

# Sustainability Practices and Investors Behaviour: Evidence from Quoted Deposit Money Banks in Nigeria

S. P. Okwuego, Dr. T. N. Ofor, Prof. S. N. Agubata

Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria

## ABSTRACT

This study examines the impact of sustainability practices specifically agricultural financing, housing finance, and long-term investments on investor behavior in deposit money banks in Nigeria. Using panel data from 13 listed deposit money banks on the Nigerian Exchange Group (2012–2023), the study employs panel data regression techniques, with the Fixed Effects model identified as the most appropriate following the Hausman test. The findings reveal that housing finance has a positive and significant impact on market capitalization, while agricultural financing and long-term investments show weaker effects. The study recommends prioritizing housing finance to attract investors and enhancing agricultural and long-term investment practices to improve investor interest and market performance.

**KEYWORDS:** *Sustainability Practices, Investor Behavior, Market Capitalization, Housing Finance, Agricultural Financing and Long-term Investment*

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## 1. INTRODUCTION

Sustainability has become a critical focus globally, particularly since the adoption of the United Nations Sustainable Development Goals (UN-SDGs) in 2015. This shift emphasizes the need for entities to adopt practices that meet present needs without compromising future generations' ability to meet their own (Zyadar, 2016). In the banking sector, sustainability is integral to fostering long-term profitability, enhancing brand reputation, and ensuring resilience in a competitive market.

The interplay between sustainability practices and financial performance is particularly relevant for the banking industry, which catalyzes economic growth and development. Achieving the SDGs and climate targets requires approximately \$70 trillion in financing by 2030 (Lagos Business School Sustainability Center, 2019). Banks must integrate sustainability into their core operations and strategic decision-making processes.

Sustainable banking practices encompass responsible lending, investment strategies, and incorporating environmental, social, and governance (ESG) criteria.

These practices are linked to market performance, with studies indicating that banks prioritizing sustainability experience higher market capitalization and investor interest (Hornuf et al., 2021; Olmo et al., 2021).

In Nigeria, the Central Bank of Nigeria introduced the Nigerian Sustainable Banking Principles (NSBPs) in 2012. These principles guide banks in delivering positive developmental impacts while safeguarding communities and the environment (Lagos Business School Sustainability Center, 2019).

Recent research indicates a positive correlation between sustainable banking practices and investor sentiment in Nigeria (Damilola & Adeleke, 2023). However, gaps remain in understanding the impact of sustainability practices on investor behavior within Nigerian deposit money banks (DMBs).

This study seeks to address these gaps by exploring the relationship between sustainability practices and investor behavior in Nigerian DMBs. It aims to contribute to the discourse on sustainable banking and

highlight the importance of integrating sustainability into business models as a strategic imperative.

### 1.1. Statement of the Problem

The introduction of the Nigerian Sustainable Banking Principles (NSBPs) in 2012 marked a significant shift in Nigeria's banking sector towards sustainability. However, despite growing emphasis on sustainability, the effectiveness and perceptions of sustainability practices among deposit money banks (DMBs) in Nigeria remain unclear. This lack of clarity complicates the implementation of green banking initiatives and limits their societal and environmental impact.

Recent studies highlight the positive correlation between sustainability practices and investor behavior. However, these studies often overlook the unique dynamics within the Nigerian context, where DMBs face distinct challenges. Furthermore, existing literature tends to focus on short-term financial metrics, neglecting the significance of long-term investment perspectives.

### 1.2. Objectives of the Study

The general objective of this study is to evaluate the effect of sustainability practices on investor behavior in Nigeria, focusing on market capitalization as a measure of investor behaviour. Specific objectives include:

1. Examining the effect of agricultural financing on market capitalization of DMBs in Nigeria.
2. Ascertaining the effect of housing finance on market capitalization of DMBs in Nigeria.
3. Determining the effect of long-term investments on market capitalization of DMBs in Nigeria.

### 1.3. Research Questions

This study addresses the following research questions:

1. To what extent does agricultural financing affect market capitalization of DMBs in Nigeria?
2. To what extent does housing finance affect market capitalization of DMBs in Nigeria?
3. To what extent does long-term investments affect market capitalization of DMBs in Nigeria?

### 1.4. Research Hypotheses

The following hypotheses are tested:

1. Agricultural financing has no significant effect on market capitalization of DMBs in Nigeria.
2. Housing finance has no significant effect on market capitalization of DMBs in Nigeria.
3. Long-term investments have no significant effect on market capitalization of DMBs in Nigeria.

### 1.5. Significance of the Study

This study is a valuable resource for banks, management, investors, policymakers, researchers, and customers, emphasizing the role of sustainability practices in achieving sustainable development in Nigeria. It helps banks adopt environmentally responsible practices, enhancing their reputation and attracting conscious customers and investors. For management, the study offers guidance on developing sustainable practices that positively impact financial performance and environmental sustainability. Investors benefit from insights into sustainability practices, fostering ethical investing and informed decisions. Lastly, it raises awareness among customers, empowering them to make informed choices and support sustainable development.

## 2. Review of Related Literature

### 2.1. Conceptual Review

#### Sustainability

Sustainability involves meeting present needs without compromising future generations' ability to meet their own needs, balancing environmental, social, and economic factors (Mensah & Enu-Kwesi, 2018). It aims to promote long-term well-being and resilience. Sustainability is defined as the efficient and equitable distribution of resources intra-generationally and inter-generationally with the operation of socio-economic activities within the confines of a finite ecosystem. Sustainability connotes improving and sustaining a healthy economic, ecological and social system for human development (Tjarve & Zemite 2016, Thomas 2015). Thomas (2015) continues that sustainability brings into focus human activities and their ability to satisfy human needs and wants without depleting or exhausting the productive resources at their disposal. This, therefore, provokes thoughts on the manner in which people should lead their economic and social lives drawing on the available ecological resources for human development. Sustainability encompasses three perspectives:

#### Economic Perspective of Sustainability

Sustainable development is closely related to economic growth. To achieve sustainable development, people must find ways to advance the economy without depleting natural capital (Bekar et al., 2023). Sustainability practices can contribute to economic growth, potentially leading to poverty reduction (Dike 2015).

#### Social Perspective of Sustainability

The social perspective focuses on fostering equitable and inclusive societies, promoting social justice, equal opportunities, and addressing issues like poverty, education, and healthcare (Ginting 2020).

### **Environmental Perspective of Sustainability**

The environmental perspective involves responsible use and preservation of natural resources to maintain ecological balance, reducing carbon footprints, conserving biodiversity, and minimizing pollution (Azzone et al, 2023).

### **Nigerian Sustainable Banking Principles (NSBPs)**

Sustainable banking is a practice that ensures that banks and related institutions have the interest of their stakeholders at the core of their strategies. At the foundation of sustainable banking is a long-term relationship with clients, a direct understanding of their economic activities and the risks and opportunities involved, as well as the need to serve the real economy and enable new business models to meet human needs. Sustainable banking enhances transparent, inclusive, and less harmful financial intermediation. As such, sustainable banking requires a responsible and ethical organizational culture (Oboro and Onuorah 2022).

The Banker's Committee at its retreat of July 14<sup>th</sup>, 2012 approved the adoption of the Nigerian Sustainable Banking Principles by banks, discount houses and development finance institutions in Nigeria. This is in furtherance of the Banker's Committee commitment to deliver positive development impacts to society while protecting the communities and environment in which financial institutions and their clients operate. The adoption of these principles will no doubt enhance the adopting institution's financial success over the longer term while ensuring that they remain environmentally and socially responsible (CBN 2012).

The adopted sustainable banking framework is referred to as the Nigerian Sustainable Banking Principles (NSBPs). These principles drive long-term sustainable growth whilst focusing on development priorities, safeguarding the environment and our people and delivering measurable benefits to society and the real economy. The NSBPs comprises of nine principles, guidance notes for implementation and guidelines on how financial institutions should sustainably support business activities in three critical sectors of the Nigeria economy- Power, Agriculture and Oil & Gas (Aro-Gordon 2016). The principles cover environment and social (E&S) risk management, mitigation of the banks' E&S footprints, promotion of human rights, women empowerment, financial inclusion, E&S governance capacity building, collaborative partnerships and reporting. The principles also include specific sector guidelines for risk assessment in the high-risk sectors of oil and gas, power and agriculture (CBN Circular to Banks 2012). Agriculture, power and oil and gas are the

priority sectors for the implementation of the Nigerian Sustainable Banking Principles (CBN Circular 2012). The number of loans allocated to the agricultural, oil and gas, and power sectors steadily increases.

### **Sustainability Practices**

Sustainability practices involve adopting methods that balance economic, social, and environmental considerations. This includes using renewable resources, minimizing waste, promoting social equity, and ensuring economic viability for present and future generations. Sustainable practices aim to meet current needs without compromising the ability of future generations to meet their own needs. It simply means activities undertaken by, within or across firms to make the operations of the firm or firms involved more environmentally and/or socially sustainable. Four categories of sustainability practices were introduced; namely inspire and inform; productize; co-create; and system building (Jacobsen et al 2020).

Businesses are becoming more compelled to incorporate society's expectations into their business plans. As a result, the concept of business sustainability has gained traction. Several organizations are now reacting to consumer expectations by enabling customers, as well as workers, to seek alternate avenues for competitiveness (Alameri and Nobanee 2021).

Mohamed (2021) refers sustainability practices as a collective undertaking that focuses more on creating holistic satisfaction for the various stakeholders involved with banks and the different activities. It refers to creating an environment within the sector that allows for the various stakeholders involved therein to draw guaranteed benefits from its operations without infringing on the freedoms and privileges of their fellow stakeholders. In the spirit of sustainability, managers in banking institutions and other related sectors have a responsibility to satisfy their customers, employees, and shareholders, and members of the public residing in the areas of their locations and give credence to everyone involved with the bank.

### **Sustainability Practices in Nigerian Deposit Money Banks**

The quest for sustainability has led to a surge in financial products with a sustainable focus. Specific sustainability practices in Nigerian deposit money banks include:

1. Energy Efficiency Initiatives: implementing energy-saving measures

2. Paperless Operations: transitioning to digital banking processes
3. Renewable Energy Adoption: investing in solar panels and renewable energy sources
4. Environmental Risk Management: identifying and mitigating environmental risks
5. Financial Inclusion Programs: offering banking services to underserved communities
6. Employee Welfare Programs: providing a safe and supportive work environment

### **Variables Alignment with ESG Framework in Nigerian DMBs**

To align the variables within the ESG Framework in deposit money banks, this study will center on the following sustainability practices of deposit money banks in Nigeria;

1. **Environmental (E):** Agricultural Financing.
2. **Social (S):** Housing Finance
3. **Governance (G):** Long-term Investment.

#### **Agricultural financing**

Agricultural financing is crucial for supporting farmers and agribusinesses in acquiring the resources needed for production and operations. It involves the provision of funds and financial services for activities such as purchasing equipment, seeds, fertilizers, and covering operational expenses (Olotoye et al., 2022). Despite its importance, declining investments in agriculture by governments and private entities have negatively impacted economic growth and infrastructure development, particularly in developing countries like Nigeria.

Famogbiele (2013) defines agricultural finance as the acquisition and utilization of capital for procuring factors of production such as land, labor, equipment, and managerial skills. It includes loans, grants, subsidies, insurance, and other financial instruments tailored to the needs of the agricultural sector. However, in Nigeria, credit allocation to agriculture remains low, limiting its contribution to economic growth (Nwadioha & Igoni, 2021). This is partly due to banks perceiving the sector as high-risk, given factors like unpredictable weather, communal conflicts, and crop storage challenges.

Agricultural finance can be classified into two categories: non-debt finance and debt finance (Obansa & Maduekwe, 2013). Non-debt finance includes equity investments, savings, foreign aid, and private investments, which do not require fixed servicing obligations. Debt finance, on the other hand, includes bank loans, development stocks, treasury

bills, and foreign loans, which require fixed repayments and collateral.

Deposit money banks in Nigeria provide various agricultural financing products, such as agricultural loans, credit facilities, investment financing, insurance, and advisory services, to support farmers and agribusinesses. However, significant gaps remain in bridging the financing needs of the sector.

#### **Housing Finance**

Housing finance refers to the mechanisms through which individuals and businesses secure funding to acquire or invest in real estate. By providing loans or mortgages tailored to housing needs, it facilitates property ownership and investment. Housing is a basic human necessity, but the significant capital required for development poses a major challenge, particularly for low-income earners, leading to widespread housing shortages. Examples of Housing Finance

**Mortgage loans:** Mortgage loans are secured loans where borrowers receive funds to purchase real estate, with the property serving as collateral. Borrowers repay the loan in installments, including principal and interest, over an agreed period. This arrangement supports the acquisition of homes, land, or commercial properties.

**Home Improvement Loan:** These loans provide homeowners with funding for renovations, repairs, or upgrades to residential properties. Borrowers use them to increase property value or address essential maintenance needs, often with fixed or variable interest rates.

**Real Estate Development Finance:** This involves funding for the acquisition, construction, or redevelopment of real estate projects. It supports the development of residential and commercial properties, which are essential for economic growth (Ezimuo et al., 2014).

**Property Acquisition Loans:** These loans are tailored for acquiring properties and related assets, covering costs such as purchase price, closing fees, and other expenses. They can also support asset replacement or new technology acquisition.

#### **Long-term Investment**

Long-term investment refers to the acquisition of assets with the intention of holding them for an extended period, typically years or even decades (Puaschunder, 2021). The primary goal is to benefit from potential appreciation over time, such as capital gains or dividends. Deposit money banks in Nigeria offer various long-term investment options, including:

**Fixed Deposit Accounts:** A financial instrument where an individual deposits a lump sum amount for a specified term or tenure at a predetermined interest rate.

**Government Bonds:** Banks facilitate the purchase of government bonds on behalf of customers, providing a source of long-term income (Gutkevych et al., 2020).

**Equity Investments:** The acquisition of ownership shares in a company or other types of assets that represent an ownership interest (Choudhary, 2017).

**Real Estate Financing:** The provision of funds or capital to individuals, businesses, or developers for the acquisition, development, or improvement of real property (Vincent, 2015).

**Retirement Savings Accounts (RSAs):** A specialized financial account designed to help individuals save and invest funds specifically earmarked for their retirement (Hanna et al., 2016).

**Infrastructure Bonds:** Debt instruments issued by governmental or private entities to raise funds for financing large-scale infrastructure projects.

Investors may evaluate deposit money banks' long-term investment decisions in terms of their sustainability impact and contribution to sustainable development goals.

### **Investors' Behaviour**

Investor behavior refers to the psychological, cognitive, emotional, and social factors that influence how individuals allocate their financial resources in markets. It encompasses the processes by which investors perceive, analyze, and act upon information, as well as the influence of internal traits such as risk tolerance, overconfidence, and biases like optimism or pessimism (Huang et al., 2018). Social norms, herding behavior, and advice from peers or financial advisors can also shape decision-making (Lakonishok et al., 2016).

Economic conditions, interest rates, inflation, and market volatility are critical external factors that affect investor sentiment and risk appetite (Baker & Wurgler, 2020). Investors rely on diverse data sources—such as financial news, company reports, and economic indicators—to guide their decisions. Strategies vary widely, with some conducting fundamental analysis to assess a company's financial health and future prospects, while others focus on technical analysis based on historical price trends (Hirshleifer et al., 2013).

Investment decisions also depend on the vehicles investors choose. Individual stocks provide direct

ownership but come with higher risks, while bonds offer steady income with lower volatility. Mutual funds and ETFs offer diversification and professional management, catering to investors' varying goals (Bodie et al., 2023). Financial literacy is a critical element, empowering investors to navigate complex markets and make informed choices (Lusardi & Mitchell, 2014).

In the context of sustainability practices, understanding investor behavior is vital for evaluating how environmental, social, and governance (ESG) factors influence investment decisions. Investors' attitudes, beliefs, and actions significantly affect capital allocation, corporate strategies, and the broader adoption of responsible investing practices. Regulatory frameworks, tax laws, and institutional structures also shape the available investment options and associated risks (Acharya et al., 2018). For deposit money banks (DMBs), investors' behavior can drive the integration of sustainability practices, influencing market dynamics and advancing the discourse on ESG-focused investing.

### **Market Capitalization as a Proxy for Investor Behavior**

Market capitalization, or market cap, represents the total market value of a company's outstanding shares, calculated by multiplying the current share price by the total number of shares (Riantani et al., 2023). It is a key indicator of a company's size, financial health, and market valuation.

Companies with higher market capitalization are often perceived as stable and promising long-term investment opportunities. A higher market value generally correlates with higher stock prices and a greater number of outstanding shares (Suharti et al., 2023). Market capitalization is also a reflection of investor confidence, with increases often signaling optimism about a company's future performance (Permata et al., 2020).

For sustainability-focused investors, market capitalization serves as a proxy for evaluating the alignment between financial performance and sustainable practices. A stable or growing market cap reflects investor trust in the company's ability to generate long-term value while adhering to sustainability goals (Wirasedana et al., 2024). Positive sustainability initiatives can enhance investor interest, driving higher market valuations (Ray et al., 2024).

Market capitalization also facilitates industry comparisons, revealing how companies are perceived in terms of sustainability relative to peers. Firms with higher market cap tend to attract greater investor

scrutiny regarding their sustainability efforts. This scrutiny fosters transparency, accountability, and a commitment to ethical practices, which further influences investor behavior and decision-making (Samuel et al., 2022).

## 2.2. Theoretical Framework

This study will be anchored on legitimacy theory which is one of the most widely advanced theoretical perspectives in the social and environmental accounting literature.

### Legitimacy Theory

Legitimacy theory introduced by Dowling and Pfeffer (1975), explains the relationship between organizations and their social environments, emphasizing that businesses operate under an implicit social contract with society. This contract requires organizations to align their policies and activities with societal values and norms. According to Dowling and Pfeffer, legitimacy exists when an entity's value system aligns with that of the broader society, and any misalignment threatens the organization's legitimacy and survival.

Deegan (2000) further explains that organizations strive to ensure their activities are perceived as legitimate by adhering to societal norms and expectations. To maintain legitimacy, companies disclose social responsibility information to present themselves as socially responsible. This voluntary disclosure helps demonstrate compliance with societal values and fosters trust among stakeholders.

Greiling and Grub (2014) and Ofoegbu et al. (2018) highlight that organizations maintain legitimacy by operating within acceptable ethical standards and cultural norms. A lack of alignment between societal expectations and corporate actions can undermine an organization's legitimacy.

Legitimacy theory underscores the importance of aligning business practices with societal expectations to ensure survival and sustainability. External pressures often drive companies to adopt practices, such as sustainability reporting, that enhance their reputation and legitimacy. By addressing societal concerns, organizations can build confidence among stakeholders and secure their social license to operate.

This theory is relevant to the study because it emphasizes the role of sustainability practices in fulfilling societal expectations. When businesses fail to meet these expectations, stakeholders, including investors, may lose confidence, threatening organizational performance and survival. Thus, legitimacy theory provides a framework for understanding how organizations maintain public trust through socially responsible actions.

## 2.3. Empirical Review

This section examines relevant empirical studies that explore the relationship between sustainability practices and investor behavior.

Appah et al. (2024) examined the relationship between green banking practices and green financing sources in Nigerian deposit money banks. The study employed institutional theory and a cross-sectional survey design, using stratified random sampling of 750 bank employees. Regression analysis revealed that green banking practices, particularly employee-related activities, positively and significantly influence green financing sources. The researchers recommended that Nigerian banks implement sustainable banking practices to improve green financing opportunities, contributing to sustainable development. This study provides valuable insights for policymakers, financial institutions, and investors focused on promoting environmentally responsible practices in the financial sector.

Markjackson and Agada (2024) conducted a study titled "Sustainable Development Goals: Attaining Sustainable Living through Financial Inclusion in Sub-Saharan Africa." The study aimed to examine the effect of financial inclusion on sustainable living in 20 sub-Saharan African countries. The researchers employed the panel Autoregressive Distributive Lag (ARDL) model, using data from 2010 to 2020. The results of the study indicate that financial inclusion significantly contributes to sustainable living conditions in sub-Saharan Africa, emphasizing the need to improve access to financial products and services in sub-Saharan Africa. The researchers recommend that policymakers and financial institutions should prioritize financial inclusion initiatives to promote sustainable development in the region. This study contributes to the existing literature on financial inclusion and sustainable development, providing valuable insights for policymakers, financial institutions, and investors seeking to promote sustainable development.

Baily and Gnabo (2023) conducted a study titled "Sustainable Investing Goes Mainstream: A Shift in Investor Behavior toward Sustainable Mutual Funds." The study aimed to explore the shift in investor behavior towards sustainable mutual funds. The researchers employed a quantitative approach, using data from 2,103 US active equity mutual funds. The results of the study show that investor sensitivity to past performance has increased as sustainable investing becomes mainstream, suggesting that investors are becoming more sophisticated in their investment decisions, prioritizing both financial returns and environmental, social, and governance

(ESG) considerations. The researchers recommend that financial institutions and investors should prioritize sustainable investing initiatives to promote sustainable development. This study contributes to the existing literature on sustainable investing and investor behavior, providing valuable insights for policymakers, financial institutions, and investors seeking to promote sustainable development.

Hammand et al. (2022) conducted a study titled "Corporate Reporting, Corporate Governance, and Investor Confidence: Evidence from Banks in Sub-Saharan Africa." The study aimed to examine the relationship between corporate reporting, corporate governance, and investor confidence in banks in sub-Saharan Africa. The researchers employed the Partial Least Square Structural Equation Modeling (PLS-SEM) approach, using data from published financial statements of selected banks in Ghana, Nigeria, and South Africa. The results of the study reveal a positive relationship between going concern and investor confidence highlighting the importance of corporate governance mechanisms in enhancing investor confidence. The researchers recommend that banks in sub-Saharan Africa should prioritize corporate governance initiatives to promote investor confidence. This study contributes to the existing literature on corporate governance and investor confidence, providing valuable insights for policymakers, financial institutions, and investors seeking to promote sustainable development.

Olmo et al. (2021) conducted a study titled "Sustainable Banking, Market Power, and Efficiency: Effects on Banks' Profitability and Risk." The study aimed to analyze the effects of sustainable banking practices on bank profitability and risk. The researchers employed a two-step System-GMM approach, using an unbalanced panel of 1,236 banks from 48 countries. The results of the study show that sustainable banking practices increase profitability suggesting that sustainable banking practices can contribute to bank profitability. The researchers recommend that banks should prioritize sustainable banking initiatives to promote sustainable development. This study contributes to the existing literature on sustainable banking and bank profitability, providing valuable insights for policymakers, financial institutions, and investors seeking to promote sustainable development.

Ellahi et al. (2021) conducted a study titled "Customer Awareness on Green Banking Practices." The study aimed to investigate customer awareness of green banking practices. The researchers employed a quantitative approach, using a structural equation model (SEM) and survey data from 400 customers.

The results of the study show that customers are receptive to green banking initiatives highlighting the importance of raising customer awareness of green banking practices. The researchers recommend that banks should prioritize green banking initiatives to promote sustainable.

#### 2.4. Gap in Literature

A significant knowledge gap exists in research addressing sustainability practices within the Nigerian banking sector, particularly among deposit money banks (DMBs). Existing literature lacks comprehensive analysis specific to the Nigerian context, hindering understanding of unique challenges and opportunities.

There is also a gap in research examining investor behavior concerning sustainability practices in Nigerian DMBs. Studies primarily focus on financial performance metrics and qualitative assessments, overlooking how investor behavior influences perceptions and decisions related to sustainability.

Furthermore, the literature neglects long-term investment perspectives, and there is insufficient understanding of how market capitalization affects investor perceptions of sustainability practices. Few studies have systematically compared market capitalization with other proxies, limiting understanding of their relative merits and limitations. This study aims to address these gaps.

#### 3. Methodology

This study investigates the impact of sustainability practices on investor behavior in Nigeria's banking sector, focusing on the relationship between market capitalization and sustainability practices such as agricultural financing, housing financing, and long-term investments. The study examines 14 listed deposit money banks on the Nigerian Exchange Group between 2012 and 2023. Data from 13 of these banks were purposively selected based on the completeness of their records. The data were analyzed using panel data regression techniques, specifically estimating Fixed Effects (FE) and Random Effects (RE) models. The Hausman test indicated that the Fixed Effects model is the most appropriate for explaining the relationships between the variables.

This study adopts the model from Omeni and George (2021), with modifications to suit its objectives. The original model relates Return on Equity (ROE) to Treasury bills (TB), ordinary shares (OS), investments in subsidiaries (INVS), and foreign investments (FION). The functional form is expressed as:

$$\text{LnROE} = \beta_0 + \beta_1 \text{LnTB} + \beta_2 \text{LnOS} + \beta_3 \text{LnINVS} + \beta_4 \text{LnFION} + U$$

For this study, the model is adapted to focus on market capitalization (MKTCP) and sustainability practices, with agricultural financing (AGFN), housing finance (HSFN), and long-term investments (LTINV) as independent variables. The model is specified as:

$$\text{LnMKTCP} = \beta_0 + \beta_1 \text{LnAGFN} + \beta_2 \text{LnHSFN} + \beta_3 \text{LnLTINV} + U$$

Where:

MKTCP = Market Capitalization

AGFN = Agricultural Financing

HSFN = Housing Finance

LTINV = Long-term Investments

U = Error term

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3$  = Coefficients to be estimated

### 3.1. Decision Rule:

The null hypothesis is rejected if the p-value is less than or equal to 0.05, indicating a statistically significant relationship between the independent variables and market capitalization. If the p-value is greater than 0.05, the null hypothesis is accepted, suggesting no significant effect.

### Variables Measurements

	Variables	Measurement	Source	Apriori Expectation
	<b>Independent Variables</b>			
1	Agricultural Financing	Natural log of credits to Agriculture	Ademola (2019)	Positive
2	Housing Finance	Natural log of credits to housing, real estate or landed property	Anidiobu et al., (2018)	Positive
3	Long-Term Investments	Natural log of Long-Term Investments (government bonds, fixed deposits,)	Bereh et al., (2020)	Positive
	<b>Dependent Variable</b>			
1	Market Capitalization	Natural log of Current share price by the total number of outstanding shares	Qasem et al. (2023).	

## 4. Data Presentation and Analysis

### 4.1. Descriptive Statistics

The table provides descriptive statistics for four variables: LnMKTCP (logarithm of market capitalization), LnAGFN (logarithm of agricultural financing), LnHSFN (logarithm of housing finance), and LnLTINV (logarithm of long-term investment).

summarize LnMKTCP LnAGFN LnHSFN LnLTINV

Variable	Obs	Mean	Std. Dev.	Min	Max
LnMKTCP	143	23.13874	1.88306	17.59775	26.11105
LnAGFN	143	23.49802	2.208727	16.1624	26.23196
LnHSFN	143	23.61202	2.25893	17.90541	27.74821
LnLTINV	143	24.10597	2.253688	17.44089	27.09546

Source: Researcher's Computation using STATA 14

### 3.2. List of Deposit Money Banks (DMBs) Included in the Study

The study includes the following 13 Deposit Money Banks (DMBs) listed on the Nigerian Exchange Group:

1. Access Holdings Plc (ACCES SCORP)
2. Ecobank Transnational Incorporated (ETI)
3. FBN Holdings Plc (FBNH)
4. FCMB Group Plc (FCMB)
5. Fidelity Bank Plc (FIDELITY BK)
6. Guaranty Trust Holdings Company Plc (GTCO)
7. Stanbic IBTC Holdings Plc (STANBIC)
8. Sterling Financial Holdings Company Plc (STERLING NG)
9. Union Bank Nigeria Plc (UBN)
10. United Bank for Africa Plc (UBA)
11. Unity Bank Plc (UNITYBNK)
12. Wema Bank Plc (WEMA BANK)
13. Zenith Bank Plc (ZENITH BANK)

### 3.3. Measurement of Variables

The variables for this study were measured as follows;



Each variable is based on 143 observations, ensuring consistency across the dataset. The mean value for LnMKTCP is 23.14, with a standard deviation of 1.88, indicating moderate variability in the data. The minimum recorded value is 17.60, while the maximum is 26.11, reflecting a considerable range in market capitalization.

Similarly, LnAGFN has a mean of 23.50 and a standard deviation of 2.21, with values ranging from 16.16 to 26.23. This suggests significant variation in agricultural financing across the observations.

For LnHSFN, the mean is 23.61, with a standard deviation of 2.26. The range extends from a minimum of 17.91 to a maximum of 27.75, showing variability in housing finance.

Finally, LnLTINV has the highest mean value at 24.11, with a standard deviation of 2.25. The values range from 17.44 to 27.10, highlighting notable differences in long-term investments.

These descriptive statistics provide valuable insights into the central tendency, dispersion, and range of the variables, setting the foundation for further inferential analysis. The consistent number of observations ensures comparability and reliability across the dataset.

## 4.2. Correlation Matrix

```
. corr LnMKTCP LnAGFN LnHSFN LnLTINV
(obs=143)
```

	LnMKTCP	LnAGFN	LnHSFN	LnLTINV
LnMKTCP	1.0000			
LnAGFN	0.5125	1.0000		
LnHSFN	0.7300	0.6090	1.0000	
LnLTINV	0.5655	0.6512	0.6141	1.0000

**Source: Researcher's Computation using STATA 14**

The correlation matrix provides an overview of the relationships between the variables in the dataset, specifically: LnMKTCP (log of market capitalization), LnAGFN (log of agricultural financing), LnHSFN (log of housing finance), and LnLTINV (log of long-term investments). Understanding these correlations is essential for evaluating the relationship between sustainability practices and market capitalization, which serves as a proxy for investor behavior.

The correlation between LnMKTCP and the independent variables reveals varying degrees of positive relationships. First, LnMKTCP shows a moderate positive correlation with LnAGFN, with a coefficient of 0.5125. This suggests that increases in agricultural financing may be associated with increases in market capitalization. Additionally, LnMKTCP has a strong positive correlation with LnHSFN (0.7300), indicating that housing finance likely has a more substantial impact on market capitalization than agricultural financing. The correlation between LnMKTCP and LnLTINV is also moderate (0.5655), pointing to the contribution of long-term investments to market capitalization, though less strongly than housing finance.

The relationships among the independent variables are also noteworthy. For example, LnAGFN and LnHSFN are moderately positively correlated (0.6090), indicating a notable association between agricultural financing and housing finance. Furthermore, LnAGFN shows a strong positive correlation with LnLTINV (0.6512), suggesting that agricultural financing and long-term investments may complement each other as components of sustainability practices in the banking sector. Lastly, the correlation between LnHSFN and LnLTINV is moderate (0.6141), implying a positive, though not excessive, relationship between housing finance and long-term investments.

Importantly, none of the correlation coefficients exceed 0.8, which indicates no significant multicollinearity issues among the variables. This assures that the variables can be reliably included in the regression analysis without distorting the results.

### 4.3. Fixed Effect Table

```
. xtreg LnMKTCP LnAGFN LnHSFN LnLTINV, fe
```

```
Fixed-effects (within) regression      Number of obs   =      143
Group variable: BANKID                Number of groups =      13

R-sq:                                  Obs per group:
    within = 0.1113                    min =          6
    between = 0.4148                   avg =         11.0
    overall = 0.2756                   max =         12

corr(u_i, Xb) = 0.4000                  F(3,127)        =      5.30
                                          Prob > F         =      0.0018
```

LnMKTCP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
LnAGFN	-.0393711	.0558937	-0.70	0.482	-.1499747	.0712324
LnHSFN	.208633	.0556021	3.75	0.000	.0986065	.3186595
LnLTINV	-.0883702	.0520459	-1.70	0.092	-.1913596	.0146193
_cons	21.26788	1.487682	14.30	0.000	18.32403	24.21174
sigma_u	1.6169948					
sigma_e	.72385031					
rho	.83306124	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(12, 127) = 25.02          Prob > F = 0.0000
```

#### Source: Researcher's Computation using STATA 14

The Fixed Effects (FE) model is used to analyze panel data by controlling for unobserved, time-invariant characteristics within groups. In this study, the groups represent individual banks, and the FE model accounts for factors that remain constant over time within each bank, which could otherwise bias the relationship between the independent variables (e.g., agricultural financing, housing finance, long-term investment) and market capitalization (LnMKTCP). By focusing on within-group variations, the FE model isolates the effect of changes in these sustainability practices on investor behavior over time.

The results of the fixed-effects regression show that approximately 11.13% of the variation in market capitalization within banks is explained by the independent variables (within R-squared = 0.1113). The overall model is statistically significant (Prob > F = 0.0018), indicating that the independent variables collectively have a significant effect on market capitalization. The overall R-squared value of 0.2756 suggests that 27.56% of the variation in market capitalization is explained by the model. Among the independent variables, housing finance (LnHSFN) is statistically significant ( $P < 0.05$ ), while other variables, such as long-term investment (LnLTINV), are not significant at conventional levels, suggesting no detectable impact on market capitalization.

The F-test for group-specific effects (Prob > F = 0.0000) is significant, indicating that the fixed effects are essential for accounting for unobserved heterogeneity between banks. The FE model's emphasis on within-group variations ensures that the analysis provides a clear understanding of how changes in sustainability practices influence investor behavior, as proxied by market capitalization, without being confounded by time-invariant characteristics of individual banks.

#### 4.4. Random Effect Table

```
. xtreg LnMKTCP LnAGFN LnHSFN LnLTINV, re
```

Random-effects GLS regression	Number of obs	=	143
Group variable: BANKID	Number of groups	=	13

  

R-sq:	Obs per group:	
within = 0.1015	min =	6
between = 0.6380	avg =	11.0
overall = 0.4483	max =	12

  

corr(u_i, X) = 0 (assumed)	Wald chi2(3)	=	22.67
	Prob > chi2	=	0.0000

  

LnMKTCP	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
LnAGFN	-.031217	.0577608	-0.54	0.589	-.144426 .0819921
LnHSFN	.2598178	.0567432	4.58	0.000	.1486032 .3710324
LnLTINV	-.0505314	.0537859	-0.94	0.347	-.1559499 .054887
_cons	19.0207	1.507164	12.62	0.000	16.06671 21.97468
sigma_u	.96558007				
sigma_e	.72385031				
rho	.64021302	(fraction of variance due to u_i)			

Source: Researcher’s Computation using STATA 14

The Random Effects (RE) model was employed to analyze the impact of sustainability practices on investor behavior in Nigerian deposit money banks. The results reveal that agricultural financing (LnAGFN) has a negative coefficient of -0.0312, but with a p-value of 0.589, it is statistically insignificant, indicating that agricultural financing does not significantly affect market capitalization.

Housing finance (LnHSFN), on the other hand, shows a positive relationship with market capitalization, with a coefficient of 0.2598. This relationship is statistically significant, as evidenced by a p-value of 0.000, suggesting that housing finance is an important factor driving market value.

Long-term investments (LnLTINV) have a negative coefficient of -0.0505, but a p-value of 0.347 shows that the effect on market capitalization is not statistically significant, implying that long-term investments do not play a major role in influencing market behavior in this context.

The model's R-squared values indicate that within-bank variation is explained at 10.15%, while the overall model explains 44.83% of the variation in market capitalization, suggesting a moderate fit of the model.

#### 4.5. Hausman Test

```
. hausman fe_model re_model
```

	Coefficients			
	(b) fe_model	(B) re_model	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
LnAGFN	-.0393711	-.031217	-.0081542	.
LnHSFN	.208633	.2598178	-.0511848	.
LnLTINV	-.0883702	-.0505314	-.0378387	.

b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(3) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 167.53  
 Prob>chi2 = 0.0000  
 (V\_b-V\_B is not positive definite)

Source: Researcher’s Computation using STATA 14

The Hausman test was used to determine whether the Fixed Effects (FE) or Random Effects (RE) model is more appropriate. The test compares the coefficients from both models, and the results show significant differences: LnAGFN: -0.0082, LnHSFN: -0.0512 and LnLTINV: -0.0378 respectively.

With a Chi-square statistic of 167.53 and a p-value of 0.0000, the null hypothesis is rejected, indicating that the Fixed Effects model is preferred over the Random Effects model. This suggests that the Fixed Effects model accounts for unobserved heterogeneity and is more suitable for the analysis.

#### 4.6. Variance Inflation Table

. vif

Variable	VIF	1/VIF
LnLTINV	2.00	0.500686
LnAGFN	1.98	0.505689
LnHSFN	1.83	0.546951
Mean VIF	1.93	

Source: Researcher's Computation using STATA 14

The Variance Inflation Factor (VIF) values for the independent variables in this study are all below the common threshold of 5, indicating that multicollinearity is not a significant concern in the regression model. Specifically, the VIF for LnLTINV is 2.00, for LnAGFN is 1.98, and for LnHSFN is 1.83. These values suggest that the variance of the estimated coefficients for these variables is only modestly inflated due to their correlations with other predictors.

The mean VIF for the model is 1.93, further confirming that, on average, the independent variables exhibit low multicollinearity. As a result, the regression coefficients can be interpreted with confidence, and there is no indication that multicollinearity is distorting the estimates of the relationships between the independent variables and the dependent variable (market capitalization). This supports the reliability of the regression model's estimates, suggesting that the independent variables do not suffer from significant multicollinearity issues.

#### 4.7. Test of Hypotheses

This study examines the impact of sustainability practices on investor behavior, as proxied by market capitalization (LnMKTCP) in Nigerian deposit money banks. The hypotheses were tested using the Fixed Effects (FE) model.

#### Ho1: Agricultural financing has no significant effect on market capitalization of deposit money banks in Nigeria.

The coefficient for agricultural financing (LnAGFN) is -0.0394, with a p-value of 0.482, indicating no significant effect on market capitalization. Based on this result, we accept the null hypothesis, meaning agricultural financing has no significant effect on market capitalization.

#### Ho2: Housing finance has no significant effect on market capitalization of deposit money banks in Nigeria.

The coefficient for housing finance (LnHSFN) is 0.2086, with a p-value of 0.000, indicating a significant positive effect on market capitalization. We reject the null hypothesis and conclude that housing finance has a significant effect on market capitalization.

#### Ho3: Long-term investments have no significant effect on market capitalization of deposit money banks in Nigeria.

The coefficient for long-term investments (LnLTINV) is -0.0884, with a p-value of 0.092, indicating no significant effect on market capitalization. Based on this result, we accept the null hypothesis, meaning long-term investments have no significant effect on market capitalization.

#### 4.8. Discussion of Findings

This study examines the relationship between sustainability practices and market capitalization in Nigerian deposit money banks, with mixed results across key variables.

##### Agricultural Financing

Agricultural financing showed a negative and insignificant effect on market capitalization. This indicates that investors may perceive it as a high-risk activity with limited short-term returns, reducing its impact on market value. Markjackson and Agada (2024) indirectly support this by emphasizing financial inclusion without highlighting agricultural financing as a growth driver.

##### Housing Finance

Housing finance displayed a positive and statistically significant effect on market capitalization, suggesting it resonates well with investors due to its stability and long-term returns. This aligns with Markjackson and Agada (2024) and Camille and Jean-Yves (2023), who highlight the role of sustainable practices like housing finance in fostering investor interest and enhancing market performance.

## Long-Term Investments

Long-term investments had a negative but statistically insignificant effect on market capitalization. This suggests that investors prioritize short-term returns over long-term sustainability investments. However, Hammand et al. (2022) emphasize that strong governance mechanisms can enhance investor confidence in such investments, reflecting a potential avenue for future impact.

## 5. Summary of Findings, Conclusion and Recommendation

### 5.1. Summary of Findings

This study examined the impact of sustainability practices on investor behavior in Nigerian banks, focusing on agricultural financing, housing finance, and long-term investments. The analysis revealed that:

1. Agricultural Financing had a negative and insignificant effect on market capitalization, indicating limited impact on investor behavior.
2. Housing Finance showed a positive and significant relationship with market capitalization, suggesting strong investor interest in sustainable housing investments.
3. Long-Term Investments had a negative and insignificant effect, implying that investors may prioritize short-term returns over long-term sustainability.

### 5.2. Conclusion

This study explores the impact of sustainability practices on investor behavior in the Nigerian banking sector. The findings indicate that housing finance has a significant effect on market capitalization, while other sustainability practices, such as long-term investment, did not show a statistically significant relationship.

These results highlight the importance of sustainability practices, particularly housing finance, in influencing investor behavior and market capitalization within the banking sector.

### 5.3. Recommendation

Based on the study's findings, it is recommended that:

1. Banks prioritize housing finance, as it significantly impacts market capitalization and enhances investor confidence.
2. Agricultural financing and long-term investments should be reevaluated, as they showed no significant effect on market capitalization.
3. Sustainability practices should be further integrated to strengthen investor trust and improve financial performance.

## 5.4. Contribution to Knowledge

This study contributes to the existing literature by:

1. Demonstrating the impact of sustainability practices, particularly housing finance, on investor behavior in Nigeria's banking sector.
2. Revealing the varying influence of agricultural financing and long-term investments on market capitalization and investor behavior.
3. Expanding the understanding of sustainability practices in emerging markets, providing valuable insights for policymakers and financial institutions.

## 5.5. Suggestions for Further Studies

Future research could explore a broader range of sustainability practices, including corporate governance and environmental initiatives, to better understand their impact on investor behavior and market capitalization. Additionally, comparative studies across different countries could provide insights into global trends. Finally, using alternative proxies like stock price volatility could offer a more nuanced view of how sustainability practices influence market performance.

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