



Does Green Finance Affect Environmental Performance?

Evidence from Nigerian Banks

Oloruntoba Oyedele ¹, J. K. Olowookere ², Abraham O. Gbadebo ³, Ademola S. Sajuyigbe ^{4,*}

¹ Department of Accounting and Finance, Ajayi Crowther University, Oyo, Nigeria

² Department of Accounting, Osun State University, Okuku Campus, Nigeria

³ Department of Banking and Finance, Osun State University, Okuku Campus, Nigeria

⁴ Department of Business Studies, Landmark University, Omu-Aran, Nigeria; sajuyigbeademola@yahoo.com

*Corresponding author

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Abstract: The green environment has become a ubiquitous problem in today's world, where people around the world are voiced against pollution. This study examines the effect of green finance on banks' performance. Specifically, the study determines the extent to which green loans, green investment, green technology, and green training influence banks' environmental performance. A non-probability convenience sampling technique was employed on 250 respondents from Nigerian banks. Structural equation modeling (SEM) was used to analyze the data. The results reveal that green loan has a positive and significant association with environmental performance. This implies that financing green loans will improve environmental sustainability. Furthermore, the result shows that green investment has no significant influence on environmental performance. This connotes that the majority of Nigerian banks have not been committed to financing investment in renewable energy, waste management, and projects that support the sustainability of the environment. Evidence shows that there is a positive link between green technology and environmental performance. This implies that financing online banking facilities such as ATMs, POS, mobile applications, online customer service platforms, etc has improved banks' environmental performance tremendously. Also, it was revealed that green training has a direct and significant relationship with banks' environmental performance. This implies that banks' environmental management

knowledge-driven has improved environmental performance. This suggests to the financial regulatory authorities, bankers, policy-makers, environmentalists, and stakeholders that the financing of green loans, green investment, green technologies, and green training is very important to achieve environmental sustainability

Keywords: Green loa; Green investment; Green technology; Green training; Environmental performance.

1 Introduction

Financing climate change is of great concern to researchers, academics and environmentalists around the world. Obviously, the United Nations and former President Ban Ki-moon have appealed to financial institutions and investors to financially support climate change initiatives to provide solutions to climate-affected locations around the world (UNEP, 2020). As a result, the G20 established the Green Finance Research Group in mid-2016, and UNEP served as secretary under environmental sustainability support in China and the United Kingdom (Xi, Wang & Yang, 2021). Recently, in both developed and emerging markets, the banking sector has funded green investments in clean, green technologies, green loans for projects that support environmental sustainability, and environmentally friendly public. Supporting green public policy to align public sector financing decisions with environmental sustainability of the SDGs' 2030. Therefore, green finance is a financial initiative aimed at protecting the environment and achieving sustainable use of resources. Xi, Wang and Yang (2021) argue that green finance dimensions have a positive link to environmental performance in terms of protecting and restoring the ecological environment, promoting renewable energy usage and promoting projects that support environmental sustainability. Research evidence shows that green finance enhances competitiveness of banking environmental performance and gain competitive advantage (Zhang, Wang, Zhong, Yang, & Siddik, 2022; Zheng, Siddik, Masukujjaman, Fatema, 2021; Shafique & Majeed, 2020).

Developing countries like Nigeria are vulnerable to environmental issues such as land reclamation and degradation. Unsafe use of chemicals; Acid dehydration of mining sites; loss of biodiversity; intensive water consumption; environmental pollution due to inadequate waste disposal and dirt and air pollution. And the contribution of the mining industry to international climate change. These effects rarely occur alone, and even their cumulative and cross-border effects can have serious impacts on landscapes and habitats as a whole (UNEP, 2020). Similarly, existing studies have confirmed that the environment in Ogoniland and other parts of Nigeria is threatened with the help of contaminated drinking water and carcinogens (Umoren, Akpan & Okafor, 2018; Oti & MbuOgar, 2018; Nwaiwu & Oluka, 2018).

Environmental performance of green finance has been investigated and conceptualized in various ways in developed and emerging countries such as Pakistan (Shafique & Majeed, 2020), China (Zhang, et al., 2022), Bangladesh (Zheng, et al., 2021;

Khairunnessa, VazquezBrust & Yakovleva, 2021), United Kingdom (Xi, Wang & Yang, 2021), Kenya (Sheikh, 2014), Egypt (Atef, 2017), Nepal (Risal & Joshi, 2018), and Sri Lanka (Shaumya & Arulrajah, 2017). However, none of the few studies available have investigated the impact of green finance on the environmental performance of Nigerian banks. Therefore, this study aims to fill the gaps identified in the literature by investigating the impact of green finance on the environmental performance of Nigerian banks. The study shows that green loans, investment, technology, and training are germane green finance dimensions. This suggests to the financial regulatory authorities, bankers, policymakers, environmentalists, and stakeholders that green financing can help the country achieve the SDGs for environmental sustainability.

2 Theoretical Framework and Development of Hypotheses

Stakeholder theory dates back to Freeman (1984), which links external stakeholders to corporate functions. Stakeholder theory suggests that companies should create value for all stakeholders by funding green investments and supporting green policies and projects that contribute to environmental sustainability. Extensive stakeholder theory research focuses on stakeholder, especially funding green projects and examining the principles of environmental sustainability in the surrounding community to help companies achieve their long-term goals (Bowie, 2017; Khaled, 2014; Jensen, 2010;). Bowie (2017) argues that managers behavior environmental sustainability to satisfy their moral, ethical, and social obligations for their stakeholders and strategically gain company desires for their shareholders.

The green environment has become a ubiquitous problem in today's world, where people around the world are voiced against pollution. For example, Nigeria has continued exploitation of the surrounding area, northern drought and desertification, severe erosion of valleys in eastern and northern states, biodiversity destruction, improper agricultural practices, basin destruction, vastness. Depletion of agricultural land, emergence of construction pits due to inadequate mining practices and road construction, oil pollution due to gasoline spills and flares, urban collapse and squatter settlements, industrial air pollution, especially urban waste generation, Changes in local weather, ozone layer depletion (Onipe, 2018; Nwaiwu & Oluoka, 2018; Oti & Mbu-Ogar, 2018).

The financial sector is recognized as a major player in sustainable economic growth and environmental protection. Xi, Wang and Yang (2021) found that green finance has a positive impact on environmental performance in terms of protecting and restoring the ecosystem environment, promoting the use of renewable energy and promoting projects that support environmental sustainability. According to Liu et al., (2020), green finance will lead to environmental sustainability through the use of new energy sources, ecosystem agriculture, low carbon industries and green products.

3 Relationship between Green Finance and Environmental Performance

Previous studies on the relationship between green finance and environmental performance have been reviewed as follows:

Zhang et al., (2022) investigate the impact of green banking activities on environmental performance of Bangladeshi banks. They found that green finance mediates between green banking and environmental performance, while green banking activities have a significant impact on environmental performance. Another study by Zheng et al., (2021) confirms that green brick manufacturing, green branching and green investment financing are linearly linked to a bank's environmental performance. Similarly, a study by Ngwenya and Simatele (2020) found that green finance aspects such as green lending, green investment, green policy and green technology have a strong impact on a bank's environmental performance. Miah, Rahman, and Haque (2018) also agree that green credit rating scores have had a positive impact on banks' environmental performance.

Evidence from a study by Rehman, Ullah, Fridi, Ullah, Zeeshan, Hussain and Rahman (2021) shows that green policy is linearly linked to a bank's environmental performance. In addition, Shaumya and Arulrajah (2017) argue that green banking activities such as greedy lending, green operations, green policies and green investments have a significant impact on the environmental performance of Sri Lankan banks.

Another study conducted by Kala and Vidyakala (2020) in India found that green training, green finance and green projects are improving the environmental performance of banks. Similar to the study conducted by Risal and Joshi (2018) in Nepal is consistent with previous studies that green training, green policies and green projects have a significant impact on banks' environmental performance. Thus, the following research hypotheses are proposed in line with the theoretical and empirical findings:

H1: There is a significant association between green loans and banks' environmental performance

H2: There is a significant association between green projects and banks' environmental performance.

H3: There is a significant association between green technology and banks' environmental performance.

H4: There is a significant association between green training and banks' environmental performance.

4 Methods

4.1 Sampling Procedures

A non-probability convenience sampling technique was employed on 250 respondents from Nigerian banks. The biographic information of the surveyed respondents is detailed as follows: 75% of the respondents were males, while 25% constitute females. 50.2% of the respondents are aged between 25 and 30 years, 20.2% are between 31 and 40

years, and the remainder of the respondents are aged 41 and above. Among the respondents, 10% had a master's degree, 68% had a bachelor's degree, 20% had a diploma and only 2% had a school certificate. Additionally, 10% had a working experience of 2-5 years; 38% had 5-10 years; and 52% had over 10 years' experience.

4.2 Survey Instrument

The instruments used for the study consists of green credit scale, green projects scale, green policies scale, green technology scale, green training scale and environmental performance scale.

The scale was anchored on a five-point Likert scale (ranging from one = strongly disagree to five = strongly agree) for all the study instruments.

Green Loans Scale: This scale was derived from the studies of Zhang et al., (2022) and Rehman etc., (2021). The survey comprises 3 items: A large part of bank's total loans are green loans, which are awarded for ecofriendly projects and green compliance. The scale's internal consistency factor α was 0.82

Green Projects Scale: The scale was developed and validated by Kala and Vidyakala (2020). The survey comprises 3 items: My bank is investing in renewable energy, my bank is investing in waste management, and my bank is investing in projects that support the sustainability of the environment. The scale's internal consistency factor α was 0.79

Green Technology Scale: This scale was derived from the work of Zheng et al., (2021). The survey comprises 3 items: My bank is investing in mobile applications, my bank is investing heavily in online banking facilities, and my bank is building an online customer service platform. The scale's internal consistency factor α was 0.88.

Green Training Scale: This scale was adopted from the study of Risal and Joshi (2018). The survey comprises 3 items: my company always provide environmental training on yearly basis my company always drive at environmental management knowledge, and my company always organize seminar and workshop on environmental issues. The scale's internal consistency factor α was 0.78.

Environmental performance scale: Three items were adopted from the work of Miah, Rahman, and Haque (2018). The survey items are: My bank has always minimized carbon emissions through eco-driving, reducing carbon emissions by integrating HR policies into our environmental performance, and my bank has always reduced energy consumption. The scale's internal consistency factor α was 0.79.

Table 1 shows that the factor weights for all indicators are greater than 0.5, indicating that the question explains the variability of those variables. This makes the measurement model suitable for analysis.

Table 1. Summary of Results of the Measurement Instruments Validation

| Variable | | Cronbach's alpha |
|--|--|------------------|
| Green Loan – Cronbach Alpha – (GLO = 0.841) | | |
| GLO 1 | Green loan is a large part of bank's total loans | 0.705 |
| GLO 2 | Loans are awarded for ecofriendly projects. | 0.698 |
| GLO 3 | Green compliance is used for loans | 0.802 |
| Green Investment - Cronbach Alpha – (GIN = 0.892) | | |
| GIN 1 | My bank is investing in renewable energy | 0.786 |
| GIN 2 | My bank is investing in waste management | 0.851 |
| GIN 3 | My bank is investing in projects that support the sustainability of the environment | 0.764 |
| Green Technology- Cronbach Alpha – (GTE = 0.807) | | |
| GTE 1 | My bank is investing in mobile applications. | 0.785 |
| GTE 2 | My bank is investing heavily in online banking facilities | 0.799 |
| GTE 3 | My bank is building an online customer service platform | 0.811 |
| Green Training- Cronbach Alpha – (GTR = 0.798) | | |
| GTR 1 | My company always provide environmental training on yearly basis. | 0.724 |
| GTR 2 | My company always drive at environmental management knowledge | 0.788 |
| GTR 3 | My company always organize seminar and workshop on environmental issues | 0.701 |
| Environmental Performance- Cronbach Alpha – (EMP = 0.799) | | |
| EMP 1 | My bank has always minimized carbon emissions through eco-driving. | 0.807 |
| EMP 2 | Reducing carbon emissions by integrating HR policies into our environmental performance. | 0.689 |
| EMP 3 | My bank has always reduced energy consumption | 0.741 |

5 Data Analysis and Results

Table 2 demonstrates the relationship that exists between observed variables. The result reveals that green loan ($r = 0.582$; $p < .05$), green technology ($r = 0.601$; $p < .05$) and green training ($r = 0.539$; $p < .05$) have a significant linear relationship with environmental performance, while the relationship between green investment ($r = .009$; $p > .05$) and environmental performance is positive but not significant (see figure 1). This indicates that Nigerian banks' investment in renewable energy, waste management, and projects that support the sustainability of the environment has not yielded the expected result. However, financing of green loans, technology, and training have a significant effect on banks' environmental performance.

Table 2. Relationship between Variables

| Variable | 1 | 2 | 3 | 4 | 5 |
|---------------------------|--------|--------|--------|---|---|
| Environmental Performance | 1.0000 | | | | |
| Green loan | 0.5826 | 1.0000 | | | |
| Green investment | 0.0943 | 0.0515 | 1.0000 | | |

| | | | | | |
|------------------|--------|--------|--------|--------|--------|
| Green technology | 0.6014 | 0.3686 | 0.0691 | 1.0000 | |
| Green training | 0.5393 | 0.3372 | 0.0970 | 0.6767 | 1.0000 |

Table 3 depicts the direct path of the variables. Using a standardized coefficient, the beta-value of 0.398 showcases that a green loan has a positive association with environmental performance, while that and P-value of 0.000 indicates that environmental performance is significantly influenced by a green loan. This implies that financing green loans will improve environmental sustainability. This study concurs with Ngwenya and Simatele (2020) that green lending, has a strong impact on a bank's environmental performance. Miah, Rahman, and Haque (2018) also agree that green credit rating scores have had a positive impact on banks' environmental performance. Furthermore, the result shows that green investment has no significant influence on environmental performance with a beta-value of 0.034 and a P-value of 0.345. This connotes that the majority of Nigerian banks have not been committed to financing investment in renewable energy, waste management, and projects that support the sustainability of the environment.

Table 3. Path Analysis (Direct)

| Path | Coefficient | Std. Err | P | Hypothesis |
|----------|-------------|----------|-----|---------------------|
| GLO →EMP | .398 | .037 | *** | H1 is supported |
| GIN →EMP | .034 | .038 | Ns | H2 is not supported |
| GTE →EMP | .332 | .050 | *** | H3 is confirmed |
| GTR →EMP | .176 | .051 | *** | H4 is supported |

Note: GLO = green loan, GIN = green investment, GTE = green technology, GTR = green training, EMP = environmental performance, *** = significant at 1%, ** = significant at 5%, Ns = not significant.

The beta-value of 0.050 means that there is a positive link between green technology and environmental performance, while the p-value of 0.000 proves that green technology has a significant effect on environmental performance. This implies that financing online banking facilities such as ATMs, POS, mobile applications, online customer service platforms, etc has improved banks' environmental performance tremendously. The study is in agreement with Ngwenya and Simatele (2020) that green technology has a strong impact on a bank's environmental performance. Also, the study reveals that green training ($\beta = 0.051$) has a direct relationship with banks' environmental performance. The P-value of 0.000 indicates that the relationship is significant. This implies that banks' environmental management knowledge-driven has improved environmental performance. The study concurs with Rehman, Ullah, Fridi, Ullah, Zeeshan, Hussain, and Rahman (2021) that green training is linearly linked to a bank's environmental performance.

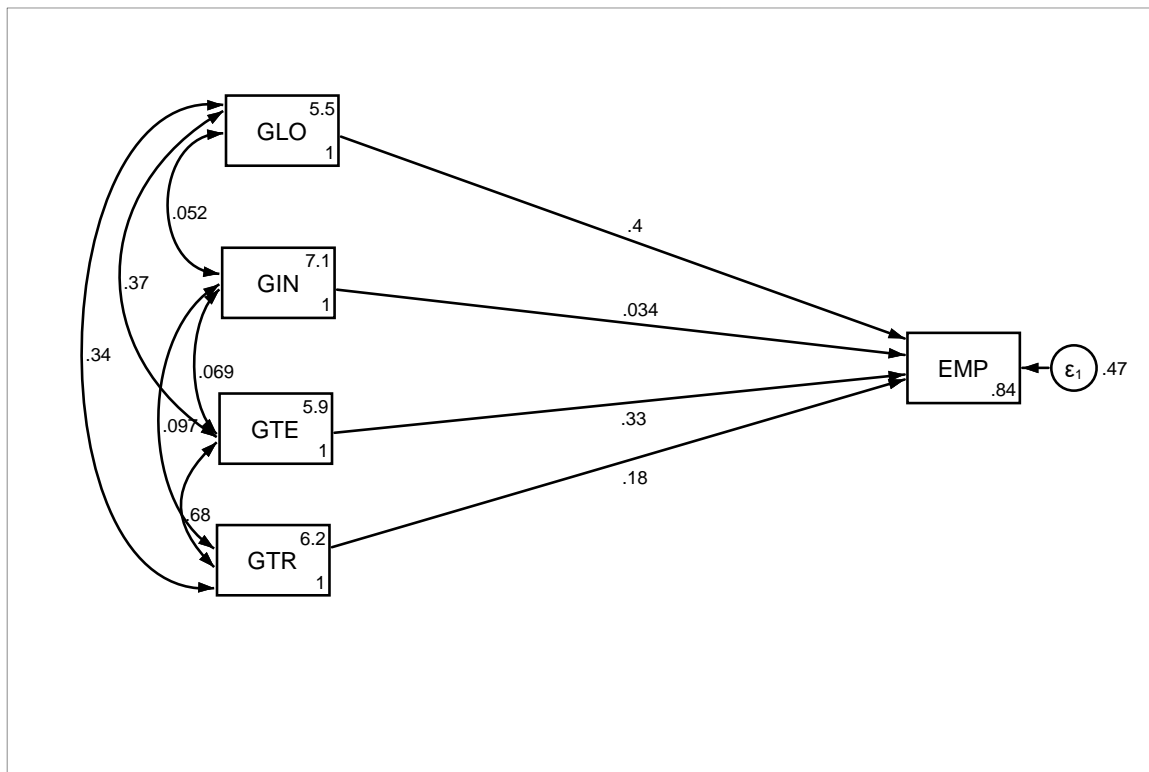


Figure 1. Structural Equation Model (Source: Data computation, 2022)

Table 4. Equation-level goodness of fit

| Depvars | Environmental Performance |
|--------------------|---------------------------|
| Variance Fitted | .3837401 |
| Variance predicted | .2036622 |
| Residual | .1800779 |
| R2 | .5307295 |
| Mc | .7285118 |
| Mc2 | .5307295 |
| Overall | .5307295 |

mc = correlation between depvar and its prediction, mc2 = mc² is the Bentler-Raykov squared multiple correlation coefficient.

Table 4 shows the equation-level goodness of fit test. The variance fitted value of 0.383 and variance predicted of 0.203 leading to an R2 value of 0.530. This connotes that 53% of the variance in the dependent variable in this model (environmental performance) is accounted for by the independent variables (GLO, GIN, GTE, and GTR). Thus, the model is fit.

6 Conclusion

The green environment has become a ubiquitous problem in today's world, where people around the world are voiced against pollution. This study examines the effect of green finance on banks' performance. Specifically, the study determines the extent to which

green loans, green investment, green technology, and green training influence banks' environmental performance.

A non-probability convenience sampling technique was employed on 250 respondents from Nigerian banks. Structural equation modeling (SEM) was used to analyze the data. The results reveal that green loan has a positive and significant association with environmental performance. This implies that financing green loans will improve environmental sustainability. Furthermore, the result shows that green investment has a positive but insignificant influence on environmental performance. This connotes that the majority of Nigerian banks have not been committed to financing investment in renewable energy, waste management, and projects that support the sustainability of the environment. Evidence shows that there is a positive link between green technology and environmental performance. This implies that financing online banking facilities such as ATMs, POS, mobile applications, online customer service platforms, etc., has improved banks' environmental performance tremendously.

Also, it was revealed that green training has a direct and significant relationship with banks' environmental performance. This implies that banks' environmental management knowledge-driven has improved environmental performance.

6.1 Practical Implication

The finding of this study has practical implications as it reveals that green finance parameters have a positive relationship with environmental performance. This proves that green loans, green investment, green technology, and green training are germane green finance dimensions to achieve banks' environmental performance. This suggests to the financial regulatory authorities, bankers, policymakers, environmentalists, and stakeholders that the financing of green loans, green investment, green technologies, and green training is very important to achieve environmental sustainability.

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