

Corporate Social Responsibility and Investment Efficiency among Deposit Money Banks in Nigeria

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Abstract

This paper investigates the effect of corporate social responsibility (CSR) on investment efficiency. The study adopted an *expo facto* research design. The population for the study comprised 23 Deposit Money Banks (DMBs) on the Nigerian Exchange Group (NGX) from 2012 to 2021. A total of 10 DMBs were purposively selected as sample size. The ratio of net cash flow from financing activities was used as a proxy for Investment Efficiency and proxy for corporate social responsibility parameters (e.g. CSR, local community disclosure, education sponsorship disclosure, art and culture sponsorship disclosure, among others), and other relevant investment efficiency indicators such as Cash Flow. Secondary data were obtained from Annual Reports from selected banks. Data collected were analyzed using multiple regressions as the inferential statistics. CSR reports have a negative coefficient value of -2.734269, which is statistically significant (p-value = 0.0178). CSR reports and investment efficiency are negatively related. ROA has a positive coefficient value of 1.076975 which is statistically significant which is statistically significant (p-value = 0.0410). ROA and investment efficiency are positively related. Leverage has a positive coefficient value of 0.068324 on investment efficiency which is statistically significant (p-value = 0.0466). Leverage and investment efficiency are positively related. This study concluded that CSR has effect on the investment efficiency of Nigerian DMBs.

Key-Words: Efficiency, Leverage, Investment, corporate, social, responsibility, Returns, Assets.

1 Introduction

Businesses should pursue all projects with positive net present value and avoid all projects with negative net present value in an ideal financial market where investment decisions are made independently of financial circumstances [76]. According to [1], and [47], businesses invest till the marginal benefit of investment equals the marginal cost to maximize their values. However, a substantial corpus of research challenges this supposition [19]; [95]. Managers may be impeded from making optimal investment choices by capital-market frictions [42]. Firms in this instance diverge from their best investment levels. Previous research points to information asymmetry and agency conflicts of free cash flow as the two key reasons why businesses diverge from expected investment levels [10]; [45]; [57]. In the course of reaching investment decisions, each description (i.e. information asymmetry and agency conflicts) leads to a distinct distortion. Asymmetric knowledge between different stakeholders is often linked to

underinvestment issues, although free cash flow issues might result in overinvestment issues. Many control measures, including Corporate Social Responsibility (CSR) initiatives, are supported by agency theory as a means of reducing managers' opportunistic conduct and mitigating asymmetric information [90]. Therefore, issues related to overinvestment as well as underinvestment can be tracked using CSR methodologies. Firms have become intensely fixated on their image in relation to their social and environmental responsibilities and sustainable development goals as a result of globalization, which has led to a notable shift towards CSR [87]. Consequently, companies consistently participate in corporate social responsibility initiatives to exhibit and promote their transparency, environmental, social, and governance resilience [92]. Firms view corporate social responsibility as a collection of sustainability initiatives carried out in a multi-stakeholder setting, thus it's important to comprehend how it impacts investment performance and efficiency. But in emerging economies like Nigeria, there hasn't been much of an effort to research the compatibility of investment efficiency and corporate social responsibility [39]. One specific goals of this study is to investigate whether CSR performance affects the efficiency of investments in the context of Nigeria.

One of the main causes of the global financial crisis of 2008–2009 and several past crises has been identified as overleveraging. It was discovered that many banks had accumulated too much leverage during the crisis despite seemingly retaining good risk-based capital ratios. There has been discussion in corporate finance for many years if leverage affects firms' investments efficiency. Many research works have examined if leverage influences investment decisions following [76]; [62]; [34]. Theoretically, the under- and over-investment theories might account for the link between leverage and investment. The under-investment theory states that companies with greater levels of indebtedness often pass up worthwhile investment opportunities because debt holders gain more from investments in positive net present value projects than do shareholders [77]. Leverage can prevent managers from undertaking value-destroying investment initiatives since it can discourage them from constructing empires at the expense of shareholders, according to the over-investment argument [3]. Nevertheless, prior research yields conflicting findings about how leverage affects business investment, particularly in emerging markets like Nigeria [34]. Hence, this study also investigates whether leverage affects investments efficiency. Financial performance is another term for an explanation of a company's financial state over a specific time period that includes features of funding raising and allocation (i.e. raising funds and allocating the fund to investments with optimal returns). Greater returns on investment are indicated by higher return on assets (ROA) values, which also indicate more effective and efficient investment choices [5]. Hence, this study also investigates the relationship between investments efficiency and corporate financial performance (using ROA) in Nigeria context.

2. Literature Review and Development of Hypotheses

2.1. Investment efficiency

In a perfect financial market, where decisions on investments are made without regard to financial constraints, businesses should pursue all initiatives with a positive NPV and forgo any with a negative NPV [76]. Firms allocate resources to projects only when the marginal cost or benefit matches the marginal price or expense to optimize their values [47]; [15]. However, an array of data contradicts this

claim [90]; [71]. There exist substantial body of evidence challenges this notion [90]; [71]. According to the [76] paradigm, the only factor influencing a firm's investment is investment possibilities. Achieving the entire positive NPV is the goal. According to the hypothesis, corporations are likely to finance all positive NPV projects and will keep investing until the marginal return on investment equals the marginal cost. In reality, businesses could encounter certain funding obstacles that restrict managers' capacity to complete all projects with positive net present value [53]. Prior research has demonstrated that capital market frictions can cause a firm to deviate from its optimal investment strategy, which can then lead to either an underinvestment or an overinvestment [17]. The phenomenon of overinvestment arises when managers opt to invest inefficiently by selecting unfavourable projects with the intention of expropriating the resources of certain enterprises. On the other hand, the underinvestment phenomenon happens when businesses with limited funding pull out of profitable ventures because it is too expensive to raise funds [10]. A wide range of distortional forces and frictions have been extensively studied by academics as barriers to optimal investment levels [95]; [99]. To be more explicit, agency difficulties and information asymmetry are the two types of friction that have been highlighted in earlier empirical and theoretical research as being the most important for investment efficiency. [77] as well as claimed that knowledge asymmetry between management and shareholders can have an impact on project selection and fund raising costs. Whenever managers have inside knowledge that equities are overpriced, they want to issue fresh ones. Investors discount newly issued securities because they are aware of this knowledge asymmetry. Even when declining good investment prospects, managers may reject to raise capital at a discount. The result will be underinvestment since information asymmetry will impede efficient investment. This argument has been supported empirically by numerous additional researches in addition to this theoretical one [67]. The agency view contends that managers are self-interested in contrast to the information asymmetry approach, which suggests that managers operate in the best interests of shareholders [16]. By selecting investment opportunities that are not consistently in the best interests of shareholders, they frequently aim to maximize their personal welfare [56]. Poor project selection brought on by agency issues is likely to exacerbate investment inefficiency. However, investors expect that resources may be taken from them, which might make raising money more expensive. According to [57] prediction, empire building, for example, leads managers who have free cash flow to overinvest; this is particularly true if shareholders are not keeping an eye on the managers. The agency view is a fundamental source of investment inefficiency, as confirmed by empirical investigations conducted by [11] and [66]. In this work, we draw upon research demonstrating that corporate social responsibility is related to lower levels of agency conflict and information asymmetry [87]; [61]; [23]; [30]. As a result, we go over how CSR contribution increases investment efficiency

2.2. Corporate Social Responsibility (CSR)

Academic study on CSR has become increasingly prevalent. Numerous academics have proposed links between high CSR involvement and increased earnings [31]; [92] as well as firm value [59]; [58]; [89]. Additionally, socially conscious companies follow higher moral standards and provide better quality accounting information [64]. These factors reduce financial risk and facilitate financing [13]; [54]; [19]. These findings suggest that companies with high levels of corporate social responsibility may benefit

from more hospitable business environments [85]. Therefore, [7] and [24] conjecture that high levels of corporate social responsibility are linked to high investment efficiency.

On the other hand, CSR initiatives could lead to stakeholder conflicts of interest [61]. Managers' reasons for participating in CSR are rarely linked to their own interests or the interests of society because of the lack of validity and reliability in CSR information [74]. A plausible interpretation for this outcome could be that management has a tendency to utilize CSR as a cover for their wrongdoings [48]. This can result in agency difficulties, or conflicts of interest between shareholders and management. Consequently, the adoption of CSR, according to [71] and [7], would raise operating expenses and exacerbate agency issues between shareholders and management. There is no doubt that a company's resources may be misused as a result of CSR involvement [101]. Therefore, CSR might have a negative impact on investment efficiency and lower the value of the company. Research studies that specifically address the effect of CSR on investment efficiency in developing markets, such as Nigeria, are scarce. Most of the publications that do exist do so in the developed market of the United States. This paper's goal is to evaluate how CSR affects Nigerian companies' investment efficiency.

2.3. CSR and Investment Efficiency

Capital structure irrelevance argument asserts that businesses should consider the potential return on investment while making investment decisions [76]. Businesses could fund initiatives with NPVs and keep doing so until the investment's costs and benefits equalize [47]. According to the still-debated [76] theory of capital structure irrelevance, firms are unlikely to complete all projects with positive NPV due to financing constraints and capital market frictions [53]; [17]. Specifically, agency issues and information asymmetry are two significant elements that contribute to investment inefficiency [73]; [18]; [42]; [52]. Agency problems, which state that conflicts of interest between shareholders and managers may lead to managers making unsuitable investment decisions out of self-interest, which results in investment inefficiency was discussed by [56]. There is also the concept that asymmetric information regarding enterprises' funding difficulties is produced by adverse selection. Due to financial limitations, managers are incentivized to drop positive NPV investment initiatives [10], leading to investment inefficiencies. Market frictions can increase investment inefficiency, according to a summary of views on information asymmetry, agency issues, and inefficiency in investments. Nevertheless, a crucial element was overlooked in many of the previously mentioned studies: CSR refers to businesses' on-going pledge to uphold the highest moral standards of behaviour, support economic growth, and enhance the standard of social life [52]. Businesses that engage in a high level of CSR typically enjoy better reputations [35]; [40]. Additionally, CSR involvement can lessen investment inefficiency brought on by agency expenses [3]; [43] and alleviate agency conflicts resulting from free cash flow [72].

Information asymmetries within businesses can be lessened by implementing CSR [4]; [23]. Furthermore, [64] stated that ethical standards, earning management, and accounting quality should all be greater in socially conscious organizations. According to [41], these companies also have greater financial reporting openness and better financial disclosure. More significantly, CSR involvement was observed by [7] to reduce investment inefficiency among US enterprises between 1998 and 2012. [24] Investigated the impact of CSR on investment efficiency in US enterprises from 1992 to 2009 and discovered a substantial negative correlation between CSR and investment inefficiency in US firms. [21]

countered that CSR is a pretense for resource waste by businesses, which increases agency issues and information asymmetry. Managers' motivation for implementing CSR is evidently the ambiguous status due to the poor reliability and validity of CSR information, according to the selfish interest motivation perspective [71]. Consequently, managers' morality may have an impact on CSR efforts, which could lead to knowledge asymmetry and higher agency costs [69]. According to the theory of shareholder wealth maximization, managers should aim to maximize shareholder wealth [38]; [56]. Nevertheless, CSR initiatives exacerbate agency problems because managers may put their own interests ahead of the interests of their firms, putting them at a financial disadvantage [26]; [61]; [97] or by allocating more internal resources [6]; [68]. According to the perspective of firm resources, CSR initiatives increase expenses, squander company resources, and lessen profits control, which results in subpar business performance and an increase in agency conflicts between managers and shareholders [6]; [50]; [74]. More asymmetric information may also result in the use of CSR as a cover for corporate wrongdoing and managers' tendency to hoard unfavourable news [48]. According to existing research, agency issues and information asymmetry are more likely to develop as a result of CSR implementation, which will increase investment inefficiency. Previous research mostly focuses on how corporate social responsibility affects investment efficiency in developed US markets. This paper builds on previous research to examine the connection between CSR and investment efficiency in Nigeria's rising market using investment efficiency as dependent variable and CSR as independent variable. The findings of this study can help businesses and investors that want to cut back on unproductive investment in emerging markets. Thus, this study's null hypotheses are as given below:

H_1 = Investments Efficiency is not interrelated with CSR performance

2.4. Leverage ratio (Lev)

Capital structure and investment are both significant business considerations. A company's constant goal is to maximize investment efficiency and to position its capital structure at the highest possible point in the firm's value chain. When a profitable company has excess cash flow and external funding is readily available, managers may overinvest due to overconfidence or opportunism in an attempt to grow its size by funding projects with extremely low or negative net present value, even at the expense of equity holders [80]. To curb these detrimental practices, shareholders may restrict cash flow and compel managers to turn to debt financing. Managers are more hesitant to commit these funds to unprofitable projects because of the commitment and weight of interest and debt repayment [27]. Hence, company's constant goal to maximize investment efficiency could be realized. Debt is thought to serve as an effective instrument for controlling the over-investment phenomena and lowering agency difficulties. It is for this reason leverage is included in this study as a control variable to study nexus between Corporate Social Responsibility and Investment Efficiency among Deposit Money Banks in Nigeria.

2.5. Return on Asset (ROA)

One of the most popular profitability ratios is ROA, which indicates the rate of return to the company's creditors and investors [83]. It is connected to asset turnover as well as profit margin. ROA is a measure of a company's cost and resource management effectiveness. The ROA of a corporation is computed as a percentage by dividing its annual earnings by its total assets. "Return on investment" is another term

used to describe this [32]. Investors should weigh a firm's return on assets (ROA) against its potential risk characteristics, industry norms, and future growth possibilities when assessing potential investments. Investors should analyze a firm's return on assets (ROA) in light of its risk profile, standard practices, and future growth potential [40]. Firms with an edge over their competitors in their industries, a solid track record of financial stability, and a high return on assets (ROA) should be the focus of investors. Investors who want to make wise investment decisions must understand a return on assets or ROA [40]. Investors can evaluate a firm's effectiveness in turning a profit by looking at this financial ratio but it's important to take into account ROA along with additional financial indicators and industry- and company-specific factors. To maximize returns and minimize risks, making well-informed investment decisions necessitates a thorough analysis of a variety of factors, including Return on Asset, Leverage (i.e. the risk on investments), the size and age of the firm. [14] Opined that the leverage–investment relationship is influenced by the size and age of the firm. According to their findings the two elements can lessen the detrimental effects of debt on investing activities. Hence, size and age of the firm are also included as part variables used in this study.

3.3. Underpinning Theories

3.3.1. Agency Theory

The conventional Agency Theory (AT) basis contends that the division of control and ownership of a firm may lead to situations where shareholders' and managers' interests conflict [56]. Lack of information candour is the root of the issue, as managers may be more acquainted with information than stockholders about the company. Lack of information candour may lead to a moral hazard issue, which happens when managers follow their own goals and utilize firm assets for their gain and these include salary and benefits of grabbing, avoiding duty of care, creating an empire for themselves, etc. Possible problems arise when a manager's CSR objectives diverge from shareholders' and these can affect both the firm's financial performance as well as investment efficiency [2]; [9]; [94]; [96]; [57]. According to [70] in situations where shareholders' and managers' interests' conflict, their perspectives on the risks associated with investment projects vary. The objectives of the manager are frequently reflected in firm investment behaviour, as opposed to the agency problem of maximizing shareholder value. Since they are the ones in charge of the day-to-day operations of the firm and are therefore the true managers, the objective function of the manager is different from that of the shareholder [70]. The actions of managers are restricted by the shareholders' oversight because of the asymmetric information and incomplete contracts between the shareholders and the manager which will lead to self-interested behaviour. Information asymmetry-induced adverse selection will put businesses in financial straits. Due to financial limitations, the enterprise's investment level will be lower than it would be otherwise; in other words, it will be comparatively insufficient. Managers will not consider investment projects' net present value when allocating funds to maximize their returns. A circumstance in which overinvestment would result from the net present value [56]. It is for these reasons and more that this study adopts the agency theory to study the effect of CSR on investment efficiency among DMBs in Nigeria. When it comes to CSR, agency problems are best defined as managers' incentives to engage in CSR at no profit for the shareholders or that does not benefit shareholders because of divergent interests, which is made possible by imperfect contracts and the division of ownership and control. The mind-set that puts one's interests ahead of those of others is a crucial aspect of this problem, as evidenced by the descriptions of conflicts

of interest provided above. This may eventually serve as a prelude to any deviations made by the manager to further their own goals and disregard the interests of the owners of the firm [56]. It is for these reasons and more that this study adopts the agency theory to study the effect of CSR on investment efficiency among DMBs in Nigeria.

3.3.2. Legitimacy theory

Legitimacy theory states that businesses operating near a community have a social contract in which they consent to carry out their social rewards in exchange for gaining support for their objectives that are judged appropriate in light of public expectations [46]; [84]. It is difficult to define the idea of the social contract [28]. This idea is typically used to symbolize the inherent and stated expectations that the public has about the proper way for a firm to operate. According to this theory, businesses that want to establish credibility in the community where they operate will be eager to share information regarding their CSR initiatives. If they feel they have done a good job representing their companies, they will divulge information. Also, research indicates that CSR will increase a company's long-term success by fostering commitment, trust, and a positive image. According to [36], this will ultimately boost performance, draw in resources, and strengthen company values. The interpretation of this study using legitimacy theory demonstrates that companies that exhibit transparency in their social information presence will be able to legitimize their place in the community, which will undoubtedly have a positive effect on the company's ability to survive. It is for these reasons and more that this study adopts the legitimacy theory to study the effect of CSR on investment efficiency among DMBs in Nigeria.

3.3.3. Stakeholder theory

Stakeholder theory states that people anticipate corporate actions to be carried out with consideration for the local population's interests in carrying out their socioeconomic functions. Since businesses are expected to meet their operational goals following the norms, values, and procedures specific to the business models in which they operate, there is a strong correlation between stakeholder theory and CSR. According to this theory, businesses will be accountable not just to their stakeholders but also to the broader public that they interact with. Stakeholders' rights, including those of the local populace, workers, and other parties involved, are to be upheld. Put another way, businesses need to understand that the interests of all current stakeholders must be served by their operations in addition to their own. With this effort, the companies can truly benefit from these different resources. According to stakeholder theory, stakeholders are people who are motivated to please parties who are not on the firm's premises [44]. The satisfaction of the interests of diverse stakeholders is crucial, and acknowledging that fact will benefit firms in several long-term ways. This clarifies how the stakeholder theory and CSR practices are related. Stakeholder theory also consistently supports the relationship between investment efficiency and CSR. Indeed, according to [25], the firm will lose out on profit opportunities if it fails to live up to stakeholder expectations, as stated by [37] which likely arouse market fears. In addressing the implicit claims made by stakeholders, a company's financial performance rises; this is probably because of effective investment management. High CSR companies that take stakeholder expectations into account are likely to improve their financial performance through investment efficiency. Additional support for this claim is provided by [102], who investigate the implications of superior management theory as an extension of stakeholder theory. [102] assert that high social performance is a by-product of managerial

and strategic skills that enhance financial performance. The supply of resources not required for other purposes is the main factor in determining the short-term distribution of resources to CSR initiatives. CSR projects are only launched when the benefits exceed the disadvantages. Companies' practical CSR decisions are primarily influenced by the resources at their disposal, even though they aspire to adhere to the principles of sustainable investment. This is particularly true because businesses' social and environmental initiatives are correlated with their desire to gain a competitive advantage. This study objective is to builds on previous research to examine the connection between corporate social responsibility (CSR) and investment efficiency in Nigeria's rising market using investment efficiency as dependent variable and corporate social responsibility (CSR) as independent variable.

4. METHOD

This study used *expo facto* research design in line with [88]. It made it easy to collect and analyze quantitative data. The use of a quantitative research methodology made it simpler to examine relationships between variables that can be numerically quantified and evaluated, using a variety of statistical techniques that guarantee generalization [91]. The population for this work comprised 23 DMBs on the NGX as of the end of the accounting year 2021. A total of ten (10) DMBs will be purposively selected as a sample. Secondary Data were gathered specifically from DMBs audited annual financial reports over ten (10) years between 2012 and 2021.

Model Specifications

This objective determines the effect of CSR on the efficiency of investment. In line with previous study the investment efficiency model leveling on Cash Flow as a measuring variable used in financial activities [60]. To achieve this objective, CSR-specific variables, and control variables with investment efficiency were adopted from relevant studies reviewed [8]; [60]. The model for the achievement of the objective is as follows:

Investment Efficiency = F (CSR, ROA, LEV, SIZE, AGE)

$$IE_{it} = \beta_0 + \beta_1 CSR_{it-1} + \beta_2 ROA_{it-1} + \beta_3 LEV_{it-1} + \beta_4 SIZE_{it-1} + \beta_5 AGE_{it-1} + \varepsilon_{it}$$

Variables and Measurement

Variables	Description	Measurement	Source
DEPENDENT VARIABLE			
Investment Efficiency (IE)	Net Cash Flow from financing activities. Deficit or surplus cash flow from financing activities. It is function of growth opportunities.	Ratio of net cash flow from (/used in) financing activities. The proxy is used because an increase or decrease in the net cash flow used in financial activities affect the return on investment and level of investment. In other words, negative net cash flow from financing activities shows	[21];[20];[22]; [77]

		inefficiency on such financing activities while positive net cash flow from financing activities is an indicator of efficiency in investment. This method was also used by [55] in their studies. The method is not complex and ambiguous compared to overinvestment and underinvestment method, which is subject to net present value of projects [75]. This alternative proxy was not used because of non-disclosure of projects embarked upon by the companies in their annual reports.	
INDEPENDENT VARIABLE			
Corporate Social Responsibility (CSR)	Corporate social responsibility parameters (e.g. CSR, local community disclosure, education sponsorship disclosure, art and culture sponsorship disclosure, among others,), and other relevant investment efficiency	The sum of the overall scores for each of the nine domains of CSR: Local Community Disclosure, Education Sponsorship Disclosure, Art and Culture Sponsorship Disclosure, Sport Sponsorship Disclosure, Public Health Sponsorship Disclosure, Donation and Gift Disclosure, Health and Safety Disclosure, Workforce Gender Diversity (Female Workforce) Disclosure, Customer and Complaints Disclosure	[12]
CONTROL VARIABLES			
Leverage Ratio (LEV)	Use of debt (borrowed capital) in order to undertake an investment or project. Proportion of total book value of liabilities to total book value of assets.	It is measured as leverage ratio (total debt to shareholders equity) and level of risk in investment affects investment efficiency because lower leverage can lead to firms to overinvest.	[103]; [28];[65]; [100] [63]
Return on Assets (ROA)	It is accounting ratio that demonstrate skill and efficiency with which management utilized business resources to increase inventory turnover and generate profit.	Ratio of profitability of company's assets in terms of generating revenue.	[65]; [100] [98];[22].

Firm (Age)	Age	The duration of company's existence since its creation or registration.	Ratio age of incorporation of the company.	[103]; [65]; [100]; [98].
Firm (Size)	Size	Both fundamental characteristics and market value, or capitalization, are used to measure it. It is measured by dividing stock price of listed company by total number of outstanding shares.	Measured as natural logarithm of total assets.	[65]; [100]; [98].

5. RESULTS

5.1 Redundant Fixed Effects Tests

These tests examine the need for including fixed effects in the model. The output shows two tests - Cross-section F and Cross-section Chi-square as given in Table 1. Both tests indicate that there is a significant need for including fixed effects in the model as p-values are less than 0.05.

Table 1: Redundant Fixed Effects Tests

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.225543	(10,99)	0.0158
Cross-section Chi-square	27.943121	10	0.0056

5.2. Correlated Random Effects - Hausman Test

This test compares the efficiency of fixed effects and random effects models as given in Table 2. The

output shows that fixed effects model is more efficient than random effects model as Chi-Square statistic is significant ($p < 0.05$).

Table 2: Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.594125	5	0.0184

5.3. Lagrange Multiplier Tests for Random Effects

These tests examine the need for including random effects in the model as given in Table 3. The output shows three tests - Cross-section, Time, and Both. All three tests indicate that there is no need for including random effects in model as p-values are greater than 0.05.

Table 3 Lagrange Multiplier Tests for Random Effects

	Cross-section	Time	Both
Breusch-Pagan	0.450298	0.098358	0.548657
	(0.5022)	(0.7538)	(0.4589)

5.4. Panel Cross-Section Heteroskedasticity LR Test

Cross-section of a Panel LR Test for Heteroskedasticity: This test determines if the model's residuals exhibit heteroskedasticity. Given that the p-value (0.7999) is higher than 0.05 as given in Table 4, the result indicates that there is no proof of heteroskedasticity.

Table 4 Panel Cross-Section Heteroskedasticity LR Test

	Value	df	Probability
Likelihood ratio	32.74781	10	0.7999

5.5. Arellano-Bond Serial Correlation Test

This test examines whether there is serial correlation in the residuals of model. The output shows there is no evidence of serial correlation as p-values (0.0955) for AR(1) and p-values (0.0955) for AR(2) are both greater than 0.05.

Table 5 Arellano-Bond Serial Correlation Test

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-2.234107	-286.223727	128.115522	0.0955
AR(2)	-1.348790	-424.898377	315.021936	0.1774

5.6. Regression analysis

Based on the findings of the model specification test as given in Table 6, it was determined that a fixed effects model would fit the data and that random effects would not be necessary. The results of the model specification test indicated that random effects were not required and that a fixed effects model would fit the data. Thus, the research analyzes the fixed effect model's results. Table 6 shows an R-squared of 0.405623, the independent variable in the model account for 40.56% of the variability in investment efficiency. A little less than the R-squared value, or 0.286386, is the adjusted R-squared value. The F-statistic is 6.563163, and the corresponding p-value is 0.000000. This implies that at least the independent variable in the model plays a significant role in explaining the variation in investment efficiency.

Table 6 shows that CSR reports have a negative coefficient value of -2.734269, which is statistically significant (p-value= 0.0178) at the 5% level of significance. It means CSR reports and investment efficiency are negatively related. The result shows that, when every other variable are held constant, an increase in CSR results in a 2.734269 unit decrease in investment efficiency. Hence the null hypothesis (H_0) that efficiency of investments is not interrelated with CSR performance is rejected and the alternative hypothesis that efficiency of investments is interrelated with CSR performance is accepted

Table 6 also shows that the ROA has a positive coefficient value of 1.076975, which is statistically significant (p-value = 0.0410) at the 5% level of significance. It means ROA and investment efficiency are positively related. According to the coefficient, when all other factors remain constant, the investment efficiency rises by 1.076975 units for every unit increase in return on assets (ROA). The outcome shows that ROA improves the Nigerian banks' investment efficiency. Hence the null hypothesis (H_2) that is efficiency of investments is not interrelated with ROA is rejected and the alternative hypothesis that efficiency of investments is interrelated with ROA performance is accepted

In addition, Table 6 also shows leverage on investments has a positive coefficient value of 0.068324 which is statistically significant (p-value of 0.0466) at the 5% level of significance. It means leverage and investment efficiency are positively related. According to the coefficient, when all other variables are held constant, investment efficiency rises by 0.068324 units for every unit increase in firm leverage. Hence the null hypothesis (H_3) that efficiency of investments is not interrelated with leverage on investments is rejected and the alternative hypothesis that efficiency of investments is interrelated with leverage on investments is accepted.

Table 6. Regression Result

	Pooled OLS			Fixed Effect Model			Random Effect Model		
	Coeff.	t-value	p-value	Coeff.	t-value	p-value	Coeff.	t-value	p-value
ROA	-0.133468	-0.318980	0.7503	1.076975	2.070194	0.0410	0.118555	0.284450	0.7766
SIZE	-1.773446	-1.044654	0.2985	0.887976	0.255307	0.7990	-2.053508	-1.153454	0.2512
AGE	-0.259191	-0.249521	0.8034	1.717850	0.407647	0.6844	0.015927	0.013995	0.9889
CSR	-4.498758	-0.919423	0.3599	-2.734269	-2.402338	0.0178	-4.030546	-0.871059	0.3856
LEV	0.065230	2.111694	0.0370	0.068324	2.015360	0.0466	0.066126	2.188621	0.0307
C	14.52615	0.917650	0.3608	19.60153	0.699831	0.4857	15.49465	0.940415	0.3490
R-squared	0.118305			0.405623			0.087849		
Adjusted R-squared	0.078590			0.286386			0.046762		
F-statistic	2.978789			6.563163			2.138086		
Prob(F-statistic)	0.014613			0.000000			0.066089		

6. Discussion

In this study, it was discovered that CSR had a negative effect on the investment efficiency of banks in Nigeria. One possible explanation for this finding could be that CSR activities involve significant financial and organizational resources that may divert attention and resources away from core business activities, such as investment. In other words, banks that invest more resources in CSR activities may be sacrificing investment efficiency to enhance their social and environmental performance. Additionally, the negative effect of CSR on investment efficiency may also be driven by stakeholder pressures. Banks in Nigeria, like in many other countries, face growing pressure from stakeholders, including customers, employees, regulators, and civil society organizations, to adopt more socially and environmentally responsible business practices. In response to these pressures, banks may be investing more resources in CSR activities to improve their reputation and maintain their social license to operate, even if these activities come at the expense of investment efficiency. It is worth noting that this finding is in line with some previous research that has also discovered a negative relationship between CSR and financial performance in the banking industry [82]; [33]. However, the negative relationship between CSR and investment efficiency negates the findings of [93] as well as [104].

The finding that there is a positive effect of return on assets on the investment efficiency of banks in Nigeria is consistent with previous research on the relationship between profitability and financial performance in the banking industry. The finding is similar to [81]. This finding suggests that banks with higher levels of profitability are more likely to make efficient investment decisions that enhance their overall financial performance. Also, the finding that there is a positive effect of leverage on the investment efficiency of banks in Nigeria is somewhat counterintuitive, as it suggests that banks that take on more leverage are more likely to make efficient investment decisions that enhance their overall financial performance. One possible explanation for this relationship is that banks that take on more leverage are more likely to invest in high-risk, high-reward opportunities that have the potential to generate higher returns. Additionally, banks that are more risk-tolerant may be more likely to pursue innovative investment strategies that can lead to higher investment efficiency. However, it is significant to note that the relationship between leverage and efficiency of investment is complex and may depend on a variety of factors, including the nature of risks being taken, risk management practices of the bank, broader economic and regulatory environment. This finding indicates that banks should carefully evaluate their risk appetite and risk management practices when making investment decisions, and should seek to balance the potential benefits of higher-risk investments with the need to maintain a stable and sustainable financial position.

7. Conclusion

The purpose of this study is to examine the relationship between Investment Efficiency and Corporate Social Responsibility. The finding of this study shows that CSR has a negative impact on the investment efficiency of banks in Nigeria. Also, the finding of this study shows that ROA has a positive impact on the investment efficiency of banks in Nigeria. Similarly, the finding of this study shows that leverage on investments has a positive impact on the investment efficiency of banks in Nigeria. This study concluded that CSR had an important effect on the investment efficiency of Nigerian DMBs. In light of the above, the study recommends, that banks should balance their CSR activities with their investment goals to

improve their investment efficiency. While CSR is important, it should not be at the expense of the bank's profitability and long-term viability. The study has been successful in shedding light on the effect of CSR on investment efficiency among DMBs in Nigeria.

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