alternate channels such as ATMs and digital channels by customers, the bank will be more efficient. Hence fee-based income generation through these transactions will enhance improvement in ROA of the banks. In addition, increased staff awareness on GBP will facilitate its successful implementation as they will be motivated to adopt paperless initiatives and also well informed to educate customers to transact online.

The result from this study aligns with the theory of diffusion of innovation implying the spread of the adoption of innovative initiatives such as the use of alternate channels including ATMs and other digital channels which are among the GBP proxies.

Furthermore, the result obtained from this study aligns with the study of Abdullah (2021) which reiterated issues of balancing profitability with regulatory compliance. Hence supporting the appropriateness of this model for the analysis given that BECP from these findings have negative relationship with ROA.

The empirical analysis of Green Banking Practices and their impact on Return on Assets (ROA) draws upon a backdrop of existing research. Several studies have delved into the relationship between proxies of GBP and ROA, albeit with varying results. This study contributes to this evolving body of knowledge by specifically examining the context of Nigerian Deposit Money Banks (DMBs) and their financial performance.

The results of this study support earlier research including Ratnasari et al., (2021); Setyoko and Wijayanti (2022) and Rachman & Saudi, (2021) which revealed that GBP have positive and significant effect on FP (ROA).

The study reveals a significant negative association between GBP proxied with Bank Environmental Compliance Practices (BECP) and ROA, indicating that stricter adherence to governance and compliance guidelines may negatively affect financial performance in Nigerian DMBs. This result is consistent with the findings from a similar study by Tu & Dung, (2017) which confirmed that GBP initiatives come with continuous investment in new technologies including eco-friendly power sources which mostly come at a substantial cost which may impact the profitability of the companies. When sustainability reporting which include green banking practices disclosure was introduced by CBN in 2012 as components in sustainability reporting by banks, Bank’s have been incurring some costs to ensure compliance.

Our findings also underscore the importance of addressing research gaps identified in the literature review. While some previous research hinted at potential relationships between green banking practices and financial performance, these relationships remained largely unexplored. Our study delved into this relatively uncharted territory by specifically assessing the impact of Bank’s environmental compliance practices (BECP) on ROA. Our results indicate a significant negative relationship between BECP and ROA, suggesting that increased focus on environmental compliance may have adverse effects on financial performance.

Conclusion and Study Implications.

The primary objective of this study was to examine the impact of green banking practices on the financial performance of quoted Deposit Money Banks (DMBs) in Nigeria. To gauge green banking practices, the study employed five distinct proxies, encompassing employee-related practices, operation-related practices, customer-related practices, policy-related practices, and environmental compliance practices. The financial performance, as the dependent variable, was measured using return on assets. The study harnessed secondary data acquired



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from the Nigeria Stock Exchange, spanning the period from 2012 to 2021. Hypothesis was formulated and rigorously analyzed, yielding varying results.

In Model one, the study revealed that three proxies of green banking practices (BERP, BORP, and BCRP) positively contributed to the return on assets (ROA), while BPRP and BECP had a negative influence on ROA. Additionally, it was noted that BCRP and BORP were not statistically significant in relation to ROA, whereas the other proxies of green banking practices demonstrated significance. The study rejected the null hypothesis at a significance level of P-value < 5%, concluding that green banking practices have a significant effect on the ROA of quoted Deposit Money Banks (DMBs) in Nigeria.

In light of these findings, our research contributes to the ongoing discourse on GBP and financial performance. It provides valuable insights into the complex dynamics between green banking practices, and ROA in Nigerian DMBs. These insights have practical implications for banks, regulators, and policymakers seeking to strike a balance between sustainability initiatives and financial viability.

Consequence to the empirical results and findings from the examination of the objective of this study, it is recommended that management of DMBs should consider green banking practices as a necessity rather than desirability. They should intensify their efforts in cascading the awareness and benefits to their employees and encourage them to embrace and support implementation of the initiative. In addition, there are no specific guidelines on green banking apart from some of its features included in the Nigerian Sustainable Banking Principles (NSPB) introduced since 2012 which is yet to be revised. CBN should consider revising the NSPB in line with current realities and come up with a separate guideline on GBP for DMBs. CBN should provide incentives to DMBs to improve their level of adoption of GBP.

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